

LEARNING INTEREST OF BIOLOGY PRE-SERVICE TEACHERS ON CONTEXTUAL-BASED PLANT MORPHOLOGY COURSE

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ABSTRACT

There was a trend among biology pre-service teachers to have no interest in learning textually, thus the contextual teaching and learning (CTL) implementation is crucial to be done. This study aimed to describe eight indicators of learning interest of biology pre-service teachers on contextual-based Plant Morphology course. As the descriptive research, the instrument used to collect the data in this study was the questionnaire. The subjects were biology pre-service teachers in the University of Borneo Tarakan, North Kalimantan, Indonesia. The results showed that the student learning activity indicator was categorized as very high (81.72%); while the six indicators which were considered as high criteria were students' interest in learning and learning process (71.33%), students' attention in learning and learning process (63.67%), study preparation (75.22%), students' opinions in the exam activity (61.89%), the impact teacher's technique and the tactics of learning to the students (85.50%), and student learning outcome (77.17%). The remaining indicator (the activity of recording material and the making of summary in learning) was recognized as medium criteria (57.17%). It can be concluded that contextual-based Plant Morphology course learning must be the main choice to strengthen the understanding of biology pre-service teachers.

Keywords: CTL, learning interest, pre-service teacher

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INTRODUCTION

There are several reasons why learning the concept of science (biology) and its branches are considered to be more difficult and do not appeal to students (Macaulay, Van Damme, & Walker, 2009; Zhang, Liu, Yang, Tripp, & Shao, 2017). These reasons are interdisciplinary nature of biological concepts, the biological organization level and the abstract level of the concepts, the overload of biology curricula, the abstractness and difficulties with the textbooks (Çimer, 2012; Schnittka & Bell, 2009), and containing very much definition or specification of the phenomena (Jeronen, Palmberg, & Tli-Panula, 2016; Yli-Panula, Jeronen, Seiko-Ahlström, & Ruotsalainen, 2017).

Some students consider that some branches of biology as a “useless” science (Kubiato, Torkar, & Rovnanova, 2017) and tends to be boring for students. Consequently, they are not

interested to learn (Alivernini, 2012; Husamah, Fatmawati, & Setyawan, 2018). Some materials tend to be just to know and memorize so it is more tedious and difficult (Bingolbali, Ozmantar, & Demir, 2011; Hinnah, 2017; Miharja, Syamsuri, & Saptasari, 2015; Saptasari, 2012).

Interest expresses a favorite and attention condition or the tendency of desire on something (Hasruddin, Nasution, & Rezeki, 2015). Interest is very influential in a learning process, because if there is no interest, then they cannot learn well, because there is no attraction to the learning (Jäkel, 2014; Kashdan & Silvia, 2008; Serafin, 2016). The students who have a high learning interest will also have a curiosity about how to find out or complete learning (Ates & Saylan, 2015; Erinosh, 2013; Schnittka & Bell, 2009; Sembiring & Mukhtar, 2013). It can be said that student learning interest influence learning process.

Teachers or lecturers must be competent in using different learning skills and generate student interest (Khatoon, Alam, & Bukhari, 2014). The learning process can be carried out with various models and methods based on the learning objectives and the abilities that expected to be mastered by the students after the learning is done (Gheith & Aljaberi, 2015; Lebata & Mudau, 2014). Some teachers start the learning process by asking questions to their learners, some of them stimulate the students by repeating the previous explanation. There also those who discuss some questions form discussion groups or listen audio/video for mutual observation. Finally, the learning activity was closed by conducting test or making summary of the materials explained (Aloovi, 2016; Macaulay et al., 2009; Yildiz & Baltaci, 2016).

The Plant Morphology course is aimed to cultivate the students' understanding as well as to educate them to apply and communicate their knowledge related to the characteristics, functions, and development of plant organs. To help students to achieve these goals, the instructional process in learning demands creativity and innovation from the teacher.

