

The Feasibility of Magazine Media with Utilization of Indonesian Biodiversity Submaterial Based on Medicinal Plants

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ABSTRAK

This study aims to determine the appropriate use of learning media in the form of media for the use of sub-materials for the use of Indonesian biodiversity for class X, plant-based high schools. The research method used is descriptive. The research was conducted in 2 stages, namely plant inventory and media feasibility test. Inventory of medicinal plants in the village of Selat Remis was carried out by means of observation, interviews, and documentation. The results of the plant inventory in Selat Remis Village found 77 species of plants used by the community as used according to needs carried out in three stages of media creation, media validation, and data analysis. The magazine media was validated by two Biology education lecturers and three high school teachers who were determined using purposive sampling, namely, State Senior High School 1 Teluk Pakedai, State High School one Rasau Jaya, and Madrasah Aliyah Negeri 1 Kubu Raya. The validation assessment uses a Likert scale and data analysis based on the Lawhse formula (1975) by five validators and obtains a Content Validity Index (CVI) result of 1.00 so that the contents of the magazine media on the sub-material of the use of Indonesian biodiversity for class X Senior high school are said to be valid and feasible to use.

KEYWORDS

Learning
 Media
 Magazine
 Biology

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1. Introduction

Education is a process that can be carried out through learning, in the learning process is carried out systematically so that it can foster and help students achieve goals. One of the ways in which education can be done is through learning, one of the signs of someone learning is the occurrence of changes in behavior so that a better self-quality is achieved (Tatang, 2012). According to (Thobroni, 2016), learning is a business process carried out by a person to obtain changes in behavior and gain knowledge and master knowledge, it is necessary to have a tool or material that can be used in the learning process, one of which is learning media.

Learning media is a process used by teachers to students in order to convey information, therefore with the existence of learning media can create an effective and efficient learning process, if using only biology textbooks in learning will be ineffective and efficient so that interest learning can decrease (Pribadi, 2017) According to (Setyo Eko Atmojo, 2009) in learning biology, a teacher is required to invite students to use local plants as a real learning resource, such as the use of medicinal plants.

Medicinal plants are used to treat or prevent a disease, medicinal plants have been widely used since ancient times where this knowledge was obtained from generation to generation from ancestors by taking plants naturally in nature and processed by themselves (Widyastuti, 2014). This is in line with the opinion of (Pranaka, Yusro, & Budiastutik, 2020), that medicinal plants can prevent disease so that skills and knowledge in blending are needed from the local wisdom of the local community, and medicinal plants are easier to obtain in the surrounding environment. As is the case with the people in the Remis Strait Village, they still use plants in the surrounding environment as medicine.

A Selat Remis Village is a village located in Teluk Pakedai District, Kubu Raya Regency, where people still use plants as traditional medicine. People still believe in the use of plants to treat and treat disease, because it is safer to consume and cheaper, and easy to obtain in the surrounding environment. Knowledge about the use of medicinal plants is important to know so that the information is not lost,

thus it is necessary to carry out an inventory of medicinal plants in Selat Remis Village, the results of the inventory of medicinal plants are published in learning media so that they are useful for students because of the large potential of local plants. The local potential that exists around the student's environment may be used as biological material to improve biology learning (F. N. Hasanah, 2020; Rudiawan, Hanik, & Nugroho, 2021)

Based on the results of observations and interviews with Biology subject teachers at senior high school one Teluk Pakedai on November 4, 2019, information was obtained in the learning process for the sub material of the use of Indonesia's biodiversity, the teacher used to lecture, discussion, and practical methods by observing directly in the surrounding environment, but there was The obstacle is that the plants around the school are relatively few and homogeneous so that it is less effective to make observations, and the time is limited, making it difficult for students to directly search for plant species used in everyday life. During teaching and learning activities the teacher uses textbooks, but the books used have pictures that are not available in color and provide examples of limited pictures. This limitation can be fulfilled by the existence of a media that can help such as *PowerPoint*, but *PowerPoint* cannot always be used because there are obstacles faced, namely because the provision of focus is limited and usually there is a long blackout of lights so that it can hinder the delivery of material. , as well as in the *PowerPoint* an image that is sourced from the internet also has problems, due to the difficulty of getting a signal. This can hinder the learning process, therefore there is a need for other alternatives in the form of print media that are used to assist teachers in the learning process such as magazines.

