

Ethnobotany E-Magazine Based on Dayak Kanayatn Local Wisdom on Biodiversity Material: Validity and Practicality

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Abstract. Study This aim for developing an ethnobotany e-magazine based plant drug Kanayant Dayak tribe and testing validity, practicality, and its effectiveness in learning Biology in matter diversity biological sciences in class X of SMA Negeri 1 Sengah Temila. The research method used is Research and development (R&D) with the Hannafin and Peck model. Validation results show that e-magazine is in very valid category, with an average percentage of 88.14% of media experts and 79.44% of expert material. Practicality test by students show very practical category with an average of 91.55%. Effectiveness test through normalized gain calculation produces score of 0.78, which indicates improvement results Study with category high. With thus, ethnobotany e-magazine This worthy used as an interesting, practical and effective learning medium for increase understanding student at a time introduce wisdom local.

Keywords: E-Magazine, Ethnobotany, Medicinal Plants, Dayak Kanayatn Tribe, Biodiversity

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1. Introduction

Development education in Indonesia is not off from impact development current globalization, which makes policy education national must capable increase quality education and creating management appropriate education with need as well as give the widest possible access to public for get education (Saodah et al., 2020). Government expects for every power educator capable apply technology information in the learning process. According to Gusnira & Wikarya (2022) involves technology as tool in the learning process help student for take advantage of it with wise in accordance with needs and can last long so that practice studying in school can more quality. One of the field technologies that can implemented in the learning process is use of learning media. Education in Indonesia aims for create generation that does not only own knowledge, but also relevant skills with environment and culture local.

Biology is the science that studies about creature life and its environment (Khoirudin, 2020). Subject biology support complex materials so that difficult understood by participants educate. Because No can observe and visualized in a way direct (Siburian et al., 2022). Materials in learning biology covers solid and flexible material abstract, there is sometimes the teacher only capable explain a number of materials in a way general to participant educate. remember limitations allocation available time (Rohmah et al., 2020). Therefore, that for make it easier participant educate in understand material lesson biology the need for learning media.

Diversity Indonesian life is assets and resources power that must be protected and managed so that can become inheritance ancestral and beneficial for public for maintenance health. Therefore, that need There is effort for documenting knowledge treatment traditional that goes hand in hand with effort preservation plant efficacious drug for knowledge conservation and welfare society. One of the method documentation the is through study ethnobotany plant efficacious drug.

Ethnobotany is something behavior in demand public something area in utilise plants that live in the surrounding area. Ethnobotany is branch in -depth knowledge connection culture humans and nature surrounding plants (Hakim, 2020:3). Ethnobotany potential disclose system knowledge traditional from something group public about source Power biology, conservation and culture are one of them that is utilization plant drug.

Learning outcomes is reject measuring in determine ability student in follow learning that can be seen from evaluation results end evaluation learning presented in form mark test. form evaluation test obtained from exam daily, exam mid- semester and exams end of semester. Assessment test own standard graduation that has been determined that is Criteria Minimum Completeness (KKM). If student get mark in accordance standard graduation or above KKM then stated complete.

One of ways that can done so that humans can manage environment with good and steady profitable is through ethnobotany. Ethnobotany is something study midwife the science that studies connection culture man with the surrounding nature in a way with natural in a way direct without damage or exploit it (Mahananal, 2021). Basically, ethnobotany No only limited to certain groups public certain, but also for interest education in schools. Ethnobotany that is sourced from knowledge local public can prove in a way scientific can give impact positive to student for maintain culture local in the era of education that has utilise modern technology (Hakim, 2020).

State Senior High School 1 Sengah Temila which is located in Senakin Village Landak Regency. Based on results interviews that have been done together with the biology teacher of SMA Negeri 1 Sengah Temila in (attachment 8) can concluded that in the learning process teaching teachers often use method lectures and teaching materials used only book packages borrowed from the library, participants educate feel difficulty in accept lesson due to book limited and unlimited packages interesting so that there is results mark test material diversity life that is not complete. Diversity biological is organisms that show overall or totality variety. Diversity biological including inside it is medicinal plants for become alternative public making herbs. Use plant drug society is one of them plants used by the Dayak tribe. 90% of students at SMA Negeri 1 Sengah Temila are originate from Kanayant Dayak tribe. Kanayant Dayak tribe is one of a tribe that lives in the Sengah Temila region.

