

Evaluation of the quality of the elearning teaching of Statistic subjects in the Virtual Andalusian Campus

Montero Alonso, Miguel Ángel
Biostatistics, University of Granada, Granada
Avd. , Madrid s/n – Faculty of Medicine
Granada (18071), Spain,
mmontero@ugr.es

Roldán Nofuentes, José Antonio
Biostatistics, University of Granada, Granada
Avd. , Madrid s/n – Faculty of Medicine
Granada (18071), Spain,
jaroldan@ugr.es

Luna del Castillo, Juan de Dios
Biostatistics, University of Granada, Granada
Avd. , Madrid s/n – Faculty of Medicine
Granada (18071), Spain,
jdluna@ugr.es

1. Introduction

Information and Communications Technology (ICT) are facilitating a new form of teaching and learning that cannot be unaware to the world of the University. The university educational politics in the Society of the Information and of the Knowledge should stimulate the relationship between the lecturers and the students to improve the quality and efficiency in the teaching.

The constant evolution of the new technologies and the new necessities that these contexts outline, have contributed - in great measure - to the appearance of new models whose defined feature is that it converges the present and the virtual thing at distance, and where they combine spaces (traditional and virtual lessons), time (present and not present), resources (analogical and digital), and the main characters modify their lists in the teaching-learning processes, and also, the changes also affect, in an unavoidable way, to the organizational models (Montero et al., 2008). With the arrival of the European Space of Superior Education (ESSE), it is in peak the increment of the imparted teaching through internet due to the great adaptability that this offers abiding to some of the approaches of the new space. And as such, the necessity arises of also evaluating this type of teaching modality.

This supposes a paradigm change and a conception of the study that it adapts to the ESSE. That is to say, we are in the face of a new challenge and a change in the way of teaching and learning, spent from the attendance teaching to the virtual one where lecturer stops to be the center of the learning process and it passes to the student, and it implies the use of ICT to be able to make a pursuit of all the activities and works that the student carries out outside of the classroom through e-learning platforms.

In this sense, making some history, we go back to year 2003, was created Andalusian Virtual Universities, and one of its main priorities was the evaluation of the subjects taught through internet. One year later, most of them, coincided in a project of the Unit of Quality of the Universities of Andalusia (UCUA) whose high-priority objective (Blanco et al., 2005) was centered in establishing habitual procedures in the inquiry of the reality of the Andalusian university environment as base for the detection of opportunities and threats that allowed to establish strategic or operative plans of improvement in the

institutions of the university system of Andalusia. Fruit of the combined work, in the academic course 2005/06, the guide was designed @FORTIC developed for evaluation of the quality of the formative actions based on the ICT. In this guide aspects such as the planning, the program, the used resources, the development of the process and the quality of the results are picked up to evaluate.

Years later, the Virtual Andalusian Campus (CAV) is born included inside the Program of Digital University of the Junta of Andalusia; it is a shared campus, formed by the ten public universities of Andalusia. In the academic course 2006/07 it allows the students of any Andalusian University to study subjects in a virtual way offered by anyone of the ten Universities, being recognized them in its origin University, as credits of Free Configuration. The offered subjects are taught through Internet and they don't require the present attendance to class, since the activities to carry out, works, notes, exercises, tutorships and exams are carried out for the net, adapting each student their own learning rhythm. The academic offer and registered students have grown every year, from 30 offered subjects and 1.474 students in the first academic course (2006/07) to 5259 students where the number of subjects for this academic course has been of 86.

For all is known the necessity of evaluating the formative actions to be able to detect the lacks of the system and to try to improve them and even to eliminate this lacks, evaluations and procedures that are carried out with different methodologies in the teaching ruled present university student. It seeks to show the necessity to evaluate, from a holistic perspective with object of offering possible proposals of improvement in the ESSE. In this new culture participate diverse technologies, methods, technical of collaboration and instructors, elevating the teaching at unreachable levels with regard to the traditional methodology, mainly in what concerns to flexibility and readiness (in any moment and from any place). With everything seeks to show with the study of a case, the subject of Statistic and Tourism, the evaluation necessity that presents the CAV, always from the perspective of the students that participate in the same one, in order to offer possible proposals of improvement towards the ESSE.

