



Ethnoscience Integrated Flipbook Learning Media on Living Things Classification Materials

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Abstract: Many researchers have developed learning media. However, learning media with ethnoscience content in Betawi is still little developed. This study aims to develop learning media flipbooks with ethnoscience content on the classification of living things. The research method used was the ADDIE development method. The results showed that the feasibility test on media development was declared very valid by media and material experts with a percentage of 91.30%. While the feasibility test conducted by respondents was declared very valid as well, with a percentage of 87.63%. In accordance with the eligibility criteria table, it can be concluded that the ethnoscience-integrated flipbook learning media is declared very feasible to use in learning the Classification of Living Things material. The implication of this research is that the ethnoscience-charged media developed can be used in biology learning. In addition, the ethnoscience-integrated flipbook media can introduce Betawi local wisdom to students. However, ethnoscience-integrated flipbook learning media have not been tested for effectiveness. Research is needed to test the effectiveness of ethnoscience-integrated flipbook learning media.

Keywords: development, learning media, indigenous knowledge betawi, classification

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INTRODUCTION

The theme of local wisdom in the independent curriculum is one of the themes that can be integrated into learning science, especially biology. This theme is adapted to the characteristics of the student's own area so that students are expected to recognize their own culture and have an attitude of respect and be able to preserve their culture. Local wisdom can be integrated into learning, one of which is by using an approach, namely ethnoscience. Ethnoscience is an approach that must be given to students to be able to apply learning optimally which is integrated with the culture in the surrounding community. Learning with an ethnoscience approach is very important because Indonesia has various tribes and cultures that need to be preserved (Sudarmin, 2015; Hadi & Ahied, 2017). Indonesia is known to have various tribes and rich cultures. One of the tribes in Indonesia, namely the Betawi tribe, whose majority of the population lives in Jakarta. The Betawi people, besides having unique traditional culinary and unique cultural varieties, are also known for their belief in medicinal plants with good ingredients and properties for the body. In addition, Ethnoscience is an approach that can be integrated with Biology learning. This term is something new for Biology teachers in learning (Festiye et al., 2022; Elvianasti et al., 2023).

In this modern era, many students are not familiar with Indonesian culture or local wisdom, especially the culture around where they live. According to Nuralita (2020), students are more familiar with foreign cultures and do not understand Indonesian culture and local wisdom, so students' sense of nationalism begins to fade. So that this causes the feeling of love for the homeland to decrease. The possible cause of this problem is that the learning is boring because the presentation is monotonous, dominated by lectures, notes, and memorization (Puspasari et al., 2019). Because of this, it is very necessary to instill a sense of love for the culture that we have in students so that culture does not fade with the times. One of the things that must be done is to integrate culture into learning that has been included in the independent curriculum. Ethnoscience in learning can be integrated into one of them in the form of learning media. Sardjiyo (2005) states that ethnoscience is a program to create a learning process by integrating culture into it (Pertiwi, 2019). Shidiq (2016) and Rikizaputra et al. (2021) state that studying ethnoscience encourages teachers and education practitioners to use cultural knowledge and local wisdom in teaching science to students. According to Azizah (2021), ethnoscience research is the combination of science and culture of local communities in a certain area.

Learning media play an integral component in educational and learning activities (Tafonao, 2018). The primary purpose of educational media is to serve as a teaching tool that helps teachers motivate students and influence the learning environment they create (Mukti, 2017). Many types of learning media with an ethnoscience basis have been developed, but there are not many of them (Wati et al., 2021; Fiteriani, 2021).