This tribe own inheritance rich knowledge about plant drugs used for treatment traditional. Knowledge This start neglected and threatened extinct Because lack of understanding and appreciation to values culture and traditions Kanayant Dayak tribe among generation young.

Based on results observations made that at SMA Negeri 1 Sengah Temila the conditions The school is very supportive, the internet at the school is very adequate and the participants educate Can bring a mobile phone so that e-magazine media can be developed at SMA Negeri 1 Sengah Temila. During the activity Study teach Still found a number of obstacles by teachers include related with media use. One of the identified challenges is lack of utilization of learning media as tool for convey information to participant educate. Book print Still felt No practical, triggering lack of motivation and interest student for access and understand material. Researchers also found results questionnaire need student with respondent's student class X, totaling 176 participants educate state that student class X experienced constraint in the learning process so that make lack of interest Study students, because of the media used Not yet optimize.

Based on results analysis need student show that 90.3% of students like learning biology, 89.2% of students had difficulty learn material diversity biological, 88.1% Learning media biology used during This make bored, 70.5% of students own book handle biology or book other for learn material diversity biological, 69.3% of students looking for other learning media besides books provided by the school for help understand material taught by the teacher, for example the internet or book other related matters with material, 69.3% of students know that around You There is diversity plant drugs that can made into as source study, 85.8% of students need learning media alternatives that can used for learn material diversity more life easy and interesting, 90.3% of students like with colorful learning media, 90.3% of students 91.5% of students like illustrated learning media agree If developed learning media in the form of diversity *e-magazine* biological, based on matter the necessary source innovative learning required by students.

Source Study is material or the material provided for students to obtain information, knowledge, experience, and skills in the learning process. Source Study is all something that has been There is and developed in a way systematic so that can be utilized with Good in the learning process (Jailani, 2020). According to Herawati (2020), a good and effective learning process is one of them. is with maximize source existing learning, with utilise source Study so student will easier understand and comprehend about what he learned, because source Study become means in frame repair understanding student to lesson Better again. One of them approaches that can support objective This is through development *e-magazine* ethnobotany that utilizes knowledge about plant Kanayant Dayak medicine in Tonang Hamlet. *E-magazine* This expected can increase results Study students, especially among student class X SMA Negeri 1 Sengah Temila.

Media is one of the part important supporting the learning process takes place teaching, because can influence smoothness in reach objective learning. Media is utilized in the learning process with objective so that can create more interaction easy for teachers and students so that make Study more effective and efficient (Khairi et al., 2022). Visual media is capable of help Power remember become strong and understanding more smooth, visual is also capable grow interest student as well as can connect between material learning and the real world (Arsyad et al., 2019).

E-magazine is a learning media that presents material learning in a way attractive and modern designed for alluring attention the reader with use elements graphic like image, typography (art select and arrange letter or text as visual elements in something design), color, illustrations, and various element others (Falahudin, 2020: 117). The importance of development *e-magazine* as a learning medium biology, for fulfil need students who reflect preference to source visual learning. *E-magazine*, with characteristics its rich characteristics visual elements, easy access and flexibility become relevant alternatives for fulfil need student in learning. With Thus, development *e-magazine* as a learning medium biology No only respond development technology, but also becoming solution for increase quality learning (Perwitta, 2022).

2. Method

Research methods used in study This is method *Research and Development (R & D)* uses a development model *Hannafin and Peck* (Laila, 2023:1) which consists of on three step namely: 1) analysis needs assessment, 2) design, and 3) development / implementation. In research This subject study divided into two, namely s subject development consisting of on the experts. The validator in question is media experts and experts' material. The media expert in question is someone who is an expert in evaluate *e-magazine* based ethnobotany plant drug Good from aspect color and the text displayed as many as 6 people. Meanwhile expert the material in question in study This is an expert in material diversity life and understanding with learning used in e -*magazine*. Test subject's product study in trial *e-magazine* is student class X SMA Negeri 1 Sengah Temila.