According to (Pratiwi, Gardjito, & Hamidah, 2018), magazine media are print-based media that contain content in the form of images that are displayed in a simple manner and packaged in an attractive manner and there is educative information (educational) making it easier for students to understand the concept of learning. According to (Riyani, 2013), the magazine is one of the print media that is used as a learning tool and can provide pleasure in the teaching and learning process, as well as the opinion of (Mustikarini, 2016) that magazine print media uses light language making it easier for students to understand a learning concept. The difference between magazine print media and other media is that magazine media has an unlimited number of pages with a minimum number of 49 pages.

The use of magazine media has been widely carried out, including the research by Supriyanto, (Ana Fatona, 2017) on the application of *Biomagz* as a supplement in learning the reproductive system in high school. set 77 and with the application of *Biomagz* it can improve learning outcomes for students in learning the reproductive system in high school, and (Yuniarti, 2015), that using the media of *Biomagz* magazine can improve the learning outcomes of students in class X state senior high school 2 Bangutapan, indicated by a value of 3.7% in 33 students in the high category, so that the magazine media is said to be effective and appropriate to be used as a learning medium, therefore with the plant-based magazine media, it is hoped that students can increase their sense of care for environmental sustainability in their area and facilitate the learning process sub-material of Indonesia's biodiversity.

2. Method

The research was conducted using a descriptive method. This research process has two stages, namely, the first stage is an inventory of medicinal plants in Selat Remis Village, Teluk Pakedai District, Kubu Raya Regency, and the second stage is a feasibility test as a learning medium. In the first research stage, the inventory of plants that are efficacious as drugs is taken by sampling using the snowball sampling technique. Data collection techniques can be done by means of triangulation, namely a combination of interviews, observations, and documentation.

After the medicinal plant data, the second stage of research was carried out, namely the feasibility test of the medicinal plant-based magazine media. The feasibility test of the medicinal plant-based magazine media was carried out in 3 stages, namely: 1) making magazine media, 2) validating magazine media, 3) analyzing data from validation results. The magazine was made using the Adobe Photoshop CS 6 application using glossy type art paper with a size of 21 x 29.7 cm using various colors and types

of writing fonts with attractive colors. Magazine making was adopted from (Asfuriyah, 2015) which was modified with the following stages: 1) analysis of core competencies and basic competencies, 2) determining magazine rubrics, 3) magazine preparation. As for the magazine structure adopted from (Suryani, 2016) the magazine has the following format: 1) cover, 2) editor, 3) table of contents, 4) core competencies, basic competencies and learning objectives, 5) content pages (Scientific, Spotlight). , Get to learn more, bio info, scientist profile, crossword puzzle, bibliography), 6) cover page.

Furthermore, the validation of the magazine media was carried out. Validation aims to seek from the media that will be used in learning. First of all, instrument validation is carried out which aims to assess the validation sheet used to validate the media that has been made. The instrument was validated by two biology education lecturers, FKIP Tanjungpura University. Instruments that are declared suitable for use can then be used to validate magazine media. Magazine validation is carried out to test the feasibility of the media that has been made using previously validated instruments. The magazine media validators consist of two lecturers of Biology Education FKIP Tanjungpura University and three validators in the form of a class X teacher who teaches the sub-material on the utilization of biodiversity for high school teachers in Teluk Pakedai, high school teachers for Rasau Jaya, and state madrasah aliyah teachers for Kubu Raya. . Magazines are validated by taking into account three aspects, namely language aspects, content aspects, and construction aspects. Of the three aspects, a total of 14 criteria were assessed.

After the magazine is validated by the five validators, then a validation analysis is carried out based on the Content Validity Ratio (CVR). According to (Lawshe, 1975), CVR is a content validity approach to test the suitability of media with criteria based on measurement results set by experts or validators.

