

# Pedagogic evaluation of anatomical teaching for a medical and surgical degree at the University of Granada

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## SUMMARY

Anatomy has been classically considered as a basic foundation for the teaching of medicine, developing a decisive role in medical education and for future professional activity. But, in common with other scientific disciplines, it has grown simultaneously with technology and communication sciences and in a much prescribed manner. The purpose of our study was to estimate different parameters related to the quality of the anatomical teaching at the University of Granada. In trying to achieve this, we have focused on the Human Anatomy I and II courses (given in the first and second years of the medical degree respectively). Once the examinations in these courses were completed, a questionnaire was filled by the students in which they had to estimate, in a one to five range, the adaptation and the adjustment of different aspects related to the development of the course. The results indicated that the students were in favour of practical classes compared to theoretical tuition. On the other hand, the pedagogical organisation of the courses was highly valued by the students, particularly in relation to the adaptation of programme objectives and to the recommended bibliography (both for textbooks and atlases). The best estimated didactic resource

for the practical aspect of the subject was the use of human anatomical specimens, and the most favoured procedure in the theoretical classes was the use of the blackboard. For the examinations and assessments, no special preference for any evaluation method was found, but the use of complementary papers (e.g. use of monographs, oral expositions) was considered by the students to be of very little importance.

**Key words:** Anatomy – Teaching – Learning – Evaluation

## INTRODUCTION

Study of the morphology of the human body (i.e. gross or topographical anatomy) has been one of the most important, and classical, subjects in medicine and surgery, especially in the first years of the medical degree. Indeed, anatomy has a decisive role in the medical education for the development of future professional activity (Mompeo et al., 2003). One of the main methods used in the learning and teaching process has been the dissection of cadavers (Dantas et al., 2005). Nowadays, however, anatomy (in common with other scientist disciplines) has developed in a much

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prescribed way and simultaneously with technology and communication sciences. Much of this development is related to the World Wide Web and to computer software (Guiraldes et al., 2001). Furthermore, the university community is now required to adapt to new European directives concerning Higher Education (e.g. the Bologna process) and teachers have to be cognisant of the requirements and aspirations of their students.

The purpose of this study was to estimate different parameters related to the quality of the anatomical teaching/learning process and to assess student opinion concerning the most appropriated type of examination (Mitchell et al., 1998). In order to attain this objective, we have compared the two courses —Human Anatomy and Embryology I and II— given in first two years of the degree at the Faculty of Medicine in Granada.

