

The Challenge of Teaching Statistics on-line. A Five-year Experience

Ana Jesús López

University of Oviedo, Department of Applied Economics

Campus del Cristo s/n

33006 Oviedo, Spain

anaj@uniovi.es

Rigoberto Pérez

University of Oviedo, Department of Applied Economics

Campus del Cristo s/n

33006 Oviedo, Spain

rigo@uniovi.es

1. Statistics in the Information Society

Information and Communication Technologies (ICT) have deeply affected the production, dissemination and treatment of the statistical information. The Statistical Offices play a fundamental role in this new situation, since their servers provide fast access to vast amounts of information thus becoming an increasingly popular way of finding statistical information.

The statistical courses can greatly benefit from this increasing availability of information, the use of statistical software and the potential of the Internet as a teaching tool. In this context, the subject “Economic Data Analysis” was specifically designed for e-learning, focusing on the student as a user of the statistical information and trying to make a pedagogically efficient use of ICT.

2. Economic Data Analysis

Economic Data Analysis (ADEnet) is an on line free election subject included in the virtual campus of the University of Oviedo, AulaNet (<http://www.aulanet.uniovi.es>) and also in the shared virtual campus of the so-called G9 Group of universities, which also includes Universidad de Cantabria, Universidad del País Vasco, Universidad de La Rioja, Universidad de Zaragoza, Universidad Pública de Navarra, Universidad de las Islas Baleares, Universidad de Extremadura and Universidad de Castilla-La Mancha.

Since this subject is addressed to a wide variety of students, it aims to familiarize them with the sources, meaning and treatment of the economic information, encouraging their participation through the use of a wide variety of on line tools and the ADE+ statistical software. The syllabus contains a three-module classification, following the sequence of the origin, treatment and dissemination of statistics.

Each of the lessons starts with a Working Guide and provides access to a “virtual class”, designed as a brief multimedia overview of its main contents. The students have also access to several on line resources such as Multimedia Educative Materials (MEM), self-assessments, Frequently Asked Questions (FAQ), interactive tests or forums ... while tutorials are available through e-mail, chat and video-conference.

Together with these resources, which are commonly used in the e-learning experiences, this subject provides web visits to several Statistical servers (allowing the students to come close to the real statistical information), historical notes (presentations, videos and links illustrating the origin, applications and risks of the main statistical concepts and techniques), and also a “Statistical Mistakes” section which is gradually enriched with the students’ contributions.

Although e-learning usually focuses on the student as the main actor of the learning process, there is no doubt that teachers also play an important role, referring not only to the development of the educative materials but also to the on-line assistance. In fact the main challenge in the e-learning experiences is to encourage students' participation and interaction, increasing the quality of learning.

3. A panoramic view of a five-year experience

The subject Economic Data Analysis has been followed by a wide variety of students, mainly involved in business administration, computing and engineering degrees. The number of enroled students is summarized in Table 1 together with the activity rate, indicating the proportion of students finalizing the course (complementary of the rate of abandonment).

Table 1. Evolution of Students

Academic Year	1999/2000	2000/2001	2001/2002	2002/2003	2003/2004
University of Oviedo	69	84	139	123	120
Shared Virtual Campus G9	6	11	17	34	48
Activity Rate	42.7%	60%	67.9%	56%	63.7%

One of the main challenges of the e-learning experiences is the assessment method, which should be coherent with the learning process. In order to achieve this objective we have developed a flexible system of evaluation based on four criteria: Self assessment results (30%), Practical work submitted to tutors (30%), Results of the on line exam (30%) and Activity indicators (10%).

An outstanding characteristic of ADEnet is the on line exam, which is not usually provided even in "virtual universities". Although the implementation of this kind of evaluation has found some technical and administrative difficulties, it undoubtedly introduces many advantages such as spatial and temporal flexibility and coherence with the course methodology.

Students' opinions have been collected through on line surveys referred to several aspects of their learning experience. In general terms results these have been satisfactory being the best scores related to the most participative tools, such as the self-assessments, the interactive questions or the practical contents.

REFERENCES

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RÉSUMÉ

Les Technologies d'information et Communication (TIC) ont affecté profondément la production, la diffusion et le traitement de l'information statistique. Les Bureaux Statistiques ont joué un rôle fondamental dans cette nouvelle situation, puisque leurs serveurs d'Internet fournissent l'accès rapide aux quantités vastes d'information et de ressources ainsi devenant une façon de plus en plus populaire de trouver l'information statistique.

Les cours statistiques peuvent profiter de la disponibilité croissante d'information, l'usage des logiciels statistiques et le potentiel de l'Internet comme un outil enseignant. Dans ce contexte, le sujet "L'Analyse de Données Economiques" a été conçu en particulier pour l' "e-learning" convergeant sur l'étudiant comme un utilisateur de l'information avec l'objectif d' un usage pédagogiquement efficace des TIC.