The CVR analysis formula is

$$CVR = \frac{Ne - \frac{N}{2}}{\frac{N}{2}} \dots\dots\dots(1)$$

Information:

Ne = Number of panelists/validators who agree on the validity of the media (considered agreeing if the value of each criterion reaches 3 to 4 if less than 3 it is considered not agreeing with the validity of the media.

N = Total number of experts / validators.

After obtaining the CVR value from each assessment criterion, then the Content Validity Index (CVI) is calculated to describe the overall criteria that the magazine media created has good content validity. The CVI formula is as follows:

$$CVI = \frac{CVR}{\Sigma n} \dots\dots\dots(2)$$

Information:

CVR = total number of CVR.

n = total number of criteria items

If the final score for the calculation of CVR and CVI analysis reaches the minimum limit set by (Lawshe, 1975) which is 1.00, then the herbal magazine made can be recognized as valid and can be used in the teaching and learning process.

3. Results and Discussion

Results Based on research on medicinal plants in Selat Remis Village, Teluk Pakedai District, Kubu Raya Regency to the community in three hamlets namely Swadaya Hamlet, Sepakat Hamlet, and Karya Bakti Hamlet with a total of 59 informants, it was found 77 types of medicinal plants consisting of 43 families. The data obtained from the results of this medicinal plant inventory research include photos of plants, classifications, descriptions of the plants obtained, and the use of plants.

Based on the data from the medicinal plant inventory research, a herbal magazine was made as a learning medium. Magazines are visual media in the form of prints that resemble books, but the

presentation is much lighter and more interesting because there are more images presented than (Mustikarini, 2016) book. Magazines have an unlimited number of pages with the minimum number in the magazine is at least 49 pages by (Sitepu, 2015), while according to (Munadi Y, 2013) magazine media are media that can convey actual, factual, and up to date news, in line with the opinion of (Najihah & Sanjaya, 2014) that magazine media is media that contains certain information, and the text in the magazine is made very varied and the pictures contained in the magazine media can be combined with attractive colors so that it can attract reading interest for students.

Herbal magazine that contains information about the editorial section, table of contents, KI, KD and learning objectives, scientific, *spotlight*, *get learn more*, info bio, scientist profiles, rosswords, and bibliography. Magazine making is done using *Adobe Photoshop CS6* with various color combinations, using various types of fonts for large titles using free fonts such as *Neue*, *Blacksword*, *Gotham Light*, *Rage Italic*, *Handycheera*, *Times New Roman* with various sizes, as well as variations. supporting pictures, especially the contents of the magazine by using *Gotham light* font with various sizes. This magazine is printed using glossy art paper with a size of 21 x 29.7 cm. The following are the results of making herbal magazines media.

