

The teaching of human Anatomy in Spain at the beginning of the twenty-first century

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SUMMARY

This work, which merely aims to reflect the authors' opinions, begins by pointing out a series of problems involved in the teaching of Human Anatomy in Spanish Universities over the past quarter century. Emphasis is placed on both the causes that can be attributed to anatomists themselves and on those deriving from University legislation, especially after the University Reform Law. We also refer to the small body of literature published by Spanish anatomists with respect to the teaching of Anatomy, cadaver dissection or the use of new technologies in such teaching. We then offer an overview of the current circumstances and future possibilities not only of teaching and methodology but also as regards instructors and departments. We offer a reference to the Spanish Anatomical Society and we end by proposing a series of guidelines for the immediate future with a view to optimising the teaching of Human Anatomy and Embryology and the professionalisation of future anatomists.

Key words: Teaching in Anatomy – Spanish Anatomical Society – Current problems – Future perspectives

BACKGROUND TO OUR DISCIPLINE IN SPAIN

The teaching of Anatomy in Spain is similar to the situation in other countries and hence apart

from its own peculiar problems will continue to have those typical of the discipline worldwide.

Over the last quarter of a century several issues have affected the teaching of Anatomy in Spain. During this time, *attempts have been made to reduce the importance of Anatomy* and, for many, it has been considered –as more or less agreed in general (Vázquez, 2001)– an exhausted science in which everything had been described and there remains nothing new to say.

In today's Spanish Medical Curriculum, the term *Anatomy* itself has disappeared and has been replaced by *Morphology*, despite the persistence of other terms such as Physiology, Microbiology or Pharmacology. We believe that the term *Morphology* is correct but it does not seem to be appropriate to remove the term *Anatomy* in the description of basic subjects since this seems to detract from one of the basic pillars of Medicine (recall the Anatomy was the first science that served as a basis for Medicine). Additionally, even our identity seemed to vanish with the loss of the term. Its disappearance meant that less importance has been given to Gross Anatomy as a morphological science and that less time has been spent in teaching it with respect to other similar materials.

Other basic disciplines have had greater hegemony in the curriculum, which in certain Universities led to a reduction in the hours devoted to the teaching of Anatomy and more credit time was given –within core subjects– to other basic disciplines (Biochemistry, Biology, Genetics,

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Physiology). Given University autonomy, this decrease in the attention paid to Anatomy was different in each University: considerable in some but more discrete in others. Nevertheless in view of the considerable practical interest, in general the decrease in hours was minimal.

An additional difficulty has been *the scant innovation in the teaching methods used* and, although with some exceptions, anatomists have indeed tended to be conservative in their teaching outlook.

Whereas in other countries there is a great diversity of teaching contents within the sphere of Anatomy, in Spain *it is clear what content should be taught*. In all our Departments Gross Anatomy and Neuroanatomy are taught, the latter—at least at some Departments—integrated with other materials under the heading of Neurosciences. In most of our Universities, Embryology discipline is also taught wholly by anatomists, although in some only the part corresponding to organogenesis.

The structure of Departments, based on the University Reform Law (LRU) is very heterogeneous. Some Departments were severely affected by the Act since they did not have sufficient numbers of Anatomy teachers to be formed as Departments as such. Accordingly, these “weak” Departments were coalesced, using teachers from other disciplines, some of them not even medical, and this has given rise to serious problems (some of them persisting today). Most Departments were reassigned the term *Morphological Sciences* since in principle there was no specific area, known in Spain as “Area of Knowledge”, for Human Anatomy. Currently, we have an area called Human Anatomy and Embryology and in many Universities in Spain this has become, or is becoming, Human Anatomy.

In Spain, *anatomists are generally full-time professionals*. However, there are also specialist physicians (surgeons, radiologists, etc), normally with part-time dedication, who teach at our Departments of Anatomy. Participation by this type of instructor is always enriching since it often allows the possibility of providing a more applied type of Anatomy teaching. In some Departments, too, there are instructors from other degree areas (mainly biology), although most of them are more interested in research than in the training and teaching of students in the field of Anatomy.

