jamk.fi

PLEASE NOTE! THIS IS PARALLEL PUBLISHED VERSION /
SELF-ARCHIVED VERSION OF THE OF THE ORIGINAL ARTICLE

This is an electronic reprint of the original article.
This version *may* differ from the original in pagination and typographic detail.

Please cite the original version:

Camacho-Miñano, M., Del Campo, C., Pascual Ezama, D., Rivero, C., Urquia Grande, E. & Akpinar, M.
(2013). Is the EHEA Evaluation criteria optimum? : empirical evidence from Finland and Spain. In
Interdisciplinary studies journal. Learning by developing - new ways to learn. Proceedings of the 2012
conference on creativity in higher education, 101 - 117.

URL: http://lbdconference.laurea.fi/pdf/proceedings_2013.pdf

Is the EHEA Evaluation criteria optimum?
Empirical evidence from Finland and Spain

María-del-Mar Camacho-Miñano, Cristina del Campo, David Pascual Ezama, Carlos Rivero, Elena Urquia Grande & Murat Akpinar

Abstract

The Universidad Complutense de Madrid (Spain) and the Jyväskylä University of Applied Sciences (Finland) have experience on applying new teaching methodologies so that students can acquire a significant and deep learning through creative teaching. A new characteristic of this active teaching methodology is the student cumulative activities assessment. The aim of this paper is to show if there is any difference between the new assessment methodology compared to the traditional one and to know what factors could affect to students' outcomes. A survey and grades of first year students in the Statistics and Accounting subjects in the Business Administration Bachelor Degree taught in English during the academic year 2010-2011 are used applying multivariate statistical techniques. The most interesting results are that coursework is higher than the examinations ones, except for male students enrolled in statistics and that university's assessment culture, gender and course have impact on the academic outcomes.

Keywords

Active learning, assessment, coursework

Introduction

In the twenty-first century the university environment has been constantly changing in response to globalisation, a clear internationalization trend and changes in society's expectations, resulting in the need of to redefine university strategies. Access and participation rates have raised significantly, graduates employability has become a crucial concern, and internationalization and life-long learning have become essential. In Europe, with the European Higher Education Area (EHEA) there has been a shift towards a student-centered learning approach. This has led to an improvement in education and presented a cultural challenge shifting from traditional teaching methodologies to active ones. However, these changes are being difficult to implement as new creative teaching methodologies require higher human resource development, more research in education, new classroom infrastructures, new quality assessment systems and smaller student-teacher ratios. All of these changes mean more investment in higher education.

Taking into account all of these changes, the teaching experiences of some lecturers evidence the concern about one basic issue in the process of students' learning: the assessment of that learning. Currently universities publish subjects' syllabus or contents of the subjects that are adapted to active learning methodologies and schedules adapted to the European Credit Transfer System (ECTS) in order for all universities belonging to the EHEA to have comprehensive and homogeneous degrees. However, in most of the cases, assessment homogenization has not been achieved yet. Assessment has been defined as 'the process of evidencing and evaluating the extent to which a candidate has met or made progress towards the assessment criteria' (Cox, Schleyer, Johnson, Eaton & Reynolds, 2008, p. 34). As Hand, Sanderson & O'Neil (1996, p. 105) explains "assessment is seen as a cost driver" due to the implication of academic staff in this process. At the same time, assessment is valued as a major influence upon the quality of the learning process (Gibbs, 1992). Therefore, assessment is a strategic matter for universities today and should serve multiple purposes such as providing information about student learning, student progress, teaching quality, and program and institutional accountability (Fletcher, Meyer, Anderson, Johnston & Rees, 2012).

With the EHEA environment, assessment criteria have shifted to a more holistic system embodying both the student´s daily effort and the final examination. Therefore, following active methodologies, the final grade of a subject is the weighted mean between the coursework and the final examination marks. Formal examination refers to closed-book time-constrained written essay, test or exercises, very similar to the traditional format of assessment. Coursework refers to alternative assessment of different activities the student must perform including work in group essays, oral presentations, simulations, etc. The logical hypothesis is that students with higher grades in coursework will have the highest grades in the final exams. This is because they are studying in a continuous way, they are engaged in their learning and they have done much more practice, enhancing the real understanding of the subject. However, empirical studies show that coursework grades are higher than the final exam (see, for example, Yorke, Cooper & Fox, 1996; Tian, 2007).

