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Validity of Learning Media on the Form of Booklet Types of Bryophytes in the Riverbanks of Wisata Alam Sungai Kembang for Senior High School Student Grade X

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Abstract

Media in biology learning is one of the means so that students understand the concept of biology in a broad sense. Most students still find it difficult to understand the concept of biology, especially in the Bryophytes sub-concept because of the lack of local potential-based references that are directly related to student life. This encourages researchers to develop learning media in the form of booklets on the Bryophytes sub-concept Plantae. The purpose of this study was to describe the results of the validity of the Bryophytes booklet on the banks of the wisata alam Sungai Kembang as a high school learning medium for Grade X. This study used descriptive research methods and 4D model development methods. The validation test was carried out by experts consisting of 2 validators with an overall validity value of 84.21% with very valid criteria and suitable for use as a learning medium.

Abstrak

Media dalam pembelajaran Biologi merupakan salah satu sarana agar peserta didik memahami konsep pada Biologi secara luas. Kebanyakan peserta didik masih sulit untuk memahami konsep Biologi terutama pada sub konsep Bryophyta karena kurangnya referensi berbasis potensi lokal yang berkaitan langsung dengan kehidupan siswa. Hal tersebut mendorong peneliti untuk mengembangkan media pembelajaran berupa booklet materi Plantae sub konsep Bryophyta. Tujuan penelitian ini adalah untuk mendeskripsikan hasil validitas booklet Bryophyta di bantaran sungai wisata alam Sungai Kembang sebagai media pembelajaran SMA untuk Kelas X. Penelitian ini menggunakan metode penelitian deskriptif dan metode pengembangan model 4D. Uji validitas dilakukan oleh para ahli yang terdiri dari 2 validator dengan nilai validitas keseluruhan yaitu 84,21% dengan kriteria sangat valid dan layak digunakan sebagai salah satu media belajar.

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A. Introduction

Wisata alam Sungai Kembang is a river or cascade located in the village of Awang Bangkal Barat, Karang Intan District, Martapura City, Banjar Regency, South Kalimantan. Based on the observations made, the wisata alam Sungai Kembang has a height of more than 250 m above sea level with a row of shady trees and a stream in the middle that supports moisture in this place. This corresponds to Bryophytes habitats that require humid and wet environmental conditions.

According to Tjitrosoepomo (1981), Bryophytes is a plant that has not been distinguished parts (thallus) and is found in moist and wet environments, many found living attached to various substrates, such as hitchhiking in other living plants (epiphytes), stones, bark, and can grow on the surface of the soil (terrestrial). This plant has many uses in the balance of ecosystems, one of which is as a pioneer plant that can grow first on damaged land.

Bryophytes types that grow in an area can be used as a learning resource for high school students of grade X in the Bryophytes subconcept. Because Bryophytes is one of the subconcepts on Plantae material that is included in the subject of biological biology high school grade X. According to the 2013 curriculum, basic competencies in this material student are expected to be able to apply classification principles to classify plants and relate their role in survival on earth.

Based on interviews with Biology subject teachers at SMAN 10 Banjarmasin regarding the Bryophytes sub-concept, students still have difficulty understanding the material due to the lack of local potential-based references that are directly related to student life. The reason for not implementing local potential-based learning is due to limited information and time difficulties in making it, and determining learning materials that are relevant to potential, while the characteristics of the 2013 curriculum emphasize that learning is applied in everyday life in the hope of training students' ability to socialize and learn to identify local potential problems in the region independently.

Media in Biology learning is one of the means used by teachers so that students can understand the concept of Biology widely. Choosing the right media as a tool in biology learning will increase students' interest and motivation, and help students in understanding the material to be delivered (Fajeriadi *et al.*, 2019). Learning media is a means of communication and interaction between teachers and students in the learning process. The main function of learning media is as a teaching tool that can motivate students and be created by teachers (Arsyad, 2013). Learning media that is developed based on the biodiversity of an area can increase students' interest in learning (Irwandi & Fajeriadi, 2020). Media can be print and electronic media, one example of learning media in print is the booklet.

