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THE USE OF VETERINARY MACROSCOPIC ANATOMY AS AN EDUCATIONAL INSTRUMENT IN ELEMENTARY AND HIGH SCHOOL IN BRAZIL

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Abstract

This paper deals with veterinary macroscopic anatomy as an educational tool in elementary and high school in Brazil and the way it is taught in Brazilian public schools. The main objective is to know the development of macroscopic teaching in basic education, in order to demonstrate the relevance of knowing the anatomy of animals in practice. It is known that the teaching of both human and animal anatomy is linked to the teaching of the biological sciences, however, we realize that the teaching / learning of these students have been insufficient, as they present practical classes associated with the lack of interest of macroscopic anatomy, and there is also a certain indifference on the part of teachers and the institution itself to provide resources that lead teachers to bring knowledge from theory to practice. This study is evidenced by the qualitative character, removing from the objective of the research the answer to the above problematizing question.

Keywords: Education. Veterinary Medicine. Biological Sciences.

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1 Introduction

This work is the result of a bibliographic study and aims to contextualize the importance of using macroscopic anatomy as a teaching tool in Brazil. In this sense, we present a search for understanding the way that this learning is built and developed within the school environment assuming the countless changes in the curriculum and in society in general.

It is notorious that are different ways of teaching this subject. Based on this assumption, we understand the institution as a very important space in the formation of humans in all its aspects, as a place of learning, knowledge exchanges and singularities, which aims to serve everyone without distinction in order to minimize failures and, consequently, the evasions.

Given this challenge posed by education, we realize that there is still so much to be improved, as the use of veterinary macroscopic anatomy requires a greater dedication to teaching and learning, since this knowledge is concentrated in the area of biological sciences, notably in science studies.

As we have observed in the current literature, resources are scarce for this purpose, not only in public institutions, but also in private schools. For this reason, we need to use creativity to develop didactic mechanisms that assist us in teaching anatomy, especially in the macroscopy field.

In fact, traditional teaching models are fragmented, proven through subjects taught in isolation in some universities (COCCE et al., 2017). The authors also point out that, the teacher's performance, many times, seeks to supply the learning difficulties of the students, who starts college with innumerable gaps of knowledge from the previous education.

From this perspective, we seek to make the school environment a research field, allowing students to understand the importance of learning macroscopic anatomy. Thus, with the elaboration of this research we will make reflections about the difficulties and challenges faced by professionals in the area, aiming to relate the teaching of macroscopic anatomy with teaching practice in elementary and high school, showing students the relevance of what is learned by relating theory to practice.

In summary, we emphasize that this is a study at the beginning of elaboration, and we recognize that after reading the bibliography and the maturity provided by the readings and interlocutions that will be made during the process of theoretical deepening, the project will take other formats even more compatible with that is sought.

2 Theoretical Review

2.1 Macroscopic anatomy

Historically, the human-animal relationship comes from prehistory where animals were captured and entombed, and in the Neolithic - the beginning of animal domestication - in order to explore their various skills, tractive force or potential as food. The milestones of the veterinary institution in Brazil show us the creation of the position of veterinarian in the 1st Army Cavalry Regiment – 1810 (SANTOS, 2020).

According to Talamoni (2014),

> "From the 13th century to the early 16th century, advances in anatomical knowledge were gradual, based on the continuous review and expansion of pre-existing treaties. Macroscopic anatomy was privileged during this period, but for its development it was necessary to improve the observation, dissection, description and illustration techniques and the gradual terminological refinement, a process for which Mondino de Luzzi is considered the precursor" (TALAMONI, 2014, p. 26, translated version).

In the last decades, the teaching of anatomy has undergone structural changes, in part, due to the curricular reforms of health degrees, necessary to fit the new curricular guidelines for undergraduate courses.

From this perspective, based on historical records, it is possible to understand how the process of teaching veterinary medicine in Brazil took place. Importantly, there is a challenge for educational research in the case of veterinary medicine: to know the elements that constitute the experiences of the subjects as students in practical classes in which animals are used as didactic resources, verifying how these experiences affect the construction (ZANETTI, 2009).

Among many researches, an extension project (including cycle of lectures and practical courses), located in the State of Rio Grande do Norte (RN, Brazil), in the city of Barra de Maxaranguape, entitled: "Estudo da Anatomia Macroscópica Comparativa de Animais Vertebrados nas Escolas Públicas de Ensino Fundamental do Município de Barra de Maxaranguape – RN" (Study of the Comparative Macroscopic Anatomy of Vertebrate Animals in the Elementary Public Schools of the Barra de Maxaranguape municipality - RN), effective in 2019 (UFRN, 2019).