One of possible ways to build students' interest in learning biology, which ease them to understand the concept learnt, is by applying an effective learning models (Dung & Fatmawati, 2018; Tendrita, Mahanal, & Zubaidah, 2016). Biology learning needs to be 'turned on' on the basis of contextual teaching and learning (CTL) so that students are interested in learning and more actively build their knowledge (Achuonye, 2010; Hasruddin et al., 2015; Hasruddin, 2009; Irwandi, Santoso, & Susanti, 2012; Irwandi, 2009; Jhonson, 2011). CTL needs to be implemented to improve the biology learning quality in Indonesia. One of the appropriate learning activities, for this Plant Morphology course, is to involve various plant real examples exist in Tarakan city as a source of student learning which is packaged in form of a CTL model.

Several studies on CTL implementation in biology for college students have been conducted. CTL assist in-service and pre-service teachers in general way. Moreover, it helps students' family and consumer sciences teachers in more specific way (Smith, 2010). The research conducted by Suryawati and Osman (2018) has provided an empirical evidence that signifies the use of CTL in

teaching and learning biology. CTL can be implemented while maintaining a comparable level of student mastery of scientific concepts related to agricultural biotechnology (Curry Jr, Wilson, Flowers, & Farin, 2012). There is an increase in students' social skills in learning Biology Teaching Strategy by applying CTL (Hasruddin et al., 2015).

However, there is no study found discusses of how the biology interest of pre-service teachers on Contextual-based Plant Morphology courses in various universities, especially in teacher and education college. The Department of Biology Education, Faculty of Teacher Training and Education Science (FTTES), University of Borneo Tarakan has also not conducted the study related to this theme. Thus, this research is very necessary to do.

Plant Morphology course which is packed in CTL and using plants available around the student residence as the real media is expected to facilitate students to understand the materials and attract the interest of biology education students. Based on the description above, the aim of this study was to describe the learning interest of biology pre-service teachers on Contextual-based Plant Morphology courses.

METHOD

This research was descriptive. Sugiyono (2011) defined that descriptive research is a study aimed to provide or describe a state or phenomenon that occurs today by using scientific procedures to answer the actual problem. This research was conducted from March until May 2018 in FTTES of University of Borneo Tarakan. The population in this study is all students of biology education. The sample in this study were the students who attended Plant Morphology course in the even semester of 2017/2018. The sample selection was done by using purposive sampling. The research instrument used in the form of a questionnaire of student learning interest adapted from Sears, Freedman, and Peplau (2009). Table 1 shows the questionnaire statement distribution based on aspects of interest.

The interest questionnaire in student learning consists of 25 positive and negative statements. It was utilized to collect the data of learning interest in Plant Morphology course with CTL. Questionnaires were given to the 67 students of Plant Morphology course in the even semester of 2017/2018 academic year.

Table 1. Question grid of learning interest on Contextual-based Plant Morphology course

Indicators	Amount of Item	Item
The interest of the student in learn process and learning	5	1, 2, 12, 13, 23
Student attention in learn process and learning	2	3, 14
Student learning activity	6	4, 5, 15, 16, 24, 25
Preparation of student learning	3	6, 17, 18
Recording material activity and summary in learning	2	7, 19
Student opinion in the examination	3	8, 9, 20
The impact lecturer's techniques and tactics in learning toward student	2	10, 21
Student learning outcome	2	11, 22

(Adapted from Sears et al., 2009)

The data obtained were analyzed descriptively as the following steps:

1. Calculated the score of learning interest of each student (Table 2):

Table 2. Guidelines for scoring questionnaire

Answer Option	Score (+)	Score (-)
Strongly agree	5	1
Agree	4	2
Less agree	3	3
Not agree	2	4
Strongly not agree	1	5

(Source: Maryuliana, Subroto, & Haviana, 2016)

2. Calculated the percentage of student interest for each aspect formula (Anas, 2009):

$$P = F/N \times 100\% \quad (1)$$

Information:

P: Percentage of learning interest aspect

F: Scores obtained

N: Maximum score

3. Interpreted the calculated percentage based on the criteria of learning interest (see Table 3).

Table 3. Criteria interpretation questionnaire

Percentage (%)	Criteria
81 - 100	Very high
61 - 80	High
41 - 60	medium
21 - 40	Low
0 - 20	Very low

(Source: Riduwan, 2011)

RESULT AND DISCUSSION

Based on the result of questionnaire distribution learning interest student amounted to 25 points of statement to biology education students who of Plant Morphology course obtained 60 respondents. The amount of the number of questionnaires that have been returned to the researcher, while the questionnaires remaining was not returned, so only 60 questionnaires were analyzed.