Another difficulty that has negatively affected the current situation of Anatomy in our Universities is *the attitude of anatomists themselves as regards their own discipline*, perhaps due to the importance given to research as compared to that accorded teaching. *“The crisis undergone by Anatomy also affects anatomists, who are suffering from an identity crisis since some of them*

have attempted to become involved in other fields within the sphere of morphology and rally to the defence of these more than to the defence of Anatomy itself” (Ojeda Sahagún, 1997).

Perhaps as a consequence of the above, the issue of Anatomy teaching has had little impact on Anatomy teachers and it would be possible to affirm that papers addressing the changes in the status and teaching of Human Anatomy in Spain, with the exception of those fostered by the Spanish Anatomical Society and others to be detailed below, have been scarce. This is especially the case of the 1990’s and the first few years of the present century. As a first publication, we would cite that of Martínez Almagro (1993) concerning the importance of Clinical Anatomy. Later, in 1999, the content of a seminar on Medical Education was published by Lafuente et al. (1999), some of whose chapters are of interest for the teaching of Anatomy, and an interactive Anatomy program about the skull appeared (Berastegui and Gourtherot, 1999). A multimedia program on applied Anatomy has been developed (Viaño et al., 1999) and there is now an Essential Dictionary of Neuroanatomy (Ruiz Torner, 2001). There are also several CDs dealing with presentations of Anatomy (Villanueva et al., 2002) and informatic applications addressing the human brain have been developed, generating a system of georeferenced information about the brain and a true virtual encephalon based on serial sections from the *Visible Human* project (Juanes et al., 2001, 2003; Prats et al., 2001; Prats and Juanes, 2003). Recently, a text has appeared in which, for the study of osteology, several degrees of complexity are sought in each element based on the type of student to receive such information (Lorente and Miguel, 2004). There is another work, too, that addresses the problem of dissection in Spain (Arráez-Aybar et al., 2004) and, in this issue, there are two works that detail the changes that have taken place in the teaching of Anatomy. Of course, there may be other works but these are unknown to us.

PRESENT AND FUTURE PERSPECTIVES OF THE TEACHING OF ANATOMY IN SPAIN

The teaching of Anatomy *“is of value alone as the biological science it is* (Orts Llorca, 1973) and it is necessary to place it in its appropriate content; that is, Gross Anatomy as a basic science and Anatomy with a clinical content in Medical Degrees; this may indeed be its best defence. This can also be applied to the fields of Neuroanatomy and Embryology.

To achieve this end, it is necessary to *modify the way it is taught “not only at graduate level but also at post-graduate level and in continued*

education" (Morales Hevia, 1996). Currently Anatomy is imbricated within different academic subjects organised by systems. We believe that this division is not always beneficial and the possibility of grouping it in three large blocks (Embryology, Gross Anatomy and Neuroanatomy) is one of the best divisions as regards its teaching.

The teaching of Anatomy in Spain today is essentially based on a lecture system and we are indeed finding great difficulties in adapting ourselves to new teaching technologies. Nevertheless, it is true that, in this classic form of teaching, blackboard schema are becoming increasingly scarcer and that other resources are becoming more common (slides, transparencies, videos, power-point presentations, etc).

Regarding other methodologies used in other Spanish universities, *an integrated teaching of our material with other basic subjects is implemented*, although the degree of integration varies considerably from one case to another. Since basic and clinical materials are involved, integration is not only a problem of Anatomy but also of the educational policies of each University. In other Spanish Universities, materials are coordinated and students are assessed overall.

Other types of teaching, such as *Computer-Assisted Instruction (CAI) or Problem-Based Learning (PBL)*, implemented as the sole teaching method, are almost absent, although they are used as complements, finding different degrees of application. Only in some Universities are these new methodologies beginning to be used (Sola Martí and Mias Carballal, 2002; Mias Carballal and Sola Martí, 2002; Marcos et al., 2004; Pereira et al., 2004, the latter two in this same issue).

The reduction in the number of hours devoted to the teaching of Anatomy has been compensated by *the introduction of materials to be developed discretionally by each University*, which to a certain extent broadens the time dedicated to its teaching. Among the latter, Clinical Anatomy is widespread, although there is some time spent on Topographic Anatomy, Anatomy in Images or Teratology, among others.

