

CHAPTER 4

RESULTS

“Of course it can be stated that instruction is effective if students learn as a result of it, and this should be the primary consideration when one is evaluating instruction”

Holcomb and Garner (1973:155)

The belief expressed in the above quotation shows that the effectiveness of the instruction is evaluated by what is really learnt. In this Chapter, the results of the study that aimed to evaluate the impact of teaching-learning Anatomy in the training and performance of medical doctors in Mozambique are presented. Firstly, the participants' perception of the effectiveness of the teaching-learning Anatomy and the adequacy of the medical curriculum at UEM regarding the needs of medical practice are presented by exploring the outcomes of the 50-item questionnaire. This is followed by the results obtained when evaluating the clinical reports as a measure of the participants' ability to apply anatomical knowledge in medical practice and by the results of the self-reported

performance in Anatomy and related courses within the undergraduate medical training program at UEM. Finally, the analysis of the interviews as an attempt to understand the factors influencing the quality of the clinical reports and perceptions of the relationship between teaching-learning Anatomy and medical practice are presented.

4.1 CHARACTERISTICS OF THE SAMPLE

The first part of the main study was the application of a questionnaire to the students of the clinical years of the medical course (4th, 5th, 6th and 7th years) and to the junior doctors working at the Department of Casualty and Emergency at HCM. The demographic characteristics of the participants are displayed in Table 4.1.

Table 4.1: Number of participants by gender and year of study			
	Male (N)	Female (N)	Total by year (N)
4 th year students/2002-03	39	25	64
4 th year students/2001-02	22	21	43
5 th year students	42	39	81
6 th year students	14	15	29
7 th year students	8	14	22
Junior doctors	6	4	10
Total of participants	131 (53%)	118 (47%)	249

Two hundred and forty nine subjects out of a possible two hundred and sixty three completed the questionnaire in two tranches. The first tranche was 185 4th, 5th, 6th and

7th years' students of 2001/2002 and junior doctors while the remaining 64 were the 4th year students of 2002/2003 academic year. These participants were available on the days that were used for administration of the questionnaire. None of the respondents took the questionnaire home and none of them could discuss the contents of the questionnaire with their colleagues.

The participants were 53% male and 47% female. The 4th year cohort of 2002/2003 contained no students who had been in the 4th year class in the previous academic year. All students in the 4th, 5th, 6th and 7th years and all junior doctors filled in the questionnaire. Nine eligible 4th year students in 2001/2002 and 5 of the class of 2002/2003 did not complete the questionnaire, which produced a response rate of 95%.

4.2 PERCEIVED INFLUENCE OF TEACHING-LEARNING ANATOMY ON THE QUALITY OF MEDICAL TRAINING/PRACTICE

As described in Chapter 1 Section 1.4, page 22, one of the aims of the study was to discover if the teaching-learning Anatomy in UEM is aligned with the students' perceived needs regarding their training as medical professionals. The participants of the study were asked to express their opinion on 50 items, which explored their perceptions of the adequacy of the teaching-learning process of Anatomy to the needs of the clinical practice, using items on a five-point Likert-type rating scale. After the questionnaire responses had been entered into a spreadsheet, all 25 negatively

worded items were reverse scored before further analysis (Chapter 3, Section 3.4; page 83).

Coefficient Alpha was run on all 50 items for the cross-sectional sample yielding an $\alpha = 0.90$ for the total scale (Table 4.2). When the items were analyzed in their relevant sub-scales (as intended by the design), the following results were found: “quality of teaching Anatomy at UEM” $\alpha=0.91$; “efficacy of teaching strategies used in Anatomy at UEM” $\alpha=0.87$; “Anatomy and related medical courses” $\alpha=0.87$; “perceived benefits of learning Anatomy to the medical training/profession” $\alpha=0.90$ and self- reported “ability in applying anatomical knowledge in other medical courses and practice” $\alpha=0.88$.

