EFFECTIVE CONTINUOUS EVALUATION METHODOLOGY USING A WIKI SYSTEM

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Abstract

The European Space for Higher Education (ESHE) involves important changes to several issues within the teaching methodology to be applied in the new degrees. Changes to the teaching methodology inevitably will imply changes in the evaluation methodology. In new evaluation systems, continuous evaluation will prevail over exclusively final evaluation. This paper describes an experience of how Information and Communication Technologies (ICT) are successfully used to implement a continuous evaluation methodology.

In this experience, the students were requested to prepare all the contents of the course collaboratively. To do so, a wiki system was set up with the structure of the course. Since all of the pages on the wiki have an associated page history, it was very easy to keep track of the contributions made by each student.

At the end of the course, a survey evaluating the proposal was conducted. Its results revealed that ICT, and specifically the wiki system, contributed positively to the motivation of the students towards the subject. These results encouraged us to keep on experimenting with the use of ICT within the new teaching methodology context.

Keywords - Wiki, continuous evaluation.

1 INTRODUCTION

The University is currently involved in a deep process of change initiated by the Bologna Declaration in 1999 towards the new European Space for Higher Education (ESHE). This process, far from being a simple restructuring of subjects, greatly affects the philosophy of higher education: the focus change from delivering information to the learning outcomes [1].

This change emphasizes the role of the teacher as manager of the learning process. Under this new paradigm it is not appropriate to use only the final assessment model, so it is necessary to find new evaluation methods. In new evaluation methods the continuous assessment should prevail over the exclusively final evaluation. One of these new methods of assessment is the portfolio. The portfolio, according to [2], is “a method of teaching, learning and assessment based on the contribution of different types of productions by the student, which are used to judge their capabilities in the context of a discipline or subject study”.

The contributions report on the process followed by the student, allowing him and others to see their efforts and achievements in relation to learning objectives and assessment criteria established previously. Therefore, the portfolio represents an appropriate evaluation method to the requirements of the Bologna process.

In this paper we present an experience with portfolio assessment, with the particularity that it has been implemented using a tool well known to students as a wiki is. A wiki is particular Wikipedia, adapted to the desired theme, which in this case is the subject content. Despite the fact that wikis had been used

in teaching as a collaborative tool for workgroups [3,4,5], in our opinion, this system may be a good platform to carry out the continuous evaluation of the activity recommended by the portfolio methodology.

After implementing the initiative, it was evaluated by students through a survey at the end of the course. Data obtained from the surveys showed us that the use of new technologies has contributed positively to the student motivation for the subject.

The remainder of the paper is organized as follows. Section 2 presents the context in which the experience was developed. In section 3 we discuss what the primary and secondary objectives of the portfolio. Section 4 shows the development experience as well as the main challenges we faced. In Section 5 we present the results of the assessment methodology. Finally, Section 6 presents some concluding remarks.

2 CONTEXT

The experience of using a wiki as a tool for the portfolio methodology was developed as part of the assessment of the subject *Spanish and World Economy*. This is a second-year core subject for the Degree in Business Administration and Management at the Polytechnic University of Valencia. The subject lasts for one semester, with 60 hours of class. This time is divided between theoretic and practice classes.

The workload assigned to the theoretical part of the course was developed using the traditional model of lectures. The practical part consisted of three different types of activities:

- Workshops, in which current issues related with the Spanish and world economy were presented and then discussed in class. Some of the topics discussed were, for instance, immigration or the economic crisis.
- Numerical problems, which were intended to study, from an analytical point of view, the theories of international trade explained in the lectures.
- Contributions to the wiki, which are the main subject of this paper and are described in detail below.

Regarding the assessment of the subject, it was performed taking into account all the aspects worked during the development of the course. To this end, three sources of evaluation were taken into account:

- Individual contributions to the wiki (30% of the final grade)
- Attendance to workshops and active participation in subsequent discussion (20% of the final grade)
- Final exam, which evaluated the acquired knowledge from two points of view: understanding of the theories and numerical problem solving (50% of final grade).

