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Perception of Prospective Biology Teacher Students on Online Lecture on Vertebrata Zoology

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Abstract.
This research aimed to describe students' perceptions of online lectures on vertebrate zoology. This quantitative descriptive analysis was conducted through questionnaires and interviews distributed to students online. The sample in this study was 32 Biology students. The results of the study showed that 48% of the teaching and learning process needed to be carried out in a variety of ways so that students are motivated, learning objectives can be achieved, and lecturers can facilitate textbooks to be used especially for online learning. The results of the interviews showed that 96.9% of students stated that it was necessary to develop a digital-based textbook on vertebrate zoology. In line with this, 68% of students strongly agreed to add to the collection of photos of the species displayed. As many as 64% of students stated that they had a deeper curiosity about the existence of the animals being studied so that students' awareness and concern for the environment could grow and increase their knowledge of biodiversity. In addition, as many as 52% of students agreed with using applications in identifying animals in vertebrate zoology courses as the use of technology in learning can increase student knowledge, performance, and motivation so that this study can contribute as an initial study in the development of digital textbooks of vertebrate zoology.

Keywords: perception, prospective teacher, biology, online lecture, vertebrata, zoology

1. INTRODUCTION

Vertebrate zoology course is a compulsory subject for Biology students with a weight of 3 semesters. The lectures being held have changed due to the covid 19 pandemic so learning has shifted online through e-learning. The existence of changes in the learning system causes lecturers and students to learn to adapt to online learning with various

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challenges faced [1], including that not all students can utilize teaching materials due to limitations in accessing material via the internet [2, 3] . The use of these teaching materials is very important because it can change the role of educators from a teacher to a facilitator and can help students to become independent learners and measure the competencies they have mastered [4]. Teaching materials consist of several types including printed teaching materials in the form of textbooks that contain knowledge as a result of an analysis of the curriculum in written form and literature studies of a problem in the object being studied [5]. The available textbooks are still limited in printed form so they need to be equipped with digital /online media and can serve as a valuable tool to support the learning process [6].

The online learning environment varies greatly both in terms of motivation, satisfaction and also interaction [7]. Learning that is carried out online during a pandemic can be used as an experience that is used to develop and improve digital learning in normal times [8], because reform in education is needed in line with the rapid development of technology so that learning can be done at any time [9]. The purpose of this research is to describe students' perceptions of online lectures on vertebrate zoology so that they are expected to get some initial information for further research.

2. RESEARCH METHOD

This research was conducted on students who had taken vertebrate zoology courses in 5 semesters. The research method used was descriptive quantitative with research instruments in the form of questionnaires and online interviews with 32 students. The questionnaire contains 20 statements covering the teaching and learning process, learning materials, learning media and learning evaluation by using a Likert scale, namely Strongly Agree (SS), Agree (S), Disagree (TS), Strongly Disagree (STS). The steps taken in this study were compiling a questionnaire instrument for data collection regarding student perceptions of lectures, then distributing the questionnaires online , and the data that had been collected was analyzed and the percentages calculated so that they could describe student perceptions of online lectures in vertebrate zoology.

3. RESULTS AND DISCUSSION

Based on the results of the questionnaire, will be distributed to 32 students regarding the teaching and learning process presented in Figure 1.