Table 4.2: Cronbach’ s Alpha Coefficients of sub-scales and scale by year of study

	4 th	5 th	6 th	7 th	junior doctor	total
Quality of teaching	0.92	0.92	0.90	0.89	0.91	0.91
Teaching strategies	0.86	0.84	0.89	0.88	0.88	0.87
Other medical courses	0.88	0.84	0.88	0.87	0.93	0.87
Benefits of learning	0.93	0.89	0.90	0.91	0.92	0.90
Applying Anatomy	0.88	0.83	0.90	0.90	0.92	0.88
Total Scale	0.90	0.90	0.89	0.87	0.86	0.90

As can be seen in Table 4.2, the Coefficient Alpha showed great consistency across the years of study of the cross-sectional sample since there were no values below 0.83 in any of the sub-scales, nor in any of the years of study. Reliability coefficients were also calculated for the responses of the 4th year students of 2002/2003. These results were compared with the 4th year students of 2001/2002, because each the

students could participate only once in this study due the fact that the study was not repeated (Table 4.3).

Table 4.3: Cronbach' s Alpha Coefficients of sub-scales and total scale by 4th year of study of the different academic years

	4 th year 2002/2003 n=64	4 th year 2001/2002 n=43
Quality of teaching	0.93	0.92
Teaching strategies	0.84	0.86
Other medical courses	0.88	0.88
Benefits of learning	0.92	0.93
Applying Anatomy	0.83	0.88
Total scale	0.93	0.90

From Table 4.3 it is evident that the Cronbach' s Alpha Coefficients of each sub-scale and the total scale were similar for both 4th year groups revealing that time (different academic years) did not affect the consistency in rating the items.

4.2.1 Differences based on gender

In an attempt to identify possible gender differences in perception of the influence of the teaching-learning Anatomy, the means, standard deviations of each sub-scale and the total scale, of the cross-sectional sample were calculated and the results are presented in Table 4.4. Each mean therefore, has a range of 1 through 5, representing the extremes of the Likert scale.

The results in Table 4.4 show that there were no gender differences on any of the sub-scales or the total scale. All the responses were positive toward each of the sub-scales (e.g. quality of teaching Anatomy) as the mean responses were all above the middle value of 3. The benefits of learning in particular yielded a very positive mean of 4.3 (with a maximum of 5).

Table 4.4: Means and standard deviations by gender and *t*-test values for each sub-scale and total scale of the cross-sectional sample

Sub-scale	Male	Female	Total	T ₁₈₃ (<i>p</i>)
	Mean (SD)	Mean (SD)	Mean (SD)	
Quality of teaching	3.6 (0.89)	3.6 (0.96)	3.6(0.92)	0.39(0. 699)
Teaching strategies	3.9 (0.72)	4.1 (0.81)	4.0 (0.77)	-1.26(0.210)
Other medical courses	3.7 (0.75)	3.8 (0.68)	3.7 (0.71)	-0.25(0.801)
Benefits of learning	4.3 (0.60)	4.3 (0.64)	4.3(0.62)	-0.26(0.797)
Applying Anatomy	3.9 (0.76)	3.9 (0.86)	3.9 (0.81)	-0.24(0.808)
Total scale	3.9 (0.46)	3.9 (0.43)	3.9 (0.44)	-0.51(0.609)

4.2.2 Influence of year of study

One-way analyses of variance were carried out on the five sub-scales and the total scale on the cross-sectional data across the 4 years of study and junior doctors. The results are presented in Table 4.5.

Significant differences were found for “quality of teaching Anatomy at the Faculty of Medicine at UEM” ($F_{(4:180)}=2.485$; $p<0.045$), “perceived ability in applying anatomical knowledge” ($F_{(4:180)}=2.830$; $p<0.026$) and the total scale ($F_{(4:180)}=2.909$; $p<0.023$).