The final exam is divided into two parts: theory, which accounts for 60% of the exam mark, and practical exercises with a value of 40%. The first part is evaluated by a multiple choice test including the theoretical concepts more relevant to the subject. The exercise part was evaluated by four problems in which students must apply the theories explained in class to obtain numerical or graphical equilibriums in world trade.

It was not required to reach a minimum mark in the theoretic or problems part of the exam. However, at least 3.5 points in a 10 point scale was required to take into account the assessment of the workshop attendance and wiki contributions.

3 OBJECTIVES

The main objective of the experience described in this paper was to build a database collecting all the knowledge and the contents discussed during the development of the course. This knowledge base was developed collaboratively among all students, thereby strengthening the social dimension of the group.

By contributing to this knowledge base, students will obtain two rewards: in addition to work and learn the concepts of the subject, students develop some skills that will be essential in his future career. These skills are, for example, the ability to write well, information finding or using software tools.

Moreover, when the course is finished, a knowledge base has been built with all the topics covered in the course, so it was also an essential study material for students.

This philosophy is completely aligned with the wiki philosophy, driven by the free encyclopedia Wikipedia and adapted to many areas. The Wikipedia defines a wiki as follows:

> "A wiki is a website that allows the easy creation and editing of any number of interlinked web pages via a web browser (…). Wikis are typically powered by wiki software and are often used to create collaborative websites, to power community websites, for personal note taking, in corporate intranets, and in knowledge management systems."

To implement the wiki as a tool for the portfolio methodology, a software similar system to the one used by Wikipedia was set up a in an independent web site. This site could only be accessed by the students of the subject. As in Wikipedia, the website automatically carries a record of all edits made by users. This record is the one used to collect, in the form of portfolio, all contributions made by students.

4 DEVELOPMENT OF THE EXPERIENCE

The activity was developed in such a way that students must to contribute weekly to the wiki, for then weeks of the course. Each contribution was assessed separately and the final note of the contributions to the wiki was the average of all contributions assessment performed during the course.

4.1 Contribution classification

The lecturers prepared a scheme to collect contributions for each topic of the course. This scheme of contributions to the wiki classified the contributions into four types:

- Developing a theoretical point explained in class.
- Proposing and/or solving practical questions.
- Proposing, discussing and solving multiple-choice questions.
- Discussing articles, reports, news releases, etc.

The work done in the development of a theoretical point was, in essential, moving the notes taken during lectures to the wiki. This includes tables, graphics as well as examples. To organize such contributions, the lecturers prepared an outline of each topic with blank content for students to complete it. In addition, we appreciated the extension of the lecture information by reviewing the proposed bibliography for each topic. On average, the contributions of this type had a length between 300 and 500 words including one or two figures.

In the section on “Proposing and / or solve practical questions”, we initially prepared a list of questions from past exams (unresolved) and similar style questions proposed in the literature of the subject. Contributions in this section could either involve the resolution of some of the questions proposed or the proposal by the student of a similar question together with its resolution.

Under the heading of “Proposing, discussing and solving multiple-choice questions” prepare a set of test questions similar in style to the exam (multiple choice questions with four options and only one correct). As in the previous type, contributions include solving the proposed questions and proposing new questions and solving them. To fully appreciate the contribution, the resolution should contain, in addition to the correct answer, the justification for why the selected option is correct and why the other options were not. The questions were grouped into sets of 4 or 5 in order to make the students have a similar workload to the workload of other types of contributions.

Finally, the category related to “Discussing articles, reports, news releases, etc.” collected all the contributions could be particularly interesting for their relationship with the subject, but did not fit into none of the above categories. This category included press reports and internet videos. Some of them were suggested by lecturers, but many others were proposed by the students.

4.2 Contribution assessment

The following evaluation criteria were taken into account in the weekly assessment of the contributions:

- Content, including both text and graphics.
- References.
- Originality of the contribution.
- Use of wiki features (hypertext features and format)

The assessment of each weekly contribution was made on a scale of 0 to 10. If a contribution was not graded with the highest mark, some comments were left on the discussion page of the contribution. In these comments, the lecturers justified the mark and pointed some issues to be improved in order to get a higher mark. The discussion page is a secondary page associated with each content page. This discussion page is included in any standard wiki software. It is typically used, as we did on the subject, to discuss the associated content.