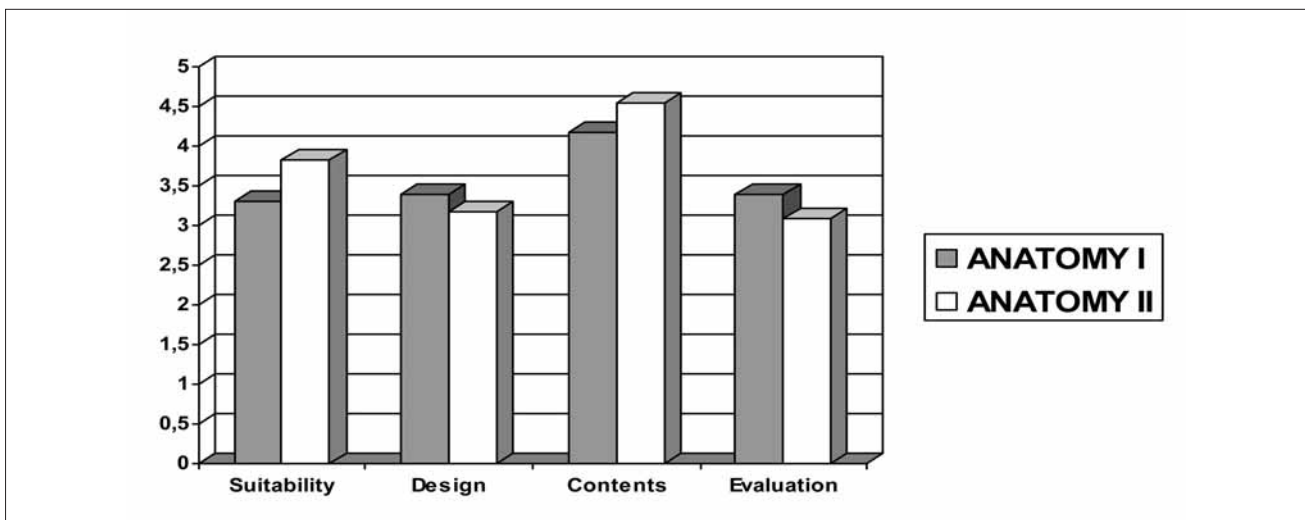
## MATERIALS AND METHODS

An anonymous questionnaire was distributed to the students of Human Anatomy I and II. The survey was undertaken by the students during the examination period, just when the assessment process had been completed (to avoid any external factors that might influence the results and to ensure a satisfactory level of response). The questionnaire was composed of 31 items that were categorised in four sections:

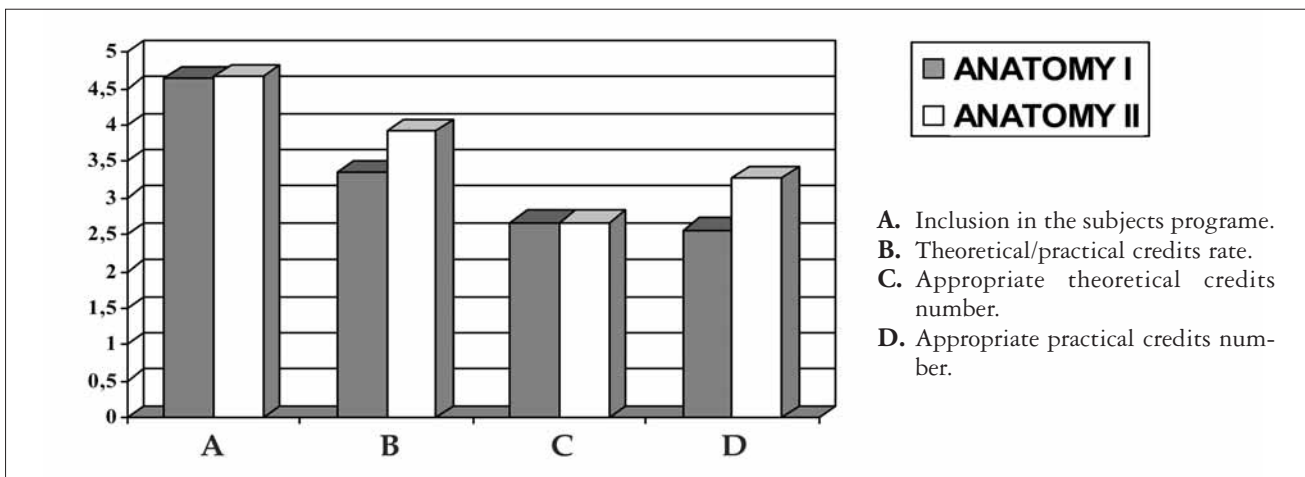
1. Suitability of the subject according to the medical relevance.
2. Design of the subject, including the didactic resources.
3. Evaluation of the contents of the subject.
4. Assessments.

Each item had to be marked between 1 and 5 (1 corresponded to very suitable and 5 to not at all suitable). The questionnaire was completed by 179 students, 66 from the Human