According to Warista (in Kodi et al., 2019), flipbook media has advantages over other learning media because flipbook media not only presents a combination of texts but also attempts to include animation, video, sound, and so on. Flipbooks can be grouped into sound slide media, which is a type of audio-visual media (Amanullah, 2020). The ability to offer instructional material in the form of words, sentences, and pictures, the ability to be colored to grab students' attention, the ease and low cost of production, and the ease of portability are all additional benefits of flipbooks. Another advantage of flipbooks is that they help improve students' mastery of abstract matters or events that cannot be presented in class (Andarini et al, 2013). For the classification of living beings based on the traits they possess, material considerations must be made. The five kingdoms classification system is the one that is most frequently employed. This study is concentrated on the plant family (Plants). The classification of plants according to their morphological and anatomical traits is covered in Kingdom Plantae. Therefore, in the learning process, the physical form of the plant is needed so that students can identify the characteristics they have. The research conducted by Aprillia et al. (2016) states that posters of the nutritional content of apples (*Malus sylvestris*) which are traded in the city of Pontianak are suitable for media use. learning on food substances class XI SMA. Another research carried out by Ningsih (2021) concludes that poster learning media is very effective for educational purposes. The developed learning multimedia can not only improve students' understanding of concepts (Djamas et al., 2018; Nursuhud et al., 2019) and motivation (Endris & Suhartini, 2022). However, it can develop student character (Septiani et al., 2020). Considering needs analysis and the independent curriculum which contains one of the themes regarding local wisdom, there are not many studies that apply local wisdom. The researchers want to develop learning media with ethnoscience content because there are still very few learning media with ethnoscience content in Betawi. Therefore, there is research interest in carrying out research on the development of flipbook instructional media containing ethnoscience on the Classification of Living Things. The development of flipbook learning media aims to create educational media that can be used effectively for class X high school in biology learning.

METHODS

The Development Method with the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model was the research methodology employed (Sugiyono, 2008). The analysis is related to analyzing a condition to identify items that need to be developed. Designing a product is the activity of design. The process of creating and evaluating things is called development. Implementation is the activity of using the product. Evaluation is an activity to assess whether each step of the activity and product is following the specifications or not.

The steps for developing this poster learning media used the ADDIE development design. The steps were as follows: (1) Analysis Phase: An analysis of the field conditions and participants was conducted at this stage, as well as a collection of material references that would be the focus of debate during media production (curriculum, learning outcomes, and learning objectives flow). Additionally, a study of Betawi culture was conducted to gather information for creating educational media; (2) The design stage, or the learning media design stage, namely the formulation of objectives for making learning media, and collection of design objects (collecting material and images and compiling appropriate test instruments); (3) Development Stage: After the media had been created, one instructor and two lecturers validated the outcomes of the developed learning media; (4) Implementation Step: At this stage, class X students at SMA Negeri in Jakarta began using the newly created learning materials; (5) Evaluation Stage, specifically in the form of data analysis from learning media respondents and validation data analysis from media professionals and subject matter experts.

A questionnaire made up of instrument validation sheets, media validation sheets, and pragmatic tools for learning media was the data-gathering method employed. In class X SMAN in Jakarta, the Classification of Living Things material was linked with ethnoscience, and the data analysis method used was descriptive analysis to describe the validity and applicability of the flipbook learning media. The research results from data analysis techniques are described as follows: (1) Product Validity Analysis that is seen is construct validity. Validity analysis was carried out using a Likert scale of 1-4.

Table 1. Scoring Using a Likert Scale

Score	Category	Percentage of Achievement Indicator
1	Strongly Disagree (STS)	0-25
2	Disagree (TS)	26-50
3	Aggree (S)	52-75
4	Strongly Agree (SS)	76-100

The score that has been obtained was searched for the percentage using the equation:

$$\text{Eligibility Percentage} = \frac{\text{obtained item scores}}{\text{maximum score}} \times 100\%$$

The table shows the category of learning device validity based on the final score attained on a scale (0-100).

Table 2. Categories of Learning Media Validity

Interval (%)	Category
0-20	Completely Invalid
21-40	Invalid
41-60	Less Valid
61-80	Valid
81-100	Completely Valid

(2) Practicality Analysis of Learning Media, in the form of a questionnaire of teacher responses and student responses. The teacher's response questionnaire is related to the practicality of using the learning media made. The final data calculation of the questionnaire results is analyzed on a scale (0-100) which is calculated using the formula:

$$\text{Eligibility Percentage} = \frac{\text{obtained item scores}}{\text{maximum score}} \times 100\%$$

Criteria for student responses and teacher responses based on the final scores obtained can be seen in the table.

