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Veterinary Anatomy and Histology Approach for High School Biology Lesson of Brawijaya Smart School (BSS) as Initial Veterinary Education

Fajar S.Permata^{1,*}, Analis W. Wardhana¹, Herlina Pratiwi¹, Dyah A.O.A. Pratama¹,
Agung P.W. Mahendra²

⁽¹⁾ Laboratory of Veterinary Anatomy and Histology, Veterinary Medicine Faculty,
Brawijaya University, Malang, Indonesia

⁽²⁾ Biology Department, Mathematics and Natural Science Faculty, Brawijaya University,
Malang, Indonesia

*Corresponding author: drh.fajar@gmail.com

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INTRODUCTION

Veterinarian is profession that produced by Veterinary Medicine Education of University. Veterinarian has many important tasks to community and being veterinarian is very hard based on Veterinary competences. In the Indonesian Law No 18, 2009⁽¹⁾ about Husbandry and Animal Health and in regularity Indonesia Veterinary Education Profession Council⁽²⁾ explains about Indonesian Veterinarian tasks and competences. Those are veterinary treatment, animal diseases and zoonoses control, and food safety, etc. However, the problem is being veterinarians are not popular, so that there are still many veterinary problems in Indonesia. Therefore, Veterinary Medicine Education needs effort to introduce about veterinary in high school level as initial veterinary education. The Biology book of second level high school⁽³⁾ explains about general basic anatomy and histology, and it is opportunity that Vet Anatomy and Histology as basic science veterinary medicine could be introduced in high school level as biology enrichment lesson for initial veterinary education in high school. BSS is high school which has good students and has relationship with Brawijaya University⁽⁴⁾ and is possible to collaborate with Vet Med Faculty, Brawijaya University.

MATERIALS AND METHODS

Program is divided 3 stages. Preparation stage is collaboration making between BSS and Vet Anatomy and Histology laboratory, and preparation materials. Implementation stage of program will be held in about 3 hours. The methods of implementation in sequence are 1) Pre-test and Worksheet distribution, 2) 40 students divided to be 2 groups, 3) First group will study anatomy in Veterinary Anatomy Laboratory, and second group will study histology in Veterinary Histology Laboratory in 100 minutes respectively. 4) Break, 5) First and second group exchange location, and study again (in 100 minutes), 6) Post-test, questionnaire. In the evaluation stages, the actions are evaluation of pre-test and post-test by paired T-test ($p < 0.05$), and questionnaire analysis.

RESULTS AND DISCUSSION

As many 40 students and 5 teacher from BSS came to lab. Opening ceremony was added with take photo together (Fig 1a), and continue to Pre-test and Worksheet distribution. Content of worksheet include veterinary anatomy and histology (Fig 1b). After that, students of each group performed veterinary education based on lab. In Vet Anatomy, students learned visceral organ of rat and chicken and bovine osteology (Fig 2a), and other students learned vet histology such as microscope utilizations, histology of lung, liver, kidney and intestine (Fig 2b). During studying, students filled worksheet appropriate of assistant explanations. After break and exchange lab, students were given post-test. Then students and teachers were given questionnaire to value the program.

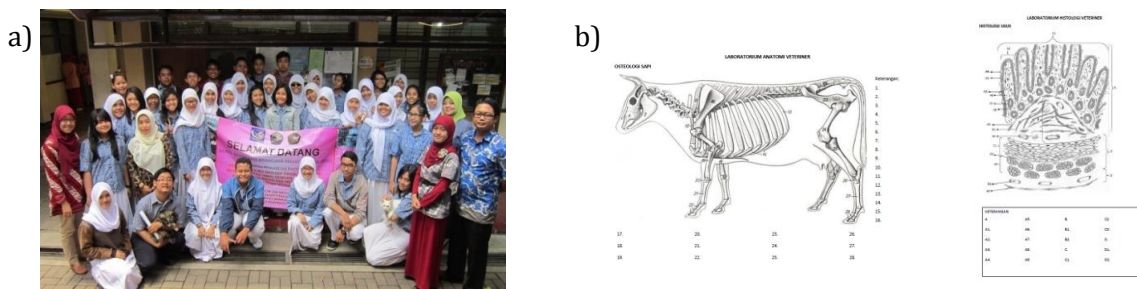


Fig 1. a) BSS Students came to Veterinary Anatomy and Histology Laboratory; b) Worksheet of the program (ex: bovine osteology and intestine histology)

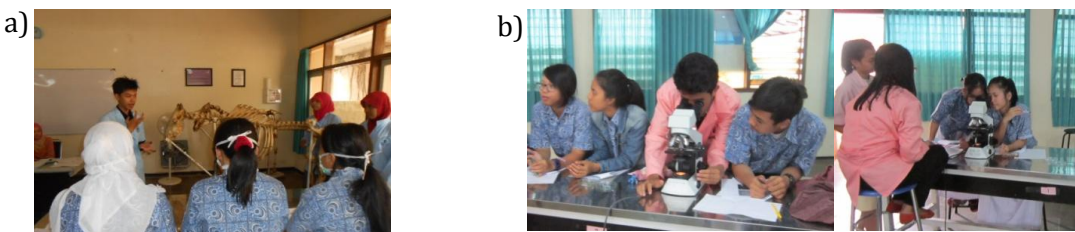


Fig 2. a. Students learned of vet.anatomy; b. Students learned of vet. histology

In evaluation of pre-test and post-test, the results were the amount of right answers is increase 37% in post-test, and the score of post-test ($72,24 \pm 7,67$) is higher than of pre-test ($45,77 \pm 13,60$) (Fig 3a). The elevation was significant based on paired T-test ($p < 0.05$). As 56% correspondences valued the program very good (Fig 3b). About students comment, there are many students feel happy and enjoy, easier to understand, and want the program again latter. These results indicate that high school students are attracted to learn veterinary.

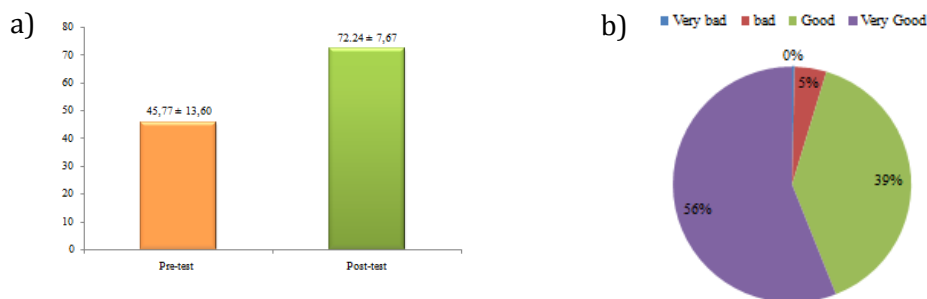


Fig 3. a. Graphic of score pre-test and post-test; b. Result of questionnaire analysis

CONCLUSION

Veterinary Anatomy and Histology approach for biology enrichment lesson of high school is successfully to be initial veterinary education.

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