Taking technique sample in study This use *cluster random sampling* Because Class X of State Senior High School 1 Sengah Temila has five classes and each his class consists of over 35 students. The selection process sample with technique *simple random sampling* that is with method researchers can draw population with objective give equal opportunity for every population in order to be able to become sample research. Determination class for trial scale small and trial scale big done view value data test daily on the material diversity biological year 2024/2025 academic year. Total number of class X is 5 classes (XA-XE) from a total of 5 classes only 3 classes namely class XA, XB and XC. Then done drawing for third class the so that data obtained for the trial scale small in class XB totaling 15 students whereas for trial scale large in class XC which consists of 35 students.

Data collection tools used in study This in the form of sheet validation media and materials experts. Validators required as many as 6 validators. Media expert validators consist of from 2 people, namely study program lecturer education biology and one subject teacher lesson technique informatics and communication (ICT) of SMA Negeri 1 Sengah Temila. While the expert validator material consists of from 3 validators, namely 2 lecturers from the study program education biology and one subject teacher lesson Biology of State Senior High School 1 Sengah Temila. Measurement on the sheet validation This measured use scale *Likert*.

Table 1. *Likert Scale* (Sugiyono, 2021: 135)

Criteria	Score
Very good	5
Good	4
Enough Good	3
Not good	2
Absolutely not Good	1

Score levels in the table scale Likert show that the taller score from sheet validation obtained so the taller level validity / eligibility *e-magazine* developed. In the research this, the minimum level of validity *e-magazine* must criteria Enough Good with score 3. for grid sheet validation expert materials and sheets validation media expert.

Questionnaire response student Good That moment conducted a trial *e-magazine* on a scale limited and implementation *e-magazine* on a scale wide. Questionnaire used for understanding level practicality *e-magazine*. Filling questionnaire done with method give instrument in the form of a list of questions to students who are made as subject research. Questionnaire This intended to student class X of SMA Negeri 1 Sengah Temila as test subjects product in the form of *e-magazine* that has developed and used for now practicality. Assessment questionnaire This measured use scale *Likert* with five scales evaluation that is:

Table 2. *Likert Scale* (Sugiyono, 2021: 135)

Criteria	Score
Very good	5
Good	4
Enough Good	3
Not good	2
Absolutely not Good	1

Score levels in the table scale Likert show that the taller score from questionnaire obtained so the taller level practicality *e-magazine*. In research this, minimum level of practicality *e-magazine* must criteria Good Enough with score 3.

Data analysis techniques used for answer formulation problems that have been established. Research This use validity for see eligibility from *e-magazine*. Data obtained in the form of score evaluation from the experts through a testing and consultation process. Validity used for see eligibility *e-magazine* based ethnobotany plant medicine. Validity in research This use scale *Likert* which consist above five criteria scale, namely:

Table 3. *Likert Scale* (Sugiyono, 2021: 135)

Criteria	Score
Very good	5
Good	4
Enough Good	3
Not good	2
Absolutely not Good	1

for understanding level validity something product used formula as following:

$$\text{Tingkat validitas} = \frac{\text{Total skor diperoleh}}{\text{Skor tertinggi}} \times 100\%$$

Then the data is converted based on table following for understanding level validity in accordance with criteria as following:

Table 4. Validity Level A Product

Percentage	Standard
0%- 20%	No Valid
21%- 40%	Not enough Valid
41%- 60%	Enough Valid
61%- 80%	Valid
81%-100%	Very Valid

(Sugiyono, 2018: 199)

E-magazine said to be valid and worthy used If results score shows Valid Enough with amount score 41-60.

Level of practicality *e-magazine* is with change results response questionnaire study to inform criteria practicality and then will look for the average. Percentage practicality use the same formula with percentage validity product, then percentage for see practicality developed products obtained through formula as following:

$$\text{Tingkat kepraktisan} = \frac{\text{Total skor diperoleh}}{\text{Skor tertinggi}} \times 100\%$$

Then the data is converted based on table following for understanding level practicality in accordance with criteria as following:

Table 5. Level of Practicality A Product (Sugiyono, 2018: 199)

Percentage	Standard
0%- 20%	No Practical
21%- 40%	Not enough Practical
41%- 60%	Enough Practical
61%- 80%	Practical
81%-100%	Very Practical

E-magazine can it is said practical and feasible If results score shows Enough Practical with amount score 41-60

3. Results and Discussion

Study This done with approach *research and development* (R&D) refers to the development model *hanaffin and pack* consisting of of Three Stages namely: 1) analysis needs assessment, 2) design, and 3) development / implementation steps development product in study This explained as following.

