

Science, practice and University

Ciencia, práctica y Universidad

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In the field of Sports Science, there seems to be a considerable gap between science and practice, and an even greater one between university teaching and practice, for which the degree is supposed to prepare you. Sports science is an applied science, and not, therefore, a basic science, although it needs the latter to support many of its principles. It is a demonstrable fact that no government of our nation has supported with any kind of enthusiasm the development of science in general, particularly basic sciences, and much less applied sciences, like ours, where we are still fighting for a law regulating professional activity to clarify our competences.

But, even so, universities have always been a cradle of quality science at all levels, and although some of us feel like laughing or weeping when faced with the truth of the situation, it is right to say that they make a significant contribution when it comes to creating the breeding ground needed in order to generate the knowledge which the means available allow.

Although ours is a relatively young discipline, the basic sciences on which the generation of our applied knowledge rests have long histories behind them. Physics, chemistry, mathematics, medicine, history and many others have been providing solid knowledge to other fields for a long time, and now they feed ours.

We are in the information age, where all you need to access masses of information, often an unmanageable amount, is a connection to the Internet and a pinch of curiosity. The figure of the popular science writer is becoming increasingly relevant in society, as is only right, because new technology has a great part to play in our classrooms if we want to overcome the current state of obsolescence. But it should be stressed; science is written by scientists and is written in order to be understood

by scientists. Although you don't need to be an Einstein to understand a scientific publication, you do need a basic grasp of statistics and the design of experiments unless you are prepared to place yourself at the mercy of the author and take his or her conclusions at face value. Such knowledge can be acquired in a number of ways, but the most frequent consists of taking a PhD, in Sports Science in our case. This does not give you the "power" to read science, but it does mean you are more likely to understand it. The problem with the vast majority of popularisers is that they do not have such an educational background and simply cull the information which interests them the most in order to arrive at the conclusions they have already reached. This is not unique to popular science writing. All simplifications in teaching tend to omit relevant information that makes the concepts and hypotheses put forward easier to understand, which can lead to misinterpretations or the original sense of the information being taken out of context.

I was recently interested to learn the opinions of some of my students on the university education that they have received and, aware of the limitations of this education, I must say that I agree with some of their criticisms of our university system. I subscribe to the view that the degrees taught in many disciplines are divorced from the reality of the labour situation awaiting graduates. I also agree that a not inconsiderable number of professors, who, comfortable in the system, do not know how or do not wish to update themselves, lack motivation and are anchored in the past. I cannot argue against the idea that the ANECA quality assurance system and those of many universities are not worth the paper they are written on or simply constitute an infinite list of protocols which do not address the real demands of quality: such as the connection between contents by analysing the study programmes in

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depth, the study of graduates' needs and the renewal of curricula to make them relevant to the job market. That said, I think it only fair to defend the good work of many professors, who see their teaching work as the cornerstone of university quality and do their utmost in their scientific endeavours. Indeed, real, constructive criticism of a curriculum would require having studied several programmes and curricula for the same subject, defining a criteria of excellence and then criticising the different degrees. I think very few students have embarked on such a healthy exercise in order to practise objective, reasoned criticism.

Meanwhile, knowledge is not watertight and unalterable over time. Seneca is believed to have said that the "truth" lies in a dark pit and is no more than *a rough approximation to the option that a set of people have about what is happening at a specific moment* in our history. There is no absolute truth, because as soon as a human approaches it, it become subjective and interpretable, and, therefore, open to more or less objective debate. That is why when someone says that "the truth is this or that", I become a zealot of interpretation and get out my magnifying glass to scrutinise their arguments.

It is very important to regard the truth, as recognised in scientific or empirical documents, as perishable, because books, videos, notes and all the other hermetic ways in which we receive information tend to age very badly. Most of the information published in any scientific environment becomes obsolete in a short space of time. The small amount which does not fall obsolete will provide a basis of knowledge which, if it manages to survive, will be tested on many occasions to disprove its validity. This is the essence of knowledge, both empirical and scientific; the constant need to confirm our knowledge and put it to the test in practice to see if it still works or has become defunct. Scientific documents, good papers or books written with academic rigour, are testable in the future, because they owe part of their solidity to the very process behind them. And that, dear readers, can hardly be achieved in a tweet, a video or an infographic.

Speaking of obsolescence, one of the fiercest criticisms of university education is its scarce connection with the reality of the job world, as very little of what will be needed afterwards in a job is ever learned. We forget that universities are much more than agents for transmitting knowledge. Their objective, besides imparting skills to graduates, is to

modify knowledge during the process. Going to university includes all the nerves of the first day, how terribly demanding that professor is, developing critical thinking, travelling to other cities and experiencing other environments, laboratories, experiences, libraries and countless moments which mean that were you to be introduced to the person you were when you started, you probably wouldn't even recognise yourself. So, to all those who criticise their degree, I ask you this question: would you be better professionals without the "scant" knowledge you acquired and the "experiences" you had at university? The most likely answer is no.

I do not wish to ignore the distance between science and practice in our professional field. In the sports world, science is believed not to be powerful enough to make important predictions which could influence the actual performance of athletes, understanding performance as winning or losing, which is the guiding principle of athletic performance. This denial of the applicability of science to the real environment is due to the great number of variables involved in the outcome and the suspicion that they cannot all be controlled at the same time. I do not deny this difficulty, particularly considering that at present we are far from making accurate predictions about competition results. But at a scientific conference last year, I asked the most eminent scientist in the world in the field of hypertrophy whether he thought we would ever be able to create an equation that predicted the behaviour of this variable. His response was an undisputable "NO", too many variables were involved to be able to model them in a single equation. In mid-2018, the first empirical equation attempting to capture the variable was published. Complex, indeed; unable to do it right now, maybe; but impossible, I do not agree.

This editorial is a reflection on the Spanish university system, its application to and link with professional practice, taking a neutral, objective and positive view of the road lying ahead of us. I think that work to improve as a society entails improving the various ways in which we acquire, process and apply information, without neglecting such essential pillars in personal formation as honesty, humility, prudence and respect, which should lead to a more balanced and mature society. I hope I have succeeded, at least, in encouraging reflection on the power of communication.

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