

The Practicality of Atlas Media Based on Constructivist-Oriented in the Subject of Plant Anatomy for Lecture in Collage

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Abstract— Based on the results of interviews with students at Biology Education STKIP PGRI Sumatera Barat on plant anatomy, almost all chapter is difficult to understand for students. The reason for difficulty plant anatomical chapter is understand because this material cannot be imagine in the real picture so that the students have difficulty constructing their knowledge. To study plant anatomy material must use a tool such as media in the learning process. Research has been carried out on the development of plant anatomical atlas media oriented to constructivism with the purpose of producing plant anatomy atlas media developed based on the validation results of validator. The type of research is Developmental Research with a 4-D model. Based on research it was found that plant anatomy media that is atlas is very practical in the lecture process with an average of 90.83% and atlas according to students are categorized as practical with an average of 89.3%. The inference of this research is plant anatomy media (atlas) can help and facilitate lecturers to explanations of concepts in plant anatomy material to students in the universities.

Keywords: practicality, media atlas, constructivism, plant anatomy

I. INTRODUCTION

The course of plant anatomy is the course that composes the structure of the constituents of plants. Plant anatomy courses need to be understood because students must be able to draw a network of constituent plants. Based on observations conducted by researchers for plant anatomy courses the main problem is the ability of students to describe and understand the structure of tissue compilers of organs. Looking for the results of the evaluation of the third semester of the 2014/2015 school year the percentage of student grades is low for

questions that describe the structure of plant organs around 65%.

From the results of interviews among team with the students Biology Education STKIP PGRI Sumatera Barat who had attended plant anatomy class, the matter were found that plant anatomy studied only using simple media, practicum in the laboratory and looking at the structure of plant organs only using a binocular microscope. The capability of practicum participant for set up practicum very low, so that the results of practicum not the same with the original object. And then, not yet available plant anatomy media like atlas for guidance learning process in the class and laboratory.

Based on analisys data from study about media learning ini Universities, the student used media like computer 29,66%, audio visual 10,53%, media print 46, 13% and media laboratory kits 13,68 %. Seen from the data we can know that the media print more preferred and is so much like to be used as a source of learning in learning process [1].

Constructivist approach is one learning approach that gives students the opportunity to construct their own understanding. Constructivist is learning that requires students to actively participate, ability to learn independently, actively develop their own knowledge, while lecturers only act as facilitators and mediators in the learning process.

Based on the background above, the right media to overcome the students problem is the development of print media in the form of constructivist-oriented plant anatomy atlases. Constructivist oriented media anatomy atlas can visualize the material so that students can learn independently and can build their own knowledge by directly being actively involved in the learning process. The purpose of this research was to produce media that is plant anatomy atlas, were developed based on the validation results from the validator.

II. RESEARCH METHOD

A. Development of Learning Media

Development of interactive Atlas media oriented to constructivism using a four-D model with stages namely define, design, develop and disseminate [2]. In this research, the stage of development is the practical stage of the lecturer.

B. Practicality Instruments

The instrument that used to get data is practical questionnaire was used to obtain data on the practical level of the learning media developed. This questionnaire was given to 3 lecturers who were lecturers of plant anatomy, namely 1. Dr. Tesri Maideliza, M.Sc (lecturer in plant anatomy at the Biology Department of FMIPA Andalas University), 2. Elza Safitri, M.Sc. 3. Novi, M.Sc lecturer in anatomy plants Biology Education Study Program STKIP PGRI Sumatera Barat

C. Practical analysis of Atlas media

This practical analysis is done in several steps:

1) Give the answer score with the following criteria:

STS = strongly disagree with weight 1

TS = disagree with weight 2

S = agree with weight 3

SS = strongly agree with weight 4

2) Determine the average score by: Number of values obtained in as many indicators

3) The maximum score in this practical test is 4.

Giving practical values by:

Providing practicality assessment using the modified criteria proposed by [2]:

90 - 100% = Very practical

80 - 89% = Practical

65 - 79% = Quite practical

50 - 64% = Less practical

III. RESULT

Data on the use of Plant Anatomy Atlas was obtained through a questionnaire filled by 3 lecturers of plant anatomy courses, namely 1) Dr. Tesri Maideliza, M.Sc., lecturer in plant anatomy and biomolecular Biology Department of Andalas University, 2) Novi, M.Sc, and 3) Elza Safitri, M.Sc, lecturer in plant anatomy, Biology Education Study Program, STKIP PGRI Sumatera Barat, seen in Table 1.

TABLE I. ASSESSMENT OF THE USE OF CONSTRUCTIVIST ORIENTED ATLAS BY LECTURERS

No	Item	Practical Value (%)	Criteria
1	Atlas can be used at any time to make it easier for students in the learning process	100	Very practical
2	Learning by using this atlas makes it easy for students to understand the interrelationships of concepts	75	Practical enough
3	Atlas can make it easier for students to find concepts	83.3	Very practical
4	Students can associate concepts learned with everyday life	75	Practical enough
5	The use of an atlas can save the energy of lecturers to write everything to the board	100	Very practical
6	Using atlases can make the learning process more effective	100	Very practical
7	The use of atlas can save time teaching lecturers	100	Very practical
8	Atlas is easily interpreted by lecturer subjects	100	Very practical
9	Atlas has the same equivalence as textbooks so that it can be used as a source in learning	75	Practical enough
10	Atlas is a variation of learning resources	100	Very practical
Average		90.83	Very practical

TABLE II. PRACTICALITY ASSESSMENT BASED ON THE USE OF CONSTRUCTIVISM-ORIENTED ATLAS BY STUDENTS

No	Practicality variable	% Indicator	Category
1	Ease in using atlas	86.68	Practical
2	Time needed for implementation	91.99	Very practical
Average		89.30	Practical

IV. DISCUSSION

From the results of the lecturer questionnaire analysis (Table I and II) it was found that media atlas oriented to constructivism in the chapter of Plant Anatomy was categorized as very practical in its use in the lecture process. This means that the media of plant anatomy (atlas) can help and facilitate lecturers in providing correct explanations of concepts in plant anatomy material to students.

According to [4] clarity of instructions in learning media, conformity of content on learning media, preparation of material on learning media, compatibility between material with learning media, harmony of colors, display of images, writing on material, and the correctness of language used can help understand the material.

The results of filling out the questionnaire in the Table can be used as a basis for making improvements to the resulting media atlas. The availability of media atlas that is

suitable with the learning objectives, the lecturers will more easily provide material to students, by themselves students will benefit in the lecture process. lectures and students will get the convenience of studying each structure of plant tissues and organs.

The practicality test questionnaire used in this study was modified from [5]. According to [6] consideration of practicality can be seen in aspects:

- simple in uses, including: easily arranged, and can be used at anywhere
- For implementation needed short times, fast and precise
- Easily interpreted by expert educators and other educators.
- The power attraction learning media for students needed
- Has the same equivalence, so that it can be used as a substitute or variation.

V. CONCLUSION

The conclusion of this research is plant anatomy media (atlas) can help and facilitate lecturers to explanations of concepts in plant anatomy material to students in the universities.

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