Needs Assessment

At the stage *needs assessment* researchers do excavation for now information about need student with do interview structured together with the subject teacher lesson biology. Based on results interview state that student not enough active at the moment classroom learning and still using less media innovative so that the learning process impact on the results Study.

Based on results analysis need Students at State Senior High School 1 Sengah Temila demonstrate that activity Study Still using less learning media interesting so that make student not enough active. Condition the obtained by 90.3% of students like learning media while 89.2% of students experience difficulty material diversity life. Difficulties experienced student at school Because lack of media, need developed an ethnobotany *e-magazine* media-based plant medicines that are around Tonang Hamlet environment which can used by student's class X SMA Negeri 1 Sengah Temila. Based on results interview together chairman customs in Tonang Hamlet namely Mr. Maruki that there is potential plants as medicine and used by the community since a long time ago. Based on results study plant the drugs obtained as many as 30 species.

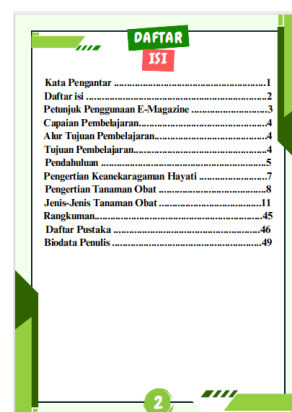
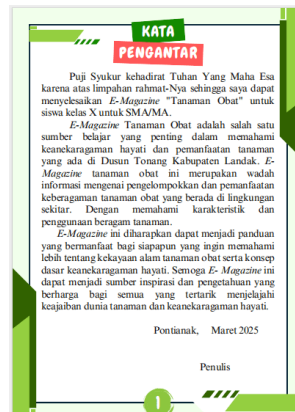
Design Stages

Ethnobotany *e- magazine* design-based plant drugs consisting of above: 1) Cover page, 2) foreword, 3) Table of contents, 4) Instructions usage, 5) Achievements learning, 6) Introduction, 7) Definition diversity life, 8) Definition plant medicine, 9) Information about plants betel red, 10) Identified plants, 11) Summary, 12) Bibliography, and 13) Author 's biodata. The following results design ethnobotany *e- magazine* based plant drugs that have been made use application canva. As for the results design development can see in the picture under This.

Table 6. Design of ethnobotany *e- magazine* based plant Kanayatn Dayak medicine

Part	Picture
Cover front	

Intro



Contents

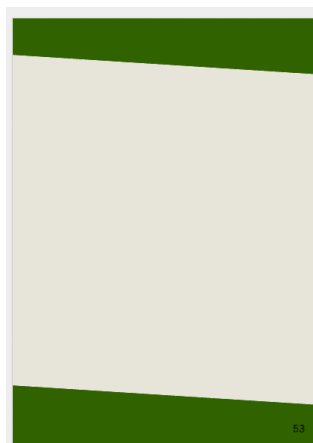
Tanaman Yang Diidentifikasi		
No./Nama Daerah	Nama Latin	Kegunaan
1. Bawang Dayak	<i>Eleutherine bulbosa</i>	Amandel, diabetes, hipertensi, melancarkan air seni, kanker payudara dan buah.
2. Cusur Berek	<i>Kalanche pinnata</i>	Baukoreng
3. Daun Cengpodek / Angkodelok	<i>Melastoma malabaricum</i>	Luka luar, darah, sakit perut, batuk dan demam, menghancurkan pasir pada tubuh.
4. Daun Harauang / Bayuang	<i>Cordia frutescens</i>	Batuk dan demam
5. Daun Jambu Biji	<i>Psidium guajava</i>	Sakit perut
6. Daun Kemangi	<i>Ocimum basilicum</i>	Menghancurkan busu mulut, meningkatkan daya tahan tubuh
7. Daun Kentut	<i>Ficus religiosa</i>	Sakit perut
8. Daun Limpet	<i>Mucuna sp.</i>	Kereng, kram, perawatun rambut dan bangkai.
9. Daun Sirih Merah	<i>Piper ornatum</i>	Patut tulang, hipertensi, busu mulut, keputihan dan mata.
10. Gegep	<i>Limonchato lara</i>	Luka bakar, luka gores
11. Kacipiring / Biting	<i>Strobilanthus crispus</i>	Melancarkan air seni dan sakit pinggang.
12. Kelor	<i>Moringa oleifera</i>	Menurunkan gula darah
13. Kenibeng Sepatu	<i>Hibiscus rosa-sinensis</i>	Bengkak, busu, perawatun gigi, amandel, perut kembung, luka bakar, demam dan mung.