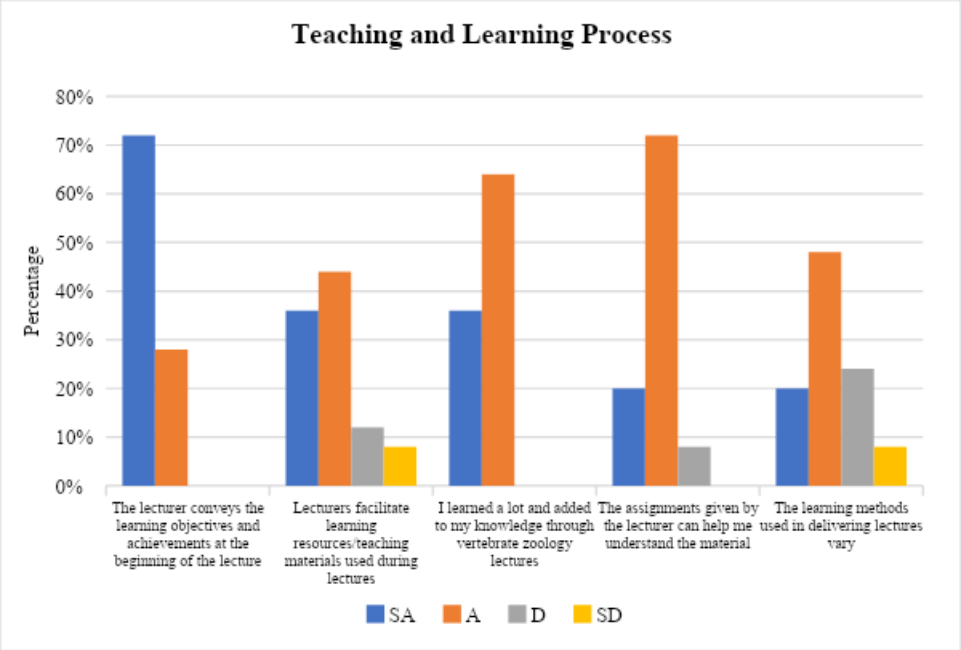

Figure 1: Teaching and learning process.

Figure 1 shows that as a whole gave positive responses to improve the quality of learning, including 72% of students stating that learning objectives and achievements were conveyed at the beginning of lectures, and 44% of lecturers facilitated learning resources/teaching materials used during lectures. Teaching materials are learning components used in carrying out teaching and learning activities in class. Teaching materials can be designed according to the needs of students to be able to motivate so that learning objectives are achieved effectively and efficiently, with high motivation it will improve learning outcomes and encourage students to study certain materials [10, 11].

In addition, 64% of students stated that they strongly agreed that vertebrate zoology lectures could add to their knowledge, 72% strongly agreed that the assignments given could help them understand the material, and 48% agreed that the delivery of material was carried out in a variety of ways. The process of delivering learning is not only delivered in class, but must be able to explore other learning resources to increase learning motivation, especially in online learning and can build student knowledge [12], and can achieve the goal of delivering students to mastery of the competencies set including values and the attitude that underlies it [13].

Figure 2 shows that 68% strongly agree that interactive materials can motivate students in learning. 68% stated that students were curious about the species being studied. The existence of curiosity in students can increase knowledge can encourage them to learn [14]. Curiosity is what feeds our minds, and it is a motivational system that

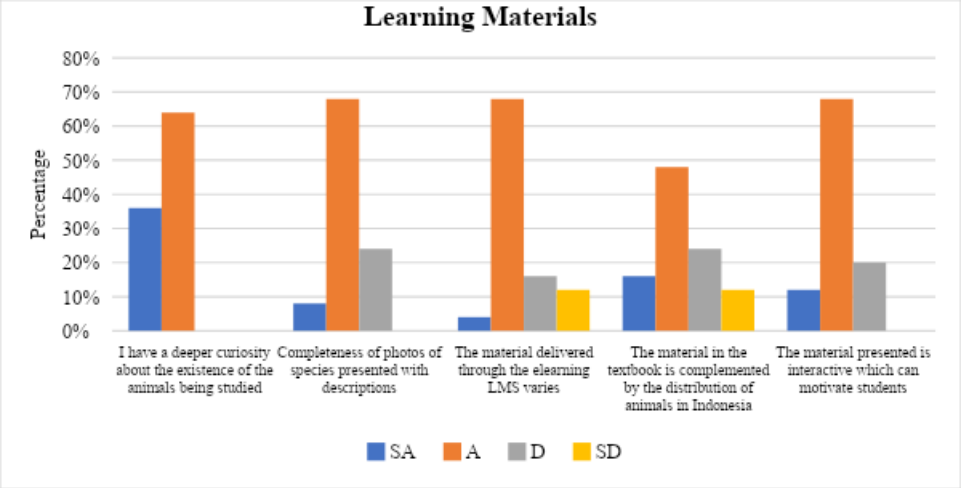

Figure 2: Learning materials.