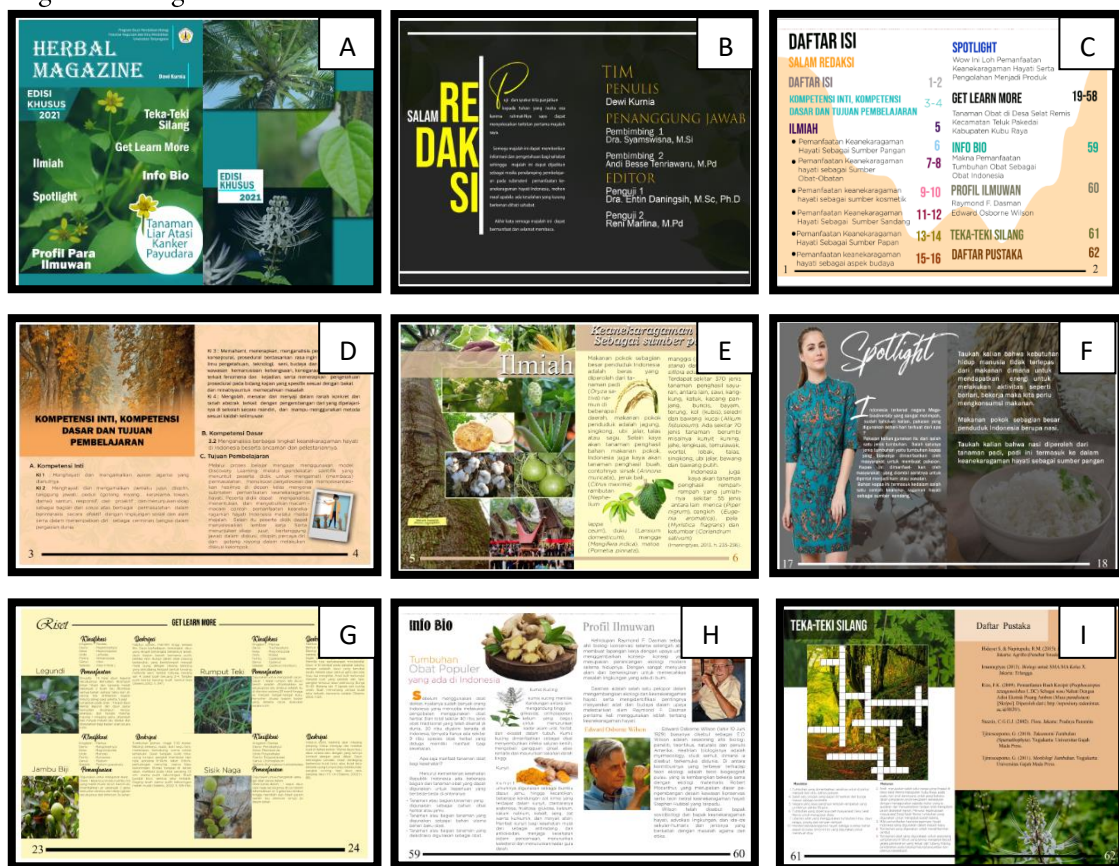


Figure 1. Herbal Magazine Display

The magazine that has been made is validated by five validators consisting of two Biology Education lecturers, FKIP Universitas Tanjung Pura, and three biology teachers for class X high school at the designated schools, namely the teacher of the state high school one Teluk Pakedai, the teacher of the state Madrasah aliyah one Kubu Raya, and a teacher at the state high school one Rasau Jaya. The results of the validation of the magazine media can be seen in Table 1.

Magazines were validated using an instrument that had already been validated using an instrument validation sheet and analyzed using the Guttman scale by answering yes (Y) or no (T) to a criterion used to assess the feasibility of herbal magazines until it was concluded that the instrument was “Appropriate to Use.” (LD), “Appropriate to Use and Repair” (LDP), and “Not Worth Using” (TLD)

(Sugiyono, 2017). After that, the instrument that has been validated is then used to validate the magazine media that has been made. The magazine media validation sheet consists of 14 criteria for assessing magazines as well as an assessment column in the form of a Rating scale and also a comment or suggestion column that can be filled in by the validator so that the magazine media can be better in the future.

Table 1. Results of Magazine Media Validation Analysis

Aspect	Assessed Criteria	Validator					CVR	Categori
		1	2	3	4	5		
Language	1. The language used in the magazine is easy to understand	4	4	4	4	4	1,00	Valid
Contents	2. The suitability of the syllabus, basic competencies and learning objectives, the correctness of the concept and context of life with the contents of the sub-material on the use of Indonesia's biodiversity in the magazine.	4	4	4	4	4	1,00	Valid
	3. Information presented in magazine media	4	4	4	4	4	1,00	Valid
	4. The layout makes it easier for readers to understand the contents of the magazine	4	3	4	4	4	1,00	Valid
	5. Illustration of magazine content supports the material	4	4	4	4	4	1,00	Valid
	6. The magazine format is arranged systematically	3	4	4	4	4	1,00	Valid
	7. Complete information presentation of medicinal plants in to <i>Get Learn More</i>	4	4	4	4	4	1,00	Valid
	8. The usefulness of the material to knowledge	4	4	4	4	4	1,00	Valid
	9. Magazines can be used as alternative media to teach sub-materials on the use of Indonesia's biodiversity	4	4	4	4	4	1,00	Valid
	Construction	10. The color presentation in the magazine is harmonious and attractive	3	3	4	3	4	1,00
11. The cover layout is harmonious and attracts reading interest		4	4	4	4	4	1,00	Valid
12. The cover illustration can reflect the contents of the magazine		4	4	4	4	4	1,00	Valid
13. Easy to read typography		3	4	4	3	4	1,00	Valid
14. Media Resilience		4	4	4	4	4	1,00	Valid
CVI						1,00	Valid	