Table 4.5: One-way analysis of variance on the sub-scales and the total scale, by year of study

Sub-Scale	4 th year	5 th year	6 th year	7 th year	J. Doctor	$F_{4:180} (p)$
	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	Mean(SD)	
1	3.9(0.86)	3.4(0.92)	3.6(0.93)	3.5(0.89)	3.6(1.00)	2.49(0.045)*
2	4.1(0.80)	4.1(0.61)	3.6(0.95)	4.0(0.84)	4.0(0.85)	1.84 (0.124)
3	3.7(0.75)	3.9(0.54)	3.7(0.84)	3.5(0.79)	3.4(1.10)	1.57 (0.185)
4	4.4(0.62)	4.4(0.52)	4.2(0.66)	4.2(0.80)	4.1(0.79)	1.33 (0.260)
5	4.1(0.75)	4.0(0.63)	3.7(1.01)	3.8(0.95)	3.4(1.00)	2.83(0.026)*
6	4.1(0.44)	3.9(0.40)	3.8(0.49)	3.8(0.45)	3.7(0.46)	2.91(0.023)*

1. Quality of teaching; **2.** Teaching strategies; **3.** Other medical courses; **4.** Benefits of learning; **5.** Applying Anatomy; **6.** Total questionnaire; * significant at 5% level

As the variances of the groups were statistically equal, Bonferroni ‘*t*’ tests were carried out as post hoc tests in order to establish where the significant differences were. The “quality of teaching Anatomy at the Faculty of Medicine at UEM” sub-scale showed a significant difference between the 4th and 5th year students only, with the 4th year having a significantly higher score than the 5th year students. The “perceived ability in applying anatomical knowledge” sub-scale and the “total scale” had no statistically significant differences in the post hoc analysis.

4.2.3 Cohort effect

Both the 4th year students in 2001/2002 and in 2002/2003 completed the questionnaire at the end of their second semester. Means of these two groups were compared by using t-tests. These results are presented in Table 4.6. Two significant differences were found, both at the 5% level. The fourth year students of 2002/2003 scored higher than the previous year's class on the "Anatomy and other medical courses" sub-scale, whilst the roles were reversed on the "perceived benefits of learning Anatomy to the medical training/profession" sub-scale. There were no significant differences in the other sub-scales and in the total scale. Nonetheless, the results showed a degree of consistency across the time.

Table 4.6 Means and standard deviations by academic year of the 4th year students and *t*-test values for each sub-scale

Sub-scale	2001/02 (N= 43)	2002/03 (N=64)	<i>t</i> ₁₀₅ (<i>p</i>)
	Mean (SD)	Mean (SD)	
Quality of teaching	3.9 (0.86)	3.8 (1.00)	-0.621 (0.536)
Teaching strategies	4.1(0.80)	4.1 (0.67)	0.058 (0.954)
Other medical courses	3.7(0.75)	4.0 (0.46)	2.491 (0.014)*
Benefits of learning	4.4 (0.62)	4.1 (.75)	-2.092 (0.036)*
Applying Anatomy	4.1(0.75)	4.07 (.67)	-0.492 (0.624)
Total Scale	4.1(0.44)	4.0 (0.49)	-0.380 (0.705)

* significant at 5%

4.2.4 PERFORMANCE IN ANATOMY AND RELATED COURSES

In this section, the results of performance in Anatomy and related courses were calculated and the relationship between all of these courses was evaluated. The performance of Anatomy and related courses of the cross-sectional sample are presented in Table 4.7.

Table 4.7: Percentage distribution of the performance in Anatomy and related courses by year of study

	Satisfactory (%)						Good (%)					
	Total	Junior Doctor	7 th year	6 th year	5 th year	4 th year	Total	Junior doctor	7 th year	6 th year	5 th year	4 th year
Anatomy	83	100	87	100	90	73	17	0	13	0	10	27
Biochemistry	84	90	71	83	81	97	16	10	29	17	19	3
Physiology	84	100	84	83	84	84	16	0	16	17	16	16
Histology	75	80	79	73	75	75	25	20	21	27	25	25
Pathology	78	40	87	89	66	81	22	60	13	11	34	19
Intern/Medicine	80	90	80	79	79	81	20	10	20	21	21	19
Surgery	63	60	64	65	63	58	37	40	36	35	37	42

Relatively few students reported attaining good grades, particularly in the basic science disciplines of Anatomy, Physiology and Biochemistry. These results impact upon the correlation between the courses that is presented in Table 4.8. The Phi-coefficient was used as the measure of correlation between the self-reported marks by the senior students and junior doctors. As the marks in the reported courses were satisfactory (mark between 10 and 13) or good (14 or over), this is an appropriate statistical technique for nominal dichotomous data.