ensures that a person will engage with the environment, deepen learning, seek new experiences and ideas. Curiosity can motivate learning so that a person will develop the skills and knowledge he needs [15].

In addition, 68% of students strongly agreed to add to the collection of photos of the species displayed, because having photos in the book can help book users understand the contents of the book . Relevant species photos play a role in textbooks and can enhance learning [16]. The existence of pictures or photos is an important learning resource that can function as a means of communication and is also used to learn concepts and learning through pictures or photos involves a process of knowledge construction based on visual information [17]. In addition, it is very necessary to add references regarding protected and endangered species that are scattered in Indonesia or in a certain area, so that students' awareness and concern for the environment can grow and increase knowledge about biodiversity [18], and through references can enrich perspectives on information and get a comparison or source to produce a paper that is relevant and not too biased or subjective [19].

Figure 3 explains the learning media which shows as many as 52% of students agree with using an application to identify animals in vertebrate zoology courses. The use of applications has been widely used in identifying target species, and students can be trained in the use of several applications including the *iNaturalist* application which can assist in identifying morphological characteristics of animal species [20], the FrogID application using smartphone technology which provides a biodiversity database with species records. rare and endangered frogs [17], the i-Bird application used to classify birds [21, 22] the Zooniverse application which can help analyze scientific data including animal behavior [23], as well as many other applications that have been widely

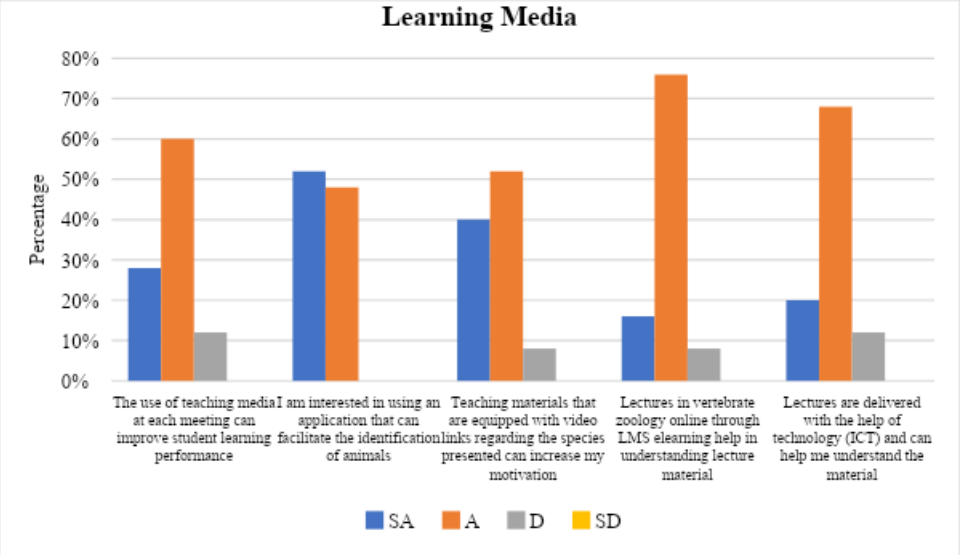

Figure 3: Learning Media.

developed in Indonesia such as Birdnesia, Our Reptile Amphibians and others [24]. In addition, as many as 68% of students stated that they strongly agreed to use ICT in learning, 76% agreed that lectures through LMS e-learning could help in understanding lecture material . Based on these data it is explained that the use of e- learning or the use of ICT in learning can increase student knowledge, performance and motivation [25, 26].