Information:

CVR= Content Validation Ratio Index

CVI= Average CVR

The results of the identification of the plants that were inventoried from the Remis Strait Village, then implemented in print media in the form of magazines. The selection of magazines as learning media is due to the lack of use of magazines as learning media, especially in West Kalimantan. Most of the information presented in the magazine is actual, educative, and factual information. In other words, this information is different from the teaching materials used by students in schools. An attractive magazine graphic display and lots of pictures can attract students to read it. Magazines that have been completed are then validated. Magazine media validation was carried out by five validators consisting of an expert on lower and higher plant taxonomy and a media expert, as well as a teacher who teaches in class X SMA. The selection of this validator adjusts to the needs and environmental conditions. The validation sheet used consists of 14 criteria to test whether the herbal magazine is

appropriate or not suitable for use in the process of teaching and learning activities in high school (SMA).

The first criterion, the language used in the magazine is easy to understand. On this criterion, a score of four was obtained from the first, second, third, fourth, and fifth validators and a calculated CVR score which was worth one so that it was considered valid. This has reflected that the magazine media that have been made are in accordance with the criteria and do not need to be repaired. The magazines that have been made have used sentences that do not contain double meanings, short and concise language, and have used standard everyday language so that they are easy to understand. The language used in the magazine media does not contain multiple meanings so that readers do not feel confused in reading the contents of the magazine (Fuad & Palennari, 2020) This is in accordance with the opinion of (H. & M. Hasanah, 2016), which states that in the magazine media the language used is good and correct journalistic or Indonesian language and is short, dense, simple, straightforward, interesting, and clear.

The second criterion, in accordance with the syllabus, basic competencies, and learning objectives the truth of the concept and the context of life with the sub-material of the use of Indonesia's biodiversity in the magazine. In this criterion, the first, second, third, fourth, and fifth validator scores give a value of four with a CVR value that is worth one so that it is considered valid. This reflects that the content published in the magazine has complied with the criteria and does not need to be revised. In the magazine media that has been made, several components that must be achieved in the learning process have been listed which include core competencies (KI), basic competencies (KD) contained in the syllabus, and learning objectives regarding the sub-material of the use of Indonesia's biodiversity. This is in accordance with the opinion of (Indaryanti, E, 2018), in the learning process must contain core competencies (KI) and KD so that learning objectives can be achieved properly and according to (Nurrita, 2018), if it is not guided by KI and KD then it cannot benefit the participants educate.

The third criterion is the information presented in the magazine media. On this criterion, the first, second, third, fourth, and fifth validator scores obtained a score of four with a calculated CVR value of one so that it is considered valid. This reflects that the content published in the magazine has met the criteria and does not need further improvement. In the magazine media, the information presented already contains 3 criteria, namely factual, current and educative. This is in accordance with the opinion of (Khoirina, 2021) that magazine media contain factual information in written form. A factual magazine is a magazine that contains facts that can be proven by one of the information regarding the types of medicinal plants in the Selat Remis Village, Teluk Pakedai District. This is in accordance with opinion (Andi, 2014), that the greater the actuality value, the higher a person's reading interest and the information presented is actual, it can also attract people's attention in reading because usually people who read want the latest and most actual information. The main target of the herbal magazine which is made for high school students, therefore the information contained in the magazine must be educative (educative), by informing students about the benefits of plants as medicine, so that it is hoped that students can enrich their knowledge and improve their knowledge concern for environmental sustainability regarding medicinal plants.