Table 3. Response Questionnaire Criteria

Interval (%)	Category
0-20	Completely Invalid
21-40	Invalid
41-60	Less Valid
61-80	Valid
81-100	Completely Valid

RESULT AND DISCUSSION

Learning Media Development Results

The ADDIE Model and the Development Method are both used in this study. The following are the actions that have been taken. Phase 1: analysis. At the analysis stage, an analysis is done of the field circumstances and participants as well as a gathering of sources for information that will be discussed in media development. The analysis is done to determine the necessity for creating learning media, the specifications for creating learning media, and the standards for media efficacy. The findings of observation activities conducted during the implementation of PLP 2 in 2022 in learning activities on Class X Class of Living Things at SMA Negeri Jakarta provided information about the learning process, student characteristics, and the development of learning media. The amount of content that pupils must comprehend is one of the findings from the observation activities. Based on the results of the observation activities, the development of flipbook instructional media integrated with ethnoscience was carried out as a learning tool for Class X students of SMA Negeri Jakarta. The next activity is to collect references in the form of curriculum, subject syllabus, as well as books related to material, and others needed in the development of learning media. The results of the analysis of the curriculum, learning outcomes, and the flow of learning objectives are the target of development. The main material of the learning outcomes is the Classification of Living Things.

Flipbook learning media designed to contain Betawi local wisdom related to traditional medicines that are still used by the Betawi people, namely: 1) *Orthosiphon aristatus* (cat's whiskers), this medicinal plant has various bioactive properties such as antioxidants (Alshehade et al., 2023), anti-inflammatory, antimicrobial / anti-bacterial (Wahab & Chua, 2023), anti-inflammatory, antihypertensive, analgesic (Chai et al., 2014); 2) *Andrographis paniculata* (Sambiloto leaf) also has antioxidant properties (Patin et al., 2018), and antihyperglycemic (Sari et al., 2020); 3) *Piper betle* L (betel leaf) has properties such as anticancer (Biswas et al., 2022), anti-allergic, anti-malarial, anti-filarial, antibacterial (Sarma et al., 2018), antifungal, insecticide, antioxidant (Sakinah & Misfadhila, 2020), anti-diabetic, digestive protective, cytotoxic, anti-platelet, wound healing (Zar'ah & Kusmiyati, 2021), chlorophyllase activity, oral hygiene, and anti-asthma effects (Patra et al., 2016); 4) *Averrhoa bilimbi* L (starfruit) can be useful for the treatment of several diseases such as coughs, cardiovascular diseases such as hypertension, diabetes, hypercholesterolemia and dyslipidemia (Saraswati et al., 2018); 5) *Jatropha curcas* L. The leaves are used to cure flatulence/colds and constipation. The seeds are used to cure cough and phlegm, the sap is used to

cure toothache; 6) *Morinda citrifolia* is used by the community to reduce hypertension (Sari, 2015); 7) *Clitoria ternatea* (flower butterfly pea) as an antioxidant (Zahara, 2022); 8) *Anredera cordifolia* (binahong leaves) helps wound healing (Ariani et al., 2013); 9) *Strobilanthes crispus* (keji biling) has properties as an antioxidant, anti-diabetic (Ramadhani et al., 2021) and anti-cancer (Ghasemzadeh et al., 2015).

The design phase. The stages of designing educational media include developing the goals for creating educational media following student needs, gathering design elements following the content found in educational media, and preparing instruments to assess the viability of educational media as student learning resources. The ABCD (Audience, Behavior, Condition, Degree) method is used in the purpose formulation process. (A) The instruction we suggest must center on what pupils must do or not do. Behavior (b) is a verb that describes the new skills that pupils must possess following the learning process and must be quantifiable. (c) The ability to indicate learning objectives requires the presence of the condition. (b) A degree is a declaration of intent that lists the standards for achievement. Then the process moves on to the following stage, which is the item collection stage. To make it simpler for pupils to learn the content, it is organized following current references and is cohesive. (b) An image library. Images are collected from a variety of sources and added to learning media to enhance a piece of content. With the aid of the online portal heyzone, all objects are processed using the Canva application to be utilized as instructional media and turned into flipbooks. (b) The creation of mechanisms for due diligence. The tool was created as a questionnaire that was given to media experts, subject matter experts, and responders with the option of providing a checklist-style response.