Two universities from Spain and Finland, the Universidad Complutense de Madrid (UCM) and the Jyväskylä University of Applied Science (JAMK), respectively, have experience on cooperation among teachers of Statistics and Accounting in exchanging experiences on applying new teaching methodologies. Moreover, Finland is one of the outstanding countries in European education (Grek, 2009) and an example to follow for other continental countries such as Spain, a country with a poor performance in the PISA reports (Calo-Blanco & Villar, 2010).

Bearing all these things in mind, the objective of this paper is twofold: first, to analyse the comparison of coursework and final examination results in two subjects of the Business and Administration Degree between Finland and Spain in order to test if there are differences; second, whether there are different factors (such as gender, age, subject, students' motivation and preferences) that have an impact on the assessment among students from the two countries.

The contributions of this paper are two: on one hand that the coursework mark is higher than final examination but not for all the students and on the other, that there are differences in Finland and Spain, depending on the assessment culture, gender and course. Moreover, this study highlights important implications for managers, teachers and students on assessment criteria.

The paper is organized as follows: firstly a literature review is offered on the role of assessment in the learning process, focusing more precisely on the coursework and examination discussion. Secondly, we describe the academic context in which this study took place, the sample selection and the methodology used. Finally, we offer the results and discussion about the hypothesis proposed, followed by the conclusions and pedagogical implications.

Assessment in higher education

The role of assessment in the learning process has been a topic of discussion in the educational

community around the world, during the last decade (Yorke, Bridges & Woolf, 2000; Gibbs & Simpson, 2004-05; James & Fleming, 2004; Baeten, Dochi & Struyven, 2008; Garside, Nhemachena, Williams & Topping, 2009; Fletcher et al, 2012). However, only little assessment research has been done and published in non-Anglo Saxon education environmental (Aliaga & Orellana, 1999).

Nowadays, the active learning methodology is the one applied in the majority of EU Higher Education Institutions. However, this methodology should always go together with a modern and dynamic assessment system that reinforces the teacher's methodology and motivates the student in the learning process (Hand et al., 1996). The traditional learning process had a teacher-centered focus where the lectures were given without any student participation, and the final exam was exclusively about the contents of the lectures and accounted for 100% of the final grade.

In parallel with the teaching methodologies, there are new teaching tools used as an aid in higher education such as simulations, problem-based learning, project-based learning, multimedia materials, etc. Consequently, all the elements of the learning process, syllabus, methodology, resources and also assessment criteria may be readjusted. In fact, the EHEA has integrated some of these aspects of the higher education with the implementation of the European Credit Transfer System (ECTS) but not others like grading systems, and this is a requirement in order to obtain real homogeneous systems (Karran, 2005; Yorke, 2010, 2011).

However, there are some problems related to assessment criteria in higher education. Firstly, assessment should not be a separate activity at the end of the course, but it has to be integrated in learning process (Tynjälä, 1998 Segers, Dochy & Cascallar, 2003). But it is not easy to find the way for the right type of assessment to be implemented. For example, there is evidence showing that some students who have knowledge cannot use it to solve complex problems of daily working life (Tynjälä, 1998; Dochy, Segers, Van den Bossche, & Struyven, 2005). Traditionally only the final exam had been used as a final grade focusing mainly on content knowledge. However, there is a general recognition of the negative or limiting impact of exams on the students' learning process (Muldoon, 2012). Currently, final grade is a weighted mean between coursework and final exam mark, and the skills developed by each subject are essential. The impact of this change on the students' academic outcomes is our concrete concern and that is our research focus. A majority of authors confirm coursework grades are higher than the final exam (Yorke et al., 1996; Dalziel, 1998; Bridges, Cooper, Evanson, Haines, Jenkins, Scurry, Woolf & Yorke, 2002; Yorke et al. 2000; Simonite, 2003; James & Fleming, 2005; Gibbs & Simpson, 2004-05, Murdan, 2005; Downs, 2006; Tian, 2007), but it is observed that it depends on the subject whether the difference between coursework and final exams is higher or lower. In quantitative subjects the coursework marks are significantly higher than final exam ones, whereas in qualitative subjects the difference between coursework and final exam is lower (Bridges et al., 2002; Simonite, 2003; Murdan, 2005). Other authors defend the belief that the "deep learning" approach is acquired with coursework evaluation whereas the "surface learning" approach is acquired with only final exams (Tian, 2007). In general, there are some motives to justify the differences between coursework and examination, but the results are not conclusive (Payne & Brown, 2011). With respect to the results of the assessment, there is empirical evidence that different types of assessment have an impact on students' learning and academic outcomes (Tynjälä, 1998; Gibbs & Simpson, 2004-05).

