

# Students' perceptions about assessment using an e-learning platform

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**Abstract**— ISCAP's Information Systems Department is composed of about twenty teachers who have, for several years, been using an e-learning environment (Moodle) combined with traditional assessment. A new e-assessment strategy was implemented recently in order to evaluate a practical topic, the use of spreadsheets to solve management problems. This topic is common to several courses of different undergraduate degree programs. Being e-assessment an outstanding task regarding theoretical topics, it becomes even more challenging when the topics under evaluation are practical. In order to understand the implications of this new type of assessment from the viewpoint of the students, questionnaires and interviews were undertaken. In this paper the analysis of the questionnaires are presented and discussed.

**Keywords**—LMS; e-assessment; Higher education; student's perception; Moodle

## I. INTRODUCTION

The Information Systems and Technologies department of the Business School of the Polytechnic of Porto is transversal to all degree programs, supporting the Information and Communication Technologies (ICT) teachings in all of them. The use of spreadsheets to solve management problems is one of the topics included in the curricula of six degree program courses taught to a sum of 1196 students by around 20 teachers.

Since 1999, accordingly to the Bologna Agreement, students have been continuously assessed. One of the components of the assessment consisted of accomplishing several tasks using spreadsheet tools. This procedure reveals a tough workload for teachers since a computer per student is needed; several shifts are necessary which implies as many different exams as the number of shifts are required. Consequently, it is difficult to ensure that all exams have the same degree of difficulty, and assess the same. The use of Moodle to solve this issue arises naturally, since it is already used to assess theoretical topics through mini tests of multiple-choice questions (MCQ). However, the use of spreadsheets to solve management problems' topic is of a practical nature, asking for a different approach [1]. An e-

assessment strategy was implemented, comprising the following components:

- **MCQ summative e-assessment** quizzes at three different moments throughout the semester, implemented with Moodle quizzes tool, to assess the pre-defined learning outcomes;
- A **project** to give the students the opportunity to solve a practical management problem with a spreadsheet tool<sup>1</sup>;
- **Weekly homework assignments** to motivate students to having a regular work schedule.

The main aim of this paper is to ascertain the students' perceptions about the use of MCQ e-assessment implemented with Moodle quizzes tool.

Afterwards the presentation of the problem, a revision of the state of the art regarding the perception of the students in similar cases is done, followed by the quantitative and qualitative study analysis and the respective conclusion.

## II. E- ASSESSMENT USING LEARNING MANAGEMENT SYSTEMS

As a consequence of the adoption of ICT in education and learning, e-assessment is being increasingly adopted in Higher Education Institutions, and has been gaining attention from researchers worldwide. "Online assessment, or e-assessment, is able to improve the procedures of assessment since it has the advantages of time saving, immediate feedback, better use of resources, assessment records saving and more convenience." [2, pp. 173]

In the literature several research examples of e-assessment through LMS can be found [3], [4].

According to Folden [5] there are several LMS stakeholders, namely: students, faculty, administrators and IT staff.

The students take an important twofold role in the whole process. On one hand they are one of the stakeholders of any LMS. Moreover they are the main actors of the e-assessment process. Consequently their opinion is very important.

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<sup>1</sup> Microsoft Excel 2010™

### Students' opinion about the multiple-choice questions summative e-assessment

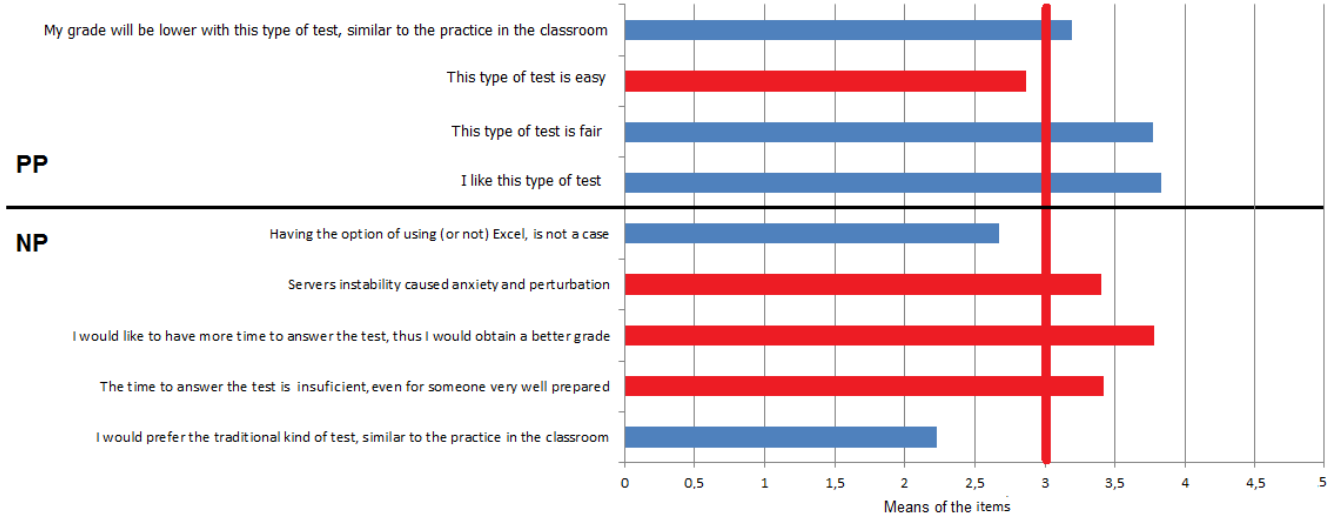


Figure 1. Students' opinion about the multiple-choice question summative e-assessment

After implementing an e-assessment, Eccles, Haigh, Richards, Mei, & Choo [6] inquired about the students and their experience. It was concluded that “the students were able to provide very insightful feedback on the testing environment and it is suggested that future studies continue to include the student viewpoint.” [6, pp. 7] However, Sorenson stated that “much of the literature of e-learning is merely a description of what the teacher could do or have done online, while the student opinion of those activities goes largely undocumented. Some authors have nevertheless considered student feedback on e-assessment” [2, pp. 174].