According to Septiwiharti (2019), a booklet is a tool, means, and supporting resource to convey the content of the material to be delivered. The booklet contains important information, the contents of the booklet are clear, firm, and easy to understand and will be more interesting if accompanied by images.

According to Rahmatih *et al.* (2018), the advantages of booklets from other print media are easy to carry because they are small, equipped with concise and systematic explanations, as well as illustrations, which facilitate students' understanding of a concept and fact.

Based on this research and development on learning media in the form of booklet Bryophytes riverbanks of Wisata Alam Sungai Kembang for High School Grade X to describe the validity of booklets developed about the types of Bryophytes in the Sungai Kembang.

B. Materials and Method

The development of Bryophytes booklet learning media uses a type of research and development with 4D models. The procedure in 4D model development research consists of 4 stages, namely: define, design, development, and dissemination (Thiagarajan, 1974). In summary only 3 stages, namely define, design, and development.

The place of research is the wisata alam Sungai Kembang, Awang Bangkal Barat Village, Karang Intan District, Banjar Regency, South Kalimantan. The research time was conducted from January to May 2020.

The stages of this research are: 1) the definition stage, including (a) early analysis; (b) student analysis; (c) task analysis; (d) concept analysis; and (e) formulation of learning objectives, 2) the design stage includes: (a) selecting learning media that suits the characteristics of the student; (b) design the initial design of the booklet; and 3) the development stage, namely expert validation by two supervisors.

The calculation of expert validation results against the booklet developed then analyzed using the calculation of expert validation score referring to Akbar (2015) that has been modified is set to 0-<20 means invalid and unused, 20-<40 means less valid and must be revised in total, 40-<60 means valid enough but many have to be revised, 60-<80

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means valid but there are few revisions, and 80-100 means very valid and without revisions.

C. Results and Discussions

The validation data for learning media products was obtained from the validation instruments given to the validators, namely two lecturers of Biology Education, FKIP ULM. The results of the validation of learning media in the form of booklets can be seen in Table 1.

Table 1 Validation Test Results for Bryophytes Riverbanks of Wisata Alam Sungai Kembang

No.	Validated Indicators /Aspects	Value (%)	
		V1	V2
1.	Relevance	80%	100%
2.	Accuracy	80%	80%
3.	Completeness of Servings	76%	100%
4.	Systematic of Serving	70%	80%
5.	The suitability of the presentation with the demands of student-centered learning	66,67%	80%
6.	Conformity of Language with good and correct Indonesian Language rules	80%	100%
7.	Readability and communicativeness	80%	100%
8.	Conformity of Media	80%	100%
9.	Media capabilities as a learning stimulus	80%	85%
10.	Ease of media in learning practices	65%	100%
11.	Media design	80%	80%
12.	Media quality	80%	100%
Average		**84,21%**	

Information:
V1 = validator 1 (expert), V2 = validator 2 (expert)

Based on the table above the percentage obtained for booklet Bryophytes riverbank of Wisata Alam Sungai Kembang is 84.21% with a very valid category and worth using as one of the supporting learning media in schools.

The learning media booklet created is an educational booklet containing high school Biology material grade X about Bryophytes whose contents are tailored to the purpose of learning based on Basic Competencies in the Curriculum Syllabus 2013. This Bryophytes booklet contains about 1). Front cover; 2). Preface; 3). Table of contents; 4). Identity, core competencies, Basic competencies, and Achievement Indicators; 5). Instructions for use; 6). Deepening of the material designed with the pictures in it; 7). Results of research; 8) Glossary; 9). Bibliography; and 10). Back cover. Here's the framework of the learning media booklet developed:

Figure 1 Booklet front cover

Figure 2 Booklet back cover

Validation was conducted by 2 lecturers of Biology Education Study Program (on Departement of Mathematic and Natural Science Education, University of Lambung Mangkurat) who is also a supervisory lecturer, as validator 1 and validator 2. Some aspects that become indicators of booklet validation test are material relevance, material accuracy, completeness of serving, systematics of serving, suitability of serving with the demands of learning centered on students, conformity of language with good and correct Indonesian language rules, readability, and communicativeness, conformity of media, media capabilities as a learning stimulus, ease of media in learning practices, media design, and media quality. Validation tests are only done once, but before validating, some booklets are consulted by validators who then get some suggestions for

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improvement. Validation results and suggestions from validators serve as guidelines for revising /fixing product deficiencies. According to Suharsimi (2010), that a learning medium is said to be valid if the results match the criteria, in the sense of having parallels between the test results and the predetermined criteria.

Assessment of learning media booklet developed refers to 12 aspects, namely relevance aspects, accuracy aspects, aspects of completeness of serving, systematic aspects of presentation, aspects of conformity of serving with the demands of learning centered on students, aspects of conformity of language with good and correct Indonesian language rules, aspects of readability and communicativeness, aspects of media conformity, aspects of media capabilities as a learning stimulus, aspects of media ease in learning practices, media design aspects, and media quality aspects.

The relevance aspect is the material in the booklet relevant to the competencies that must be mastered by students and the description of the material meets the demands of the curriculum. The learning media booklet created is an educational booklet containing high school Biology material grade X Bryophytes whose contents are tailored to the purpose of learning based on Basic Competencies in the Curriculum Syllabus 2013. According to Pangestika and Suyanto (2013), a learning service can run optimally if there is conformity of competency standards, basic competencies, and completeness of material selection.

Aspects of accuracy are materials presented following scientific truth, related to daily life, and following student development. The material in the learning media booklet is made related to daily life because it uses examples that can be found in student life and booklet materials presented following the development of students based on the characteristics of the 2013 curriculum that emphasizes that learning is applied in daily life in the hope of training students' ability to socialize and learn to identify local potential problems in their area independently. According to Arsyad (2013), visual-based media plays a very important role in the learning process because it can facilitate understanding, strengthen memory, foster students' interests, and can provide a relationship between the content of the subject matter and the real world.

Aspects of completeness of the presentation on the booklet are to contain competencies that must be mastered by students, in the booklet is also presented a table of contents of the bibliography and glossary. Bryophytes booklets developed to consist of 1). Front cover; 2). Preface; 3). Table of contents; 4). Identity, core competencies, Basic competencies, and Achievement Indicators; 5). Instructions for use; 6). Deepening of the material designed with the pictures in it; 7). Results of research; 8) Glossary, 9). Bibliography, and 10). Back cover. According to Sitepu (2012) the elements or basic parts that are physically contained in the book such as booklets namely the skin (cover) and the contents of the book, the front (preliminaries) containing the title page, blank pages, main title pages, table of contents pages and prefaces, each page number in the front of the textbook using small Roman numerals. The text section contains the lesson materials that will be delivered to students, consisting of chapter titles, and subtitles, each part of the new chapter is created on the next page and numbered with a page beginning with the number 1. The back section consists of a list of libraries, glossaries, and indexes, but the use of glossaries and indexes in a book only if the book uses many terms or phrases that have a special meaning and are often used in the book.

The systematic aspects of presentation such as the description of the material in the booklet follow a simple to complex mindset and the interrelationship of the booklet design dish with the description of the material. The material created in the booklet already contains a simple to complex thought flow and the design on the booklet corresponds to the description of the material. According to Rahmatih *et al.* (2018), the advantages of booklets from other media are easy to carry because they are small, equipped with concise and systematic explanations, and drawings as illustrations that facilitate students' understanding of a concept and fact.