The change in the offline learning system to online causes the need for the role of technology in learning, including learning that is equipped with audio, audio-visual or interactive multimedia [23] . But a problem arose during the Covid 19 pandemic, where new batch students experienced limitations in accessing the required teaching materials because the available textbooks were in the form of printed books and digital printed books were not yet available [27]. Based on this, the results of interviews with students as much as 96% stated that they really needed the development of digital textbooks that were used as student manuals [28], and supported *online learning* because they could provide convenience in accessing material and also reference sources could always be updated [29], as well can improve student learning experience because its use is more flexible and interactive [30].

The assessment and assignments given by the lecturers showed that 48% of students gave a positive response that the lecturer explained the lecture assessment system, 48% strongly agreed with the existence of individual and group assessments, 32% agreed on the transparency of values and 44% percent of students agreed not to burden the assignments too much as well as the results of the lecturer's correction of the assignments given. Based on this, the lecturer has a role to act as an evaluator

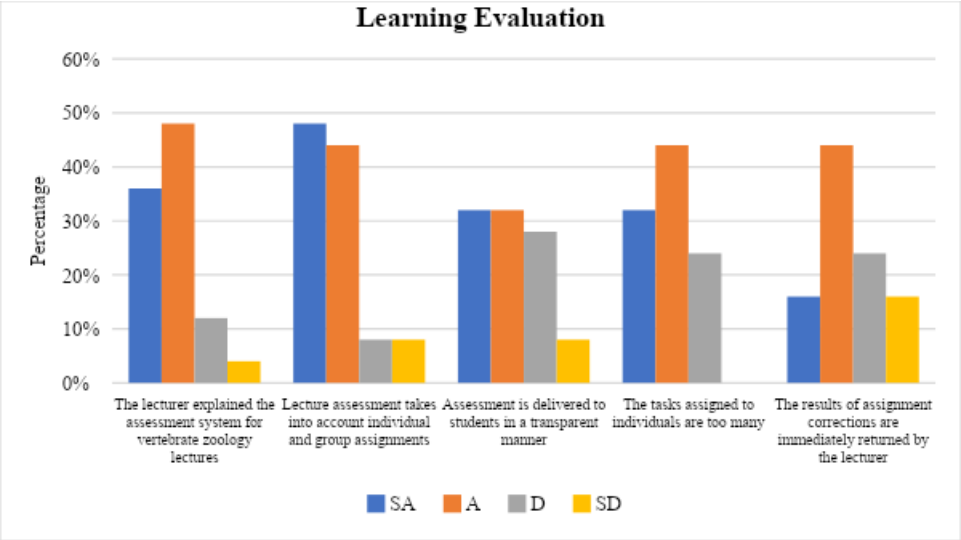

Figure 4: Learning evaluation.

by setting learning assessment points that have been carried out by students so that learning objectives can be achieved. Besides that, it can hone the potential that exists in every student.

4. CONCLUSION

Based on the results of the analysis shows that students give a positive perception of online lectures on vertebrate zoology. As much as 48% of the teaching and learning process needs to be carried out in a variety of ways so that students are motivated so that learning objectives can still be achieved, and lecturers can facilitate textbooks to be used especially for online learning. 68% of students strongly agreed to add to the collection of photos of the species displayed, and as many as 64% of students stated that they had a deeper curiosity about the existence of the animals being studied so that students' awareness and concern for the environment could grow and increase knowledge about biodiversity. In addition, as many as 52% of students agree with using an application to identify animals in vertebrate zoology courses as the use of technology in learning that can increase student knowledge, performance, and motivation. Based on the results of the interviews, it was shown that 96.9% of students stated that it was necessary to develop a digital-based textbook on vertebrate zoology so that this study could contribute as an initial study in the development of a digital textbook on vertebrate zoology.

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