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DEVELOPMENT OF MUSHROOM WALL CHART BASED ON LOCAL POTENTIAL IN UJUNG PATUE, LABOTTO VILLAGE, CENRANA DISTRICT, BONE REGENCY

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Abstract: Wall chart media based on local potential are designed by reviewing the aspect of setting proportions and color schemes in the form of schemes, pictures, and charts and their placement on classroom walls and whiteboards using local potential. This research is a Research and Development that aims to develop a wall chart media based on local potential that is valid, practical and effective. This study adapts the development model of Robert Maribe Branch (2009) which consists of several stages namely analyze, design, develop, implement, and evaluate. The target of this study was the 22 students of class X MIPA 1 SMAN 13 Wajo. The research instrument used was a questionnaire to measure practicality and items to measure effectiveness. The results showed that the wall chart media based on local potential was developed on mushroom material had a validity value of 3.54 with a very valid category, the level of practicality showed a very practical category with a total value of 3.52. While the level of effectiveness shows the category is very effective because it reaches 100% completeness value. The implications of this research are: 1) Wall chart media can be used as a media to support learning; 2) Wall chart media is feasible to be applied as a learning medium that can increase activity; and 3) Wall chart media can be implemented in other schools with various biological materials.

Keywords: learning media, local potential, wall chart

Abstract: Media *wall chart* berbasis potensi lokal didesain dengan meninjau dari aspek pengaturan proporsi dan tata warna yang berbentuk skema, gambar, maupun bagan dan penempatannya di dinding kelas maupun papan tulis menggunakan potensi lokal. Penelitian ini merupakan *Research and Development* yang bertujuan mengembangkan media *wall chart* berbasis potensi lokal yang valid, praktis dan efektif. Penelitian ini mengadaptasi model pengembangan Robert Maribe Branch (2009) yang terdiri atas beberapa tahapan yaitu analisis (*Analyze*), perancangan (*Design*), pengembangan *(Develop)*, penerapan (*Implement*), dan evaluasi (*Evaluate)*. Sasaran penelitian ini adalah peserta didik kelas X MIPA 1 SMAN 13 Wajo yang berjumlah 22 orang. Instrument penelitian yang digunakan adalah angket untuk mengukur kepraktisan dan butir soal untuk mengukur keefektifan. Hasil penelitian menunjukkan bahwa media *Wall Chart* berbasis potensi lokal yang dikembangkan pada materi jamur memiliki nilai validitas 3,54 dengan kategori sangat valid, tingkat kepraktisan menunjukkan kategori sangat praktis dengan nilai total 3.52. Sedangkan tingkat keefektifan menunjukkan kategori sangat efektif karena mencapai 100% nilai ketuntasan. Implikasi penelitian ini yaitu: 1) Media *wall chart* dapat digunakan sebagai media penunjang pembelajaran; 2) Media *wall chart* layak diterapkan sebagai media pembelajaran yang dapat meningkatkan keaktifan; dan 3) Media *wall chart* dapat diimplementasikan ke sekolah-sekolah lain dengan materi biologi yang beragam.

Kata Kunci: media pembelajaran, potensi lokal*, wall chart*

Introduction

Education can be interpreted as the result of a nation's civilization which is developed based on the nation's view of life (society values and norms), which functions as an educational philosophy or as an ideal and statement of educational goals. It also shows how citizens think and behaves toward the next generation (Anwar, 2015). According to Langeveld, the purpose of education is to achieve the physical and spiritual maturity of students. Physical growth in question is the limit of maximum physical growth that a person can achieve, while spiritual maturity for educational purposes means the ability of a child to help himself with existing problems and be responsible for all his actions (Nathaniel & Salma, 2022). The importance of education has also been mentioned in QS. Al-Mujadalah Verse 11.