DAFTAR PUSTAKA	
Aditya, Billy. (2019). 7 Manfaat Daun Jambu Biji, Istimewa Bisa Obat Penyakit Gusi.	
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Alodokter. Khasiat Kencur Bisa Menyaingi Efek Obat-obatan Moder.	
Amir, Senjito A.M (2020). Tumbuhan Yang Dimanfaatkan Sebagai Obat Oleh Masyarakat Dayak Bakumpai Yang Tinggal Di Tepian Sungai Karau, Desa Muara Plantau, Kabupaten Buntar Timur, Kalimantan Tengah, Indonesia. Prosiding Seminar Nasional Lingkungan Lahab Basah 3(1), 127-132.	
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Handayani, Tutty. 2013. Apotik Jakarta.CV Ilmu Padi	
Infra Pustaka Makmur	



Cover Closing



Development Stages

Products that have been developed furthermore validated and assessed its eligibility by the validator. Stages validation products that will be carried out by media expert validators and experts' material is stages important in research that has been done. Aspects eligibility used for validating media by expert media validators, including a number of indicators namely: a) Size *e-magazine*, b) *e-magazine design* (cover), and c) content design *e-magazine*. Meanwhile for expert validators material aspect assessed that is eligibility content, eligibility presentation and suitability linguistic aspects eligibility content used for validate the material in the *e-magazine media* is: 1) Conformity material with ATP and CP, 2) Accuracy material, 3) Up-to-date material and 4) Encourage curiosity. While aspect eligibility presentation includes: 1) Presentation techniques, 2) Support presentation and 3) Presentation learning and aspects Language suitability includes: 1) Use of straightforward language, 2) Use of communicative language, 3) Use of dialogical and interactive language, 4) Use of appropriate language with development students and 5) Use of appropriate language with Language rules. Recapitulation media expert validator assessment can see in Table 7.

Table 7. Recapitulation Media Expert Validator Assessment

Media Validator	Presentation	Criteria
Validator I	85.18%	Very Valid
Validator II	85.18%	Very Valid
Validator III	94.07%	Very Valid
Average	88.14%	Very Valid

Based on analysis table on obtained average assessment ethnobotany *e- magazine* based plant medicine by media experts of **88.14%** with criteria **very valid**, so that the media developed worthy used.

As for the recapitulation expert validator assessment material can see in Table 8.

Table 8. Recapitulation Assessment of Subject Matter Expert Validator

Material Validator	Presentation	Criteria
Validator I	84.44%	Very Valid
Validator II	73.88%	Valid
Validator III	80%	Valid
Average	79.44%	Valid

Based on results analysis from table on obtained average assessment ethnobotany *e- magazine* based plant medication by an expert material as big as **79.44%** with criteria **valid**, so that material in the *e- magazine* has in accordance with objective learning and worthy for used. The table above shows the average calculation from media experts and experts' material. Based on table above, can concluded that level validity ethnobotany *e-magazine* based plant medicine on the material Biodiversity in students class X of SMA Negeri 1 Sengah Temila amounted to **83.79%** with criteria **very valid** and worthy used in the learning process at school.