After the LRU, at our own University today, *more emphasis is placed on research than on teaching*. This had been denounced previously by Spanish professors. For Martínez Soriano (1997) *"it is necessary to lend greater impetus to teaching"*. But this affirmation was not new: earlier, Amat (1992) indicated the problem that *"teaching is not valued; instead it is devalued"* and Sarrat (1995) stated *we should abandon some oft-repeated phrases such as 'this term I have to teach, what a drag!' or 'Wouldn't it be great in the University if there weren't any students!'*. This is indeed a handicap when trying to program a more effective teaching of Anatomy.

Regarding practical teaching, we would first mention *the value of cadaver dissection*. Very little time is dedicated to this. The current trend is to perform less dissection and younger instructors, with some exceptions, tend to do so. Even though we all share Ramón y Cajal's maxim *"We learn much from books but we will learn more from nature, the cause and reason for all books"* (Ramón y Cajal, 1954), the value given to dissection by professionals is on the wane. Regarding instructors and dissection, Reinoso (1993) says *"It is difficult to envisage an Anatomy Professor who has not performed several cadaver dissections or who does not know the program and the norms and mechanisms required for competent University teaching"*. In recent years, it was even considered that dissection was demeaning, unpleasant and risky and Sarrat (1995) adds *"If one is not sufficiently prepared, risks are incurred, especially when students are present; we are not lacking cadavers, as some would have; we are lacking people who wish to run such risks"*.

Several circumstances seem to support the above. That there is less dissection being carried out is partly due to the arrival on the scene of experts in medical education who support a global model of teaching based on problem solving, where Anatomy is relegated to a secondary place in medical education. It is also due to the pressure exerted by researchers to obtain more space for their laboratories, deriving from the huge spaces required for dissection theatres and the reduction in costs gained from not having to have the staff, equipment and maintenance personnel necessary for running such dissection rooms (this is echoed in a previous work by Ellis, 2001).

To the above should be added the scarcity of cadavers, inadequate installations, the fact that dissection is not considered to be of much academic merit either by professors or by students, and the replacement of cadavers in practical sessions by audiovisual or multimedia means or by anatomical models. It should also be noted that there are few mid-level technicians available in dissection rooms for the preparation of anatomical pieces, prosections, and the development of new techniques such as plastination, and the absence of these may have had an important impact on the whole.

In our defence of dissection, we concur with the ideas of Aziz and McKenzie (1999): *"The study of human Anatomy by dissection is a banquet for the sense. With the exception of taste, all the other sensory modalities play an important role in data collection during dissection"*. To this we would add the realistic nature of dissection and with this the possibility of students becoming more aware of the diseases affecting human beings and the ephemeral, or mortal,

nature of the human body. Neither should we forget that in carrying out dissection students must acquire the habits and skills necessary for them to be able to explore the human body, of great importance in later medical education. No digital program or model is able to provide such opportunities to students. The maximum that can be gained from such technologies is an aesthetic appreciation, if indeed the product is good, but we believe that in the long run cadaver dissection is the only true way to obtain an in-depth understanding of the human body. Finally, dissection, and not models, introduces students to the biological variations and pathological alterations inevitably found among different cadavers (Ellis, 2001). In the latter case, the cadaver in a sense *regains life* in that we can use the pathology to progress backwards from death to life, reasoning the causes and effects of the pathology affecting the subject when still alive (Aziz and McKenzie, 1999; Aziz et al., 2002).

Recently there has been a lukewarm reaction tending to lend impetus to dissection due to support from the Anatomical Society; this has emerged since the symposium entitled "*The dissection theatre and its adjoining facilities*". After this event, the Act of Barcelona was drawn up, attending to all legal, safety and hygienic aspects, infrastructure, and the equipment required to offer modern, functional installations. Despite this, other issues remain to be solved, among others that relating to the exchange of cadavers among Departments for teaching and research purposes.

We recommend that all students should perform the dissection of at least some part of the human body along their undergraduate years and that this task be assessed within the context of the overall grading of the subject. This evaluative aspect is crucial because students only hold what is subject to assessment to be of value.