The Outcomes Phase of Development. Assembling all of the elements, including text and images, into a Flipbook Learning Media using the Canva application, which is then transformed into a flipbook form with the assistance of the online web, is one of the stages of creating the media. Using the heyzone online site, the Canva application's design output is exported as a pdf file and converted into a flipbook. The designs of learning media created by researchers are shown in the table below:



Figure 1. Initial Display of Learning Media



Figure 2. Material Section (Cat's Whiskers)



Figure 3. Back Cover

The validators will validate the findings of the learning media (Lecturer of the Biology Education Study Program). The assessments and recommendations about learning media contained in the questionnaire the researchers submitted are the findings of the validation, and these will be enhanced following the advice of the experts. At the implementation stage, class X students at SMA Negeri Jakarta begin using the newly produced learning materials. Students were given a link to the developed flipbook learning media by the researcher. Students are free to access the learning resources after that. Then, to reply to the learning medium, students were required to complete a respondent's questionnaire that had 17 statements.

The evaluation phase. This stage involved validating the learning media and assessing the data from

respondents to the learning media. Analysis of validation data for learning media derived from the outcomes of validation by media experts and subject matter experts to assess the viability of learning media A teacher from the biology department and two lecturers from the biology education study program served as the examiners for the materials and learning media testing for appropriateness. The viability of the generated learning media's content or materials is assessed using this analysis. A Likert scale with four categories—Strongly Agree = 4, Agree = 3, Disagree = 2, and Strongly Disagree = 1—is employed as the assessment tool. Upon testing,

Table 4. Results of Material and Media Expert Assessment

No	Statement	V1	V2	V3	Total
Content					
1	Conformity of content with Core Competencies and Basic Competencies	4	4	1	9
2	Concept truth	4	4	1	9
3	Conformity of content with the level of understanding of students	4	4	1	9
4	The accuracy of the scope of content/material	4	4	1	9
5	Does not cause misconceptions for students	3	4	1	8
Graphic/Layout Design					
6	Legibility	4	4	4	12
7	The correct selection of the shape and size of the letters used	4	4	4	12
8	Conformity of the title with the description of the picture	4	4	4	12
9	Color combinations	4	4	3	11
10	Size practicality	4	4	3	11
11	There are instructions for using learning media	4	4	2	10
12	There are characteristics of Betawi culture	3	4	4	11
Picture					
13	Image display quality	4	4	3	11
14	The clarity of the image of the content of the material presented	4	4	4	12
15	The accuracy of the selection of images with the material	4	4	3	11
16	The use of pictures in learning	4	4	4	12
17	Compatibility of image placement with related material	4	4	4	12
18	Image suitability with Betawi ethnosience	4	4	4	12
Language					
19	Use of language that is easy to understand	4	4	4	12
20	The choice of words is appropriate	4	4	4	12
21	The use of the term Betawi used is appropriate	4	4	3	11
Ethnosience					
22	The developed flipbook learning media has been integrated with ethnosience	4	4	4	12
23	Ethnosience is important to be integrated into learning biology	4	4	4	12
TOTAL					252

The Feasibility Percentage formula is used to determine the percentage of eligibility based on the evaluation of material and media experts' results, which resulted in a total score of 252 compared to an expected total score of 276. The percentage of eligibility is determined as follows:

$$\text{Percentage of Eligibility} = \frac{252}{276} \times 100\%$$

In the table, the results of the material feasibility test on learning media show that 91.30% of them are Very Feasible for student testing. The findings of filling out the instrument, which was provided to material experts and several students as respondents, in the form of a questionnaire were used to analyze the respondent's data from the study. 37 students from SMA Negeri Jakarta's class X served as the study's subjects. The validity test is started by using the SPSS program to calculate the r_{count} value of each statement item from the questionnaire, which is then compared to the r_{table} . With 37 respondents and a significance threshold of 5% in this investigation, the r_{table} value was 0.325. Table 5 displays the r_{count} results using SPSS.