Basing on the guide @FORTIC, in the first year of life of the CAV, some universities, to particular title, carried out the evaluation to the beginning of the formative action - before it is imparted - to try to detect serious irregularities. To know the level of the students' satisfaction it has also been of interest since the creation of the CAV their opinion. Taking like reference both aspects, the experience obtained during these years and other more general positions as the mark of the ESSE, the Norm UNE 66181 (2008) - that is centered in clients' aspects and suppliers of e-learning such as accessibility, employability, easiness of assimilation, interactivity, reuse level and tutorship - and the norms ISO/IEC 19796-1 (2005), ISO/IEC 19796-3 (2009); in the course 2008/09 the necessity is approached of how to certify the quality of these formative actions, the rules of a procedure of integral evaluation. All the aspects are picked up, set down and divided in three phases such as we will see next.

2. Evaluation

Once commented the necessity to evaluate, the group of work of the CAV in the last course academic has started a process of integral evaluation of subjects divided in 3 stages: Initial, Process and Product. This evaluation process consists on the discrimination of the execution or not of a series of approaches of each stage (agreed by the Group of Work of Andalusian Virtual Units, UVAS), as well as the identification of strengths and weaknesses of the formative action in each one, obtaining some results and partial and final certification. All the formative actions developed in the CAV are evaluated through this combined process.

In the Initial Evaluation, previous at the beginning of the formative action, has consisted on the revision and evaluation, on the part of an external committee of experts, of the information and available resources in the virtual course elaborated around eight dimensions: Identification, structures, objectives and competitions, contents, activities and evaluation, usability and accessibility, resources and bibliography and, lastly, tools of communication of the formative action. This period allows detect possible lagoons or errors of the available information in a virtual course before their setting in march with object of covering some minimum approaches of quality, guaranteeing this way the beginning of the formative action in an appropriate way.

In the second phase, Evaluation of Process, carried out in an internal way, it seeks to detect and to improve performances during the development of each formative action related with the implied staff's works (lecturer, technicians, support staff), the participation of the students and other academic and technical questions that can arise. The pursuit begins with the communication to the student of the dates of beginning of the formative action and concludes with the closing of records in 2^a convocation, guaranteeing the setting in march of the activity, the detection of access difficulties, technical problems happened along the course and the resolution of the same ones during the whole process; finally a proposal of improvements is made for the following course.

Lastly, the Evaluation of Product, also carried out in an internal way for each university, values the participation results and yield so much (number and registered students' percentage, appraisal of abandonment and qualifications in first and second convocation), as the adjustment to the programmed planning (they summarize of the process evaluation) and the satisfaction of students and educational by means of some questionnaires that measure the planning, the contents, the participation the activities, the usability and accessibility, as well as the general valuation among others.

As a result of everything it, a final report of evaluation will be obtained, carried out by the university responsible for the formative action whose result will be able to be: positive, the formative action, although it is susceptible of improvement, it will have been developed with normality; positive conditional, it will suppose that its setting in march for the following course academic will be conditioned to the inclusion or modification of certain approaches picked up in this report and, lastly, negative report, if very serious incidences have been detected (omission of the times settled down in the tutorships without justified cause, the not correction of activities in the established times, the delivery of records outside of term, etc.), this will prevent that the formative action is imparted in future editions.

