

Perception of Medical Students in the
Front of an Active Evaluation Model of
Cardiovascular Anatomy

João Erivan Façanha Barreto², João Victor Souza Sanders^{1*}, Hudson Martins de Brito¹, Michelly Carneiro Collyer¹, Francisco Ewerton de Paula Uchôa¹, Jonathan Barros Cavalcante¹, José Ricardo Souza Ayres de Moura³, Osvaldo Pereira da Costa Sobrinho¹, Jalles Dantas de Lucena², Ivan do Nascimento da Silva⁴ and Gilberto Santos Cerqueira²

¹Academic League of Anatomy and Surgery, Department of Morphology, Federal University of Ceara, Brazil

²Post-Graduate Program in Morphofunctional Sciences, Federal University of Ceara, Brazil

³Department of Morphology, Federal University of Ceara, Brazil

⁴Federal University of Alagoas, Brazil

Article Information

Received date: Sep 15, 2018

Accepted date: Oct 01, 2018

Published date: Oct 03, 2018

*Corresponding author

João Victor Souza Sanders,
Department of Morphology, Federal
University of Ceara, Rua Delmiro de
Farias, CEP: 60.430-170, s/n-Campus
Porangabussu/CE, Brazil,
Tel: +55 (85) 3366-8497;
Email: giufarmacia@hotmail.com

Distributed under Creative Commons
CC-BY 4.0

Keywords Anatomy; Active Teaching;
Education; Medicine; Morphology;
Teaching

Abstract

The learning model based on active methodologies has been increasingly explored in undergraduate programs, especially in the health area. Many authors support this preference in a better consolidation of knowledge and in a more dynamic learning process. In this context, the present study aims to evaluate the students' perception of medicine against a practical evaluation model of human anatomy. An analytical, descriptive study with quantitative approach was carried out with 38 students of the medical course. The students were submitted to a simulation of practical evaluation, in which the students should point out in the anatomical piece questioned structures. They then answered a structured questionnaire. It was observed that 92.10% of the students stated that they had no contact with an active teaching methodology previously and 94.73% reported that they had no contact with this methodology in the area of morphological sciences. When questioned about the active methodology, 92.10% of the students answered that this method would be better for learning consolidation, and 97.36% of the interviewees think there should be more moments with this type of methodology during monitoring activities. It was found that there was a good acceptance of the active evaluation method, thus being an active tool for the discipline of human anatomy.

Introduction

The active learning method can contribute to the formation of professionals with ethical, political and technical knowledge and skills and with a critical and reflexive profile [1].

The dominant type of teaching has been the lecturing, since the foundation of universities in Europe. Although many studies have been made for decades, proving that active learning increases student's learning interests and provides better learning outcomes, more quantitative analysis showing how constructivist versus exposition-centered methods influence student performance are needed [2,3].

Due to continuous improvement in health care system and a complex community needs, new requirements of health professionals are urgently needed, such as a holistic approach. Furthermore, health students are now educated to be a creator and problem solver, and also he needs to have a cognitive and psychomotor proficiency. Thus, the restructuring of teaching-education process is determinant to form capacitated health professionals that can manage the actual needs [4].

In a medical instruction and education, the active methodology has been explored in order to solve the decades-old problem of strenuous lectures. The new medical curriculum has preferred the "flipped classroom", in which students use their outside classroom time to study and learn. The inside classroom time is destined to solve clinical cases, by a group discussion, which can improve not only the individual but also the group knowledge. This form of learning has great benefits, such as better retention of the studied content and development of lifelong skills for learning [3].

Moreover, medical students have well received this learning methodology, which has positive results in students' perception surveys. These students also have a singular appreciation for the pre-class online videos, which are concise and can be accessed anytime. Furthermore, qualitative data suggest that students prefer a curriculum with traditional lecture-based and "flipped classroom" methodologies [5].