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يٰٓاَيُّهَا الَّذِيْنَ اٰمَنُوْٓا اِذَا قِيْلَ لَكُمْ تَفَسَّحُوْا فِى الْمَجٰلِسِ فَافْسَحُوْا يَفْسَحِ اللّٰهُ لَكُمْۚ وَاِذَا قِيْلَ انْشُزُوْا فَانْشُزُوْا يَرْفَعِ اللّٰهُ الَّذِيْنَ اٰمَنُوْا مِنْكُمْۙ وَالَّذِيْنَ اُوْتُوا الْعِلْمَ دَرَجٰتٍۗ وَاللّٰهُ بِمَا تَعْمَلُوْنَ خَبِيْرٌ ۝١١

Meaning:
"Hi you who believe, if it is said to you: Be spacious in the assembly, then be spacious, Allah will make room for you, and if it is said: Stand up, then stand, Allah will exalt those who believe and those who are given knowledge, and Allah knows best what you do."

The quality of education in this country is still categorized as low according to a review by Political and Economic Risk Consultants (Sujarwo, 2013). This quality can be improved if a good learning system is implemented. Good learning is learning that is able to trigger the attention and interest of students in learning both in the cognitive and affective fields.

One of the characteristics of learning is the use of learning resources. Learning resources are everything in the form of messages, environment, equipment, materials, methods, and humans that are functioned by educators in improving students' cognition (Suhirman, 2018). Good learning needs to adapt to the characteristics of students. Characteristics have the meaning of certain individual characteristics and habits that come from innate results or even their environment. Characteristics of students include differences in ethnicity, culture, social status, and social development (Munawaroh, 2019). Characteristics of good learning is learning that uses media. Media is a vehicle for transmitting messages to students. The use of media in the classroom cannot be ignored and must be applied by educators as a manifestation of success in the learning process (Mahnun, 2012).

By the reality seen in the field is that the media applied in schools is still lacking, as well as the media used by teachers are not contrasting, meaning that the material studied by students and the media do not experience compatibility between the two. Media is an important element in learning activities and is a must to be practiced by all educators (Salvia, 2016). Likewise, teaching materials based on local potential are also still relatively little used (Hasanah, 2017). This is in stark contrast to the current curriculum which emphasizes contextual-based learning.

Based on interviews with students at SMA Negeri 13 Wajo, they said that the implementation of learning in schools used textbooks and YouTube. A biology teacher at SMA Negeri 13 Wajo, Mrs. Norma Amaliah, S.Pd., M.Pd. also explained that learning based on the local potential for biology has not yet been implemented. The region has a great opportunity in realizing good learning through the application of local potential-based learning media because the region has abundant natural resource capacity, one of which is Ujung Patue, Labotto Village, Cenrana District, Bone Regency. This area has the potential to be used as a location for the implementation of biology learning, especially mushroom material because various fungal species can be found there. According to the students, the mushroom material is quite difficult to learn, because there are many species and scientific terms that they do not know.

The description of the problem above indicates that the learning process at SMA Negeri 13 Wajo requires support, namely by developing media according to the characteristics of students. Media that can be developed is wall chart media based on local potential. Wall chart media is media that can be in the form of pictures, plans, charts, or schemes that can usually be hung on walls in classrooms. Wall charts can be hung on the wall, this is what is commonly called a wall chart (Ardina, 2015). Wall chart media has several advantages such as being more focused on the material because it is conveyed through charts, the shape is made attractive to foster one's interest, can be viewed at any time, and can be adapted to the material presented (Turmono, 2018).

Research related to wall charts has been carried out by several previous ones, one of them by Lu'luatus Sa'diyah who developed a wall chart to improve paragraph writing skills (Sa'diyah, 2017). The development still has limitations in terms of products. The limitation is that the research has not developed media based on local potential. Overcoming these limitations, researchers are interested in developing the same product, namely mushroom wall chart media, but the development process is based

on local potential in the surrounding area, namely Ujung Patue, Labotto Village, Cenrana District, Bone Regency.

Materials and Methods

This research was conducted in August 2022 and is included in the type of Research and Development (R&D) research based on the development model of Robert Maribe Branch (2009). This development model consists of several stages namely: analyze phase, design phase, develop phase, implement phase, and evaluate phase. The research subject is the number of students in class X MIPA I at SMAN 13 Wajo with 22 students.

Data collection techniques are in the form of validation sheets to measure the level of validity of the developed media, teacher and student response questionnaires to determine the level of practicality, and learning outcomes tests consisting of 20 numbers with multiple choice questions to test the effectiveness of the media.