Table 5. The r_{count} results using SPSS

Statement	r _{count}	r _{table}	Result
Statement 1	0,771	0, 325	VALID
Statement 2	0,720	0, 325	VALID
Statement 3	0,685	0, 325	VALID
Statement 4	0,755	0, 325	VALID
Statement 5	0,556	0, 325	VALID
Statement 6	0,713	0, 325	VALID
Statement 7	0,637	0, 325	VALID
Statement 8	0,688	0, 325	VALID
Statement 9	0,700	0, 325	VALID
Statement 10	0,701	0, 325	VALID
Statement 11	0,751	0, 325	VALID
Statement 12	0,739	0, 325	VALID
Statement 13	0,801	0, 325	VALID
Statement 14	0,792	0, 325	VALID
Statement 15	0,857	0, 325	VALID
Statement 16	0,871	0, 325	VALID
Statement 17	0,700	0,325	VALID

The results of the r_{count} , if the statement items are greater than $r_{\text{table}} = 0.325$ with a significance level of 5% from 37 respondents then the statement items are declared valid, and if the r_{count} results are lower than r_{table} then the statement is declared invalid. It may be inferred from the findings of the data above that, out of the 17 items in the questionnaire, 17 were deemed legitimate and 0 were deemed invalid. Instrument reliability was tested using the Alpha Cronbach technique with the help of the SPSS program. Table 6 contains the results of the Reliability Test.

Table 6. Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.766	13

Table 7. Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.807	6

According to the Cronbach Alpha Interpretation table, the reliability of the instrument value on the variable X r11 (0.766) > 0.7 is included in the high category (reliable). Meanwhile, the variable Y r11(0.807) > 0.7 is included in the high (reliable) category. So, the instrument is declared reliable to be used for research data collection. Data analysis from learning media respondents was obtained from students to determine the feasibility of learning media. The results can be seen in the table.

Table 8. Respondents' Assessment Results

Table 8: Respondents' Assessment Results			
No	Statement	Assessment Score	
		Total Score	Percentage
Material			
1	The material presented in the flipbook is following the learning material	129	87,16%
2	The material presented in the flipbook is easy to understand	132	89,18%
3	The presentation of the material in this flipbook encourages me to have discussions with other friends	116	78,37%
4	The material in the flipbook is based on a clear source	133	89,86%
Language			
5	The sentences used in the flipbook already use the spelling that is following good and correct Indonesian writing rules	126	85,13%
6	The language used in this flipbook is simple and easy to understand	133	89,86%
7	The letters used are simple and easy to read	133	89,86%
8	There is the use of the Betawi language	131	88,51%
Presentation/Media Design			

9	The combination of writing and pictures on the flipbook is appropriate	127	85,81%
10	The presentation of images is clear and attractive	132	89,18%
11	Interesting flipbook appearance	137	92,56%
12	Interesting color selection	131	88,51%
Media Effectiveness			
13	This ethnoscience-based flipbook makes me more enthusiastic about learning biology	126	85,13%
14	The use of this flipbook as a learning medium makes learning biology not boring	129	87,16%
15	This flipbook supports me in mastering biology lessons, especially plant material	128	86,48%
16	The use of ethnoscience-based flipbooks makes biology learning, especially Plantae material more effective and efficient	131	88,51%
17	The use of ethnoscience-based flipbooks makes learning interest even higher	131	88,51%
TOTAL		2205	
Average Number Percentage			87,63%

The percentage of eligibility is determined using the Feasibility Percentage method based on the respondent's evaluation findings, which resulted in a total score of 2205 while the expected score is 2516. The percentage of eligibility is determined as follows, Therefore, 87.63% of respondents believe that learning mediums are feasible, which is included in the table as Very Feasible. The ensuing diagram displays the outcomes.

