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Academic Monitoring in Human Anatomy as a Pedagogical Tool in Higher Education

A Monitoria Acadêmica em Anatomia Humana como Ferramenta Pedagógica no Ensino Superior

Roger William de Souza Vitorino[a]; Deisy Paula dos Santos[a]; Luana Andrade Rogeri[a]; Célia Cristina Fornaziero[a]; Mayara Bocchi[b]; Eduardo Vignoto Fernandes*[c]

[a]State University of Londrina, Anatomy Department. PR, Brazil.
[b]State University of Londrina, Department of Pathological Sciences, Paraná, Brazil
[c]Federal University of Goiás, Laboratory of Human and Comparative Anatomy. GO, Brazil.
*E-mails: eduardovignoto@uel.br; eduardovignoto@ufg.br
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Abstract

The objective of the present study was to evaluate the contribution of academic monitoring in the students' performance of the Physical Education course in the discipline of Human Anatomy. The sample consisted of 50 students of the Physical Education course (Bachelor's degree) who were taking the discipline of Human Anatomy (HA). The participants were divided into two groups: non-monitoring (NM) and monitoring (M). Academic monitoring actions were carried out during the students' after class hours, in which they were assisted by the professor and three monitors. Thus, all the students who participated in the monitoring activities were included in the M group and those students who were not involved in monitoring activities were included in the NM group. The assessment used to verify student's performance was the last test of the HA discipline. After verifying the data normality, the scores of the groups were compared using the Mann Whitney test. Data were expressed as mean and standard deviation from the mean using the Graph Pad Prism 6 statistical program. The adopted significance index was $p < 0.05$. In the results it was observed that the M group obtained a better performance when compared to the NM group ($p < 0.001$). Therefore, academic monitoring acted as a facilitating tool in the student's theoretical-practical development and contributed to a better performance in the discipline of HA. Therefore, it can be used as an additional support in the teaching-learning process of students who participate in extra-class monitoring activities.

Keywords: Learning. Education, higher. Education.

Resumo

O objetivo do presente estudo foi avaliar a contribuição da monitoria acadêmica no desempenho dos estudantes do curso de Educação Física na disciplina de Anatomia Humana. A amostra foi composta por 50 estudantes do curso de Educação Física (Bacharelado) que cursavam a disciplina de Anatomia Humana (AH). Os participantes foram distribuídos em dois grupos: Sem Monitoria (SM) e Com Monitoria (CM). As ações de monitoria acadêmica foram realizadas no contraturno dos estudantes, no qual, foram auxiliados pelo docente e por três monitores. Dessa forma, todos os acadêmicos que participaram das atividades de monitoria foram inseridos no grupo CM e aqueles estudantes que não se envolveram com atividades de monitoria, foram incluídos no grupo SM. A avaliação utilizada para verificar o desempenho dos estudantes foi a última prova da disciplina de AH. Após verificar a normalidade dos dados, as notas dos grupos foram comparadas por meio do teste Mann Whitney. Os dados foram expressos em média e desvio padrão da média por meio do programa estatístico Graph Pad Prism 6. O índice de significância adotado foi de $p<0,05$. Nos resultados foi observado que o grupo CM obteve um melhor rendimento quando comparado ao grupo SM ($p<0,001$). Nesse sentido, a monitoria acadêmica atuou como ferramenta facilitadora no desenvolvimento teórico-prático do discente e contribuiu para um melhor rendimento na disciplina de AH. Sendo assim, pode ser utilizada como um suporte adicional no processo ensino-aprendizagem dos acadêmicos que participam das atividades de monitoria extraclasse.

Palavras-chave: *Aprendizagem. Educação Superior. Educação.*

1 Introduction

Human Anatomy (HA) is the science that studies the macroscopic morphology of human beings. Even though it is a classical science, it continues to present great relevance in courses in the biological and health areas, such as: Biology, Medicine, Nursing, Physiotherapy and Physical Education. In general, the discipline is still coursed in the first year of graduation, and the students soon realize that this knowledge is indispensable for the understanding of other disciplines throughout the course and also for their future professional performance[1, 2]. According to Salbego et al.[3], HA has still been learned in a merely from memory manner by the students and, such a condition, implies directly the level of learning being received, because it ends up becoming a superficial knowledge that can be quickly forgotten.

In this context, higher education has dealt with students who demonstrate difficulties in achieving their curricular goals. Therefore, many higher education institutions seek to innovate their pedagogical political projects in order to improve the teaching-learning process[4]. Over the years, a widely used strategy is the academic monitoring activities that reinforce the content taught by the professor[5].

Academic monitoring is understood as a strategy to

support teaching itself, in which the monitors (students who have already attended the discipline) assist in the students' learning in a specific discipline (e.g. HA), that is, work in conjunction with the professor (during class or after classes hour), acting diligently and actively in the teaching-learning process, providing an environment where students can clarify possible doubts, improve their knowledge and enhance their academic performance[6,7]. Studies show that the monitor plays a relevant role in this context, both in its own academic formation and in the learning process of those being assisted by the monitors[8-10].

Officially, university monitoring was instituted on December 20th, 1996, by the Law of Guidelines and Base of National Education, Law no. 9.394, in which in its Article 84 it indicates that the graduates can be inserted into teaching and research activities by their respective institutions, developing monitoring functions, provided that it is in conformity with the pedagogical political project of the course[11].

Once the student has experienced the discipline, he or she can, as a monitor, be a teacher-student intermediary, being able to perceive the students' difficulties. Thus, monitors and professors can discuss problems in order to improve the students' content understanding and propose new teaching strategies[12].