Nevertheless, for a modern teaching of Anatomy it behoves us to recall the words of Benninghoff (1950): "*The goal of Anatomy is the study of living human beings*" and hence modern techniques of study of the living human body –both in sickness and health– such as imaging techniques should be included in the practical teaching of Anatomy at the same level as the practical work carried out on cadavers. The inclusion of this type of teaching will allow students to gain a better understanding of the human body in sickness and in health. This means that instructors wishing to teach Anatomy in the twenty-first century must have knowledge of these techniques so that they can be included in the syllabus.

In our Universities, attempts are now being made to make the teaching more interesting, and foster student participation, emphasising the importance of our subject and the reasons why

Anatomy includes Surface Anatomy, Applied Anatomy, and Imaging Anatomy. That is, a type of instruction in which the goal is the living being and in which the knowledge sought is the relationship among certain medical or surgical specialities.

Something similar is being done in other major Universities in Europe and the United States (Reidenberg and Laitman, 2002) and this orientation is reflected in the document compiled by the Educational Affairs Committee of the American Association of Clinical Anatomists (1996) under the lemma "A Clinical Anatomy curriculum for the medical students of the 21st century", and in the document from the Educational Affairs Committee of the Dutch Anatomical Society (1999) in its General Plan of Anatomy "Objectives of the teaching of Anatomy/Embryology in medical curricula in the Netherlands". Later, a second document was published by the Educational Affairs Committee of the American Association of Clinical Anatomists (2002) for the Embryology Program.

The reappearance of Clinical Anatomy is not only gaining impetus in the teaching of Anatomy but also in research in the field. Thus, the field of Gross Anatomy, believed to be exhausted, is seeing increasing numbers of publications (Jones et al., 2002). This circumstance also applies to Spain. These advances, now more than ever, are reinforcing the need for a solid grounding in Anatomy for medical training.

Medical education cannot be interpreted in a temporal fashion, in the sense that the learning acquired at medical school must be updated continuously and professionals must strive to achieve ever-higher levels of competence. *Accordingly, we must foster continued instruction in Anatomy* through collaboration with other Departments in postgraduate courses or training courses directed towards professional preparing for their speciality or those who have already done so, together with courses aimed at the training, recycling, and achievement of expertise among our professors.

At the same time, with respect to the teaching of Anatomy in Spain it is germane to stress the *reorganisation of our Departments*. It is crucial to seek certain uniformity in the training of their members and to ensure that the objectives to be met are identical. The training of students in Anatomy should be organised by the respective Departments of Anatomy, which should have more direct relations with other Anatomy Departments and indeed with all other Departments, basic or clinical, related to the discipline. This will allow us to implement applied teaching, use more modern methods, and even improve research.

An important goal is *to achieve the "professionalisation" of our instructors*. Gonzalo (1994)

argues for the need “*for professionalisation in the basic sciences*”. From our viewpoint, Anatomy instructors should have the same expectations as any other University professor: transmit and enrich knowledge –in our case anatomical knowledge– as a fundamental basis for a better understanding of the clinical specialities.

To become an instructor of Anatomy, aspirants should be able to accredit several years of training at Anatomy Departments, where they should receive a regulated training both as regards teaching (theory and practice) and research, mainly on a morphological basis, without overlooking the modern techniques of imaging diagnosis and the learning of new informatic applications. This specialisation will allow us to upgrade our work and foster vocational aspects for the teaching of Anatomy.

We must further develop the “*area of knowledge*” of Human Anatomy and Embryology, something that has in fact eventually been achieved by Anatomy instructors in Spain. This area is essentially for the development and defence of our teaching and research interests and will allow us to encourage instruction in Anatomy and Embryology and participate in research and teaching commissions, to which to date we have had little access.

The future of instruction in Anatomy in Spain is one of expansion. Anatomy is not only taught in medical schools but also forms part of degrees in Dentistry and Pharmacy and in several Diploma Courses: Nursing, Physiotherapy, Occupational Therapy, Speech Therapy, Podiatry, Biomechanics Optics, Nutrition, and Physical Education. And we should not overlook the National Institute of Physical Education (NIPA), where Anatomy plays an important role. We also believe that Anatomy is necessary in other areas, such as the Fine Arts, Psychology and Biology, although our Departments are not yet involved in these.