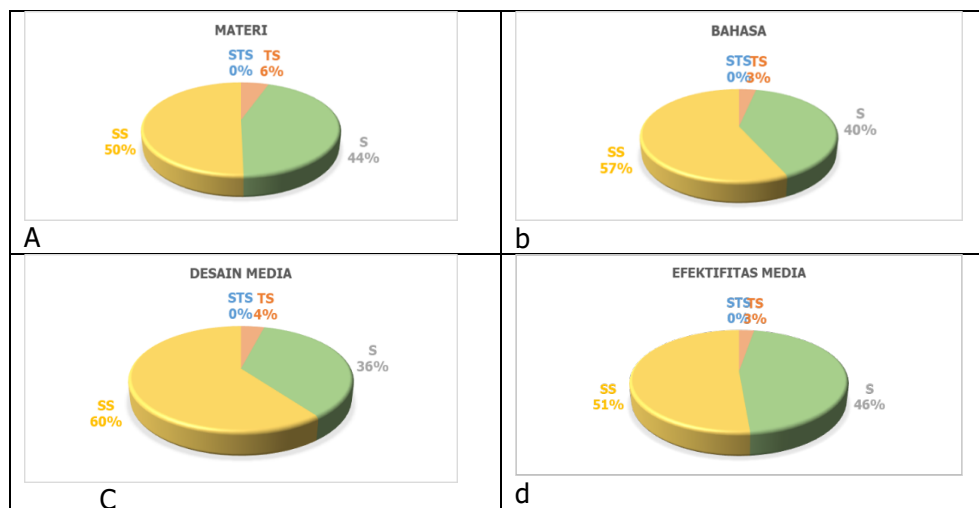


Figure 5. Media Feasibility Test Diagram. (a) Material Aspect, (b) Language Aspect, (c) Media Design Aspect, (d) Media Effectiveness Aspect

Advances in science and technology have a positive impact on the progress of education. Education can take advantage of information technology facilities from the simple to the sophisticated. According to Law No. 20 of 2003 concerning the National Education System in Article 1, the educational process in learning activities will be able to run smoothly, conducively, and interactively, if education is carried out properly to realize active learning and develop the potential of students. And the curriculum is the main support in the teaching and learning process. Currently, the education curriculum in Indonesia applies an independent curriculum. The independent curriculum contains 7 main themes to strengthen the profile of Pancasila students. One of the themes is local wisdom. One of the themes that can be incorporated into the study of science, particularly biology, is the concept of local wisdom in the autonomous curriculum. Learning can include local knowledge in some ways, one of which is through applying a method called ethnoscience. One way to incorporate ethnoscience into education is by creating educational media. The flipbook, which makes use of technology such as animation, video, and music, is different from a conventional printed book. It makes students more interesting and active (Andini et al., 2018). In science learning, flipbooks are valid and acceptable in terms of content, pedagogy, format, and technology. Validators gave a positive impression in the development of this media (Oronce et al., 2021), so it is necessary to develop flipbook media that contains ethnoscience.

The points that have become the goals of the development of instructional media have been obtained,

namely as follows: Learning Media Development. This development uses the development method. The ADDIE paradigm for learning media design has five stages: analysis, design, development, implementation, and evaluation. The analysis step is the initial phase. Specifically, in the form of a study of the participants and the state of the field, as well as a collection of sources for information that will be discussed in relation to media development. The next activity is to collect references in the form of curriculum, subject syllabus, as well as books related to material, and others needed in the development of learning media. The curriculum used in the development of this media is the 2022 curriculum. This curriculum contains the theme of local wisdom in it. The material that will be used as a reference is the Classification of Living Things. In addition to field analysis and material references, an analysis of Betawi culture is also needed to develop learning media. The second stage is Design. The design phase includes the formulation of the objectives of making learning media, collecting design objects, and preparing a feasibility test instrument. The due diligence instrument consists of 2 types, namely validity and practicality instruments. From each of these instruments, there are several indicators such as content/material, media design, language, effectiveness, and ethnoscience contained in the media. The third stage is Development. This stage involves producing and developing learning media from all the prepared parts into a cohesive whole following the made design. After the media has been made, validation is carried out by teachers and lecturers of media experts and material expert lecturers, to obtain input on development accompanied by instruments for evaluating the feasibility of learning media. The fourth stage is implementation. At this stage, the learning media that has been developed are then implemented to class X students of SMA Negeri Jakarta. Before the questionnaire was given to respondents (students), the media that had been developed was validated by 1 Biology teacher and 2 Biology Education Lecturers. Students were then asked to fill out a respondent's questionnaire to provide responses to the learning media that had been developed. The fifth stage is evaluation. The evaluation carried out was in the form of development evaluations carried out by teachers and lecturers as well as evaluations of the feasibility of learning media products by respondents (students). This evaluation will provide data that describes the quality of the learning media product whether it is valid or invalid.