The fourth criterion of layout makes it easier for readers to study the contents of the magazine. On this criterion, a score of three was obtained by the second validator and a score of four from the first, third, fourth, and fifth validators, and a calculated CVR score of one so that it is considered valid. On this criterion, a good magazine has a content layout that is consistent with the design of the magazine that has been made, a clear difference in the distance between paragraphs, and the content text in the magazine is related. The design of the magazine keeps people interested in reading while the text of the body clarifies the visual image that the reader receives. For this reason, a good layout is needed so that the information contained in the magazine can be conveyed to the reader correctly. According to (Oktiningtyas, 2018), the layout is one of the quality parameters of magazine content which is the difference between magazines and other media which aims to compose, organize and integrate communication elements in the form of text, images, tables, and others into communicative and

interesting visual communication. . And according to (Gumelar, 2014), there is a good selection of text that includes text continuity and clear spacing between paragraphs so as to make magazine readers receive information clearly and well.

The fifth criterion is the illustration of the contents of the magazine that supports the material. In this criterion, the first, second, third, fourth, and fifth validators give a value of four with a calculated CVR value of one so that it is considered valid. This reflects that the content published in the magazine has met the criteria and does not need further improvement. In the magazine media that have been illustrated, the contents of the magazine are clear, proportional in terms of shape and color, and create attractiveness. With clear illustrations that can describe the contents of the magazine section and the magazine has an interesting impression so that it increases one's reading interest (Prayanto, 2007). This is in accordance with the opinion of (Astuti dan Aulia, 2014), that the illustrations/images presented must be in accordance with the content or needs of a magazine. A person who is said to be a good graphic designer must be able to make illustrations and layout elements to make it look neater, making it easier for students to read and attract reading interest in the magazines that are made. In this study, illustrations can be in the form of photos that appear on the cover which can psychologically trigger students to respond to news illustrations presented in magazine media. In this case, an illustration of the cover section in the form of medicinal plants is used with the aim of making students in particular able to study the sub-material of the use of Indonesia's biodiversity.

The criterion is that the magazine format is arranged systematically. On this criterion, the score of the first validator gives a value of 3 and the second, third, fourth, and fifth validators give a score of four with a CVR value so that it is considered valid. In the magazine media, the magazine format is complete and systematically arranged which includes the cover, editor, table of contents, core competencies (KI), basic competencies (KD), basic competencies (KD), basic competencies (KD), content pages contains (scientific, spotlight, get to learn more, bio info, scientist profile), bibliography, cover page in the form of a crossword puzzle. This is in accordance with the opinion of (Kurniawati, 2015) in a magazine media development must be designed systematically which includes cover, editor, table of contents, content page, and back cover, with a format that is arranged systematically can help in the learning process.

The seventh criterion is the completeness of information on medicinal plants in to Get To Learn More. In this criterion, the first, second, third, fourth, and fifth validator scores provide empathy values with CVR values so that they are considered valid. This reflects that the content published in the magazine has complied with the criteria and does not need to be revised. the magazine media that has been made in the to Get to Learn More content section, contains information consisting of Indonesian names, pictures, scientific classifications, descriptions, and uses. This is in accordance with (Fardiana, 2014) in presenting a media, it must meet the complete presentation requirements so that people who read can be interested in one of the news presented in the media, one of the accessories can be in the form of images that support the news so that people are faster in understanding the content of news that has been presented.

The eighth criterion is the usefulness of the material to knowledge. In this criterion, the first, second, third, fourth, and fifth validator scores provide empathy values with CVR values so that they are considered valid. This reflects that the content published in the magazine has complied with the criteria and does not need to be revised. the magazine media which has contained knowledge about the sub-material being studied already contains pictures of plants and their benefits in daily life and contains procedures for managing medicinal plants. This is in line with the opinion of (Sari, Syamswisna, & Yokhebed, 2016), the material is equipped with knowledge about the benefits and procedures for processing plants in daily life. So that students can practice directly how to use traditional medicine according to their needs and students can be explored for processing these plants so that they can be useful for students.

The ninth criterion is that magazines can be used as alternative media to teach sub-materials on the use of Indonesia's biodiversity. On this criterion, the first, second, third, fourth, and fifth validator

scores obtained a score of four with a calculated CVR value of one so that it is considered valid. This reflects that the content published in the magazine has met the criteria and does not need further improvement. In the magazine media, the information presented already contains 6 components, namely as a source of food, a source of medicines, a source of cosmetics, a source of clothing, a source of boards, and as a cultural aspect. This is in line with (Beatha et.al, 2018), that magazine media can be used as an alternative learning media for Indonesia's biodiversity.