The project aims to improve the science and biology teaching of elementary and high schools in the city of Barra de Maxaranguape - RN, through systematic interaction between students of the Biological Sciences and Animal Science (UFRN-Federal University of Rio

Grande do Norte, Natal municipality) and teachers and students from public schools. This project deals with the theoretical and practical knowledge on vertebrate anatomy through lectures given by extension students (Figure 1), which were prepared by previous training in theoretical-practical classes with anatomical parts from the Animal Anatomy Laboratory of UFRN, and course of preparation, preservation, and maintenance of anatomical parts for the teachers from these schools.

The subjects presented in this project are related to the vertebrate organs and systems. In the practical classes, teachers and students can enjoy this collection of knowledge and visualize the anatomical pieces, aiming at further development of these and future professionals, contributing to a better understanding of the theoretical content.

Another project carried out by the same institution and research group in 2018, aimed at attending schools in the city of São Miguel do Gostoso, RN.

Figure 1. Theoretical-practical lecture taught by a student of the extension project.



Source: https://sigaa.ufrn.br/sigaa/public/docente/extensao.jsf

Many students complete Basic Education with little knowledge about science, because very little of what is taught is used (CHASSOT, 2010), and therefore the encouragement for the “scientific literacy” is necessary (FRANZONI; DEL PINO; OLIVEIRA, 2018). Conventional teaching of natural sciences retains a finished and static view of science, which they call “pedagogical common sense”, characterized by the mechanical transmission of information (DELIZOICOV; ANGOTTI; PERNAMBUCO, 2002).

3 Justificative

It is known that science teaching in Brazilian public schools does not use animal experiments as a didactic resource for macroscopic anatomy instruction. In this sense, the major barrier to be destroyed is the lack of information and discussion about the aspects that involve the use of animals in teaching ZANETTI (2009). Within a hermeneutic approach, the expression that the very term "use" itself suggests reinforces the utilitarian idea of animals and the position of the human being as lord and ruler of nature and animals, and also the disposable and consumable character of nonhuman life.

Thus, it is intended through this study, to know how the teaching of macroscopic anatomy is developed in basic education, punctually in elementary and high school, in order to demonstrate the relevance of knowing the anatomy of animals, although with artificial parts. From an educational point of view, the artificial bones employed added a new pedagogical practice to the teaching of animal anatomy with the selection of appropriate material for a complementary approach to laboratory classes (MASSARI; CASTELUCCI; MIGLINO, 2018).

4 Results and Discussion

This study has as its research parameter the qualitative research with bibliographic study. Working with descriptions, comparisons and interpretations, we will seek to understand the use of veterinary macroscopic anatomy as an educational tool in high school in Brazil.

According to GODOY (1995) qualitative research has the following characteristics:

- The natural environment
- The descriptive character;
- The meaning people give to things and their lives.

This research is evidenced by its qualitative character, removing from the object of research the answer to our problematizing question, addressing, the challenges and possibilities faced by teachers regarding the teaching of macroscopic anatomy in the classroom.

Thus, there is a concern to verify how the practice of macroscopic anatomy occurs in the classroom of elementary school and in high school in Brazilian public schools and at the same time contribute to arouse new discussions in the area (MATURANA; COSTA, 2013; COCCE et al., 2017). Likewise, the inclusion of new practical

subjects can improve the teaching-learning process (ALMEIDA, 2009).

This study is evidenced by the qualitative character, removing from the research objective the answer to the problematizing question, which is the use of veterinary macroscopic anatomy as an educational instrument in elementary and high school in Brazil. To this end, studies and authors addressing content in the area will be used as a basis (COCCE et al., 2017; MATURANA; COSTA, 2013).

5 Conclusions

Thus, after reading and reflecting on these texts, we can infer that there are many challenges regarding the use of macroscopic anatomy as a pedagogical resource with many difficulties still existing today, being necessary the inclusion of Veterinary Anatomy in the classroom so that when arriving at a higher education does not have such difficulty with anatomy in general, since learning is linked to the knowledge of the subject and that the complementary methodology presented here can help to broaden the knowledge of the possible applications of Veterinary Anatomy within the elementary/high school classroom, raising the necessary importance and with the search of improvements thus generating comfort zone output of the traditional method widespread by lectures and dialogues of teachers and students.

CREDIT AUTHORSHIP CONTRIBUTION STATEMENT

Conceptualization: GDF, FESS; Data curation: GDF, FESS; Formal analysis: GDF, EJGNF, Grazielly DD, Gabrielly DD, FESS; Methodology: GDF, EJGNF, Grazielly DD, Gabrielly DD, FESS; Project administration: GDF, FESS; Writing: GDF, EJGNF, Grazielly DD, Gabrielly DD, FESS; Formal analysis and Validation: GDF, FESS.

DECLARATION OF INTEREST

The authors disclose that they have no known competing financial interests or personal relationships that could have appeared to influence the study reported in this manuscript.

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