3. Case: Statistic and Tourism

ICT in general, and of Internet in particular, has brought to get the appearance of numerous virtual spaces of learning of the mathematics and the statistic that, in many cases, they reinforce or supplement the teaching methods based on the presence (Davies et al., 2007). To the appearance of these virtual spaces, is necessary to add an use, more and more intensive and integrated in the curriculum of the subjects, of statistical-mathematical software that foments the student's creative aspects (facilitating that is able to experience and to work with concepts and advanced techniques), and it stands out the applied slope of mathematics and statistics to the modelling one and resolution of problems characteristic of other environments of knowledge (Batanero et al., 2007; Symanzik et al., 2002).

In general, these characteristics that contribute to an environment multimedia are effective for the learning of these students and that it is necessary that, as lecturer or creators of instructive applications know them to get a more appropriate environment and facilitate the learning process. Acting this way, they will be instructive effective in a multimedia environmental for the learning-teaching process is:

- It facilitates to participate actively in the learning process and motivate this participation,
- It allows the implication in their planning and activities,
- It facilitates the interactivity and the "to learn making",
- It takes advantage as learning resource of the users' experiences,
- It believes in spaces in those that it is able to express ideas and to share them,
- It provides a continuous and immediate feedback.

As it has already been mentioned previously, the case that we are dealing is the subject of Statistic and Tourism, that is being taught in a semipresential way in the University of Granada from the academic course 2006/07 and it has passed to be part of the offered by the CAV catalogue in the course 2009/10. One of the indispensable requirements to be part of this offer was the necessity that the subject is completely virtual, what required the elaboration of new materials and the adaptation to this new modality. This effort has been

rewarded with the number of registered students, where, like one can see in the Figure 1, it has increased considerably, first since it was only taught in a presential way (the first three courses), up to when it has been taught inside the Plan of Virtualización of Subjects of the University of Granada, and mainly the courses inside the CAV.

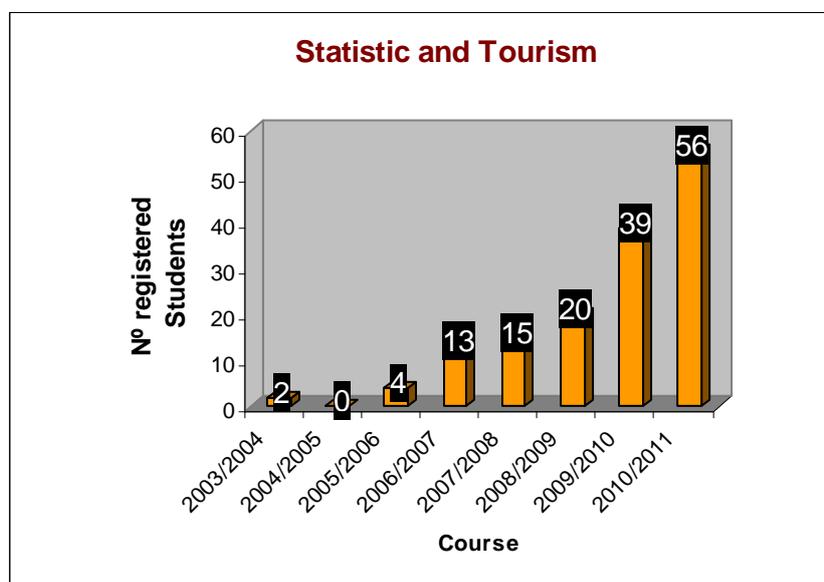


Figure 1. Evolution of the number of students registered in the subject.

This shows that the increase of the number of registered students is undoubtedly important, overall in subjects where their continuity for the following course depends on the number of registered students, but even if to know the quality of the subject of the contents and elaborated materials is important, also important the lecturer's work during the realization of the course.

Anyway, the faculty implied in this educational experience fixed the following main objectives with the purpose of evaluating the grade of use of the same one:

- To value the grade of improvement in the derived learning of the existence and use from the support materials to the created teaching.
- To evaluate the perception that the students have about their didactic utility, as well as of the different included curricular materials.
- To estimate the grade of satisfaction of the students to improve and to elaborate new materials.