Aspects of the suitability of the presentation in the booklet with the demands of student-centered learning such as encouraging student curiosity, encouraging students to build their knowledge, and encouraging students to make observations independently in their environment. The material presented in the booklet can encourage students to build their knowledge and make observations independently in their environment. According to Pralisaputri *et al.* (2016), booklets are informative, their attractive designs can arouse curiosity so that student's understanding of a concept is more meaningful. Booklets designed based on environmental problems around students are considered more contextual, applicable, and able to provide real learning experiences.

Aspects of language conformity with good and correct Indonesian rules such as accuracy using spelling on the material, terms on the material, and the preparation of sentence structures on the

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material. The spelling used, the use of terms, and the sentence structure on the booklet are following the rules of The Indonesian language that is good and correct. According to Septiwiharti (2015) booklet contains important information, the contents of the booklet must be clear, firm, easy to understand, and will be more interesting if accompanied by images. In addition, the language used is following PUEBI (General Guidelines for Spelling Indonesian) which can be understood by high school students.

Aspects of readability and communicativeness such as the language used are easy to understand, the length of the material sentences according to the level of understanding of the student, and the structure of the material sentences presented following the student's understanding. Media booklets made the language used are easy to understand following PUEBI that can be understood by high school students. On the length of the sentence, and the sentence structure contained in the contents of the booklet following the understanding of the student.

Aspects of media conformity such as adjusting the booklet to the purpose of learning, student character, and learning resources. Media booklets are made following the purpose of learning, characteristics of students, and learning resources. According to Prihadi (2010), in choosing media teachers should pay attention to the suitability of the media with learning objectives, and it is necessary to take into account whether the media is following the level of maturity and characteristics of students. To achieve the maximum expected results.

Aspects of media capabilities such as booklets as a learning stimulus to attract students' attention, create students' pleasure to learn moss, develop student motivation, and help understand and remember information. Media booklets created can attract students to learn moss and can motivate students to learn and help students to understand and remember information. Booklet has many colors and images displayed. According to Susilawati *et al.* (2015), pictures can arouse students' motivation and interest, as well as help students interpret and remember learning materials.

Aspects of media ease in learning practice such as booklet efficiency with the time of use, manufacturing costs, personnel use, and safety for students. According to Fitriastutik (2010), the advantages of booklets are 1) cheap and easy to make because the creation of media booklets using print media so that it can be cheaper when compared to audiovisual media, 2) the process of conveying information using media booklets to the target can be done rent-time and adapted to the target conditions, 3) this booklet in addition to there is text also visual (image) to create a sense of beauty and increase understanding and passion in learning, more detailed and clear, easy to understand and does not cause misperceptions, 4) booklet is a practical information medium so that it can be directly distributed to the target, 5) booklet is a print media does not require electricity and can be carried everywhere.

Media design aspects such as proportions and color compositions are used on booklets, booklet design looks are consistent, the look of the cover, images, and writing on the booklet is quite interesting, and the selection of sizes and fonts accordingly so that it is easy to read. The proportions and color composition used on the booklet are appropriate, the booklet display is consistent, the appearance of the cover, images, and writing on the booklet is quite interesting, and the selection of sizes and fonts accordingly makes it easy to read. According to Meldasari *et al.* (2018), readability is one of them influenced by the contrast of font color with the background color used. The power of color can give a psychological effect on everyone who sees it.

Aspects of media quality such as paper quality and size, and printouts and bindings on booklets. According to Setyaningsih (2019), a booklet is a printed media or print that contains images or writings (more dominant) in the form of a small book as thick as 10-25 pages. The book size for booklet making does not exist, so as not to throw away a lot of paper is usually adjusted to the standard size of paper such as A4, A5, and others. His physical form resembles a thin book and complete information, which makes it easier for the media to carry.

D. Conclusion

Booklet Bryophytes obtained a validity result of 84.21% with very valid criteria and worthy of use as one of the learning media.

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