

STRATEGY OF ONLINE ASSESSMENT IN CASE STUDY METHODOLOGY. A PARTICULAR CASE IN THE SUBJECT ENTERPRISE COMPUTER TOOLS

Andrés Boza, Llanos Cuenca

School of Computer Science. Universitat Politècnica de València (SPAIN)

Abstract

In this paper we propose that students be involved in active online learning, initially working with case-study in order to deep in the theme and secondly participating in the evaluation process, assessing the work of other classmates. If students are actively engaged in their learning they will improve their motivation on the subject. The strategy of online assessment in case study methodology has been developed in the subject named "Enterprise Computer Tools".

Keywords: Online assessment, case study methodology, active learning.

1 INTRODUCTION

European Universities have undertaken several reforms within the framework of the Bologna process [1,2], aiming at creating a European Higher Education Area (EHEA), with degree programmes based on profile, learning outcomes, competences and student workload [3,4]. New Bachelor degrees designed according to the Bologna requirements have been implemented in all the European Universities.

In the Polytechnic University of Valencia, cohabitation is part of an educational project where students and teachers alike from our five campus sites (Vera, Blasco Ibáñez, Alcoy, Gandía and Xàtiva) actively take part in. Currently, our university community is made up of over 42.000 people. Of these, nearly 37.800 are students, 2.600 are members of the teaching and research staff and 1.700 are administrative and services personnel. UPV is composed of 10 schools, 3 faculties and 2 higher polytechnic schools.

The UPV has been immersed in a process of adapting itself to the requirements of the European Higher Education Area (EHEA). School of Computer Engineering has adopted new teaching methods that promote a more active, practical and critical learning process.

The new tendencies within the education-learning process concede a more active role to the student [5]. Learning becomes more effective, when students are actively involved in the learning process [6]. The case-study approach to teaching is a way in which active learning strategies can be implemented.

2 STRATEGIES OF MOTIVATION AND ASSESSMENT

Some students seem naturally enthusiastic about learning, but many need-or expect-their instructors to inspire, challenge, and stimulate them: "Effective learning in the classroom depends on the teacher's ability to maintain the interest that brought students to the course in the first place" [7]. Whatever level of motivation your students bring to the classroom will be transformed, for better or worse, by what happens in that classroom [8].

If the students are active participants in learning will encourage them to become self-motivated learners. Students learn by doing, making, writing, designing, creating, solving. So it is important to give frequent, early, positive feedback that supports students' beliefs that they can do well. Ensure opportunities for students' success by assigning tasks that are neither too easy nor too difficult. Help students find personal meaning and value in the material. Create an atmosphere that is open and positive. Help students feel that they are valued members of a learning community [8, 9].

At the moment, the focus is still on the assessment of learning and not much on assessment for learning [10]. The assessment information is needed to take informed decisions regarding students' learning abilities, their placement in appropriate levels and their achievement. According to [11] assessment refers to the making of evaluation on students' overall performance. Students in a dyad can play both roles and review each other's work.

Today, a common method advocated to improve student achievement is the use of formative assessments, both to improve the pedagogical practices of teachers and to provide specific instructional support for lower performing students [12]. [13] observed that while researchers in higher education have proposed a series of changes such as alternative assessment to replace traditional assessment, these proposals have yet to be implemented in many institutions.

2.1 Online teaching strategies

According to [14] effective online learning may be fostered through the use of student-centred approaches, by means of technology-based learning activities; cooperative learning styles using small group discussions and online debates; simulations and interactive instructional strategies; individual learning projects; and the pursuit of theoretical knowledge through problem solving, investigation and research [15, 16, 17].

Learning outcomes may be enhanced when the lecturer intentionally designs student interactions into the online environment [17]. One issue for lecturers is determining how online learning interactions are constructed. [18] suggests that effective online interaction depends on presenting content in a way that motivates and engages students.

Forms of interactive communication are described as writing reflectively, being actively involved in discussion with peers and facilitator, taking on leadership roles in presenting what has been learned, as well as active participation: mentoring, coaching, problem-solving teams and constructing knowledge: analysis, synthesis and evaluation [19].

2.2 Assessment Strategies

Assessment method must be clearly linked to assessment activities. When setting formative or summative assessment activities, lecturers should consider two questions: whether the assessment methods they choose to use are the best for achieving the learning outcomes, and how the online assessment will add to the learning experiences of their students [20, 21].

[22] argues there is a gap between how students learn online and how they are assessed, suggesting that traditional assessment is often based on an information transfer model, whereas in reality, students learn collaboratively through online communication facilities. Consequently, [22] suggests that as lecturers become more comfortable in the online environment, they will look for alternatives to traditional assessment.

Today, a common method advocated to improve student achievement is the use of formative assessments, both to improve the pedagogical practices of teachers and to provide specific instructional support for lower performing students [12]. [13] observed that while researchers in higher education have proposed a series of changes such as alternative assessment to replace traditional assessment, these proposals have yet to be implemented in many institutions.