In this complexity of teaching-learning process, Anatomy study, during the preclinical period, have shown that medical students are more likely to need to be creative in teaching and learning, they are innovative ones. Besides, medical students are also individuals who are capable of study by doing

or practice directly, who may have better results if the professors provides a new way of learning different from the traditional way [4].

Considering this perspective, the teaching-learning process is complex, in special for medical students. In this context, this study aims to analyze the medical students' perception of a new active model of anatomy Examination.

Materials and Methods

An exploratory cross - sectional study with a quantitative approach was carried out. Students of the second semester of the medical course of the Federal University of Ceará, at the end of the Cardio respiratory module, had a simulation of practical evaluation, in which students should point out in the anatomical part structures listed. Thereafter, they answered a questionnaire containing 5 questions that compared the method used with the classic.

Having an active university enrollment, being over 18 years old and studying at the morphology department were the criteria used to select the students. The sample consisted of 38 students, selected through randomized stratified sampling.

To collect data among the students selected for the research, a semi-structured questionnaire was applied, through self-completion and in a confidential way. The basic team for data collection was composed of five students of scientific initiation, previously trained for the application of the questionnaire. Data were collected between April and May 2018.

The data analysis was descriptive in order to identify the acceptance of the active methodologies. It was used to organize the database Excel 2003 computer program and as an instrument of statistical analysis the application Excel for Windows version 2010.

The questionnaire was applied directly to the students after clarifications and basic orientations about the objectives of the research in question, leaving the university free to decide on their participation; the Free and Informed Consent Form (TCLE) was signed.

Prior to application, individuals were instructed on the voluntary nature of the study and were granted confidentiality by anonymity. For this purpose, a free and informed consent term was presented to each participant in accordance with Resolution 466/12 [6].

Results

It was verified that 92.10% of the students stated that they did not have contact with an active evaluation methodology previously, while 7.9% had contact with the active evaluation method (Table 1). As far as contact with the active methodology in the morphological sciences area was concerned, 94.73% reported that they did not have and 5.27% had contact with some type of active methodology.

Table 1: Evaluation of student's perception of the active evaluation method.

Parameters	No	Yes
Previous contact with active methodology	92.10%	7.90%
Contact with active methodology in morphology teaching	94.73%	5.27%
Did the active methodology contribute more to learning than the traditional method?	7.90%	92.10%
Should exist more activities like this?	2.64%	97.36%

Table 2: Classification of the active evaluation methodology by students.

Perception of the method	%
Excelent	42.10%
Good	50%
Regular	5.26%
Bad	2.63%
Terrible	0%

When questioned about whether the active methodology would be better for learning consolidation, 92.10% of the students answered yes, and 97.36% of the interviewees think there should be more moments with this type of methodology in moments of monitoring. In addition, when questioned about the general quality of the activity, 42.10% of the students rated it as optimal, 50% of the students rated it as good, and only 5.26% rated it as regular and 2.63% rated it as bad (Table 2).

Discussion

Currently, active methodologies are an important tool in the teaching and learning process of anatomy. In Brazil, active methodologies are gaining strength in the teaching of medical sciences, mainly due to the pressure of the Ministry of Education and the search of teachers and monitors to innovate in the process of teaching and learning anatomy.

The traditional practical assessment of human anatomy based on cadaveric part markings does not provide efficient means to measure student knowledge. This is mainly because it does not allow the teacher to be aware of how the student arrived at that written conclusion, since the teacher has access only to the final answer, privileging only the content, not its logic. In addition, it is emphasized that the impossibility of handling the anatomical pieces in the traditional practical evaluations unnecessarily complicates the topographical reasoning, a fundamental artifice for the recognition of structures.

It is also noted that the traditional form of evaluation contains biases that, although intrinsic to the student, are exacerbated by poorly elaborated tests, such as stress and tension. These factors may disrupt the student at the time of evaluation.

This traditional archetype emphasizes a Cartesian pedagogical practice that is concerned only with the reproduction of knowledge, making the role of the teacher based on memorization and copying [7]. In this way we can see that the traditional method is archaic and outdated and often defended by teachers resists the active methodologies and the use of technologies in the teaching of anatomy.