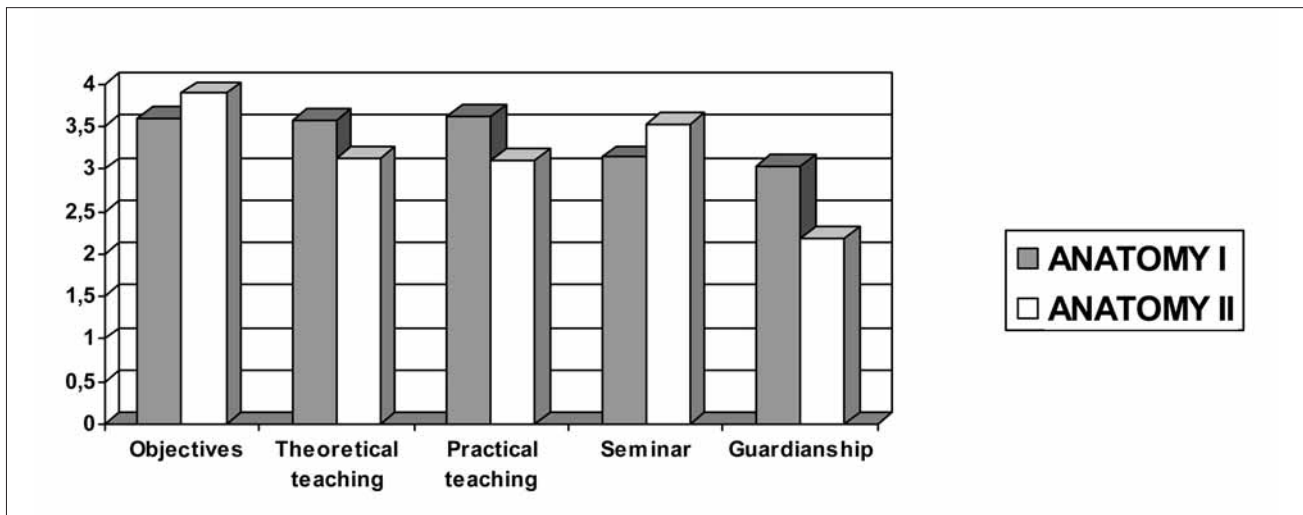
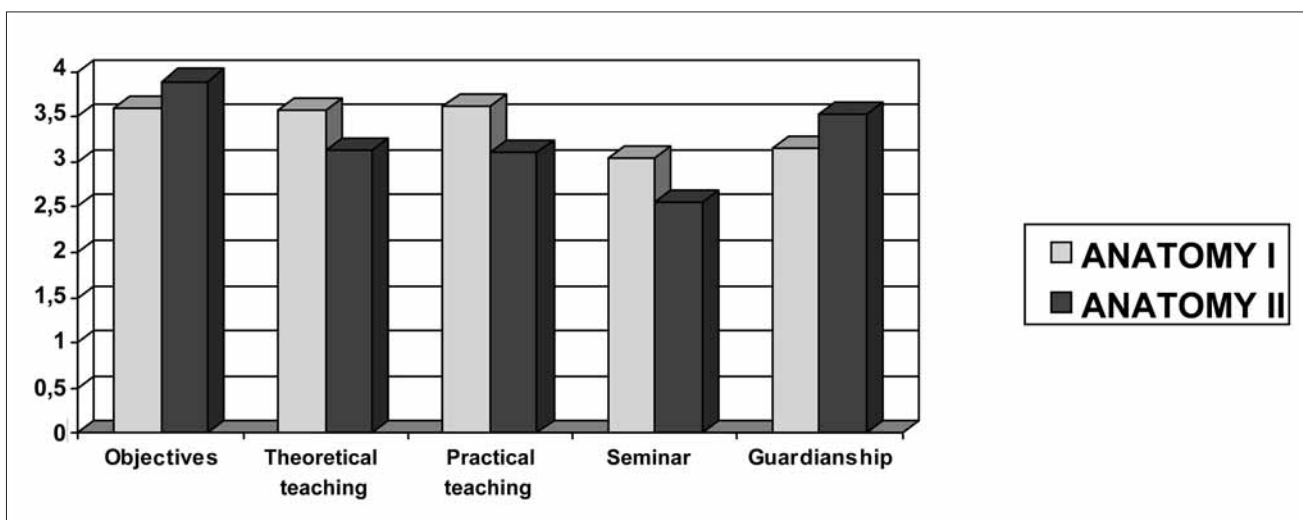
**Figure 1.** Global analysis of the questionnaire.



**Figure 2.** Pertinence of the subject according to the programme.



- A. Inclusion in the subjects programme.
- B. Theoretical/practical credits rate.
- C. Appropriate theoretical credits number.
- D. Appropriate practical credits number.

**Figure 3.** Evaluation of design of the subject.**Figure 4.** Evaluation of didactical resources.

Anatomy I course (Year 1) and 113 from the Human Anatomy II course (Year 2). Analysis of the responses was based on the averages for each section in the questionnaire.