Thus, it can be observed that in the HA discipline, for the Physical Education course, the monitor can facilitate the theoretical and practical knowledge construction, and can transmit his or her experience and enable a more tangible and efficient learning path for the students, also serving as a bridge between the professor and the student[8,10,13].

As a result, the objective of the present study was to evaluate the contribution of academic monitoring in the students' performance of the Physical Education course in the discipline of Human Anatomy.

2 Material and Methods

2.1 Participants

A total of 50 students of both sexes enrolled in the first year of physical Education (Bachelor's degree) in the night shift and who attended the HA discipline participated in the present study. The participants were divided into two groups: Non-Monitoring (NM, n=31) and Monitoring (M, n=19).

Subjects who did not perform the HA assessment, used to verify students' performance, were excluded from the study. The study was approved by the Ethics Committee in Human beings of State University of Londrina (CAAE: 79469417.4.0000.5231) and the participants signed the term of free and informed consent on the study conditions.

2.2 Data Collection and study organization

The academic monitoring program in HA took place in the first half of 2019 at the Department of Human Anatomy, State University of Londrina. The academic monitoring activities were carried out during the students' after classes period, during the monitoring, the students were assisted by the professor and three monitors (who also participated in the theoretical-practical classes), being performed only in a practical way through the use of cadaveric pieces.

At the beginning of the academic semester of 2019, the physical Education students enrolled in the HA discipline were informed that they could have the support of the extra class academic monitoring activities to address possible doubts and reinforce the content learned in the classroom. All the students who participated in the monitoring activities were included in the M group and those students who did not participate were included in the NM group. The evaluation used to verify the academic performance in the M and NM groups was the last semester evaluation.

2.3 Statistical analysis

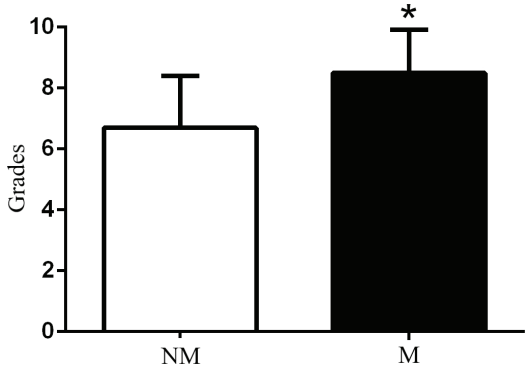
Initially, the data were submitted to *the Shapiro-Wilk* normality test. After verifying the data normality, the scores of the groups were compared using the *Mann Whitney* test. Data were expressed as mean and standard deviation from the mean and the Graph Pad Prism 6 statistical program was used for the analyses. The adopted significance index was $p < 0.05$.

3 Results and Discussion

The HA discipline seeks to understand the morpho functional organization of the man's main organic systems. The contents discussed in this discipline are of great relevance in the students' professional practice[3]. Since the students have difficulties related to HA learning, the role of academic monitoring is highlighted, which is responsible for facilitating the teaching-learning process[14].

Figure 1 shows the students' performance in relation to their respective groups, NM and M. Thus, it was observed that the M group obtained a better performance when compared to the NM group ($p < 0.001$).

Figure 1 - Comparison between the non-monitoring group and the monitoring group in relation to the students' performance



Mann-Whitney test was used to compare the groups, $p<0.05$. NM, non-Monitoring (n=31), monitoring (n=19). *, M different from NM.
Source: Research data.

The fact that the monitor has already experienced the

status of a student in HA, envisages that he or she has the ability to notice the students' possible difficulties in relation to the contents of the discipline[12]. Such a condition may be a possible explanation for M group students to have better results in objective assessments in relation to NM group.

According to Batista and Souza Filho[15], the monitoring provided for in the discipline of Anatomy has obtained several positive aspects in relation to academic processes, acting as an important pedagogical tool, which assists the professors and promotes improvements in the students' academic performance. Corroborating the above, Muniz et al.[16], explained in their study that 99% of the students considered the monitoring action to be of paramount importance, recognizing that the presence of the monitor implies several benefits (since the same has already coursed the discipline which he or she monitors).

The relationship of monitoring and better academic performance, as well as in the present study, was also demonstrated in the study by Felicetti et al.[17] in an Exact Sciences monitoring program at Centro Universitário La Salle, where the pass index was 74.2% and the fail index was only 25.8%. Except for the discipline of physics (which did not count on the presence of monitors), the other disciplines involving mathematics obtained a positive result and the amount of monitoring visits requested by the students also reflected positively in the performance. According to these findings, Escobar and Kaminski[18], in a study in the monitoring program in Bromatology and Food Biochemistry, at Federal University of Pampa, pointed out that during the semesters, when monitoring activities began to be offered, the number of passes increased.

Thus, the positive aspects of the academic monitoring presented demonstrate that it is a process of paramount importance and efficiency, because according to Andrade et al.[19], it is recognized by professors and students as a facilitating tool for the achievement of an effective teaching-learning process, both for the one who exercises the monitor function, supervised by a leading professor, and for the monitored one, so that his or her knowledge and practices are consolidated. Furthermore, Bragagnolo[5]points out that when monitoring is used to enhance the students' collaborative and self-regulated learning, it can be a stimulating factor for other aspects centered on the study, also bringing advances to students who benefit from monitoring, with good performance in the teaching-learning process.

4 Conclusion

It can be seen in the present study that academic monitoring was able to assist students in the Physical Education course as a tool that facilitates the student's theoretical-practical development, as well as contributed to a better performance in the HA discipline. Therefore, the academic monitoring was an additional support to the students' teaching-learning process, who attended the extra-class monitoring activities.

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