In each of the above disciplines the aims are different and the material should be explained in accordance with the demands required. Departments must adapt to different types of instruction because students from different study areas require different approaches to the discipline. This is why *professionalisation* is so important.

Despite the scarceness of vocational young anatomists from medical education, we should also say that *the future of the teaching of Anatomy in Spain is bright in the sense that it is broadening its sphere of influence.* This scarceness can and indeed should be compensated by the training at Anatomy Departments of specialists in other medical fields or from other areas of the health sciences and biology. Their training should be much more polished and demanding, especially if these instructors are to become involved in teaching in medical degrees.

THE SPANISH ANATOMICAL SOCIETY (SAE)

The Society does not include all Anatomy instructors but is formed by a groups of educators committed to the defence of Anatomy. Thus, Amat (1992) stated “*All (Spanish) anatomists form a large family, whose members are destined, both by necessity and on a voluntary basis, to understanding one another. The Society should be a means, the most important one, for such understanding; it should be our assembly, our parliament and our forum for discussion and concord, where we can not only communicate amongst ourselves and discuss our scientific findings at Congresses but also discuss our unresolved problems, their possible solutions and the problems that other colleagues might be undergoing, and reflect upon our discontent, our worries, and even our requests for help*”.

The SAE dates back to 1949, although previously it had belonged to the Spanish Portuguese-Latin American Society of Anatomy. Over its history, it has held 21 National Congresses. Currently it hosts 325 members (further details about our Society can be found in “*La Sociedad Anatómica Española y los Anatómicos españoles del siglo XX*” by Pascual Morenilla et al., 2000). Indeed, much of what has been achieved in our country regarding the teaching of Anatomy has been programmed or sponsored by the SAE.

Our Anatomical Society has encouraged a communications bridge among its different members so that all of them can access the same information, creating a Bulletin –“*SAE News*”– that has and continues to meet its aims and that has ensured propitious circumstances for Anatomy instructors, as from 1992, so that they can offer their own points of view concerning Anatomy and its teaching in Spain, as is reflected to a certain extent in this very article.

Emerging from this interest in teaching, and based on the results of different meetings, the SAE has sponsored the compilation of audiovisual methods as complements to teaching (Sañudo and Romero, 1994, 1996).

Since 1991, the Society, concerned about the teaching of Anatomy, has organised five debates addressing the teaching of the discipline in Spain. In the last two, held in Madrid (2002, 2004) discussions focusing on our problems were offered by Anatomy instructors engaged in the delivery of different degree courses (Medicine and other health-related fields) and they provided useful information about the new technologies as applied to Anatomy, the European Credit Transfer System (ECTS), and projects for European Convergence.

The new educational orientations support the notion of a teaching model in which the centre of the education process encompasses the students themselves, unlike the traditional scheme

in which the instructor was the centre of attention, and emphasizes the use of the new technologies available. Interest in these is further enhanced by the progressive introduction of continuous learning programs and telemedicine in professional practice.

The new technologies are based on the use of general programs, local networks, the Internet and e-mail facilities. The three greatest contributions of the new technologies to education are related to learning time and our current concepts of teaching space and teaching time (Puerta, 2002). Such technologies will allow students access, in real time, to a complete body of information about a given issue without have to actually be present in a classroom. They will be able to absorb such information according to their own schedules and with no time constraints. Students will thus be able to play a highly participative role in the education process, indeed very similar to that accorded them in PBL; namely, the search and acquisition of information, self-evaluation, and the transformation of such information into personal knowledge through rationalisation.

These three parameters are the basis of the ECTS, which together with the Diploma Supplement as complementary information to the studies carried out, figures among the six goals of the Declaration of Bologna (Pagani, 2002).

The success of the new technologies will to a large extent depend on the quality of the teaching material employed and the fact that all types of multimedia supports are available for use. Currently, web-sites about Anatomy in the Network environment (Voiglio et al., 1999; Jastrow and Volrath, 2002; Nieder and Nagy, 2002) are legion, although not all of them meet the ideal criteria of navigation, imagery, or presentation of text contents. Many very interesting web-sites on Anatomy, Embryology, Radiology or Neuroanatomy can be found as links at the SAE web-site.