The result of data questionare learning interest was scored according to the scoring guidelines, precentage based on the aspects of learning interest. Student interest data can be shown as in Table 4.

Table 4. The percentage of students' learning interest taught by using CTL

Learning Interest Aspect	Percentage (%)	Criteria
The interest of the student in learn process and learning	71.33	High
Student attention in learn process and learning	63.67	High
Student learning activity	81.72	Very high
Preparation of student learning	75.22	High
Recording material activity and summary in learning	57.17	Medium
Student opinion in the examination	61.89	High
The impact of lecturer's techniques and tactics in learning toward student	85.50	Very high
Student learning outcome	77.17	High

Table 4 shows the percentage of student learning interest and its level based on the criteria determined. It can be obviously seen that the two most determining learning aspects contribute to students' interest was lecturer's techniques and tactics (85.50%) and student

learning activity (81.72%) which were placed in 'very high' criteria. While the lowest impact to the learning interest was given by the 'recording material activity and the making of summary' aspect (57.17%).

Table 4 shows the percentage of student interest in the Contextual-based Plant Morphology course. The first aspect is the student interest in the learning process in which the percentage as high as 71.33% (categorized in 'high' criteria). The media in form of examples of real plants in the learning has given the impact on the emergence of a sense of students' interest of the course. This is consistent with the results of Fausan & Pujiastuti (2017) study. CTL facilitates students to conduct and experience their own learning activities so that the students' memory becomes stronger to recall the material that has been learned. The aspect of interest is related to the motivating force to tend to be attracted to people, things, and activities or can be affective experiences stimulated by the activity itself.

CTL is considered to have a potential to improve students' interest in learning because it creates a learning atmosphere favored by students (Suryawati & Osman, 2018). CTL has various positive characteristics such as cooperation, mutual support, fun, not boring, learning with passion, integrated learning, using various sources, active students, sharing with friends, critical students and active teachers (Curry Jr et al., 2012; Hudson & Whisler, 2008). Meanwhile, attention is an activity done by someone in relation to the stimulus chosen and come from the environment. So, it can be seen that the more awareness involved in activities the higher the attention paid by students. This also able to control the students' emotional stability so it is easier to be precise in using various sources, more active in sharing with friends, and more critical (Ates & Saylan, 2015; Erinosh, 2013; Zhang et al., 2017)

In the second aspect, included in "high" criteria, was the students' attention in the learning process and learning (63.67%). The existence of the original plant samples that became the source of learning makes students focus on learning activities. The results of this study are similar to the research results of the Hilaliyah (2015) which stated that interest will lead to an intensive concentration to the subject, it can be seen from the higher students' activities in learning, which in turn, will help them in achieving the learning goals. The aspect of attention is concentration or soul activity against observation and understanding, to the exclusion of the other from it. The students who have an interest in a particular object will naturally pay attention to the object. Attention

is the increased activity, awareness of all the functions of the soul deployed in its concentration to something both inside and outside ourselves.

The third aspect was students' learning activities which reached 81.72% and considered as a 'very high' criteria. In this activity, the integration of CTL was given the source of learning that is located around the student residence and supported by presentation.

The results of this study are in accordance with the statement of Irwandi et al. (2012) that CTL emphasizes the process of student involvement as a whole in obtaining the materials learned and relating it to their real life. Jhonson (2011) expressed that the fondness to follow the ongoing learning activity because, with interest, it can encourage students to show their attention, activities, and participation in the learning activities.

Interest is a permanent tendency to pay attention and remember some activities which will be noticed constantly and followed by pleasure (Çimer, 2012; Irwandi et al., 2012). The interest may be considered as the cause and, in the same time, the results of a certain activity. A lack of interest condition can be caused of the students' dislike about learning which results in the difficulties to concentrate and to understand the subject content and ultimately affect to the learning outcomes. Interest can be expressed through a statement that indicates the student preference of something more than the others. It can also be manifested through participation in an activity. Students who have an interest in a particular object tend to give greater attention to the object (González-Weil et al., 2014; Hinneh, 2017; Macaulay et al., 2009; Serafin, 2016).

