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A COMPARISON OF THEORETICAL AND PRACTICAL APPROACHES TO THE TEACHING OF ANATOMY AT MEDICAL SCHOOL IN MOZAMBIQUE

Dr. Maria Alexandra Fernandes Rodrigues*

Dept. of Anatomy – University Eduardo Mondlane Maputo – Mozambique.

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***Correspondence for Author**

Dr. Maria Alexandra Fernandes Rodrigues

Dept. of Anatomy – University Eduardo Mondlane Maputo – Mozambique

ABSTRACT

During the academic year 2010, two randomised groups of second year medical students at the University Eduardo Mondlane (UEM) in Maputo learned gross anatomy of the limbs and the trunk using different teaching approaches. One group dissected the thorax for 5 weeks according to an experimental programme, while the other group worked on the same topic in the traditional way at UEM, which excluded dissection. The groups learned the abdomen by reversing the methods. For learning the limbs, all the students learned the upper limbs by using the traditional approach while the lower limbs were dissected. Study guides were supplied to the experimental group and each of the practical classes started with a ten-minute preparatory tutorial when the structures to be studied were discussed. Therefore, the results of this study suggest that dissection could be a useful complementary teaching approach in addition to lectures and tutorials in Anatomy at UEM.

KEYWORDS: Teaching approach, dissection, achievement test, medical curriculum.

1. INTRODUTION

1.1 The Faculty of Medicine

The Medical curriculum of the Faculty of Medicine at the University Eduardo Mondlane (UEM) is a 7 years duration program consisting of pre-clinical cycle in first three years (1sr, 2nd and 3rd, followed by the 4th, 5th and 6th years for clinical courses and finally a full year, the 7th year, for residency. To achieve the aims described in the curriculum, conventional teaching approaches, which include lectures, non-clinical teaching (seminars, tutorials and laboratory practical's) and

clinical teaching (bed-side and community–medicine approaches) are used. The time allocated for teaching Anatomy at UEM has received special attention within the university with various increases along the time, from a total of 64 hours in 1978 to 256 hours in 1995. The last increase occurred in 1995 making possible to change the medical curriculum, as new opportunities became available to the Department of Anatomy at UEM. As a result, an additional academic semester (16 weeks) for Anatomy, meaning that the time allocated to the subject however, it is still taught in the first and second years together with other pre-clinical subjects. Within these subjects, Anatomy is the subject that has the largest number of hours' contact between lecturer and student.

1.2 The Anatomy Course Content Teaching

Anatomy is defined by many authors as the study of the structure of the human body, involving the description of form and the explanation of how a structure developed.[19, 7, 13, 20] According to,[7] the study of Human Anatomy may be attempted in either of two ways. One consists of collecting facts and memorising them and the other consists of correlating the facts that is, studying them as regards their mutual relationships. On the other hand, [3] argued that in medical and paramedical education, the Biological Sciences (including Anatomy) are problematical areas because they are taught not just for the acquisition of facts but rather in order that the students may acquire medical knowledge, understand disease process and treatment rationale, and attain competent clinical skills.

On one hand[2] stated that for most medical students, Anatomy is viewed as a difficult hurdle mostly because the traditional curriculum usually allocates a relatively short period of time to Anatomy, which is hardly enough to receive, digest, structure and sequence the contents. On the other hand,[1] stated that reduction in the time allocated to the teaching of Anatomy could mean a reduction in the Anatomy content knowledge that can be presented. Perhaps, as [10] argued, the instructors in the medical school need to reassess their role concerning how the medical students under their direction will acquire knowledge.

Though, the procedure for teaching Anatomy at UEM varies considerably depending on the teaching aids and tutors' approaches. The teacher-centred style predominates with the tutor either giving a presentation, i.e., traditional lecturing, or engaging in teacher-student interactions, i.e., tutorials. Slides particularly of the Netter's collection and transparencies prepared by the Lecturers are used as audio-visual aids, even during the theoretical classes. Prosection is the most commonly used aid for demonstration purposes where possible, and it offers the students