In previous studies have been found that students preferred permanent evaluation to participation in exams (Furnham et al., 2011) but that they were rather neutral towards new modes of assessment. On one hand, there are differences in assessment culture (Baeten et al., 2008) that should be researched. Another problem is that there are a variety of alternative ways of assessments: portfolios, self-evaluation, peers-evaluation, etc. (Sanders, 2010), but it is not sure whether all of them work to measure learning in the same way. Besides, the introduction of assessment options benefits an enhanced student-centered approach (Lai, 2010) although not all the studies show benefits

empirically (Garside et al., 2009). In fact, it has a negative starting point: it is a very time-consuming activity for teachers (Craddock & Mathias, 2009).

Finally, there are studies that show evidence of differences in students' preferences according to age and gender (Kniveton, 1996). Many studies show that half of students' grade measurement is continuous assessment. It is essential to highlight that assessment has a very important impact on students' behaviour and, consequently, on learning outcomes (Smith, 2011). For example, Michael (1991) argues that assessment is the only powerful variable available to the teacher to maintain class attendance and study. There is also empirical evidence that when students really know the assessment criteria, they perform better (Payne & Brown, 2011). This can be also be due to the students' perception that doing well is visible in the short term while learning well is only visible in the long term (Smith, 2011).

Research questions and hypotheses

Based on the previous section, the research presented here aims to provide answers to the following questions:

Research Question 1 (RQ1): Is there any difference between coursework and examination marks between Spain and Finland?

Hypothesis 1 (H1): Coursework marks are higher than examination marks both in Spain and Finland.

Research Question 2 (RQ2): What factors (e.g. gender, age, subject, students' motivation and preferences) impact on the Spanish and Finish students' assessment?

Hypothesis 2 (H2): The same factors have an impact on the assessment of the Spanish and Finnish students.

Sample data and research methodology

Sample data

The participants were 117 freshmen enrolled on the Statistics and Financial Accounting subjects in the Business Administration undergraduate degree, taught in English. 61 students were enrolled at the Universidad Complutense de Madrid (Madrid, Spain) and 56 students at the JAMK University of Applied Science (Jyvaskyla, Finland) in the academic year 2010-2011. 46% of the respondents were male and 40% female with distribution by university as it appears in Table 1.

Table 1:   Gender distribution of respondents (%)

	UCM	JAMK
Male	41	52
Female	43	38
No answer	16	11

The sample is almost homogeneous because most of the questions on the survey give similar values, but there is a great difference in their working status. While the majority of students in JAMK are working (77%), in UCM it is the other way round (33%) as Table 2 shows.

Table 2:   Working distribution of respondents (%)

	UCM	JAMK
Not working	48	13
Working	33	77
No answer	20	11

Methodology

The research variable analyzed is the final grade obtained by the already mentioned 117 freshmen enrolled on the Statistics and/or Financial Accounting subjects in the Business Administration Degree in the academic year 2010-2011. Grades range from 0 to 10, where 0 means the worst possible result and 10 the best one. The grades are divided into two intervals: grades in [0, 5) mean failure and grades in [5, 10] mean success, improving as they approach 10. With the Bologna methodology the final exam is not the only component of the final grade. In fact the final exam (FE), invigilated closed-book time-constrained examination, has only a weight of 0.6 or 0.7 depending on the university (UCM or JAMK, respectively). The other part of the final grade, called coursework (CW), is composed of active participation, assignments (exercises, cases, real-world problems, etc.) and interim class tests (Heywood, 2000). Also the students have two opportunities in the year to sit for the final exam and pass the subject, while the coursework component is obtained during the lecturing period.

The students were asked to fill in a questionnaire of 20 items divided in three sections: demographic data (age, gender, nationality and working status), background data (university access exam grade, degree position in university application, previous knowledge of subjects or math score) and learning strategies (preferred ways of study, preferred type of evaluation, team working preferences).