For it, from the CAV and in collaboration with each one of the Andalusian Universities, a process of evaluation of the subjects that are imparted, has been carried out with the purpose of knowing different aspects that will be studied later, as well as to improve the quality of the contents, of the materials and overall of the subjects that are imparted, so that those who don't overcome these approaches will stop to participate in this project. The evaluation process has consisted on three phases, as it has been said previous, a first phase where the subject is evaluated by external to the university appraisers and where it would originated the subject. For the case of Statistic and Tourism, the appraisers were technical and specialized of the Universities of Cordoba and Almeria support staff. This way, in the first phase of the evaluation process the objectives that are sought to get are:

- To detect and to correct possible deficiencies in the subjects of the Virtual Andalusian Campus before to the development of the formative action,
- To cover some minimum approaches of quality,

checking aspects such as identification of the formative action; structures of the formative action; objectives

and competitions of the formative action; the contents; the activities and evaluation; the usability and accessibility or the resources and bibliography, by means of a battery of 25 questions. In both cases, the results have been positive and satisfactory, since 20 of the 25 items have been qualified positively at least.

In a second phase carried out by the own university where the subject is imparted, in this case for the University of Granada, where the staff of Cevug (Virtual Teaching Center of University of Granada), after the initial evaluation and the modifications carried out, according to the observations given in the same one, it carries out a new evaluation where one keeps in mind:

- The Valuation of the initial evaluation.
- Modifications and improvements carried out by the faculty after this evaluation.
- Possible proposals of improvement.
- The access to the platform, and the resolution of incidences.
- The execution of dates, on the part of students and lecturers.

In the last phase, evaluated by the students who participate in the subject and developed during the month of May of the 2009/10 academic course a poll is carried out among the student-users, and it wonders what utility and opinion deserves from them and they show the deficiencies observed to get possible improvements in the future.

Of the poll carried out by the students, the valuations some of the answers are shown. If we observe the Figure 2, the valuation that could be considered as good are proved, but a series of questions that the students have proposed and, naturally, those that we consider that could improve have also been picked up.

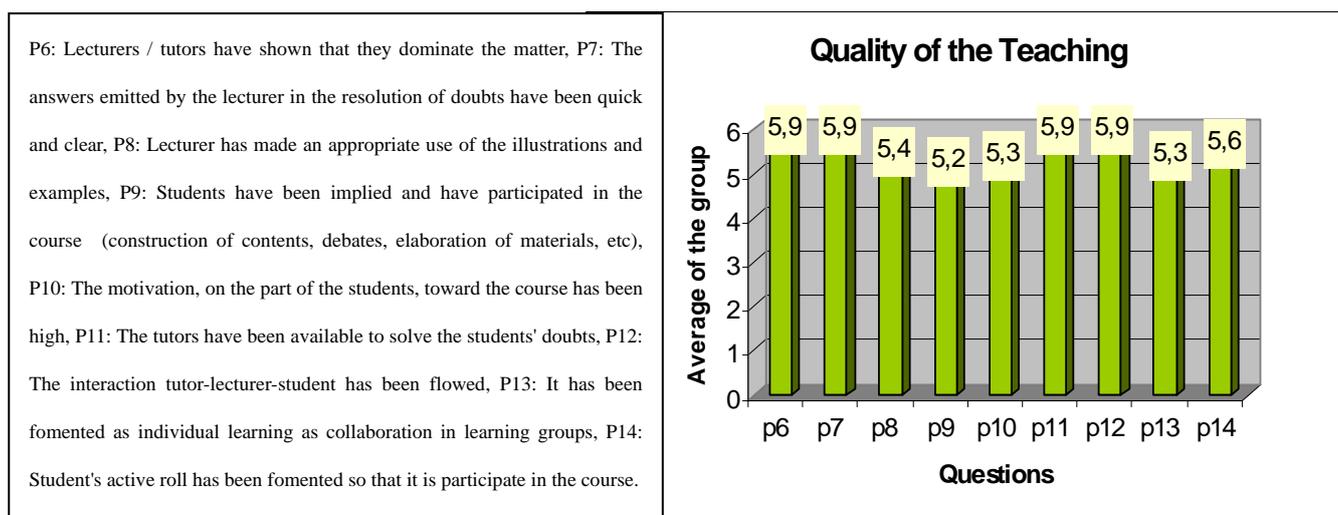


Figure 2. Evaluation of the quality of the teaching.