Feasibility of Learning Media. The feasibility of learning media is obtained from the results of due diligence data by material experts, media experts, and respondents. The results of the material expert feasibility data and flipbook learning media that have been developed show that the media that has been developed is included in the Very Eligible (Very Valid) category to be tested on students. The flipbook media can be said to be very valid (very feasible), which is measured from 4 aspects namely content, language, media design, images, and ethnoscience. In terms of content, this flipbook media includes plant materials that are following Core Competencies, Basic Competencies, and Learning Indicators. In terms of language, this media already contains sentences that are following the correct Indonesian writing rules. In addition, the language used is easy to understand. The use of the term Betawi has also been stated in this flipbook media. In terms of media design, color combinations, type and size of writing as well as the suitability of the title with the description of the image are included in this media. In terms of image display, this media already has good image quality. The images contained in this media are also following the related material. In terms of ethnoscience, this media has integrated Betawi culture into it.

While the outcome of the respondent's evaluation data shows that the flipbook learning media that has been developed is also in the Very Eligible (Very Valid) category. Four aspects are measured, namely material, language, media design, and effectiveness. In terms of material, this media already contains material that is following the learning material to be studied. In terms of language, this media already uses good Indonesian according to EYD. In addition, writing the Latin names of plants is also difficult to adapt to the nomenclature binomial nomenclature system. In terms of design, this media already uses a combination of appropriate writing and images, so that the appearance of this media is attractive. In terms of effectiveness, this flipbook learning media makes students not feel bored with learning and can increase student interest in learning.

The research conducted by [Rahmawati et al. \(2017\)](#) is used to corroborate the findings of this study. The findings showed that 86.47% of the expert validation tests were passed by the learning materials used to build flipbook learning materials on the motion of objects in junior high schools. As a result, the learning resources created have highly sound standards. Expert validation test findings for learning materials used to create flipbooks about how objects move in junior high schools are 81.43%. As a result, the learning resources created meet several extremely important requirements and can be effectively used to impart knowledge about the motion of objects. The junior high school's use of flipbooks as a teaching tool for material motion falls under the very valid.

In addition, according to [Ningsih \(2021\)](#), the development of poster learning media shows very appropriate criteria, scoring 89.3% from media experts, 93.3% from subject matter experts, and 91% from language experts. Additionally, assessments from educators scored 96.1%, and students scored 89% on a small scale, but 91% on a large scale. Based on the findings of this evaluation, it is highly likely that the poster learning medium will be used as a teaching tool. Another ethnoscience-based research conducted by [Safrina and Suryanti \(2021\)](#) states that the development of ethnoscience-based learning tools on heat energy is valid, practical, and effective so that it can be used for learning activities. which is shown by the results of students'

interest in learning increased very significantly, namely 69.16% in obtaining the percentage of interest in learning before applying ethnoscience learning and obtaining a percentage of 98.3% after implementing ethnoscience-based learning on heat energy. Previous research conducted by Putra and Sujarwanto (2017) presents that flipbooks can develop science process skills and student learning activities. Additionally, flipbooks can convey information in the form of words, sentences, and pictures, can be colored to draw in more students' attention, are simple to produce and inexpensive to transport, and can boost student learning activities (Susilan & Riyana, 2008; Sakhawati et al., 2020). Thus, the flipbook is a learning medium that allows it to be developed, which is then used in learning with a specific purpose, such as critical thinking, creative thinking, or increasing student interest and motivation in learning.

CONCLUSION

Ethnoscience is an approach to learning that can help students learn contextually. Betawi has a variety of indigenous knowledge that can be integrated into biology learning. One of them is Betawi medicinal plants that can be used as examples by students. Based on the findings, the test by material and media experts that was carried out by 1 instructor and 2 lecturers obtained a percentage of 91.30%. While the feasibility test conducted by respondents (students) totaling 37 students obtained a feasibility percentage of 87.63%. Following the table of media eligibility criteria, it can be concluded that this ethnoscience-integrated flipbook learning media is stated to be very feasible (very valid) for use in learning on the Classification of Living Things. This research implies that the developed ethnoscience-integrated media can be used in biology learning. However, the effectiveness of flipbook learning media containing ethnoscience has not been tested. Further research is required to determine whether flipbook learning media integrated with ethnoscience can help students develop their critical thinking skills when studying biology.

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