According to Rahdiyanta (2020:3) learning media that has been made must done evaluation and revision so that learning media is produced worthy and able used in the learning process at school. In validation This there is a number of repairs from media expert validators and experts' material that is as following:

Table 9. Media Expert Validator Revision

No	Improvement Suggestions
1.	Repair background behind the media
2.	Repair picture
3.	Improve documentation layout & fonts 2025 personal downsized
4.	Add plant typical as a headline
5.	Add Regency Hedgehog after Dusun Tonang in the foreword
6.	List of contents letter big every word
7.	Remove pictures 1 and 2 in the instructions use & replace part instruction use customized with design latest
8.	Author's biodata framed

Table 10. Revision of Material Expert Validators

No	Improvement Suggestions
1.	On page 10, the sentence asks the picture raised let when see direct read sentence ask formerly before see picture
2.	Arrangement writing paragraph f, settings space repaired
3.	Adapt return between the table of contents and its contents

After finish stages validation so researchers do repair before being tested in schools. The improvements made can see at Table 11.

Table 11. Improvement Results Media Expert Validator Revision

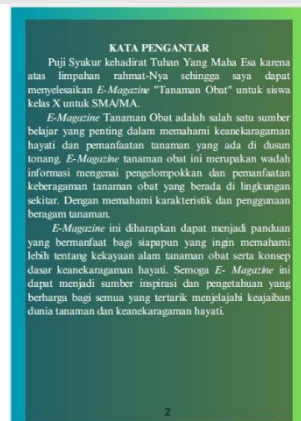
Repair background behind the media	
Before revised	After revised
	
Repair picture	
Before revised	After revised
	
Improve documentation layout & fonts 2025 personal downsized	
Before revised	After revised
	

Add plant typical as a headline

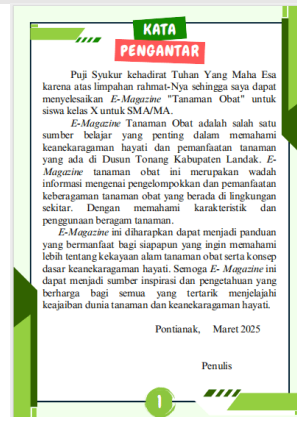


Add Regency Hedgehog after Dusun Tonang in the foreword

Before revised



After revised



List of contents letter big every word

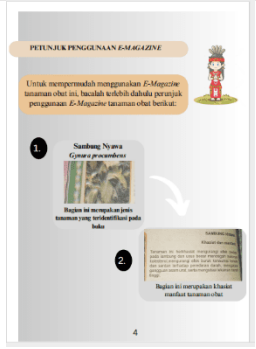
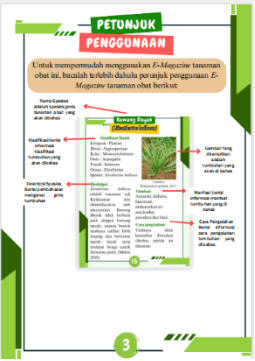
Before revised

DAFTAR ISI	
Kata Pengantar	2
Daftar isi	3
Petunjuk Penggunaan E-Magazine	4
Pendahuluan	7
Pengertian keanekaragaman hayati	9
Pengertian Tanaman Obat	10
Jenis-jenis Tanaman Obat	12
Daftar Pustaka	49
Biodata Penulis	50

After revised

DAFTAR ISI	
Kata Pengantar	1
Daftar isi	2
Petunjuk Penggunaan E-Magazine	3
Cupatan Pembelajaran	4
Akar Tujuan Pembelajaran	4
Pendahuluan	5
Pengertian Keanekaragaman Hayati	7
Pengertian Tanaman Obat	8
Jenis-Jenis Tanaman Obat	11
Rangkuman	45
Daftar Pustaka	46
Biodata Penulis	49

Remove pictures 1 and 2 in the instructions Use & Replace Parts instruction use customized with design latest

Before revised	After revised
	
Author's biodata framed	
Before revised	After revised
	

Results of the revisions made to input from media expert then researchers have done revision as in table 4.6 whereas for material validator improvements can see in Table 12.

Table 12. Improvement Results Material Expert Validator Revision

On page 10, the sentence asks the picture raised let when see direct read sentence ask formerly before see picture	
Before revised	After revised
	

Stage revisions that have been made finished revised based on the suggestions given by the validator. Then the product that the researcher develop can used for field trials.