Result and Discussion

A. Development stage of wall chart media based on local potential

The stages of developing wall chart media based on local potential use the development model of Robert Maribe Branch (2009) which consists of several stages namely: (1) analyze phase, (2) design phase, (3) develop phase, (4) implement phase, (5) evaluate phase.

Analyze Phase

1. Gap analysis

This activity aims to identify problems that are often faced by educators and students in the learning process. The basic problem found in the research location, namely at SMAN 13 Wajo, in biology is the lack of variety in the use of learning media. In addition, learning that emphasizes local wisdom has not been implemented. Another problem is that students find it difficult to understand the material, especially mushroom material because of the difficulty in recognizing mushrooms that come from textbooks or the internet. According to students, the images presented still look foreign and less recognizable. Then when learning using textbooks, students feel troubled if they have to find pages for the material to be studied.

2. Determination of learning objectives

The basic competencies used in the mushroom material refer to the C3 cognitive level, namely applying a level that demands students' learning abilities in remembering, understanding and applying knowledge, conceptual, and procedural in solving problems (Sijintak, 2022). The learning objectives that will be achieved in this material include the ability of students to identify and classify mushroom and are associated with their role in life. Based on the above aspects, the use of appropriate learning media and is expected to be able to achieve these aspects is through the application of wall chart learning media based on local potential. Media wall maps can meet the learning and needs of students through the utilization of the potential of the surrounding nature as a place for learning.

3. Student analysis

The average student who is the subject of the study is aged 15-17 years, which at this age has entered adolescence in a transitional period or period of change. According to Piaget's theory of cognitive development, at this time students are able to reason abstractly, able to think systematically (Berk, 2003). From the results of the analysis of the characteristics of students, it is known that academic abilities are still heterogeneous, namely high, medium, low abilities. The students of class X MIPA 1 SMAN 13 Wajo also have different backgrounds, both in terms of environment and social status. Likewise, the learning styles of students are also different from one another.

4. Identify required resources

The resources needed in this study include: reference material content, namely photos of mushroom species that were photographed directly from their habitat in Ujung Patue, Labotto Village, Cenrana District, Bone Regency. Then, a description of each mushroom species obtained from several research journals and verification of species identification from several sources such as Mushroom Identifier, Mushroom Identificator, Plantanet, GBIF (Species Fungorum), and Google Lens. Technological sources:

include cameras in photographing species using IPhone 7 and Google Maps to find out the coordinates of the sample discovery points. Human resources: include educators and students who are the subject of research, as well as facilities and infrastructure consisting of classrooms and textbooks.

5. Preparation of a development research implementation plan

The implementation of development research starts from the analysis stage, namely in September 2021 and ends at the stage of evaluating wall chart products in August 2022.

Design Phase

1. Compilation of the list of components needed in product development

Based on the results of fungal identification conducted in Ujung Patue, Labotto Village, Cenrana District, Bone Regency, 4 representatives of the order and 10 species were obtained which can be seen in the Table 1.

Table 1. Fungal species findings

No	Order	Species
1.	Polyporales	*Daedaleopsis confragosa* (Braket Merona) *Lentinus tigrinus* (Harimau Sawgill) *Trametes hirsuta* (Braket Berbulu) *Pycnoporus sanguineus* (Jamur Bromo) *Ganoderma applanatum* (Jamur Kayu)
2.	Agaricales	*Fistulina hepatica* (Jamur Daging Sapi) *Schizophyllum commune* (Jamur Gerigit) *Panaeolus antillarum* (Jamur Tahi Sapi)
3.	Geastrales	*Geastrum saccatum* (Jamur Bintang)
4.	Auriculariales	*Auricularia polytricha* (Jamur Kuping)

Wall chart media based on local potential was developed in several main topics consisting of: name of division, order, species, original image and morphological designation, description of each species, classification, and QR-code of the location where the sample was taken. The application used in developing wall chart products is Adobe Illustrator cc 2018.

2. Setting product development goals

This development research aims to produce products in the form of teaching media that are valid, practical, and effective and can be used as learning supplements for students in learning biology.

3. Preparation of product validation instruments

The designed instrument aims to test the level of validity of the developed product. Validation instruments are filled in by validators from material experts and media experts.