Likewise, over the same period the Society made the necessary efforts to ensure that attention would be paid to the teaching of Anatomy at congresses being held as from 1993 (Tenerife, Santiago de Compostela, Valencia, Valladolid, Granada, Salamanca and Pamplona). At our last congress, held in Pamplona in 2003, we saw the first "*Enrique Martínez lectures in Clinical Anatomy*" session, created in memory of one of our recently deceased Anatomy instructors who was revered, at least by us, for his participation in the defence of Anatomy and, in particular, Clinical Anatomy. This event is to be continued at future congresses; the next one to be held in Murcia (Spain) in September 2005.

Independently of those offered by our Departments, different training and recycling courses (both for teaching and research purpo-

ses) have been run. Of special mention is the one addressing the problems of dissection theatres and their adjoining facilities, which was run in collaboration with the Anatomy Department of the University of Cambridge. The Society has fostered and to a certain extent facilitated the notion that all Departments should have sufficient bodies for dissection and that the best techniques for cadaver embalming and preservation should be studied, although this issue remains to be fully solved.

One of the main achievements of the SAE in defence of Anatomy has been to ensure that Anatomy has its own "Area of Knowledge" (Anatomy and Human Embryology). This means that our respective Departments are becoming increasingly homogeneous and that they themselves are in charge of the teaching of Anatomy wherever required.

In Spain, there is no division between clinical and classical anatomists and hence there is no specific Society for Clinical Anatomy. Our Society forms part of two Anatomical Federations: the International Federation of Anatomical Associations (IFAA) and the European Federation of Experimental Morphology (EFEM). The gradual involvement of our Society in international fora came to fruition in a Symposium on *Morphogenetic and Genetic Analysis of Vertebrate Development* with the Anatomical Society of Great Britain and Ireland (ASGB&I) (Madrid, 1998) and the holding of a joint meeting with the British Association of Clinical Anatomists (Barcelona, 2002). As a consequence of these initiatives, our Society was invited to participate in the 1st Joint Meeting of the European Association of Clinical Anatomists and the American Association of Clinical Anatomists (Graz, 2003). Of special mention is the invitation we received through the ASGB&I to participate in tripartite meetings organised on a rotating basis every three years by the British & Irish, Dutch, and German Anatomical Societies. The latest meeting has been convened as a quadripartite Joint Meeting of the ASGB&I, Nederlandse Anatomen Vereniging (NAV), Anatomische Gesellschaft (AG) and SAE (Dresden, 2003). It is to be hoped that these joint meetings might in the future represent the birth of a renewed European Congress on Anatomy.

Our Society has its own journal –the European Journal of Anatomy (EJA)– which, unless any insurmountable difficulties arise, will continue its work. It has fostered the translation into Spanish of the Anatomical Terminology (2001) sponsored by the Federative Committee on Anatomical terminology (FCAT). It has its own web-site (<http://www.med.ub.es/sae/sae.htm>), with many links to other Societies, publications, teaching pages, etc. All of this has sparked a more dynamic outlook among Spanish anatomists.

FINAL CONSIDERATIONS

1. Although slowly, in our country changes are gradually taking place in the teaching of Anatomy in all areas encompassed within the concept of the Health Sciences. To the benefit of Anatomy, it will be necessary to ensure that criteria of uniformity prevail, and in order to accomplish this the exchange of experience among the different Departments will be required in order to improve the teaching of Anatomy in them. Such collaborative initiatives are crucial because there is currently considerable divergence as regards available means and curricular models (number of hours devoted to teaching, different ways of dividing up the material to be taught, different methods, etc.) from one University to another.

2. In Spain there is no formal separation between anatomists considered to belong to the “classical school” and clinical anatomists; i.e., between “Classical” and Clinical Anatomy. Naturally, some instructors teach Anatomy from the clinical point of view, but among the instructors who may be working in the same Department there is a certain harmony and all of them belong to a single Society. We believe that our strength lies in unity and to achieve this, at congresses organised and run by the Society emphasis must be placed on the offer of round-tables and communications addressing Clinical Anatomy and this discipline must surely be included within our teaching of Anatomy.