the opportunity of handling the specimens and discussing them between themselves under the guidance of their lecturer/tutor. Dissection of cadavers for learning Anatomy was unusual because of economic and technical difficulties and cultural practices in Mozambique which limited the acquisition of the bodies by the Department of Anatomy at UEM, and only in 1997/98 academic year, dissection was reintroduced as a teaching procedure in this Department, after a period of approximately 20 years without being used as a teaching approach in training medical students. The lectures, i.e., the theoretical component of the course, are carried out in the traditional style (didactic lecture) and are held for the whole class. They serve three main goals: i) o emphasise important points of the topic; ii) to explain and clarify difficult parts of the topic; iii) to present important data that cannot be covered by the textbooks or handouts. Attendance at the lectures is not compulsory, but the extra material presented (which is not included in the textbooks), is examinable. The average attendance is about 50-60% of the class and the majority of the non-attendants are the repeater's students. The number of students in the practical component of the course is about 15-18 students tutored by one lecturer. Tutorials, as a practical component of the course, also represent an important part of the teaching process at UEM. These are held as a single two-hour session per week, for small groups, and serve two major functions: i) to discuss the most problematic parts of the material; ii) to solve different types of problems related to the topic. The latter function provides a tool for the continuous performance assessment of students and prepares them for the examination.

Therefore, Human Anatomy at UEM is taught over two academic years, i.e., in the first and second years of study. The syllabus for the first year comprises General (Basic) Anatomy and Gross Anatomy of the head, neck and upper limbs. For the second year, the syllabus comprises Gross Anatomy of the thorax, abdomen, lower limbs and nervous system. The need for the inclusion of General (Basic) Anatomy in the syllabus due the fact that secondary school leavers have deficiencies on their knowledge and skills, which are found to be insufficient to serve as a basis for further academic studies. For each of the major sections of the body (head, neck, thorax, abdomen, limbs) the programme has been organised as follows:

i) Muscle-skeletal framework (bones, joints, muscles and fascia, and how they are arranged together).
ii) Vessels and nerves (from origin to termination and which structures are supplied by a specific vessel/nerve)
iii) All regions (within the major divisions) are studied by considering the regional relations of the specific component structures and how the blood vessels and nerves supply it.

Because the programme has both regional and systematic elements linked together it does not follow one particular textbook. Both types of textbook (regional and systematic) are useful.

1.3 Aim Importance of the Study

Because of the rapidly increasing amount of knowledge within the constraints of a university degree or diploma, as it was argued by [8], the relative time allocated to the teaching of specific university courses is decreasing remarkably. This reduction in teaching time has necessitated a stream lined, time efficient and more effective teaching method. Therefore, according to authors such as [16] and [14], teaching methods and techniques should occupy a central position in the thinking of university departments. Thus, some changed in medical education is inevitable in response to an ever-expanding body of medical knowledge and advances in technology. However, successful innovation and changes in the way medical students are prepared are notoriously difficult.[4] As Medical teaching has diverse goals and teaching for the achievement of these goals should make use of diverse methods, some often, the success of the chosen teaching methods depends on the quality of resource materials and how they are used. Hence, there is no simple and instant way of selecting a teaching method. The instructor must consider a number of factors including the type of learning and level required, group size, local constraints such as time available and facilities, the degree of autonomy of the learners, and finally, any preferences of the lecturer.[15] And, on one hand, as authors such as [5] and [17] stated that it is common in medical schools to find the teaching methods grouped into three sorts: lectures, non-clinical interaction (tutorials, seminars and practicals) and clinical interaction (ward rounds, ward teaching, clinics, etc.), lectures, tutorials and practical classes are often held in an inflexible and uniform way.[21] On the other hand,[18] stated that it is prudent to take into account that not all students are equally interested or enthusiastic about the same kind of teaching method and to remember that a lecture, for example, may be interesting and valuable to the teacher but not equally perceived by the students. Thus, and taking into account the arguments of several authors, the importance of this study will focused on the need for the improvement of the teaching approaches and the students' performance in Anatomy syllabus at UEM, and consequently, it will also contribute to the improvement of the medical students' background for the other subjects studied later and the quality of future doctors. Regardless, the aim of the study is to compare the effectiveness of the theoretical and practical approaches to Anatomy teaching.