Develop Phase

1. Making products according to design

There are 3 wall charts because they have different orders. The order Poliporales measuring 2x1.5 meters, the order Agaricales measuring 2x1 meters, and the orders Geastrales and Auriculariales measuring 2x1 meters. The selection of the size of the wall chart media is carried out by considering the number of species found in each order and in terms of its function in terms of its use which can be hung on a wall or blackboard, thus requiring this media to be made in large sizes.

The components of the wall chart are: the title component, which includes "name of division" typed using vintage waves font with a size of 171 pt. The "order name" component is typed using the Abuget font size 124 pt. Then the "species name" is typed using the ink free font, size 19.45 pt. The content components include the description and classification sections, typed using a poppins medium size 11 pt font. The image components of each species are equipped with their respective magnifications, as well as complementary components including the name and QR-Code of the sampling location.

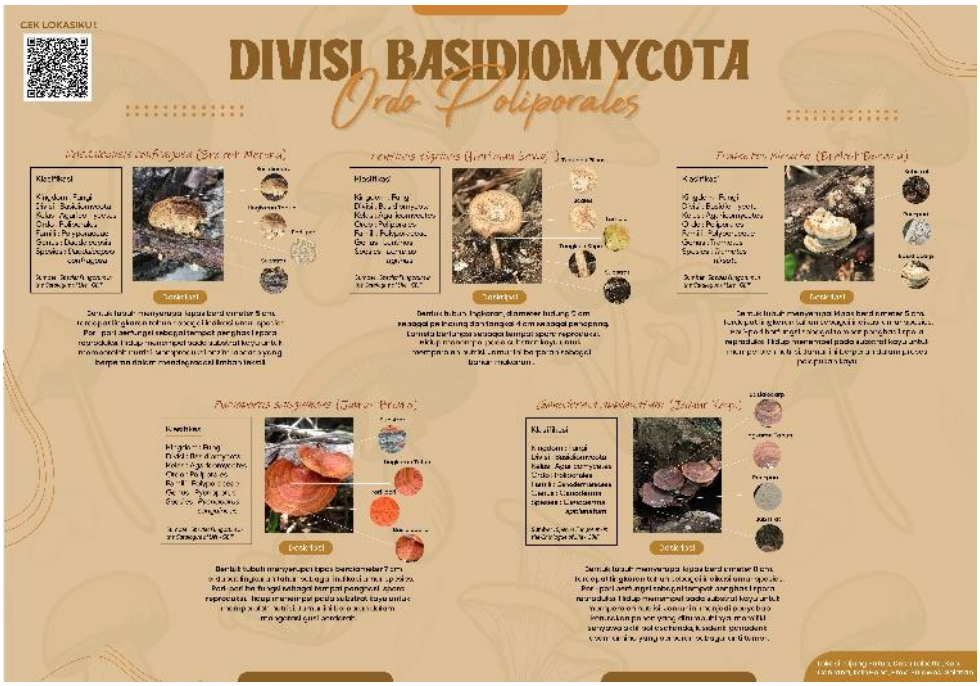

Figure 1. Ordo *Poliporales*

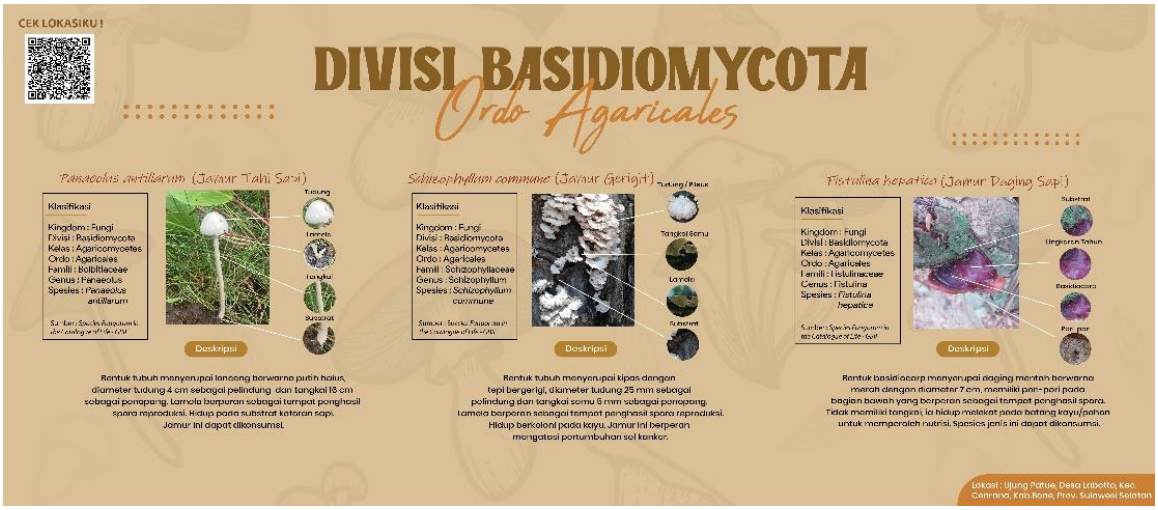

Figure 2. Ordo *Agaricales*

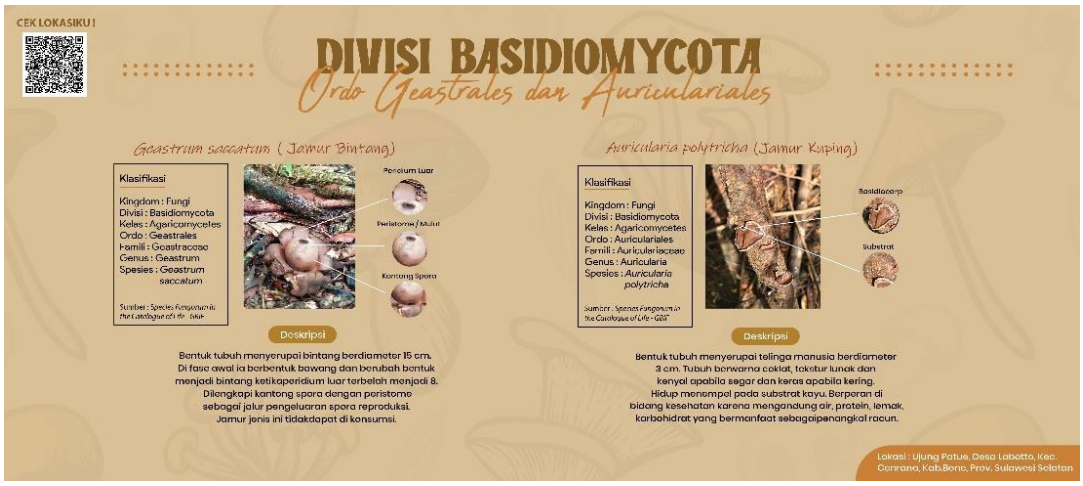

Figure 3. Ordo *Geastrales and Auriculariales*

2. Selection of supporting media

The use of print media supports the development of good quality products. The type of print used in the development of this product is using a vinyl banner material with Konica All Wiin K512i ink. The manufacture of the frame is assisted by a furniture maker in making it adjust to the size of the wall chart. The wall chart media frame is made by adding plywood to the back of the printed banner. Then at the top it is equipped with a hanging iron, and is equipped with a hinge so that it can be folded.

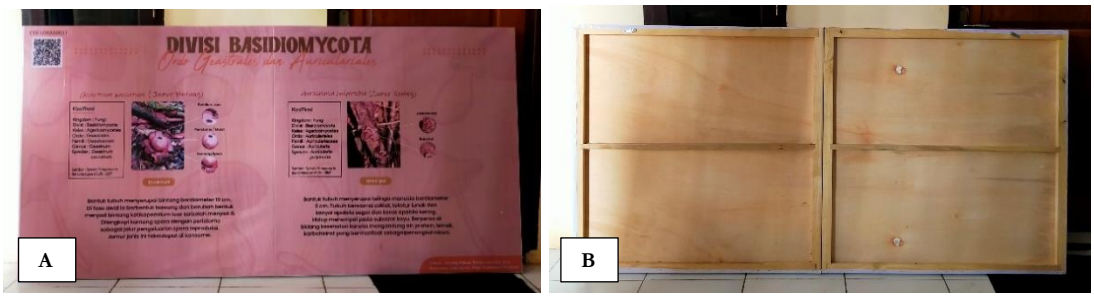

Figure 4. Frame look (A) front and behind (B)