Although the maximum mark was initially 10 points per week, it could be exceeded. This was done to assess the work done by the student when modifying previous contributions following the comments written in the discussion page. The maximum score for a week taking into account these changes was set at 20 points. A mark of 20 points could be achieved also in the case in which it was a great contribution that far exceeds usual workload for a contribution.

4.3 Reservation procedure

Since one of the objectives was to obtain a coherent and complete wiki content including the whole subject, we did not allowed the students to repeat the topic of the contribution. We wanted to avoid, for example, that two students solve the same proposed problem twice.

One of the main problems we found when implementing the wiki was how to assign students to the proposed contributions. This situation was caused because there was a considerable competition among students for making contributions which were supposed to represent less workload.

The system implemented during the course was the topic reservation. This system worked as follows:

when a student wanted to work on a topic, he or she entered the text “Reserved” as the content of the contribution. This reservation lasted for 24 hours. After this time, if the first student did not work on the reserved topic, another student could reserve the topic again. The wiki system we used facilitated this work, since it keeps track of the history of each page. For this reason, it was easy to see who and when a topic was reserved.

5 STUDENTS FEEDDBACK

5.1 Survey

In order to obtain feedback on the experience of using a wiki as an implementation of a portfolio, we prepared a short survey for students to evaluate the experience.

The questions were prepared for the students to assess several issues of the wiki usage. For instance: the ease of use, the amount workload, and the usefulness of their experience with the wiki. Questions included in the survey are shown in Table 1. The survey asked students to rate from 1 to 5 each statement shown. The score 5 means that the student is in full agreement with the statement, while the score 1 means that he/she is in total disagreement.

Question	**Average score**
1- I found the wiki intuitive and easy to use	4.38
2- The workload seems adequate	3.85
3- I think that the contribution to the wiki helps me to prepare the subject	4.54
4- Having access to the work of other students help me to prepare the subject	4.54
5- The reservation procedure is appropriate	4.08
6- I think that the mark I obtained in the wiki is what I deserve	4.38
7- A wiki system should be implemented for the next year	4.77
8- A wiki system should be implemented in other subjects	4.08
9- Overall, I think that the portfolio using a wiki system is a positive experience	4.62

Table 1. Survey and results.

5.2 Results analysis

The analysis of the results, shown in Table 1 shows a high degree of satisfaction among the students with the use of the wiki.

One of the biggest concerns when planning the wiki was how to obtain a user-friendly environment, so that the technology used did not become an difficulty. From the survey results we can conclude that this concern is not a negative point, since 93% of students assessed with a score of 4 or 5 this question.

It is also remarkable the perceived usefulness of the wiki as a way to prepare the subject. This

includes both one's work done and the use of other students work. Questions 3 and 4, which were designed to evaluate this aspect, obtained an overall rating of 4.54 points.

The score for the second question (with 3.85 points) can be found as a less positive remark, since we think that it cannot be considered a negative one. This question was targeted to assess the workload involved in carrying out the task. Some students informally told us that they think the time spent working on the wiki to be excessive. The score result in this question might be related to question 8, in which students are not very enthusiastic about extending the use of the wiki to other subjects. After discussing this with some students, they stated that more subjects implementing a wiki could involve an excessive.

Overall, the results of the evaluation of the wiki as a learning tool showed the satisfaction of the students with the methodology. From the lecturers' point of view, we think that the wiki has contributed positively to learning and motivation.

6 CONCLUSIONS

The portfolio supported by a wiki system has proved to be an effective way of implementing a continuous assessment methodology. The wiki system had two main objectives:

- Building a knowledge base with the entire contents of the subject that could be used as study material, and
- Having individual monitoring of each student's contributions, as in a portfolio methodology.

Moreover, we have also noticed that the use of Information and Communication Technologies, whose use is not new for students, has been a key motivating factor, given the degree of satisfaction with which they assessed the experience.

We conclude, therefore, that we had a positive experience in terms of achieving the learning objectives. They are also in line with the new proposals for evaluation that the convergence into the new European Space for Higher Education requires.

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