The fourth aspect was the preparation of students' learning which was included in 'high' criteria (75.22%). The students' interest level in learning can be measured through their favorite learning activities. This passion can be seen through his excitement and initiative in following the lesson, for example, preparing him/herself for studying. Alivernini (2012) and Jäkel (2014) stated that this enthusiasm and initiative can be realized by conducting various efforts made to mastering the science contained in particular subjects, enduring tired feeling, coping the desperate which may arise in developing knowledge and trying to stay excited, as well as enjoying in doing tasks related to the lessons given by teachers.

The fifth aspect was the activity of recording material and making the summary in learning (57.17%). This aspect was grouped in medium criterion. This aspect, somehow, is affected by the both internal and external factors. The example of internal factor is an assumption possessed by students that they can just borrow the summary from their friends before the examination held; thus, it is useless to make it themselves. While the external factors, as Husamah, Pantiwati, Restian, and Sumarsono (2016) stated that, they are the factors that affect student learning outcomes including teachers, social environment, school curriculum and infrastructure facilities. Some benefits of making summary are ease the student to read the subject of the text, make the materials are easier to remember. Students who make a summary will easily understand the subject and can develop the materials they recorded in the summary. It will also help them to understand the text, remind them the materials quickly, as well as train their creativity. Moreover, the recording and summary activities should be done by all students to anticipate the lack of attention during the learning activities. It is as suggested by Curry Jr et al. (2012); Hudson & Whisler (2008) that, in the learning process, students may have less attention or concentration so that the materials being studied has an impression but apparent.

The sixth aspect was students' opinions in the exam activities (61.89%) which included in the 'high' criteria. The formation of a person's perception related to a certain object in his/her environment depend on the stimulation or situation he/she is facing. Factors that can be shaped by opinions are formed from the process of perception and attitudes, this is to distinguish perceptions and opinions.

The seventh aspect was the impact of the lecturer's techniques and tactics in the students' learning (85.50%). This aspect considered as 'very high' category. Teaching and learning activities require teachers/lecturers who are skilled in teaching. The results of this study are in line with Hasruddin et al. (2015); Nasution and Rezeqi (2015); and Tammu (2017) which showed that various methods and media can be used to help students discover the meaning of the materials studied in their daily life which, in turn, can increase their interest in learning.

The last aspect was student learning outcomes in which the percentage was 77.17%. This was recognized as 'high' category.

Learning outcome is the goals which must be enacted by students in the end of the learning processes. This can be measured through an assessment process. One of the instruments for measuring learning outcomes is called a learning result test. Students' learning experiences in term of their materials understanding can be observed in the three domains namely cognitive, affective, and psychomotor (Dewi, 2015). Interest has a great influence on learning. If the students like the subject, they will learn without any burden. The interest in learning that has been owned by students is one the factors that can affect the learning outcomes (Çimer, 2012). This results were in line with Riwahyudin (2015) which stated that the learning outcomes of science can be increased directly through student interest. Thus, it can be said that someone who has a high interest will keep trying to achieve what they want as well as good learning outcomes.

Based on data from previous research results presented in every aspect of student's interest in learning, it can be stated that in general learning on the plant morphology courses context-based has an impact on student's interest. High student learning interest in CTL was observed from several aspects i.e. study preparation, interest in the learning process, techniques and teaching tactics by lecturers in which the all aspects give their contributions in influencing student's learning outcomes as were described in the discussion. In addition, some abstract symbols can be more easily understood and absorbed if they are given in the concrete experience form. Besides, this will support the student interest in learning by presenting the proper learning conditions. Thus, the pre-service teachers have the ability to start, present, and close the learning activity systematically. In the other words, Plant Morphology course context-based can be re-applied as a tool to increase student interest in learning the course.

CONCLUSION

The results showed that the student learning activity indicator was categorized as very high (81.72%); while the six indicators considered as high criteria namely: students' interest in learning and learning process (71.33%), students' attention in learning and learning process (63.67%), study preparation (75,22%), students' opinions in the exam activity (61.89%), the impact of teacher's techniques

and the tactics on students' learning (85.50%), and student learning outcome (77.17%). The remaining indicator (the activity of recording material and the summary making in learning) was recognized as medium criteria (57.17%). Thus, the Contextual-based Plant Morphology course learning must be the main choice to strengthen the understanding of biology pre-service teachers. As a suggestion, student interest instruments can be developed with another attitude scale.

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