



Anatomy of Exotic Animals or a useful tool for innovative Education

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Abstract

The subject Anatomy of Exotic Animals was born as an innovation itself. It was implemented in the Veterinary School of the University Complutense in 1999, for the first time in a Veterinary School in Spain. Two years later, concerns about the Principles of the Bologna Treaty and about innovation in veterinary education started in our University. And Anatomy of Exotic Animals, as well as other disciplines, was used as a tool to train teachers and students for the new time to come. These disciplines were called, in general, "Pilot Subjects", as something to drive the University community towards the future. Thank to them, we all got used to substitute lectures by seminars or conferences by discussions in small groups. Students changed their role by organizing every session under the supervision of a lecturer, who started to be "tutor", instead of a "traditional professor". In other words, through these Pilot Subjects, we have changed from a teacher-centred education to a student-centred education. Practically at the same time, the UCM implemented new projects in relation to University Education. Their name was clearly related to their goal: "Innovative Education Projects". Up to date, our group has already participated in seven of them, always on the basis of the exotic animals. In all cases, our main interest has been to consider these species, which increasing interest in Veterinary Medicine is out of discussions a whole: anatomy, radiology, pathology, medical treatment (including surgery), etc. We tried to relate Anatomy with other disciplines which clearly have the Anatomy as the basis. In summary, we always had a "transversal" point of view, looking for the interest of students and professionals. These are two of the tools we have used to adapt our teaching to the EHEA.

1. Introduction

The method used by the Spanish University has been quite traditional, and has been subject to very little innovation. The Complutense University of Madrid [UCM], as one of the oldest in Europe, is not an exception. In most cases, we are "anchored" to system in which the student is a subject rather passive, with an important role for the teacher. To get out of this inertia is not easy; sometimes, it is complicated to combine the self-learning with a traditional method. This work is based on the subject we teach, "Anatomy of Exotic Animals", which has been included, from 2004-2005, within the so-called Pilot Courses, implemented by the Universidad Complutense de Madrid (UCM), to adapt the university teaching to the European Space of Higher Education (EHEA) [1 and 2].

We will discuss how that can be passed from the board, the screen or the stylus, to the computer at home or in the library; the use of books or notes, to the use of Internet; from traditional lectures to networks of discussion. This process has been a little easier by the implementation of the so-called "Innovative Education Projects", which have been useful tools to support this process, and to produce teaching material for both students and professionals, as we shall see forward.

2. Material and Methods

2.1. Pilot Groups

The Anatomy of the Exotic Animals is an optional subject, with an average enrollment of 100 students per year. When we started with the experience of "Pilot subjects", in the academic year 2003-2004, the first question was whether to adapt all the students to the methodology of the EHEA, or if it should be better to



do it with a small group. We chose the first alternative, because of two reasons: first, the subject has three clearly differentiated parts in small mammals, birds and reptiles, and then, we wanted to give all students the opportunity to compare two teaching methods that have little to do with each other.

We divided the students into three groups, known as A, B and C. Reasons of friendship or other affinities were avoided. It has to be taken into consideration that one of the skills to acquire with this new method is the ability to work together as a teamwork". In the first part of the course, group A (birds) was acting as "pilot group", while B and C received a traditional teaching. Then, group B (small mammals) acted as "pilot group", while A and C received a traditional teaching, and finally, group C (reptiles) was the "pilot group", while A and B received a traditional teaching. We did not do any difference between groups in the practical classes, because all practicals have a very applied approach, in which a personal work is essential.

The balance of this first experience showed us that to reach the level of teacher-student interaction we wanted, it was better to work with a small group. For this reason, we decided to reduce the number of students participating in the "pilot group" to 40, making it a fully voluntary basis. The remainder was teaching "traditional", with master classes. The advantage was the possibility of a constant comparison between both methods within the same academic year.

The main question is: what is "pilot group"? [3]. The answer is, basically, as follows: the course is divided into "sessions", focused on different contents. These contents are known in advance by the students, who have to organize every session of discussion. We have a first meeting, in which we explain the reason for these changes, the methodology of work, the objectives pursued, the tools they can use, and the academic and disciplinary competences to be acquired.

Students seek information on the Internet, download data and material that the professor put in the so-called "UCM virtual classroom" [4], consult books [5 and 6], organize oral presentations, etc. The discussion sessions are conducted in the presence of the teacher, who constantly interacts with students. They even resolve issues that have not been sufficiently clear. The result of each of these sessions is cumulative, in a clear process of "continuous assessment" or "continuous evaluation".

This point, student's marks, is another key issue. Our original intention was to go put a individual grade to each student, because we thought it might be more stimulating. Thus, the distinction was made between those who had worked harder and better. With time, we changed to consider each group as a whole, as we observed that the degree of knowledge, participation, interest, etc., was very similar, and we wanted to avoid the feeling of being "under review or examination". Our desire was to promote student's activity, leaving behind the traditional concern over making a mistake in answering a particular question.

Since the academic year 2008-2009 we have decided to add a little test at the end of the sessions, to get a better idea of the knowledge attained by every student. Therefore, at the end of each session there are two grades: one that could be called "group grade", which assesses contents and the way the collective work is presented, quality of the images etc., and an "individual grade", which tries to measure the knowledge gained by each student. Both ratings, together with the note of each practice session, give an idea of individual evolutions.

2.2. Educational Innovation Projects [PIE]

Educational Innovation Projects [PIE] are another useful tool the UCM has implemented for teachers to adapt subjects to the EHEA. Our objective has been to produce in those PIE in which authors of this paper have participated useful and practical material for students, without forgetting the professionals. Of course, within these groups, we consider either collectives as biologists and zoologists. Initially, our aim was basically to facilitate the study of the Exotic Animal Anatomy [7] in the Veterinary School. Our approach has evolved with time towards a "transversal point of view", which is also as an essential tool in the EHEA.

The first step in this direction was to include a professor from the School of Biological Sciences, to expand our application to different subjects taught in this degree [8]. For the first time, we started to have a more applied, less academic and more professional approach. Anatomy evolved from being a traditional subject, too theoretical and sometimes even tedious, towards a practical and directly applicable matter in the daily activities of a veterinarian or a biologist. Thus, we began to abandon the idea of "knowledge for knowledge", to give this knowledge a more practical sense.



From this moment we have never abandoned the principle of transversality as an essential basis for our work, always using the anatomy as the principal key key of other sciences: Radiology, Pathology, Internal Medicine (including Surgery), etc. [9 and 10]. To increase the number of students and professionals who may have access to the results of our projects, in the past three years all PIE have been presented in English and Spanish.

3. Conclusions

The experience described above has provided a unique opportunity to compare traditional education with innovation and self-learning. From our point of view, pilot subjects have many advantages, but also some disadvantages. The advantages can be summarized in a positive and widespread acceptance of the system, a level of knowledge rather similar between students and the possibility of a close teacher-student relationship that is more complicated in the traditional teaching method. The disadvantages are the limitation on the number of students who can participate in this type of education, the need for greater flexibility in scheduling, and a greater investment in infrastructure and personnel. These problems sometimes lead to a clear limitation for the development of many activities.

The PIE are another useful tool the UCM has implemented for teachers to adapt lessons to the EHEA. In the case of the authors of this paper, the PIE have allowed an important evolution in the approach of Anatomy teaching, from being a traditional subject, towards a practical and directly applicable matter. Another Achievement is the use of Anatomy as the basis for other applied sciences a Radiology, Pathology or Internal Medicine. To promote dissemination of our results, the results are presented in English and Spanish.

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