There were few relationships. The Histology grade was strongly positively related to both the Physiology grade ($\Phi = 0.754$, $p < 0.001$) and the grade in Internal Medicine ($\Phi = 0.871$; $p < 0.001$); the Biochemistry grade was significantly negatively related to that of Pathology ($\Phi = -0.212$; $p < 0.001$), and the grades in Internal Medicine and Physiology were also strongly positively related ($\Phi = 0.865$; $p < 0.001$).

Table 4.8: Phi coefficients relating the self-reported performance in Anatomy and related courses

	Biochemistry	Physiology	Histology	Pathology	Intern/Medicine	Surgery
Anatomy	0.093	-0.016	-0.040	0.032	-0.021	-0.043
Biochemistry		0.067	0.011	-0.212**	0.040	-0.004
Physiology			0.754**	0.063	0.865**	0.081
Histology				-0.050	0.871**	0.045
Pathology					-0.052	-0.041
Intern/Medicine						-0.004

** $p < 0.0001$

4.2.5 PERFORMANCE IN ANATOMY AND PERCEPTION OF STUDENTS' NEEDS REGARDING MEDICAL PRACTICE

For each group of performance in Anatomy for the cross-sectional sample, means and standard deviations of each sub-scale and the total scale were calculated. The values of the t-test were computed in order to compare the two groups. All of these values are presented in Table 4.9.

Table 4.9: Means and Standard Deviations by performance in Anatomy and t-test values for each sub-scale and total scale of the cross-sectional sample

Sub-scale	Satisfactory (n=158) Mean (SD)	Good (n=27) Mean(SD)	T ₁₈₃ (p)
Quality of teaching	3.6 (0.94)	3.7 (0.85)	-0.612 (0.541)
Teaching format	4.0 (0.77)	4.0 (0.75)	0.122 (0.903)
Other disciplines	3.8 (0.58)	3.5 (0.87)	1.745 (0.901)*
Benefits of learning	4.3 (0.62)	4.3 (0.56)	0.363(0.717)
Applying Anatomy	3.9 (0.81)	3.9(0.80)	0.304 (0.761)
Total scale	3.9 (0.43)	3.9 (0.54)	0.665(0.507)

* unequal variances were found, Fisher-Behrens *t*-test was used

There were no statistically significant differences between the students who had performed well in Anatomy and those who had performed adequately in any of the sub-scales or total scale in the cross-sectional sample. Thus, for this sample, performance in Anatomy does not seem to impact on the perception of the influence of the teaching-learning process of Anatomy at the Faculty of Medicine at UEM on the medical training/practice.

4.3 QUALITY OF USE OF ANATOMICAL KNOWLEDGE IN CLINICAL PRACTICE

Two hundred and seventy clinical reports completed by the senior students (7th year only) and junior doctors were analysed, of which 122 were used in the establishment of inter-rater agreement (Chapter 3, Section 3.6, page 86). Each senior student

therefore generated 10 reports, and each junior doctor 5 reports. Thus, the analysis was based on independent reports, which were produced by the same individuals.

As described in Chapter 3, Section 3.2.2, page 74, before examining the data of the clinical reports, four domains were selected as they were considered the most important indicators of the quality of the medical record in patient care at the Department of Casualty and Emergency at HCM. All the domains were rated in four categories according to the levels of description in the clinical reports. The frequency distribution of each of the domains in the reports is presented in Sections 4.3.1 to 4.3.4.

4.3.1 Use of anatomical terms in reporting history taking

Only 54% of the reports of the senior students and 62% of the reports of the junior doctors showed a use of anatomical terms at the level of adequate or good. The frequency distribution of the use of anatomical terms is presented in Table 4.10 No differences were found when comparing all the levels of use between the two groups.