111 students participated in the survey. Respondent rates are different depending on the question because not all of the students answered all the questions, but respondent rate is always bigger in JAMK. Those missing data were not considered and the analyses were run on existing data.

Results and findings

In order to check the first hypothesis, as it can be seen in the box plot (Figure 1), for a majority of the students (58%) the coursework mark (CW) is bigger than the Final exam mark (FE), although the difference (Diff = CW − FE) is bigger for JAMK students (mean and median bigger than cero) with smaller dispersion. Indeed, a variance analysis confirmed that those differences on the Diff variable are statistically significant.

Figure 1:   Diff variable box plots
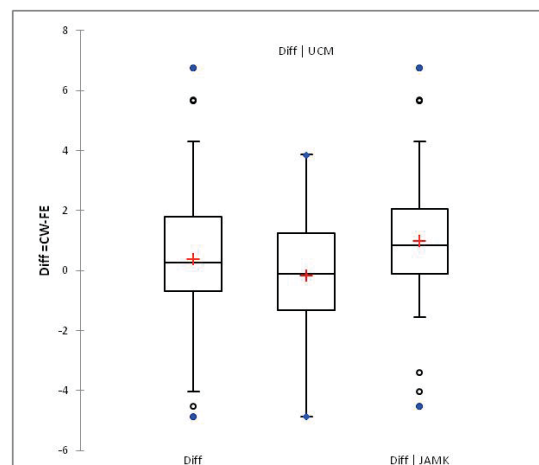
The three distributions are quite symmetrical as the mean and the median are very similar with also the whiskers of similar length. The distribution for JAMK is a little right skewed, as can be seen from the length of the right whisker and from the fact that the mean is bigger than the median.

It can be also seen in Figure 2 that a majority of points are below the diagonal (CW = FE), meaning the coursework mark (CW) is higher than the Final exam mark (FE). In fact, 58% of the students have higher CW than FE, but percentages are quite different depending on the county: while in Spain only 47% students have higher CW than FE, in Finland the percentage increases to 74%.

Figure 2:   Coursework mark against final examination mark scatterplot
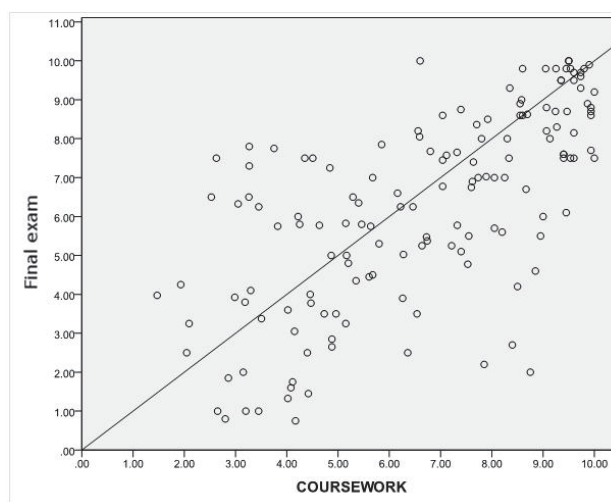
Some descriptive statistics of the difference variable Diff = CW – FE are on Table 3.

Table 3:   Descriptive statistics for Diff = CW - FE

		Statistic	Tip. Error
CW-FE	Mean	0,4342	0,16279
	95% Confidence Interval for the mean	0,1125	
		0,756	
	5% trimmed mean	0,4376	
	Median	0,42	
	Variance	3,896	
	Std. Dev.	1,97373	
	Minimum	-4,88	
	Maximum	6,75	
	Range	11,63	
	Interquartile Range	2,38	
	Skewness	-0,02	0,2
	Kurtosis	0,851	0,397

Therefore CW – FE has a mean of 0.4342 with a 95% confidence interval of (0.1125, 0.7560), so in average variable Diff is significantly positive. What is more, the coursework mark (CW) is higher than the final examination (FE) mark between 0.1125 and 0.7560 points. But there is a great difference in the values of the difference regarding the universities, as in both the coursework and the final exam marks the values in JAMK are much bigger than in UCM, as it can be seen in Figures 3.a and 3.b.