2. MATERIAL AND METHODS

2.1 Sampling

The study aimed to compare the effectiveness of different teaching approaches to Anatomy at the Faculty of Medicine of UEM. The traditional teaching approach for Gross Anatomy includes a one-hour lecture twice a week and a two-hour tutorial once a week. In this study, an experimental program using dissection as an alternative practical teaching approach was introduced, covering the limbs and trunk. The subjects for this study were 95 second year medical students, 53 females and 42 males, from the Faculty at UEM, all of whom were volunteers and they represented the whole student cohort registered for the Anatomy-II course in 2010 academic year. This sample was randomly split into small groups of 15 students each for the practical lessons (seminars, tutorials and laboratory sessions) for all subjects and this distribution was also used for the purpose of this study and on the other hand, the class was randomly assigned in two groups, being one experimental group and the other, the control group. The students who dissected were designated as an "experimental group", while those who followed the traditional program (without dissection) were designated as a "control group". In each case, the experimental group was further divided randomly in 3 groups of 15 students according to the timetable. Each of these groups was then split up into smaller groups of 5 to 6 students who were allocated to a cadaver. To the experimental group was given a 10 minute preparatory tutorial before each dissection period. During dissection, one or two students read out the instructions given in the dissection study guide, which was devised by the researcher and provided to all students. Two others dissected and demonstrated to the rest of the group who took notes. Each student had the opportunity to dissect. One lecturer tutored three tables of five to six students during the dissection sessions. The students were required to complete a resume as part of the assessment process. While, the control group students' studied the topic using charts, atlases, slides, models, and preserved anatomical structures (i.e. prosections) and they were given a 10 minute preparatory tutorial before each discussion. The headings defined in these sessions were taken in a proximo-distal order of structures as they were presented during the lectures. Thereafter, prosected specimens, slides and models were used in the discussions, which were facilitated by the lecturer.

2.2 Data Gathering

For data gathering for the study, achievement tests and questionnaire were used as the main instruments for data collection. The written test consisted of 10 multiple-choice questions with 5

options (only one correct) and 20 questions (stems) with 5 statements (items) each, in true-false format, completed in 150 minutes. The practical test, which aimed to assess the students' ability to recognise anatomical structures and their structural relationships, comprised 40 marked structures for identification in 40 minutes. The items comprising these tests were related to the anatomical topics studied in the second semester of the first year (upper limb), and in the first semester of the second year (lower limb, thorax and abdomen). Like as use to do for constructing a test at the Department of Anatomy at UEM, most of the test items were drawn from a bank of items shown by previously analysis to possess satisfactory discrimination and facility. The others were of recent construction. The students were familiar with the type of questions used. Neither the students who dissected nor those who learned the topic by tutorials had previously studied the specimens used for identification of marked structures, since they were museum pieces not accessible to students. The attitude questionnaires consisted of 48 statements based on a five-point Likert-type scale, ranging from 1 - "strongly disagree" to 5 - "strongly agree", as well as six statements to be ranked in order of preference of the 6 possibilities that could be used in teaching Anatomy at UEM. Lastly, students were given the opportunity to express their opinions in blank spaces provided. The same questionnaire was given to the students as a post-dissection exercise, and designated in this study as the **post-questionnaire**, during the first practical class of the second semester (after conclusion of the achievement testing related to the topics involved in the study).

2.3 Data analysis

With regard to students' performance, the analysis was carried out considering the topics (limbs and trunk) and the students' groups (experimental and control groups). The mean scores and standard deviations for the written and practical tests, for both experimental and control groups, were compared by using the t-test (unpaired) and the ratio of variance (i.e., the ratio between the squares of the standard deviations) of the experimental and control groups). A similar comparison was also made for lower and upper limbs using the paired t-test, but in this case, only the non-repeating students (n=50) were included in the sample to ensure that the same group of students was evaluated. The t-test was used to indicate the probability that the mean scores of the two groups are different. The statistical significance of the differences between groups was tested at the 1% level.

Pearson's product-moment correlation coefficients were also computed to determine any inter-relationship, between the scores in written and practical tests. The items of the questionnaires

were studied separately to see how students perceived the effectiveness of the teaching approaches of Anatomy at UEM, and how this changed after they had dissected. With the intention of determining whether there were some patterns in the students' perceptions, the students were asked to choose the option which best defined their opinion related to these issues, using a five-point Likert rating-scale. The results were later grouped into three categories: "**Agreement**", "**Neutral**", and "**Disagreement**". "Strongly Agree" and "Agree" were taken together as **Agreement**, "Not sure" or "Undefined" were taken as **Neutral** and finally, "Strongly Disagree" and "Disagree" were combined and considered as **Disagreement**. Means, standard deviations, frequency distributions and percentages related to the students' responses to both questionnaires were also computed.

3. RESULTS

Firstly, achievement tests results as a measure of the effectiveness of the teaching approaches in Anatomy will be described, followed by the results of the questionnaires as a measure of the students' perception about the effectiveness of the same teaching approaches.