The right size with devices used students, make easy *e-magazine* accessible so that student interested in the learning process. After that, aesthetics increases Power visual appeal and creating a pleasant atmosphere, so that students more motivated for reading and studying use *e-magazine*. Organized layout with good make it easier student find required information with fast, and ensure delivery effective information. Selection the right color can interesting attention student in the learning process. Clear typography and size appropriate letters are very important for comfort student in read *e-magazines* and increase aesthetics overall. With notice all aspect This is an *e-magazine* that was developed will increase interest and motivation student in the learning process. Stages validation that has been done in line with research conducted by (Hartanto, et al. 2020:3) where learning media that meets standard eligibility based on validity test results said to be valid for used in the learning process. Another opinion was expressed by (Padwa, 2021:21) who stated that learning media with design structured and directed can streamline the learning process in class, so that objective learning will easy achieve.

Ethnobotany *e-magazine* based plant drugs being developed has 3 parts The main points include 1) the opening section, 2) the content section and 3) the closing section, which make the learning process with use more *e-magazines* structured and directed. In addition, developed *e-magazine* This based plant drug Kanayatn Dayak tribe who created the learning process become better. Students involved active when use *e-magazine* media and find out about plant medicine in the yard home and so on expand information to plant drug.

Validity a learning medium is greatly influenced by relevance material with applicable curriculum, clarity and regularity presentation information, as well as use good and correct language. With Thus, the *e-magazine* has developed This show very good quality and worth it used as a learning medium in schools. Evaluation and revision carried out by researchers aim for improvement *e-magazine* that was developed. This is in line with opinion (Rahdiyanta, 2020:3) *e-magazine* which has made must done evaluation and revision so that *e-magazine* produced worthy and able used in the learning process in the classroom.

Implementation Stages

Stage implementation is stages Where products that have been developed and validated by subsequent validators is *e-magazine* is being tested scale small and acquired results questionnaire response. Trial product implemented as many as 2 trials product scale limited / small conducted at SMA Negeri 1 Sengah Temila class XB with 15 students and for trial scale area / large in SMA Negeri 1 Sengah Temila class XC as many as 35 students and trial scale small with respondents as many as 15 people. The purpose of activity This is for conduct a trial question and knowing response student to products that have been developed. Response results student done with objective for understanding response student towards the developed *e-magazine* media. Response test student to *e-magazine* that has developed started with use indicators evaluation namely a) interest, b) material and c) language contained in its *e-magazine* that has developed. The results obtained from the test response student can see in Table 13.

Table 13. Questionnaire Results Small Scale & Large-Scale Trial Response

Evaluation	Number of Students	Percentages	Criteria
Limited scale student response questionnaire	15	91.00%	Very Practical
Large-scale Student Response Questionnaire	35	92.11%	Very Practical

E- Magazine ethnobotany-based plant drug the Kanayatn Dayak tribe has developed own practicality test results with very practical criteria, namely with average percentage of 91.55% of the response test students. Practicality test results from response student obtained very practically. This is due to developed *e- magazine* based ethnobotany plant drug Kanayatn Dayak tribe so that make student interested for understanding types plant medicines in the area home. The *e-magazine* developed is very practical used as a learning medium in the classroom.

E-magazine said practical when easy used by students, has accessibility and flexibility that can used anytime and anywhere, effective in delivery materials, as well as push involvement student in the learning process and relevant with curriculum used at school. This is in line with opinion (Sulastri, 2019:6) which states that *e-magazine* said practical if fulfil indicator supportive assessment comfort and convenience users in access information. Learning media stated practical if practical in a way use that is response student towards learning media show category positive.

4. Conclusion

Validity ethnobotany *e- magazine* based plant drug ethnic group Dayak kanayant on the material diversity biological student class X of SMA Negeri 1 Sengah Temila obtained average result of media experts amounted to 88.14% and experts' material of 79.44%, so that the media developed very valid category. Practicality ethnobotany *e- magazine* based plant drug ethnic group Dayak kanayant on the material diversity biological student Class X of SMA Negeri 1 Sengah Temila obtained an average questionnaire response student by 91.55% with very practical category.

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