Figure 3a: Coursework box plots by university
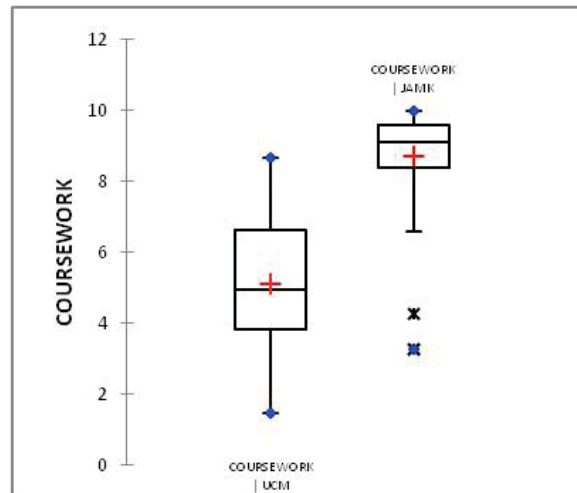
Figure 3b: Final exam box plots by university
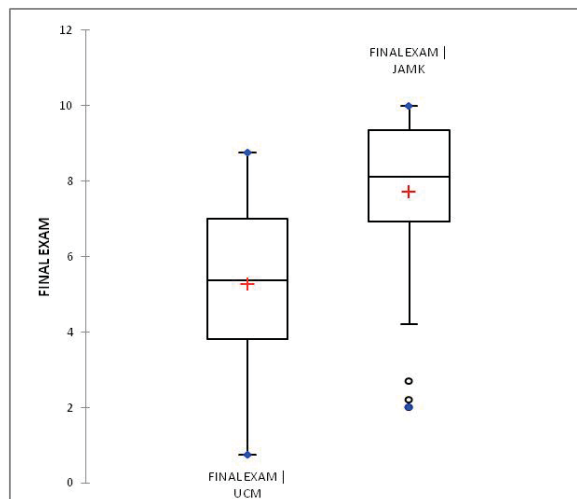
If the subjects (Accounting and Statistics) are concerned, Statistics have, in average, higher values in both the coursework and final exam than in Accounting (mean and median are higher), but the difference is similar (see Figures 4.a, 4.b and 4.c.).

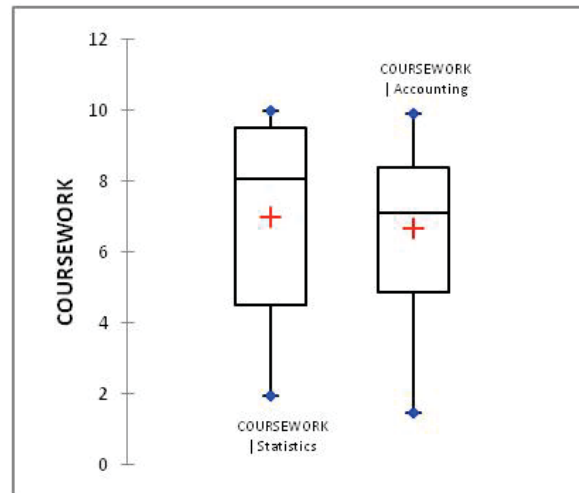**Figure 4a:**   Coursework box plots by subject

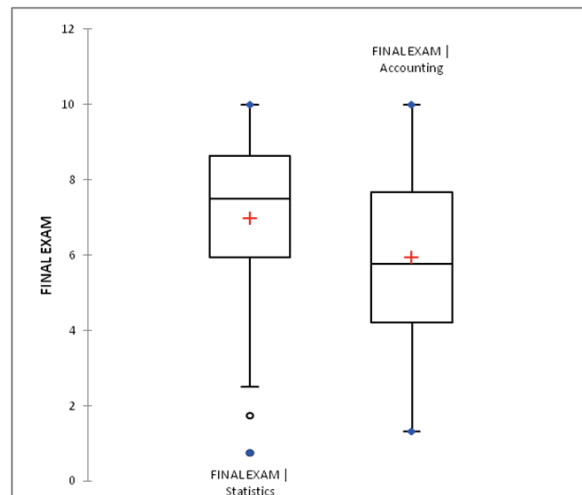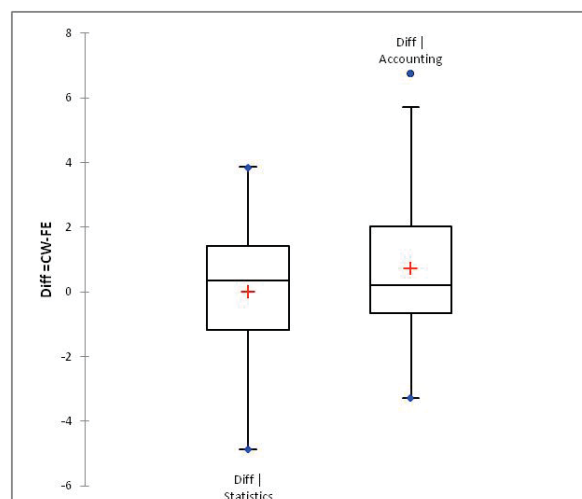**Figure 4b:**   Final exam box plots by subject