The tenth criterion is that the color presentation in the magazine is harmonious and attractive. On this criterion, a score of three was obtained for the first, second, and fourth validators and the third and fifth validators gave a score of 4 with a calculated CVR value of one so that it was considered valid. In the magazine media that are made appropriate in the presentation of colors that are harmonious and attractive, it can be seen from the color of the text contrasting with the background, varying colors and colors that do not cause visual difficulties for students with special needs. This is in accordance with the opinion of (Hasian, 2019), that in the magazine media there are various colors so that it can add interest to people reading.

The eleventh criterion is that the cover layout is harmonious and attracts reading interest. On this criterion, the first, second, third, fourth, and fifth validator scores obtained a score of four with a calculated CVR value of one so that it is considered valid. This reflects that the content published in the magazine has met the criteria and does not need further improvement. In the magazine media that has been made it is appropriate where the layout of the cover must be in harmony with the content of the sub-material on the utilization of Indonesia's biodiversity, the layout is consistent between the cover design and the design of the content section and attracts reading interest. This is in accordance with the opinion of (Gumelar, 2014), that the layout of the cover is very important because it is the first visual attraction when people read because it must be designed according to the content.

The twelfth criterion is that the cover illustration can reflect the contents of the magazine. On this criterion, the first, second, third, fourth, and fifth validator scores obtained a score of four with a calculated CVR value of one so that it is considered valid. This reflects that the content published in the magazine has met the criteria and does not need further improvement. In the appropriate magazine media that contains cover illustrations, it must be in accordance with the sub-material of the utilization of Indonesia's biodiversity, cover illustrations create attractiveness, and cover illustrations match the shape and color. This is in accordance with the opinion of (Oktiningtyas, 2018) that the presence of illustrations/pictures that match the content can attract reading interest. In the herbal magazine that has been created, the illustration on the cover has reflected the contents of the magazine which talks about medicinal plants. The cover illustration consists of pictures of medicinal plants which are the subject of discussion in the magazine and are given a color combination, which aims to attract someone's interest in reading.

Score of four was given to the second, third, and fifth validators with a calculated CVR value of one so that it was considered valid. In magazine media, the type of writing and size is easy to read and normal lines are 1-2 spaces. This is in accordance with (Witari & Wardana, 2017), that the letters used are capital letters for magazine titles while subtitles are made small with the font size not too small and far apart.

The thirteenth criterion is easy to read typography. On this criterion, a score of three was obtained for the first and fourth validators and the fourteenth criterion is media resilience. On this criterion, the first, second, third, fourth, and fifth validator scores obtained a score of four with a calculated CVR value of one so that it is considered valid. This reflects that the content published in the magazine has met the criteria and does not need further improvement. In the magazine media that has been made, it is appropriate to use paper that is not easily torn, the quality of the binding is neat and the media can be used more than once. This is in accordance with the opinion of (Nurrirta, 2018) which states that resistant media must have good quality, one of which is the selection of paper that is not easily damaged, and can be used more than once so that it can give good results in the learning process.

Based on the overall results of the validation of the magazine media that was made entitled "herbal magazine" the sub material of Indonesia's biodiversity for class X High school out of five (5) validators obtained a CVI value of 1.00 or a valid category (Table 1) so that the herbal magazine media is declared valid or suitable to be used as a learning medium in the submaterial of the use of Indonesia's biodiversity in class X high school. Learning media products that have been validated and get a proper category can then be continued to be implemented in schools (Subiyantoro & Nugroho, 2018). It is hoped that this learning media can be applied and improve student activities, learning outcomes, and contribute to improving the quality of biology learning.

4. Conclusion

Based on the results of research on the use of medicinal plant-based biological diversity sub-material media (herbal magazines) obtained a CVR value according to the criteria of 1,00 and a CVI value equal to 1,00, so it can be said that the site for the use of Indonesian biodiversity sub-material for class X high school is said to be valid and feasible to use.

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