## RESULTS

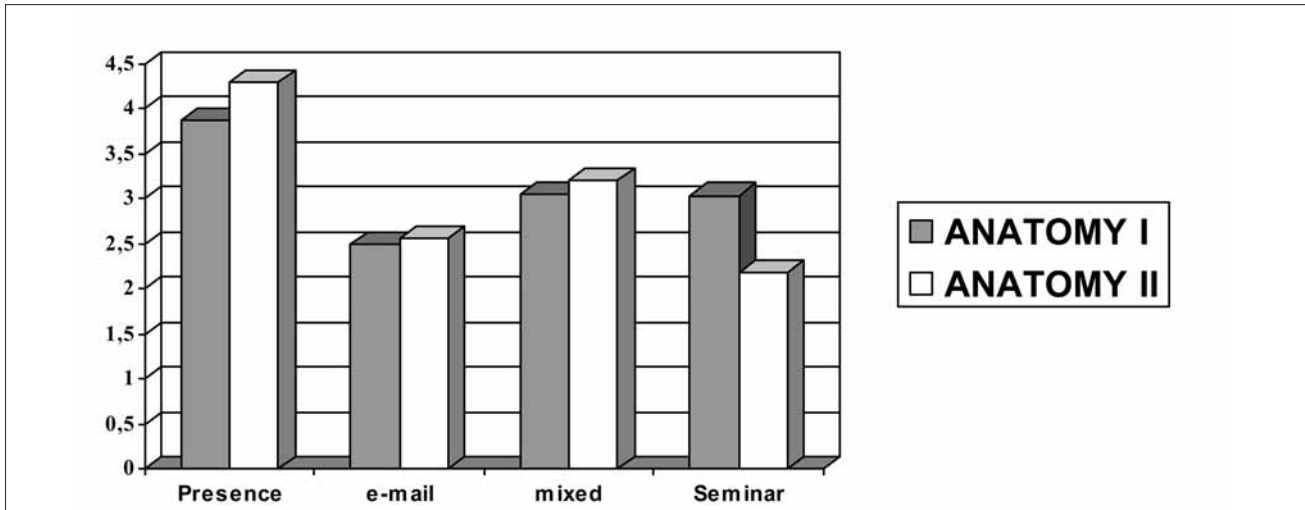
The overall analysis of the responses showed a balance between the average results in each section of the questionnaire, except for the section relating to the contents of the subjects, this receiving a markedly higher valuation compared to the other sections (Fig. 1). Comparing the data section by section, the following findings were obtained:

*Section I (Suitability):* In this section, we studied medical relevance and compared theoretical versus practical teaching. Every valuation was over 2.5 (i.e. average estimation). The students from both courses gave 4.72 (the

highest of the group) to the clinical relevance of the subject. Nevertheless, the number and hours of practical lessons received the lowest score in this section (2.90) (Fig. 2).

*Section II (Design and didactical resources):* This section took into account both the objectives and didactical resources of the courses. For theoretical teaching, the students on both the Anatomy I and II courses gave the highest valuation to the use of the blackboard (4.37 and 4.65 respectively) and the lowest valuation was given to the use of slides in Anatomy I (3.13) and the use of multimedia presentations in Anatomy II (2.31) (Fig. 3). For the practical teaching, the highest and the lowest valuations were obtained for the use of anatomical models (4.27) and multimedia material (3.11) respectively in the first year course, whereas the use of human specimens (4.54) and the audio-visual presentations were the highest and lowest results for the second year course (Fig. 4). It is

**Figure 5.** Guardianship system.



noteworthy that the students preferred the presence tutors rather than the use of e-mail guidance or mixed guidance (presence of tutor and e-mail) (Fig. 5).

*Section III (Contents):* This was the most appreciated aspect of the courses (4.16), there being a preference for the heart and circulatory system (4.66) in Anatomy I and for neuroanatomy in Anatomy II (4.67).

*Section IV (Examinations and Assessments):* Here, the students of Anatomy I preferred multiple choice questions (MCQs) (3.63). For Anatomy II, the students preferred short answer (open) questions (SAQs).

## DISCUSSION

The students of anatomy in the first and second years of the medical and surgical degree courses at the University of Granada show, in every section of the questionnaire used in this study, valuations that are clearly above average rate (i.e. 2.5). This highlights the suitability of both courses in relation to the teaching programme of the students' chosen career in medicine. High evaluation of almost every thematic unit relating to the contents of the courses was seen. Perhaps sur-

prisingly, the use of the blackboard was found to be the most requested didactic resource for the theoretical teaching whereas, in the practical classes, while the students accepted the use of new technological resources, they still appreciated more the use of anatomical specimens. Finally, we nevertheless found that there was a low valuation related to the hours dedicated to the practical teaching (the students appearing to request more time on this aspect). We consider that the results obtained are useful for adapting the medical degree to European directives concerning Higher Education.

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