Sorenson introduced e-assessment using Moodle Quizzes, including MCQ [2]. Sorenson students' “perceptions were investigated through an online questionnaire and the students were found to be in favor of e-assessment” wishing to have “it implemented in other departmental modules. It was found that stronger students were more in favor of e-learning than weaker students” [2, pp. 184].

More studies present results concerning the students' perception on e-assessment using MCQ namely Hogdson & Pang [7], Jawaidd, Moosa, Jaleel & Ashraf [8], and Walker, Topping & Rodrigues [9]. Those studies revealed that the students have a positive opinion about e-assessment in general and about MCQ in particular.

### III. RESEARCH METHODOLOGY

To understand the implications of summative e-assessment with MCQ supported by Moodle quizzes, from the point of view of the students, a study was conducted. A pilot group composed of 84 students of the Marketing degree was under this e-assessment project. The researchers aimed to understand how the students felt with this e-assessment, considering several dimensions such as: available time, test difficulty, type of test and anxiety feelings, among others.

#### A. Data collection

In order to compare the opinion of the students about this type of assessment a questionnaire was answered by the students, with the students being aware of their grades. The questionnaire has about eight closed and open-ended questions distributed by three sections: Students' characterization, Opinion about the test (including 5-points Likert scale items), and Final comments.

#### B. Population and sample

This study population consisted of 84 students among the IT course of the Marketing degree from IPP/ISCAP. 52 students answered the questionnaire. The sample consisted of 28 female students (54,0%) and 24 male students (46,0%). As expected, these were first year students, most of them being 18 or 19 years old. Six of the inquired students were repeating the course. These course also runs in evening schedule. However, this sample consists of ordinary students enrolled in daytime courses. This explains why only 8% of the inquired students are working students.

### IV. DATA ANALYSIS AND RESULTS

Fig. 1 summarizes the answers to the questionnaire. The first four items have a positive polarity. Thus, when the students have positive perceptions about the statement of the item, the mean is expected to be greater than three. The other items have a negative polarity, meaning that a mean below three is expected when the students have a negative perception about the statement. Therefore, the blue bars display positive perceptions, while red bars display negative perceptions.

Generally, it can be observed that the students have positive perceptions about the MCQ test, since they agreed with the statements: “My grade will be lower with this type of test, similar to the practice in the classroom”, “This type

of test is fair”, and “I like this type of test”, and since they disagreed with the statements “Having the option of using (or not) Excel, is not a case” and “I would prefer the traditional type of test, similar to the practice in the classroom” (blue bars).

This opinion was reinforced with the answers to the open-ended questions. From the 15 students’ answers to those open-ended questions, 7 students say that they like/agree with this type of test (S1, S2, S5, S6, S12, S13, S14); 1 student (S5) refers that (s)he liked the way the test was planned; 1 student (S4) thinks that this type of assessment is better; 1 student (S11) hopes that future tests will have the same format.

The negative perspectives of the students about this type of test are related to two main aspects: time to perform the test and servers’ instability.

Concerning servers’ instability, this was a transient technical problem to be solved by the technical staff. This problem was solved promptly, and did not occur in forthcoming tests. None of the students mention this problem in open-ended questions.

About the time to perform the test, the students agreed with the statements: “I would like to have more time to answer the test, thus I would obtain a better grade” and “The time to answer the test is insufficient, even for someone very well prepared”. This issue is referred by 4 students (S3, S5, S10, S12) in the answers to the open-ended question. One student (S15) goes even further, saying that the different choices are too long, thus too much time is necessary to process so much information and it is not possible to reflect about the correct answer. When asked about the necessary time for answering the test, a mean of 58 minutes was obtained from the students’ answers, against the given forty minutes. The mean of 2.9 in the statement, “This type of test is easy”, is meaningless once 52% of the students score the item with 3 points. In the open-ended question, 2 students (S4, S14) refer to the fact that having several hypotheses facilitates the answers to the quiz and thus is better for the students.

In the answers to the open-ended question, only 1 student states that (s)he would prefer the traditional type of test, and another student reveals (s)he experienced more anxiety and nervousness than with traditional tests.

## V. CONCLUSION

The students’ perceptions about MCQ summative assessment with Moodle Quizzes, were analyzed. From the analysis within this article it can be concluded that students have positive perceptions about this type of test. Technical issues identified by the students about the servers’ instability were solved as soon as technical and material resources became available. Students claimed that there was not enough time to perform the test. While being mindful of how

students always like to have more time it was decided that the students will be offered more time in forthcoming e-assessments. This issue might be related and raised by the experienced technical problems, thus this is no longer an issue. Despite the impact a new type of test has on levels of anxiety, higher levels of anxiety and nervousness were not observed compared to traditional tests. The students were not in agreement regarding the difficulty of this type of test, pointing to the conclusion that there are no differences in the difficulty of the two types of tests.

Throughout the study other questions start designing in our minds, such as: Does this type of assessment evaluate the same learning outcomes? What about competencies and skills? Does changing the assessment type deliver the same results? This was one of the main points that arise from the interviews. All the students agreed with the importance of the group project to consolidate the learning outcomes. These issues will be the subject of future research.

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