Table 4.10: Percentage distribution of the level of use of the anatomical terms by senior students and junior doctors

Use of anatomical terms	Senior student		Junior doctor		Total	
	N	%	N	%	N	%
Never	40	18	9	18	49	18
Inadequate	62	28	10	20	72	27
Adequate	92	42	25	50	117	43
Good	26	12	6	12	32	12

4.3.2 Description of the physical examination

When considering the description of the physical examination (Table 4.11) it was found that more than 50% of the 270 clinical reports analysed showed a level of description with some value since 54% of the clinical reports of senior students and 62% of junior doctors' reports had a description better than "inadequate". It showed that 55% of the total sample described the physical examination at least oriented to the complaints of the patient and based on the description of positive and negative signs.

As expected, the junior doctors' reports of the physical examination appeared to be more coherent than those of the senior students, although there were no significant differences in any of the categories between the two groups. It is important to note that 21% of the participants did not write anything at all about the physical examination.

Table 4.11: Percentage distribution of the quality of reporting the physical examination by senior students and junior doctors

Description of physical examination	Student (%)		Junior doctor (%)		Total (%)	
	N	%	N	%	N	%
Not done	46	21	9	18	55	21
Inadequate	55	25	10	20	65	24
Adequate	93	42	25	50	118	43
Good	26	12	6	12	32	12

4.3.3 A probable diagnosis

The majority of the reports showed a probable diagnosis (see Table 4.12). Again, the junior doctors were more likely to give such a diagnosis, having done so in 86% of the reports, and senior students in 80%. In contrast to the use of anatomical terms and the report of physical examination, the probable diagnosis was superior in the reports and a good diagnosis was suggested in 80% of the reports.

Table 4.12: Percentage distribution of quality in proposing a diagnosis by senior students and junior doctors

Diagnosis	Senior student		Junior doctor		Total	
	n	%	n	%	n	%
Not suggested	20	9	3	6	23	9
Inadequate	20	9	3	6	23	9
Adequate	4	2	1	2	5	2
Good	176	80	43	86	219	80

4.3.4 Request of diagnostic/therapeutic procedures

Disturbingly, 30% of all clinical reports completed by junior doctors did not request any therapy or mention a further investigation at all. Otherwise, the same pattern prevailed, with the proportion of good reports being higher for the junior doctors than for the senior students (Table 4.13).

Table 4.13: Percentage distribution of quality of reporting the request of diagnostic/therapeutic procedures by senior students and junior doctors

Procedures	Senior student		Junior doctor		Total	
	n	%	n	%	n	%
Not requested	51	23	15	30	66	24
Inadequate	29	13	1	2	30	11
Adequate	11	5	0	0	11	4
Good	129	59	34	68	163	61

From Table 4.13 it is evident that more than 50% of the participants mentioned the request of the necessary procedures. A relatively lower percentage reported the request of unnecessary procedures.

4.4 USEFULNESS OF THE CLINICAL REPORTS

The four domains of the clinical reports were inter-related. The relationships between these domains are reported in the following sections.

4.4.1 Use of anatomical terms and the description of the physical examination

The use of anatomical terms and physical examination were highly related with a $\chi^2 = 1573.36$ and $p < 0.0001$ for senior students and a $\chi^2 = 150.00$ and $p < 0.0001$ for junior doctors. That is, there is an evident association between the use

of anatomical terms and the quality of the reported physical examination. As can be seen in Table 4.14, the relationship between the use of anatomical knowledge and the report of physical examination was almost identical, for both senior students and junior doctors (i.e. those who have a “good” use of anatomical terms also had a “good” report of physical examination).

Table 4.14: Frequency distribution of the quality of the use of anatomical terms and description of the physical examination

Physical examination	Use of anatomical terms							
	Senior student				Junior doctor			
	A	B	C	D	A	B	C	D
Not done	93	13			9			
Inadequate		126				10		
Adequate			214				25	
Good				64				6

A= Not suggested; B= Inadequate; C= Adequate; D= Good

The categories of the domains identified in the clinical reports were then collapsed into two categories: the bottom two of the four categories, were classified as “unsatisfactory” and the top two as “satisfactory”. All clinical reports with an unsatisfactory use of anatomical terms also had an unsatisfactory physical examination. Similarly, all the reports that had a satisfactory use of anatomical terms had a satisfactory physical examination report, for both the senior students and junior doctors.