3.1 On Students' Performance in the Achievement Tests

Students' performance, one of the major variables studied, was measured through the written and practical tests. Pearson's product-moment correlation coefficient was computed with data from the total sample to determine any inter-relationship between the results in the written and the practical tests and the results showed a significant positive correlation between the scores of written and practical tests in each of the three topics, showing how consistent the tests were from one measurement to another. The Pearson product-moment correlation of the tests on lower limbs and abdomen was highly significant with, $r=0.83$ and $r=0.36$, respectively, both $p<0.001$. The correlation between the tests on upper limbs $r=0.43$ and on thorax $r = 0.29$ was relatively lower, although statistically significant at 1% level, $p=0.002$ and $p=0.004$, respectively.

Analysing the test means, the results on students' performance in written and practical tests is summarized in Table 1, showing the mean scores for the various anatomical topics (i.e., limbs, thorax and abdomen), with respect to students' groups, either experimental or control group. In this Table 1 it can be seen that, in the written test the experimental group achieved slightly higher scores than the control group in all the three topics. However, all differences were found to be not statistically significant at the 1-% level using the *t*-test. Nevertheless, the ratio of 1.4, between the variances (i.e. square of the standard deviations) of the experimental group and the control group, in the thorax topic, shows that the experimental

group was found to be more heterogeneous than the control group. In the practical tests, the difference of 15.2, between the mean scores for the two groups as regards the limbs, favoring the experimental group, was found to be statistically significant at 1% level (*t=1.02; p<0.001*). However, as regards the thorax and the abdomen topics, the results on mean performance show that both groups (experimental and control groups) performed similarly. And, when the ratio of variances between groups was calculated, the value of 1.1 for experimental to control groups for thorax shows more variability for the experimental group than for the control group, while the value of 1.0 for abdomen emphasizes the greater homogeneity between the performance of the groups. It must also be noted that in the limbs topic, the experimental group performed better in the practical test than in the written test. However, the control group performed better in the written test than in the practical test. The paired t-test confirmed that the observed differences were statistically significant at 1% level, with *t*=3.48, *p*=0.001 for the experimental group, and *t*=3.57, *p*=0.001 for the control group. A different picture was found in the results for the thorax, where both experimental and control groups performed better in the written test than in the practical test. On the other hand, for the abdomen topic, both experimental and control groups, performed better in the practical than in the written tests. However, the differences found were statistically not significant.

Table 1: Students' performance in the written and practical tests by groups and topics

TOPICS	EXPERIMENTAL		CONTROL		
	MEAN	**S.D.**	**MEAN**	**S.D.**	***p***
	Written Test				
Limbs	51.7	16.4	50.2	16.6	0.596
Thorax	56.1	18.2	55.5	15.4	0.862
Abdomen	40.5	12.2	38.7	13.1	0.501
	Practical Test				
Limbs	57.2	14.6	42.0	13.2	<0.001
Thorax	53.5	19.1	53.4	18.4	0.970
Abdomen	41.3	12.4	41.3	12.4	0.920

3.2 On Attitude Questionnaires

From the total number of the second year medical students enrolling in the Anatomy course, 78% (74) completed and returned the pre-questionnaire while 84% (80) of the total sample completed the post-questionnaire concerning their perception about the effectiveness of the teaching approaches to Anatomy at UEM.

3.3 The Students' Preferences for the Different Teaching Approaches to Anatomy

From Table 2, it is evident that the 2010 second-year medical students' preference was for the combination of lectures, tutorials and dissection sessions, considered as the most appropriate teaching approach to Anatomy at UEM. There, the mean rates of 4.9 and 5.1 in the pre- and post-questionnaires respectively, for the combination of lectures, tutorials and dissection sessions, were higher than those for the association of lectures and dissection sessions (4.3 in both questionnaires), rated as second, while lectures only received the lowest scores (2.5 in both questionnaires). As can be seen, dissection sessions and tutorials were similarly rated in the pre-questionnaire (2.6 and 3.0) and in the post-questionnaire (2.8 and 2.9) respectively. Furthermore, despite the fact that the differences were not statistically significant, the students rated the combination of lectures and dissection higher (4.3) in both questionnaires than the combination of lectures and tutorials (3.9 in both questionnaires).