2.3 Case Study

According to [14, 6] we can say that students can learn more effectively when actively involved in the learning process. The case study approach is one way in which such active learning strategies can be implemented in our institutions. There are a number of definitions for the term case study. For example, [23] describe case studies as complex examples which give an insight into the context of a problem as well as illustrating the main point.

Case study brings us to an understanding of a complex issue and can extend experience or add strength to what is already known through previous studies. A good selected case study is really rich in content and can provide the learner with the potential to consolidate knowledge. Peer assessment in this case refers to when members of the learning teams have to assess the answers of the other groups.

Here we propose that students be involved in both processes: firstly, working with case-study in order to deep in the theme and secondly participating in the online evaluation process, assessing the work of other classmates.

3 PROPOSAL OF STRATEGY OF ONLINE ASSESSMENT IN CASE STUDY METHODOLOGY

3.1 Context

The strategy of online assessment in case study methodology has been developed in a subject for students in the last year (5th year), named "Enterprise Computer Tools". The study employed 27 students (22 males and 5 females). This subject covers topics as Enterprise Resource Planning, Business Process Management, Interoperability, Enterprise Application Integration and Supply Chain Management.

The aim of this course is to provide students with basic knowledge on enterprise systems and associated information system, and to analyze the impact of information technology and communication in organizations.

3.2 Technological Support

The PoliformaT platform was developed from the framework provided by the Sakai environment [24]. Sakai is a consortium of universities, colleges and commercial affiliates working in open partnership with standards, organizations and other open-source initiatives to develop "community-source enterprise-scales off ware applications to enhance collaboration, research and teaching within higher education" [25, 26]. The UPV became a Sakai partner in 2005 and adapted its components to produce the PoliformaT platform.

3.3 Methodology

The main methodology phases are:

Online explanation of the activity by the teacher and division of the students into different groups: Prior the activity begins; the teacher explains the case study and defines questions to be solved by students about the case study. Define as many questions as student groups and assign a number to each question. The questions should not be similar, but they have to approach the issue from different perspectives. This explanation is developed through poliformaT

Division of the class into groups of students: To improve debate it is necessary a minimum of 3 groups and assign a number for each group in order to be identify by the others. The amount of groups depends on the number of students in the classroom.

Distribution of the questions among the groups: the questions are assigned to each group.

Online discussion: Online interviews and discussion in forum and chats: Teacher/student liaison committees offer a good opportunity to discuss the learning experience with students. Learning to collaborate is a useful skill and the ability to produce a group output is an important part of this phase.

Online evaluation by on-line tests through poliformaT: Questionnaire (closed questions): These ask for a specific answer - a circle round an option, items to be ranked etc; they limit the responses from the students to predetermined answers. Questionnaire (open-ended questions): These allow students to fully explain their views and justify their answers. This option takes time to analyze and interpret the results. This type of questions is more individual and revealing answers from students.

4 EVALUATION BY THE STUDENTS

In order to evaluate the experience, we prepared a survey. We decided to analyze the experience according to the student opinions about:

- Usefulness
- Preparation
- Online discussion and evaluation
- A global evaluation

The survey was formed by sixteen assertions with a five-point agreement scale, with five the highest and one the lowest. The results were satisfied in each area. Regarding preparation perspective, they

highlight that was very interesting and useful to deal with the case study and they remarked the necessity of supporting by the teacher in this phase.

We remark the results in online discussion and evaluation, all the students pointed four or five and they commented the benefits of collaborating, having the opportunity of viewing the comments of their peers and accessing the information in whatever time. The global evaluation show that the experience has been of interest to the students and they are satisfied with the work carried out. About the usefulness, the students think that it is useful for learning the subject and for their professional future and not so much to get good marks.

5 CONCLUSION

The groups apply their knowledge using a case study that engages students in applying basic knowledge and concepts that were introduced in the previous themes.

The use of case studies develop key skills such as, *group working*, *individual study skills*, case studies are a good vehicle for encouraging students to carry out independent research outside of the lecture/tutorial environment; *information gathering and analysis*, many case studies require resource investigation and encourage students to utilise a number of different sources, i.e. Internet, library, laboratory results and contacting experts in industry; *time management*, longer case studies require students to really consider how best to carry out the work so that it is completed to the set deadline.

This proposal of online assessment help the students to see other points of view or possible solutions, to be critical and fair to analyze, and identify strengths and weaknesses of their own solution. The student learning outcomes are, among others: Build collaborative teaching/learning skills, Improve critical thinking and problem solving, Improve ability to identify problems and resources needed, improve teamwork, strengthen communication skills, encourage self-directed learning, the students are active participants in learning.

The results are satisfactory as much for the students as for the teachers. The real cases analyzed and the lived experiences in the preparation of the practice approach the students to know different contexts around the enterprise information systems.