4.4.2 Use of anatomical terms and the proposed diagnosis

The use of anatomical terms and the quality of the suggested diagnosis were also highly related with a $\chi^2_9 = 158.64$ and $p < 0.0001$ for senior students and a $\chi^2_9 = 147.475$ and $p < 0.0001$ for junior doctors (Table 4.15).

Table 4.15: Frequency distribution of the quality of the use of anatomical terms and the quality of the proposed diagnosis

Probable diagnosis	Use of anatomical knowledge							
	Senior student				Junior doctor			
	A	B	C	D	A	B	C	D
Not suggested	30	14	2	2	2		1	
Inadequate	9	33	4	1		2	1	
Adequate	5	2	2	1	1			
Good	49	90	206	60	6	8	23	6

A= Not suggested; B= Inadequate; C= Adequate; D= Good

As with the comparison between use of anatomical terms and the quality of description the physical examination, the two sets of categories were collapsed into satisfactory and unsatisfactory categories. Of those reports of senior students in which the use of anatomical terms was unsatisfactory, 63% had a satisfactory diagnosis. However, in those senior students' reports in which the use of anatomical terms was satisfactory, 97% had a satisfactory diagnosis. A similar result was found for the junior doctors: a satisfactory diagnosis was presented by 79% of reports with unsatisfactory use of anatomical terms and by 94% of those with a satisfactory level of use of anatomical terminology.

4.4.3 Use of anatomical terms and diagnostic/therapeutic procedures

The use of anatomical terms and the recommended diagnostic/therapeutic procedures were also highly related for the senior students, with a $\chi^2_9 = 171.089$ and $p < 0.0001$ but significant only at 5% level for the junior doctors where the $\chi^2_6 = 14.500$ and $p < 0.05$ (Table 4.16)

Table 4.16: Frequency distribution of the quality of the use of anatomical terms and the therapeutic/diagnosis procedures proposed by senior students and junior doctors

Procedures	Use of anatomical terms							
	Senior student				Junior doctor			
	A	B	C	D	A	B	C	D
Not prescribed	60	38	18	3	6	4	5	
Inadequate	3	30	33	2		1		
Adequate		11	13	1				
Good	30	60	150	58	3	5	20	6

A= Not suggested; B= Inadequate; C= Adequate; D= Good

As described previously, the two sets of categories were collapsed equivalently. In those reports of senior students in which the use of anatomical terms was unsatisfactory, 44% showed a satisfactory ability to suggest appropriate therapeutic/diagnosis procedures. However, in those reports in which the use of anatomical terms was satisfactory, 80% suggested a satisfactory or appropriate therapeutic/diagnostic procedure. A similar result held for the junior doctors: satisfactory or appropriate diagnostic/therapeutic procedures were presented in 42%

of reports with unsatisfactory use of anatomical terms and in 84% with satisfactory use of anatomical terms.

4.5 PERCEIVED USEFULNESS OF ANATOMY, THE EFFECTIVENESS OF THE TEACHING-LEARNING OF ANATOMY AND MEDICAL PRACTICE

The usefulness of the clinical reports showed a range from virtually no use to very useful when they were grouped by using the categories previously defined (see Chapter 3, Section 3.2.2, page 74). In order to understand the reasons for this range of variability the two senior students and junior doctor who had the weakest overall quality of clinical reports and the two senior students and junior doctor who had the best overall quality of clinical reports, were selected for an interview (see Chapter 3, Section 3.1.3, page 67).

To conduct these six interviews, it was necessary for patients to be available in the “Balcão III” room when the senior student/junior doctors were on duty. Each selected senior student/junior doctor was interviewed individually after examining a patient and completing the clinical report. These clinical reports were not part of the 270 analysed previously. The interviews were conducted in a patient booth with no patient and no one else present. The interviews lasted between 15 and 30 minutes.

All of the recorded comments below occurred in at least five of the six interviews. Probably because the interviews were semi-structured there were no comments outside of the proposed framework. This means that, in general, there were no differences in

the opinions of the participants. Contents could be extracted from these interviews and are presented in Table 4.17 without separating senior students and junior doctors. These common opinions on the usefulness of the teaching-learning Anatomy at UEM in medical practice justify the categories attributed to the quality of the clinical reports and seem to corroborate the opinions presented in the questionnaire (see Section 4.4).