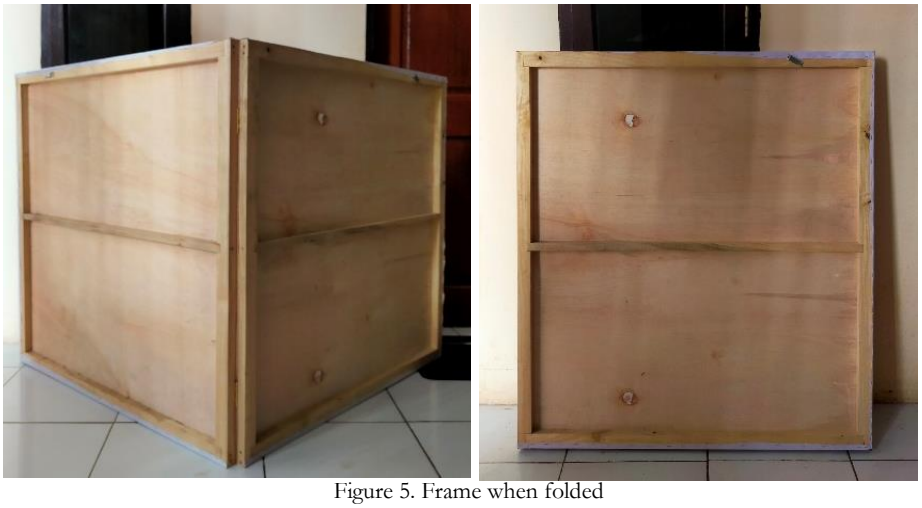

Figure 5. Frame when folded

3. Formative revision

The wall chart product that has been developed is then validated by the validator. Validation activities were carried out by 2 lecturers by providing input and suggestions for further revision so as to produce a valid product. The suggestions given by the two validators include: improving the writing of scientific names in accordance with the *Binomial Nomenclature*, improving the font color for species names, adding the classification of each species, adding indonesian/latin names, adding a QR-Code for sampling locations, clarifying the magnification of the species image. , the size of the media wall chart to adjust to the number of posts, and pay attention to the position of the layout by considering the size of the media used. The suggestions of the two validators are then used as a reference in revising the product so as to produce prototype II.

4. Doing a Trial

At this stage, the researcher conducted a preliminary test of the product on the students. Testing is done by testing the mushroom material wall chart media which then students will provide their responses in a questionnaire to test the practicality of a media that has been developed. The questionnaire contains several questions with indicators related to interest, convenience, and achievement of learning objectives from wall chart media based on local potential that was developed.

Implement Phase

Wall chart media based on local potential that has been developed is then implemented in real situations, namely in the classroom. The implementation phase will be held on August 3, 2022, specifically for class X MIPA 1 SMA Negeri 13 Wajo, which is located at Jl. Andi Makkaraka, Solo Village, Bola District, Wajo Regency, South Sulawesi Province. During the implementation process, students follow the directions of the researcher by referring to the lesson plans that have been designed.

Evaluate Phase

Evaluation is a process to see if the media that has been made is in accordance with the initial expectations or not. Evaluation can occur at any stage before it is called formative evaluation which aims to need revision. While the evaluation carried out at the final stage of the development of the ADDIE model is called summative evaluation. Evaluation is carried out by giving tests to students to test the effectiveness of the developed media. The instruments used are test items in the form of multiple choices totaling 20 numbers.

B. Validity of wall chart media based on local potential

Wall chart media based on local potential that was developed is categorized as very valid in terms of several aspects such as attractive media appearance, media content in accordance with learning objectives, quality, size, language, and the suitability of the use of terms.