Table 2: Students' ratings of the approaches to teaching Anatomy

TEACHING APPROACH	MEAN	S.D.
Pre-Questionnaire		
1. Only lectures	2.5	1.7
2. Only tutorials	3.0	1.4
3. Only dissection	2.6	1.3
4. Lectures & dissections	4.3	1.4
5. Lectures & tutorials	3.9	1.7
6. Lectures & tutorials & dissection	4.9	1.7
Post-Questionnaire		
1. Only lectures	2.5	1.7
2. Only tutorials	2.9	1.4
3. Only dissection	2.8	1.2
4. Lectures & dissections	4.3	1.4
5. Lectures & tutorials	3.9	1.5
6. Lectures & tutorials & dissection	5.1	1.5

3.4 The Students' Perception about the Effectiveness of the Teaching Approaches

The students' perception of the effectiveness of the different teaching approaches are summarized in Table 3, as percentage distributions within the three categories (agree, neutral and disagree). As can be seen in the table, the majority of the students was in agreement with 10 of the statements in the two questionnaires, (items: 1,2,3,5,6,7,8,9,10,14) out of 16 in all the three approaches. The attitudes of students with regard to the ability of teaching approaches to stimulate interest and thought (item 4) are of interest. Relating to lectures, 67% (pre-questionnaire) and 70% (post-questionnaire) disagreed. For tutorials the response was

generally in agreement (68% and 70%) and even more positive for dissection (85% and 74%). In Table 3, it is also evident that the percentage of the students in agreement increased from the pre-questionnaire to the post-questionnaire in 6 of the statements (2, 3, 5, 6, 8 and 10) related to the lectures. Meanwhile, the degree of change was small, in the other approaches (tutorials and dissection), the percentage of students in agreement decreased from the pre-questionnaire to the post-questionnaire.

3.5 The Students' General Comments and Suggestions

In the questionnaires administered, students were also given the opportunity to express their own opinions by providing them with blank spaces. A considerable number of students added suggestions and /or made comments. Some of the most common comments, as presented in Table 3, are considered in the study to enhance the interpretation of the attitudes of the students concerning the teaching approaches to Anatomy at UEM.

Table 3: Frequencies of the students' most common comments and suggestions

Students' Comments	No Students
1. Skills useful later in pathology, surgery and in the doctor-patient relationship could be gained through dissection	37
2. Dissection enhances learning	25
3. Dissection should be a complementary teaching method and should not be a replacement for the use of prosections, slides and charts	22
4. The structures imprint better on dissector's mind	13
5. It is necessary to improve the organisation of work as suggested in the guides	10
6. Smaller groups, more materials and more cadavers should be used	7

In this Table 3, it is evident that the most frequent comment by the students (N=37) was that the skills gained through dissection could be useful later in pathology, surgery and in the doctor–patient relationship. This comment was then followed by the opinion of 25 students that dissection enhanced learning. Alternatives or further useful suggestions expressed by the students are also included in Table 3, and seven students suggested the need for improving the clarity of the written material in order to better utilize the time in practical classes for Anatomy at UEM. The suggestion for the inclusion of dissection as a complementary teaching approach and not an alternative one was made by 22 students (about 30% of the respondents).

4. DISCUSSION AND CONCLUSIONS

Two different approaches to teaching Gross Anatomy: one more theoretical, based on tutorials using prosections, and the other one more practical, based on dissection by students, were compared in this study using an experimental programme. Taking the time constraints into account and the fact that at UEM Anatomy is the subject with the most contact hours between student and lecturer, it is possible to infer that within the next few years no more hours will be given to the teaching of Anatomy at UEM. On the other hand, nowadays more facilities (cadavers and financial support) are given to the Department of Anatomy at UEM. This study was carried out in an attempt to establish which should be the best teaching approach to reduce the number of failures in Anatomy at UEM, considering all of these factors and the annual increase in the number of students.

Achievement tests and attitude questionnaire were used as the main instruments for data collection. The written tests on limbs, abdomen and thorax consisted of multiple-choice-questions and questions with 5 statements in true-false format respectively. As it was yet described the tests were constructed according to the rules of the Department of Anatomy at UEM. However, it is of importance to note that those rules were defined by taking into account the expected learning outcomes i.e. outcomes with respect to marks. As students were tested on several anatomical topics by written and practical tests, Pearson's product-moment correlation coefficient was computed with data from the total sample. The highly significant correlation between the tests meant that the measuring instruments (achievement tests) were related to a high degree. According to authors such as [9] and [6], the multiple-choice items can be designed to measure a variety of learning outcomes defined as educational objectives, from simple to complex. The single-format is probably most widely used for measuring knowledge, comprehension and application outcomes and the true-false items are typically used to measure the ability to identify whether statements of fact are correct. Whenever there are only two possible responses, the true-false statement, or some adaptation of this format, is likely to provide the most effective measure for educational diagnosis.