Table 4.17: Interviewees' comments

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1. It is necessary to use anatomical terms in the clinical report
 2. The use of anatomical knowledge is necessary in conducting the examination of a patient
 3. In general, I feel I have good ability in the application of anatomical knowledge in medical practice
 4. I feel I am able to apply anatomical knowledge in managing a trauma patient
 5. There is a need to perform a physical examination of the patient
 6. There is no need to write the full clinical history in the Department of Emergency
 7. There is a need to have a different clinical report form in the Department of Emergency because of the time-consuming nature of the current form.
 8. It is necessary to strengthen the vertical integration of Anatomy (in clinical disciplines) within the medical training programme
 9. Most of the repetition of the contents in the medical course are unnecessary since the approaches are at same level of complexity and do not add any identifiable new knowledge
 10. With the present timetable related to the high number of courses and number of tests it is not possible to acquire more than the necessary to pass the examinations
 11. The content of the Anatomy course is not well-oriented to the clinical practice
 12. It is essential to retain the acquisition of basis of the anatomical knowledge as part of the Anatomy course
 13. It is always necessary to ask for radiographs when managing trauma patients

independently of the clinical reasoning of the doctor

14. The ability of the doctors, including senior students and junior doctors, in interpreting the radiographs is weak
15. There is no possibility to report in detail what has been done when conducting a patient's examination at the Emergency even in the case of there being no evidence of life-threatening situations in the patients at this Department
16. Even in the case of a patient that has to be referred to another doctor there is no need to report the clinical history since it is always better to start examining the patient from the beginning, so that logical reasoning will lead to the diagnosis
17. If the patient comes, again to the same doctor because of the same problem a few words could help more than an extensive report.
18. It is evident that there is a need to improve the quality of the clinical report particularly when considering the clinical procedures but it implies a need to improve the medical training.

The extraction of common themes was done following the principles of thematic content analysis (Landis & Koch, 1977). The three major themes, which emerged, are presented in Table 4.18.

Table 4.18: Themes based on interviewees' comments

THEMES	Comments
(i) Use of anatomical knowledge in medical practice	1,2,3,4,5,8,11
(ii) Quality of the clinical report affected by the workload	6,7,15,16,17,18
(iii) Medical curriculum and the role of Anatomy	8,9,10,11,12,13,14,

Numbers refer to the comments in Table 4.17

These common opinions were supported by specific comments on teaching-learning Anatomy at UEM, which can be exemplified by the comments of the following three interviewees:

“When we start the clinical cycle, in general we have forgotten what we have studied in the basic cycle since at the beginning of the course what worried us was to get the necessary mark to pass the disciplines. Only in practice do we realise that it is necessary to know Anatomy in order to understand what is going on. I am confident that I am well prepared to conduct a patient’s examination. However, if I could easily remember what I have been taught in Anatomy I would not need to spend the time which I am spending in trying to interpret the clinical findings.” (*Interviewee 1*)

“There is a lot of information in Anatomy which I did not use in my practice while there is other information which I passed without understanding that it is necessary for medical practice. I realised that I was using the knowledge of surface Anatomy when carrying out the inspection and palpation during the physical examination only after starting this talk. Thus, in my opinion, it will be necessary to review not only the content of the Anatomy course but also the relationship between this course and the related ones within the medical course.” (*Interviewee 2*)

“Look! I am confident of my abilities in managing trauma patients. It is too frequent here and for this type of patients we act like under a protocol driven since, if there is even a small possibility to have a fracture or severe contusion it is easy to ask for a x-ray and then send the patient to the Orthopaedic Department; if there is a bruise... send to the surgical room to get the necessary attention; meanwhile, if you can

convince the patient that there is only a need to rest or take tablets for few days you can reduce the number of contacts with the same patient; i.e. you will not ask for unnecessary laboratory tests; it will be less number of patients at Orthopedic Department; therefore less consumption of time; money and technical resources. It is of importance to note that I feel more confident when I have to apply anatomical knowledge in a surgical context than in an internal medicine context. May be it is a consequence of the generalised idea that Anatomy is related to the surgical interventions. However, I know that I am using Anatomy when even I am proposing a hypothesis of a diagnosis that is based particularly on the findings of the physical examination. If we consider that for example the word knee, which could be considered as a trivial word, is an anatomical term. It means that it is not possible to communicate in medical context without using Anatomy. In addition, it is necessary to remember that the human body has the left and right knee then... neither communicating nor reasoning is possible without Anatomy.” (*Interviewee 3*)