Table 2. Results of analysis of wall chart media validity based on local potential

Assessment Aspect	Assessment Results	Category
Appearance	3.5	Very Valid
Contents of Media Wall Chart	3.5	Very Valid
Technical Quality	3.49	Very Valid
Size	3.5	Very Valid
Communicative language	3.75	Very Valid
Appropriate use of the term	3.5	Very Valid
Average	**3.54**	**Very Valid**

Based on the validation results obtained, wall chart media based on local potential that was developed meets the very valid category with an average value of 3.54 this is in accordance with Suryo Hartanto's theory (2020) that if the average value of validity is in the range X > 3.4 then it can be said to be very valid. Wall chart learning media based on local potential is declared valid due to several indicators that support this validity.

The first indicator is that the wall chart media has an attractive appearance supported by the choice of colors that use a neutral light brown color suitable for use as a background color and gives a warm and calm impression (David, 2019) with a mixture of orange which gives a fun meaning and is believed to stimulate children. This is in accordance with the theory which states that color can affect human emotions. (Marsya & Anggraita, 2016). The choice of font type also affects the attractiveness of this media. The writing on the wall chart uses the vintage waves (171 pt) part of the "basidiomycota division" because it is included in the display type font that is suitable for titles or headlines. Type display is designed to attract the attention of readers and is more persuasive (Kusrianto, 2006). The "order name and species name" component is typed using the abuget (124 pt) and ink free font (19.45 pt) including the type script or handwriting font that is suitable for subtitles. This font type is a Latin font that is elegant, elegant and classic (LMS Spada Indonesia, 2019). The description and classification sections are typed using the medium poppins (11 pt) font which is suitable for body text because of its quality which can support good readability, thereby increasing readability (Landa, 2007). This description is in line with the theory which states that media needs to pay attention to the "VISUALS" principle (Visible, Intersetting, Simple, Useful, Accurate, Legitimate, and Structured) to say that good media includes: easy to see, attractive,

simple, useful content, can be accounted for answerable, reasonable, and well structured/structured (Nurseto, 2011).

The second indicator is the content of the material on the wall chart media has experienced conformity with the learning objectives. The wall chart media that has been developed already contains topics that are in accordance with the learning objectives, namely groups of fungi and their morphological characteristics, classifications and roles. This is in accordance with the theory which states that a learning media is said to be valid if the content or material on the media is in accordance with the learning objectives (Rochmad, 2012).

The third indicator is technical quality, where the wall chart learning media is not easily damaged. This is supported by the use of print media from Konica's All Wiin K512i ink vinyl banner which is water and sun resistant for a long time. Then the wall chart media is made by adding plywood on the back of the printed banner to make it more durable and not easily torn. At the top of the frame is equipped with a hanging iron that makes it easy when the media wants to be mounted on the wall. The frame is also equipped with hinges so that it can be folded, making it easy to store and reassemble and doesn't take up much space. This is in accordance with the theory which states that one of the things that need to be considered from a media is how the state of durability of the selected media is (Sungkono, 2008).

The fourth indicator is that the size of the media wall chart is made in a large size according to the number of species and takes into account the ease with which the audience can reach the information in it. This is in accordance with the theory which states that a large size of learning media will be easier to be displayed, visited or seen by students (Sukmawati, 2021).

The fifth indicator is communicative language, meaning that the language presented on the wall chart is easy to understand and in accordance with the EYD. Then, the sixth indicator is the suitability of the use of terms, meaning that the terms used on the wall chart media are correct as well as the Latin writing in accordance with the applicable rules. This is in accordance with the theory which states that the linguistic validity component must include conformity with good and correct Indonesian language rules, as well as clear and concise use of language (Depdiknas, 2008).

C. Practicality of wall chart media based on local potential

The level of practicality of the media is known at the preliminary trial stage by providing a questionnaire/questionnaire for the responses of educators and students before the media is actually applied to a real situation, namely in actual learning.

Table 3. Results of the analysis of educators and learners' responses to media

No.	Types of research	Average
1	Teacher Response	3.7
2	Students Response	3.34
Total Average		**3.52**
Assessment criteria		**Very Practical**

Based on the results of the practicality test data analysis, a score of 3.34 was obtained for the results of the student questionnaire and 3.7 for the results of the educator's response questionnaire. If all the assessments of the questionnaire are averaged, the result of the assessment is 3.52 which is stated in the very practical category. Wall chart learning media based on local potential is declared practical due to several indicators that support this practicality.