Anatomy can benefit from other active methodologies such as body painting, team-based learning, host, simulation, quizzes, and board games. The smart phone can be a useful tool to aid the learning process. With the rapid increase in smart phone usage rates, this technology can also be a tool to help and improve the learning process [8].

Researchers studying the educational intervention through digital technologies in the school environment as a tool to support teaching, verified that the method provided a space for participative and active integration, in addition the students had a positive opinion regarding the activity, considered a differentiated proposal that enabled them work in a team that is hardly seen in traditional teaching [9].

The great volume of information acquired this century and the technologies to access them has change the form how the professional market has required people. Professionals with greater autonomy, capable of making decisions and, above all, capable of producing new knowledge that adds to the environment in which they work are the ones that are most successful. In this perspective of social-scientific change, teachers cease to act only as transmitters of knowledge already elaborated and act as intercessor for the knowledge to be produced, in this way the active method of evaluation comes to promote meaningful learning when compared to traditional teaching [7].

Our studies corroborate with the results of other researchers who have verified that during the classes of practical anatomy with active methodology the students' motivation of learning increased. The methodology applied in the practical classes of Anatomy promoted positive results in relation to the evaluations and, mainly, in the effective learning of the content by the student [10].

Conclusion

It was verified a high acceptance of this teaching methodology, especially in the area of morphological sciences, which hardly ever has contact with this kind of activity. Therefore, active methods of human anatomy teaching should be more explored in order to improve the learning process. In addition, it is necessary to train teachers to apply an active methodology of teaching and learning through continuing education courses or permanent, since many teachers of anatomy only know traditional methodologies that make it difficult to implement active methodologies.

Acknowledgements

The authors wish to thank the students that participated in this study.

References

1. Mitre SM, Siqueira-Batista R, Girardi-de-Mendonça JM, Morais-Pinto NM, Meirelles CAB, Pinto-Porto C, et al. Metodologias ativas de ensino-aprendizagem na formação profissional em saúde: debates atuais. *Ciênc Saúde Coletiva*. 2008; 13: 2133-2144.
2. Freeman S, Eddy SL, McDonough M, Smith MK, Okoroafor N, Jordt H, et al. Active learning increases student performance in science, engineering, and mathematics. *Proc Natl Acad Sci USA*. 2014; 111: 8410-8415.
3. White C, Bradley E, Martindale J, Roy P, Patel K, Yoon M, et al. Why are medical students 'checking out' of active learning in a new curriculum? *Med Educ*. 2014; 48: 315-324.
4. Isik B, Kuzudisli S. Learning anatomy of nursing and medical students. *Procedia Soc Behav Sci*. 2015; 197: 1079-1084.
5. Ramnanan CJ, Pound LD. Advances in medical education and practice: student perceptions of the flipped classroom. *Adv Med Educ Pract*. 2017; 8: 63-73.
6. Ministério da Saúde. Conselho Nacional de Saúde. Comissão Nacional de Ética em Pesquisa. Normas para pesquisa envolvendo seres humanos. Res. CNS 466/12 e outros. 2012.
7. Behrens MA. A prática pedagógica e o desafio do paradigma emergente. *Rev Bras Estud Pedagog*. 1999; 80: 383-403.
8. Pires LAS, de Oliveira Leite TF, Fonseca Junior A, Babinski MA, Chagas CAA. Anatomical Apps and Smartphones: A Pilot Study with 100 Graduation Students. *SM J Clin Anat*. 2018; 2: 1007.
9. Czerwinski GPV, Cogo ALP. Webquest e blog como estratégias educativas em saúde escolar. *Rev Gaúcha Enferm*. 2018; 39.
10. Carvalho CAF. Utilização de Metodologia Ativa de Ensino nas Aulas Práticas de Anatomia. *Rev Grad USP*. 2017; 2: 117-121.