On one hand, when performance levels on upper and lower limbs were compared, the experimental group (using dissection) had significantly higher scores in the practical test than had the control group (taught by tutorials, mainly using prosections). This superior performance by the experimental group suggests that dissection was an effective teaching approach for the study of the limbs. Considering that the course content for the upper and lower limbs and the

time spent on teaching them are equivalent, these results could mean that dissection enabled the students to better identify the anatomical structures and their relationships, than did tutorials (control group). It is not likely that these higher practical test scores for the experimental group on the limbs could be attributed to the memorisation of individual anatomical specimens, since an effort was made, for the purposes of the examinations, to use those prosections which were museum pieces and not used for learning of the subject matter. Thus, the analysis of mean performances of the experimental and control groups for the thorax and abdomen did not display any statistically significant difference. This finding is supported by the study of [11] in comparing the students' performance in Gross Anatomy after using prosections as an alternative to dissection. Then, [11] found similar results for the two approaches (prosections/dissection) in all topographic areas of the body including thorax and abdomen. On the other hand, in both tutorials and dissection, as student-centred approaches, the fact that students must take responsibility for their own learning may result in a deeper understanding of the material. However, in such circumstances, time may be used less efficiently in dissection sessions as more student-centred approach. It might have contributed to the low benefit of dissection as a useful teaching approach to students particularly in the study of the abdomen, where the students obtained the lowest mean scores in both tests (written and practical).

Although the same number of hours were devoted to lectures and practicals, the inadequacy of some local resources, such as libraries, number of cadavers and specimens, and the lack of students' preparation, impacted negatively on the quality of the practicals more than on the lectures. That is, for practicals to work effectively, students must take the responsibility for preparing material to be studied or dissected. In practice, most of the students generally arrived unprepared and the focus of the sessions tended to be based on issues raised by them, with the short practical sessions often degenerating into another lecture. This could be the reason for the similar students' performance found for both groups in the tests.

However, as [22] stated, differences in mean marks could reflect differences in student interest, teacher expectations, or could be explained by the timing of particular assessments, reflecting greater inter-student variability early in the course. Here, the relative improvement in Gross Anatomy final scores in 2010 (68% of the students passed the subject) may be attributed to the fact that, about two years previously, the format of the written and practical tests was changed from essay-type questions to multiple-choice questions and oral tests were replaced by practical questions. On the other hand, in the study by,[12] it was stressed that one of the constraints on

their results was related to the assessment of the knowledge. It is possible that the use of dissection may have enabled a different testing approach. For instance, by dissecting, the students were more involved in the teaching-learning process and, it was possible to assess the students less subjectively than the previous oral examinations. In both written and practical tests, the experimental and the control groups had answered the same set of questions. So, it may be possible that the analysis of mean performance excluded differences between the two groups (experimental and control), because the test as a whole was taken as the assessment tool. Similar findings for both groups, experimental and control were obtained when the comparison was also done with the discrimination indices for all the items.

As concluding remarks, on one hand, we can say that the results of the study suggest that, during the short experience of dissection, students might have been able to learn the concepts more effectively by using the dissection as a tool for visual and factual learning. From an analysis of the students' responses in the questionnaires, it was found in a considerable number of statements that dissection influenced the students' opinions. There was nearly total agreement among students that dissection is more effective as a teaching approach than the use of prosection in tutorials, confirmed by the changes in their opinion from the pre-questionnaire to the post-questionnaire. And, on the other hand, it can be concluded that the use of dissection in teaching Anatomy supports the institutional goals and objectives of the undergraduate programme at UEM. Moreover, it could contribute to the acquisition of skills necessary for the medical profession and would probably reduce the need for tutorials, in their present form. More time may need to be devoted to dissection for it to be optimally effective. Thus, the salient point gleaned from the results reported here is that, within the context of this study, dissection was perceived as being of benefit to the students. It must be realised that this study may not be wholly ideal, but still produces a definite and interesting result, which should be considered when deciding on teaching methods for the Anatomy course. In conclusion, this exploratory study has produced useful information regarding a possible effective complementary teaching approach to Anatomy at UEM.

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