ACKNOWLEDGEMENTS

The authors wish to thank the School of Computer Science at the Universitat Poliècnica de València, its effort in improving the teaching-learning process, and support innovative educational initiatives, under which jobs have been developed. The authors are members of the educational innovation team, AEGECATE (*Aprendizaje experiencial en gestión de empresas para carreras técnicas/ experiential learning in business management for technical degrees*)

REFERENCES

- [1] Bologna Process Website, <http://www.ond.vlaanderen.be/hogeronderwijs/bologna/>
- [2] Budapest-Vienna Declaration on the EHEA 2010, http://www.ond.vlaanderen.be/hogeronderwijs/bologna/2010_conference/documents
- [3] Tuning Educational Structure in Europe, <http://tuning.unideusto.org/tuningeu/>
- [4] Lasnier, F, Réussir la formation par compétences, Montréal: Guérin, 2000.
- [5] Alemany M., Cuenca L., Boza A., Ortiz A. "Education for learning". International Conference on Engineering Education, Valencia. 2003.
- [6] Bonwell, C.C. and Eison, J.A. Active Learning: Creating Excitement in the Classroom, ASHE-ERIC Higher Education Report No. 1. The George Washington University, School of Education and Human Development, Washington, DC., (1991).
- [7] Ericksen, S. C. "The Lecture." Memo to the Faculty, no. 60. Ann Arbor: Center for Research on Teaching and Learning, University of Michigan, 1978.
- [8] Gross B. MOTIVATING STUDENTS University of California, Berkeley. From Tools for Teaching, copyright 1999.

- [9] Boza A., Cuenca L. "Open and Closed Practicals for Enterprise Resource Planning (ERP) Learning". *Software Industry Oriented Education Practices and Curriculum Development: Experiences and Lessons*. Ed. IGI Global, 2011, pp 138-152.
- [10] Fook, C.Y. and Sidhu, G.K. Authentic Assessment and Pedagogical Strategies in Higher Education. *Journal of Social Sciences* 6 (2): 153-161.
- [11] Sadler, R., 2005. Interpretations of criteria-based assessment and grading in higher education. *Assess. Evaluat. Higher Educ.*, 30: 175-194.
- [12] Dunn, K.E. and S.W. Mulvenon, 2009. A critical review of research on formative assessments: The limited scientific evidence of the impact of formative assessments in education. *Pract. Assess. Res. Evaluat.*, 14: 1-11.
- [13] Mueller, J., 2005. The authentic assessment toolbox: Enhancing student learning through online faculty development. *J. Online Learn. Teach.*, 1: 1-7.
http://jolt.merlot.org/documents/vol1_no1_mueller_001.pdf
- [14] Hallas, J. (2008). Rethinking teaching and assessment strategies for flexible learning environments. In *Hello! Where are you in the landscape of educational technology? Proceedings ascilite Melbourne 2008*.
<http://www.ascilite.org.au/conferences/melbourne08/procs/hallas.pdf8>
- [15] Brennan, R. (2003). One Size doesn't fit all. *Pedagogy in the online environment* (No. 1). Leabrook: Australian National Training Authority.
- [16] Goddard, M. (2002). What do we do with these computers? Reflections on technology in the classroom. *Journal of Research on Technology in Education*, 35 (1), 19.
- [17] Young, S. S. C. (2004). In search of online pedagogical models: Investigating a paradigm change in teaching through the School for All community. *Journal of Computer Assisted Learning*, 20 133-150.
- [18] Clarke, A. (2001). *Designing computer-based learning materials*. Hampshire: Gower Publishing Limited.
- [19] Lynch, M. M. (2002). *The online educator. A guide to creating the virtual classroom*. London and New York: Routledge Falmer.
- [20] Devlin, M. (2001). *On-line assessment*. Retrieved June, 2005, from www.unisanet.unisa.edu.au/fhc/pdonline/IssuesinOnlineAssessment.doc
- [21] Ramsden, P. (2003). *Learning to teach in higher education* (2nd ed.). London and New York: Routledge Falmer.
- [22] Salmon, G. (2000). *E-moderating: The key to teaching and learning online*. London: Kogan Page.
- [23] Fry H, Ketteridge S and Marshall S (1999) *A Handbook for Teaching and Learning in Higher Education*, Kogan Page, Glasgow, pp408.
- [24] Mengod, R., 2006. PoliformaT, the Sakai-based on-line campus for UPV - history of a success. *Proceedings of the 5th Sakai Conference*, Vancouver, BC, Canada.
- [25] Félix Buendía, Alberto González-Téllez, José Vte. Benlloch-Dualde, Germán Moltó, Natividad Prieto, M. J. Castro-Bleda and Juan V. Oltra Evaluating an e-learning experience oriented towards accessible instruction. *CSEDU 2012 4th International Conference on Computer Supported Education*.
- [26] White, A., 2005. *Introducing the Sakai Community*. *Proceedings of the 4th Sakai Conference*, Austin, TX, USA.