“I used the words but I never thought that I was applying Anatomy. Effectively I was applying Anatomy but only now, I have realised it. It is evident that there is no need for me to say good things about the Department of Anatomy, since I will not be a student of this Department anymore and I am not interested in becoming a teacher, but I have to say that Anatomy should be considered as the foundation of the medical course and be exposed to the medical students in a different way from what is used currently. I have learnt Anatomy. I achieved a good mark (more than 14 marks) but I forgot most of the content of the course. I did not recognise the use of medical knowledge in the medical practice. I saw the medical practice as an application of physiology or pathology but... yes! It is Anatomy left/right; kidneys; liver; vertebra;

left second intercostals space, jugular vein. You are right! Internal medicine, surgery, paediatrics, whatever in the medical context starts with Anatomy, with communication with the precise anatomical terms and not with inexpressive and vague words. However it is easier to say upper limb than arm/forearm/hand and it becomes worse if it is necessary to add things like “at the 1/3 superior part of the antero-lateral face of the right forearm” to indicate for example a trauma present at the level of the head of the radius. What worries me in assisting trauma patients is the related inability in interpreting exams like x-ray. Most of the time and more particularly if there is a possibility of the existence of fracture that is not always obvious I use to send the patients to the Orthopedic Department. If I knew more, or in other words, if I was more competent in this issue it could be less expensive to the system in terms of time and resources. Please try to explore aspects like that when reviewing the Anatomy contents.” (*Interviewee 4*)

Regarding the quality of the clinical report affected by the **workload**, the comments suggested that all of the participants agreed that there is no need to write down accurate details of the patients’ complaints and physical examination. This is supported by the following quotes:

“A very short physical examination could be more useful than a complete one if it is well oriented to the patient’s complaints in conjunction with a structured analysis of the possible related consequences (considering the mechanisms of disturbance and the structures affected). I am sure that it is necessary to report in a technical way all what I could collect related to the patient but... look how long could it take? On the other hand, I never saw someone reading the notes from others. Even knowing the

shortness of time, everybody prefers to start collecting from the personal details. If I need to see again the same patient, I will need to re-start the history taking; why have I to write adequately? It is enough to think in a right way and... the patient will be safe.” (*Interviewee 2*)

“With a short time as we have to assist patients at Emergency only positive information and particularly that which could possibly influence the presence of a life threatening risk should be clearly stated; otherwise small and less important things could take precious time in a highly sensitive Department such as Emergency”. (*Interviewee 4*)

“I think that there is no need to explain, for example, that a radiograph was requested only for the patient’s satisfaction and not as a necessary investigation. Thus, it is important to keep in mind that use of a few words does not necessarily imply that things were done in an incorrect sequence. Furthermore, the clinical form at the Emergency is used once only. Even if the patient is seen, again after a few minutes a new clinical form has to be used. In these cases, it a waste of time to record in detail what has been done if it will not be used. On the other hand, if the patient has to be seen by a specialist he/she will re-start the clinical evaluation without considering the notes made by the other clinicians.” (*Interviewee 5*)

“... Have you seen how many patients do I have to assist? If I try to report everything at what time I will finish? In addition, this type of patient is very common and because of that there is no need to apply deep reasoning in order to establish the most probable diagnosis or to propose a list of probabilities. On the other hand, it is more important to

get a correct diagnosis or at least to treat the patient than to show the others that you can write down a lot of information. Sometimes it is possible to help properly a patient without considering all the steps that we needed to learn to pass the examinations. Why do we need to check if the patient is in a good nutritional condition if he/she came only because felt down or had a car accident? I'm working in the Emergency not in the Health Centres.” (*Interviewee 6*)