The first indicator of the attractiveness aspect, the media wall chart received a positive response from students and educators. The majority of students tend to be interested in studying mushroom material using wall charts. Interestingly, this media can not be separated from the appearance of an attractive design and the combination of colors used is not boring. According to educators, the attractiveness of this media lies in the combination of the right images and colors, images that match the material, and easy-to-read writing. This description is in accordance with the theory which states that media that is packaged in an attractive and appropriate way will create a pleasant learning atmosphere for students (Novitasari, 2017).

The second indicator from the aspect of convenience, the media wall chart received a positive response from students and educators. They tend to be easier to understand the material and its concepts when the material is packaged in a wall chart because of its concise and systematic application using a printed book that conveys it through explanations from long writings. Learners also feel more focused and easy to recognize mushroom species because the pictures provided are real pictures that were taken directly from the environment around them. The selection of the right media size also makes it easier for students to see and read information on the media. This description is in line with Nieven's theory in Ardy Irawan and Arif Rahman which states that learning media can be said to be practical if teachers and students consider devices that are easy to use when in the field (Irawan & Arif, 2021).

The third indicator of the aspect of achievement of learning outcomes, the media wall chart received a positive response from students and educators. Based on the results of the questionnaire responses of educators and students, the majority stated that learning outcomes would increase if learning using wall chart media. It should be noted that the wall chart media is a type of visual media, so the above statement is in accordance with the theory that the media that is considered the most capable of improving and influencing student learning outcomes is visual media (Soebroto, 2009).

The description above shows that overall the results of the questionnaire analysis show a positive response from various aspects, in other words there is a relationship between practicality and a positive response. This is supported by the theory put forward by Yamasari which states that learning media is practical if the subject's response to the media shows in the positive category (Suryani et al, 2022).

D. Effectiveness of wall chart media based on local potential

The level of effectiveness was measured by researchers by giving questions to students to determine the level of effectiveness of wall chart media based on local potential. Data on the effectiveness of the media can be measured from the level of mastery of students on the material that has been taught.

Table 4. Percentage of student learning outcomes

No	Score	Category	Frequency	Percentage (%)
1	0 – 65	Finished	0	0%
2	65 – 100	Not finished	22	100%
		Amount		**100**

Based on the data above, it can be concluded that 22 students scored above the KKM with a percentage of 100% or the complete category was above the minimum number of complete learning outcomes, namely 80%. Based on the data, the Karambi learning media meets the criteria for being very effective as a learning medium. Wall chart learning media based on local potential is declared effective due to several indicators that support its effectiveness.

The first indicator is the development of wall chart media presented using the formulation of questions that are in accordance with the learning objectives. This is in accordance with the opinion of Van and Akker in Haviz, stating that a product development is said to be effective if it provides results that are in accordance with the learning objectives shown by the student learning outcomes test (Haviz, 2013).

The second indicator is the wall chart media, including visual media where the main focus is on how students learn the information contained in this media by seeing and observing. This is in accordance with the theory which states that the media that is considered the most capable of improving and influencing student learning outcomes is visual media. This statement is also reinforced by the learning experience cone theory that the material that is remembered by students is 50% of what is seen (Soebroto, 2009).

The third indicator is that the wall chart media developed is generally dominated by pictures of mushroom taken directly from their habitats. This indicator is one of the factors that influence the completion of student learning outcomes. This is in accordance with the theory which states that the use of picture media in learning is an alternative to improve learning outcomes, because through the application of picture media students can be directly motivated to learn, work together and get

information (Yuswanti, 2015).

Conclusion

Wall chart media based on local potential was developed using the Robert Maribe Branch (2009) development model which consists of several stages, namely: (1) analyze phase, (2) design phase, (3) develop phase, (4) implement phase, and (5) evaluate phase. The level of validity of the wall chart media based on local potential after being revised, meets the very valid category with a total score of 3.54 for all aspects so it is feasible to use. The level of practicality of wall chart media based on local potential meets the very practical category with an average score of 3.52. Meanwhile, the effectiveness level of wall chart media based on local potential developed on mushroom material is in the very effective category with a percentage of 100% completeness value.

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