4. Conclusions

The formative scenario that is being developed in the Spanish Superior Education starting from the new paradigm of teaching need the setting in march of new methodologies and new roll for the members of the educational community. To conjugate the new paper of the educational one with new didactic methodologies makes necessary the abandonment of the lecturer-transmitter for lecturer-guide, guiding, motivating and advising the university student. It is also necessary the abandonment of the incorporated evaluation and the formative evaluation is also fomented. In this context, the educational innovation is presented as a fundamental previous step toward the transformation from the universities to the ESSE.

So, the formation through online tools is successful in the students and helps them in the acquisition of competition. It is necessary on the part of the lecturer a planning to the detail of the subject, energizing, guiding and motivating their students, mainly if we leave the idea that our students, those of the XXI century, have already been born with the use of the technologies and in some occasions have a much bigger domain that the own lecturers.

With everything one can say that the ICT shares, with the convergence process to the ESSE, a couple of common aspects that are essential to understand them for separate and the one that is of the conjunction both. The first one is that the couple of scenarios requires a change; in the case of the ESSE is a change imposed by European Institutions that forces to the states and their institutions to modify structures and political educational to adapt them to this common space, while, in the case of the ICT, the change is obviate since it lacks sense to use the ICT to make the same thing that was made already without them, with the result that the ICT takes associated the opportunity of change, opportunity to make the things in a different way and better. When associating both scenarios, ESSE and ICT, they offer us to think about an opportunity to form the university students carried out towards more genuine functions.

In this study we centre ourselves in the study of the quality of the elaborated materials, in the educational planning, in the objectives that are pursued, in the contents and in the usability and accessibility. The educational ones are not very associated to these parameters, but we should begin to adopt them so that our formative action is the most adapted thing possible to the objectives that are pursued.

This novel form of evaluating the virtual subjects, in definitive subjects that are imparted at the moment, gets an improvement of the quality of the teaching-learning process. The three phases that this evaluation bears, the Initial Evaluation, previous to the beginning of the carried out formative action in an external way, the Evaluation of Process, carried out of internal form, and the Evaluation of Product, also carried out in an internal way for each university, where is valued the participation results and the students' yield so much, they produce a feedback among the different parts that participate in the evaluation process (lecturers that elaborates the materials, computer staff of each university, external evaluators, internal evaluators and especially the major players, those that will interpret the final product, the students) that will get, in definitive, an improvement of the quality of the teaching-learning process.

The grade of attainment of these objectives will be valued starting from the results obtained in the different phases of the evaluation process, but it will be always guided to the final product, to improve the quality and the efficiency of the teaching.

On the one hand, judging the results obtained in the process of evaluation of the Statistical and Tourism subject, we can be satisfied, because of the external evaluation carried out which obtained an average mark of 86%, correcting deficiencies identified in this evaluation before the beginning of the course. The process evaluation has been positive and the product evaluation carried out by the 39 registered students, and it has given an average mark of 82.5%, very similar to the one given by the external evaluators.

On the other hand, it is sought to value the influence of the innovative implanted didactic methodology objectively in the obtained results, considering the total number having approved, the average qualification of the groups, the relative dispersion of the qualifications, etc. These measures will allow us, among other, to compare results among students from the previous implied academic courses groups or not in this type of educational experiences and to compare results to extract the opportune conclusions.

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