

Teaching Business Subjects to Engineers: assessing automatic e-learning correctors

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The combination of Information and Communication Technologies' (ICT) proliferation and innovative approaches in education, has resulted in a series of opportunities with no precedent in terms of content, channels and methods in higher education. The present contribution aims to describe the experience of using an automatic spreadsheet corrector and its perceived benefits. A total of 311 students coursing technical studies attended a basic course on business administration in the framework of which the field work was conducted. Perception assessment of students demonstrates a very good opinion about the learning experience using the proposed ICT tool. The user perception evaluation also shows that it is a valuable learning tool. Beyond these highlighted benefits for students, teachers gain time, effort and workload reduction. The validity of the proposal is tested in the Polytechnic School of the University of Girona in Catalonia (Spain).

Keywords: e-learning; business; engineering; Higher Education; ACME.

1 Introduction

Engineering, as an outstanding career oriented to problem-solving, nowadays faces exceptional complexity conferred by accelerated technological advancements, an already rich and continuously widening knowledge base, mandatory connections to other fields of knowledge, to mention just a few. It is in this scenario, that rethinking the purpose and the organisation of learning in engineering education in academia is a must and HEIs are urged to continuously modernise both contents

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and methods. Students, as subjects of learning and future professionals, and teaching staff are the more immediately affected collectives.

2 Objectives

The objective of this paper is to present an innovative approach to teach business to students coursing technical studies. More concretely, we aim to present the architecture, functionality and impact of a global e-learning experience including automatic correctors aligned with a real problem-solving approach. This objective is part of a wider and more ambitious goal, namely the improvement of the teaching/learning experience, the development of autonomous learning, the deepening of knowledge acquired in academia, the mastering of ICT skills and competences using spreadsheets. Ultimately we aim to contribute to students' preparation to the world of work.

3 Methods

Course organisation: The subject Business Administration (OAE), Fundamentals of Business Administration (FOE) and Business (E) are compulsory studies in technical studies such as Computer Science (2nd course), Industrial Engineering (1st course) and Architecture (3rd course) thought at the Polytechnic School of the University of Girona, Spain. They share the common aim to train the student basic theoretical and practical skills of key managerial and business organisation concepts and decision making tools. All three subjects follow a similar design and methodology.

Data collection: Willing to quantify and document the experience, a perception evaluation questionnaire was distributed in order to collect students' opinion – voluntarily and anonymously- on their experience as users of the ACME platform automatic spreadsheet corrector. As in the case of any innovation, subjective perception evaluation is a good indicator for further potential of improvement, implementation and use. The questions referred to two differentiated aspects: the ICT tool and the learning experience. During the course 2015/2016 180 students had the chance to use it, while the figures corresponding to 2016/2017 is 131 students.

4 Results

The results obtained in reference to the tool show high degree of agreement with regard to all requested aspects. The best ranked option is the teacher's willingness to solve technical problems of the corrector. Another very positively perceived feature is that the tool is valuable while providing feed-back on the correctness of calculations. Oppositely, and with the lowest level of agreement, we find the clarity of error messages.