**Figure 4c:**   Diff variable box plots by subject

In order to obtain more objective and significative behaviour patterns that consider every factor it is necessary to use multidimensional statistical methods and the best option is to proceed with a cluster analysis. The main objective of cluster analysis (Everit 1993) is to classify the different elements in a sample into groups (called clusters), so that each cluster's elements are as similar as possible between them but very different to other cluster's elements (homogeneity inside clusters and heterogeneity among them).

Using Ward's method with Euclidean distance, on Coursework and final exam marks, the following dendogram (see Figure 5) is obtained, where it can be clearly seen that four is the adequate number of clusters. Therefore the k-means clustering method is used to determine the four clusters.

Figure 5: Dendogram
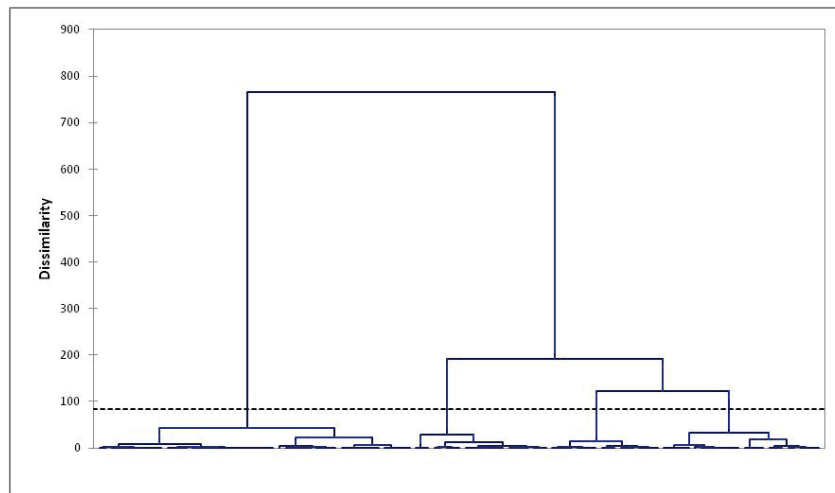
In Table 4 it can be seen the number of students belonging to each cluster after k-means clustering was applied. There exists a bigger cluster (C4) including 42 students, one cluster not so large (C1 with 31 students) and two smaller clusters (C2 and C3) with just 24 and 20 students.

Table 4: Student distribution in clusters

Class	1	2	3	4
Objects	31	24	20	42
Sum of weights	31	24	20	42
Within-class variance	3,091	2,896	1,758	1,403
Minimum distance to centroid	0,24	0,566	0,733	0,064
Average distance to centroid	1,506	1,551	1,243	1,067
Maximum distance to centroid	3,891	2,685	1,824	2,791

Table 5 has the values for each cluster's final centre, allowing us to establish the four patterns or typologies for the students. Those values can be more easily seen in Figure 6.

Table 5:   Final cluster centroids

Class	Coursework	Final Exam	Sum of weights	Within-class variance
1	7,63	5,727	31	3,091
2	4,025	3,151	24	2,896
3	4,169	6,529	20	1,758
4	9,128	8,818	42	1,403