3. We must make further efforts to ensure that good training, both in teaching and in research, is the norm at our Departments. We must strive to offer proactive instruction to the students from the different branches of the health sciences in order to foster a vocational view of Anatomy. Our desire is that owing to its importance Anatomy should be more present in the curricula of the different degree courses. Currently, as in past years, more emphasis is being given to research and this is felt in the fact that our instructors must devote more time to research than to teaching. In a nutshell, we are sure that our instructors will be well trained for research but we doubt that many of them will be good teachers.

4. The activities of the Anatomy Departments in Spain should not only be directed towards teaching and research but should also be engaged in a third facet: “*talent hunting to recruit and train competent teachers*” (Orts Llorca, 1973). However, presently the somewhat precarious organisation of the “*career in Anatomy*”, unlike the well-structured training pathway followed by intern physicians and residents, has had a strong impact on many degree holders with a vocation

for Anatomy, leading them to choose one of the latter options in preference to Anatomy. Accordingly, it is not surprising that the *outlook of professionals of our discipline is somewhat gloomy* since many graduate students with a possible vocation for Anatomy seem to be unwilling to prepare their theses at our Departments.

5. We must ensure that all the dissection theatres of our Departments have suitable conditions for dissection or other techniques that will guarantee effective teaching and research. A crucial aspect is that we must have qualified technicians in order to improve the yield of our dissection rooms and their adjoining facilities. Likewise, the problem of the transport of cadavers from one University to another for teaching and research purposes, following simple although as yet fledgling rules, must be solved.

Additionally, research in other fields, such as the application of the very broad and diverse morphological techniques available (immunocytochemistry, labelling, molecular biology or *in vivo* NMR), which are the lynchpin of research at our Departments, is only carried out in some of our institutions. Imaging techniques in research are also beginning to emerge but we believe that intra- and interdepartmental collaboration, and even collaboration with non-domestic institutions, is crucial in this regard.

6. We must become more involved in the continued teaching of Anatomy in the different degree courses in which the discipline is imparted. In medical degrees, in theory we should be participating in the training of future specialists, but in practice this is not the case. Thus we believe that this type of involvement should be propitiated and we encourage the running of courses among Anatomy Departments and other basic or clinically based Departments, together with other collaborative efforts. Neither should we overlook our relations with other scientific societies and we should encourage the setting up of courses or meetings with these. We must use the Internet more for rapid communications facilities and take greater advantage of the different web sites available. In this sense, a pan-European web-site would be very welcome.

7. We must seek to “professionalise” our work. Not all those who desire to teach Anatomy are sufficiently prepared to do so, and we must therefore make sure that there is an agreed minimum period of training and learning for our future teachers so that their instruction in the future will be as professional and effective as possible.

It would be highly worthwhile to reach an agreement about the criteria that we must demand of the training processes for our future

instructors. The appearance of the ANECA (the Spanish Agency for Evaluation and Quality) and of the agencies of the regional governments in Spain as those responsible for accrediting future instructors should spark reflection about how such criteria should be developed so that we can define minimum standards and convey these, as complementary information, to such agencies.

8. In some cases, it will be necessary to revise Departmental structure, although most are well organised in this sense and perfectly able to perform their duties in teaching and research. However, it will certainly be necessary to convene departmental positions for young instructors for training in Anatomy; within the Spanish plan for academic mobility, our Departments should consider the possibilities of our instructors engaging in short-term stays at other Departments, both in Spain and abroad.

9. Our journals in the fields of morphology or Anatomy must strive to attain greater prestige. We believe that although some of our journals do have a high-level impact, others –such as our own (EJA) have not yet managed to achieve this, such that perhaps a merging among several of them could help palliate the overall problem. Naturally, we are in favour of such a possibility.

10. In the new project for our medical study plans, efforts are being made to ensure that there will be convergence with the European Area of Higher Education. Nevertheless, the term *Anatomy* as such is still absent in that project, since the concept is encompassed within *Morphology, structure and function of the normal human body during the different stages of life. Adaptation to the environment* and in *Inheritance and early embryonic development*.

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