Figure 6:   Cluster's final centre values
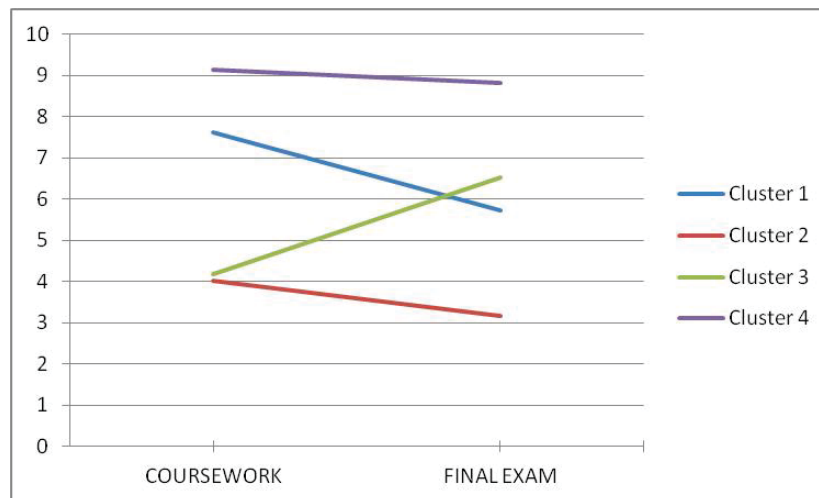
It can be seen (Figure 7a, 7b, 7c and 7d) that the clusters are very different from each other. Indeed, for cluster 1 (C1) and cluster 2 (C2) coursework mark is bigger than final exam mark, but that difference is higher in C1 so they all pass the subject, while in C2 they do not pass the subject. However, the relation is the other way around for elements in cluster 3 (C3), so the difference is negative (see Figure 7c) but they mostly pass the subject. And finally, both coursework mark and final exam mark are very similar and high in the case of cluster 4 (C4), therefore the difference is around zero, and final grade is the best.
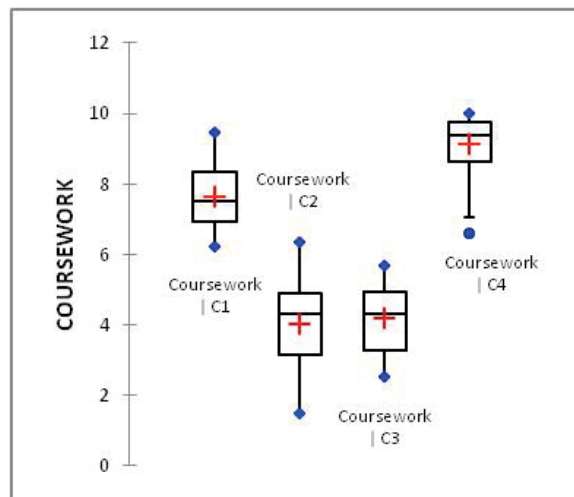
Figure 7a: Coursework box plots by cluster

Figure 7b: Final exam box plots by cluster
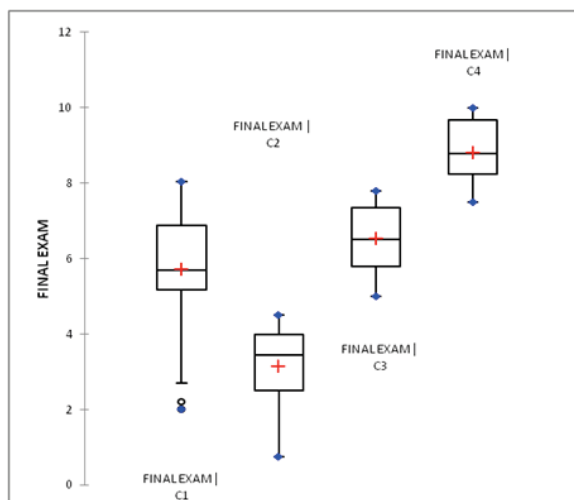

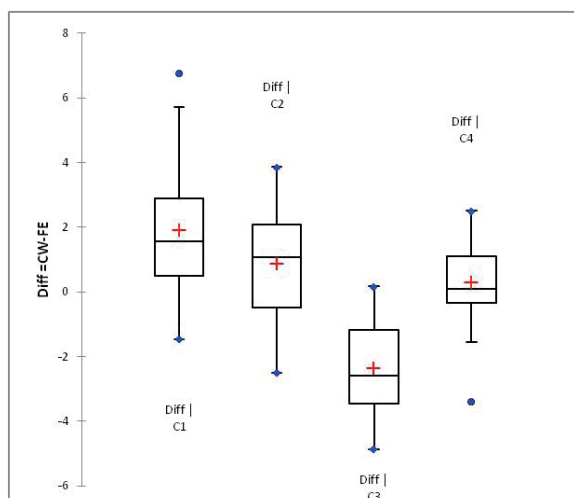**Figure 7c:**   Diff variable box plots by course
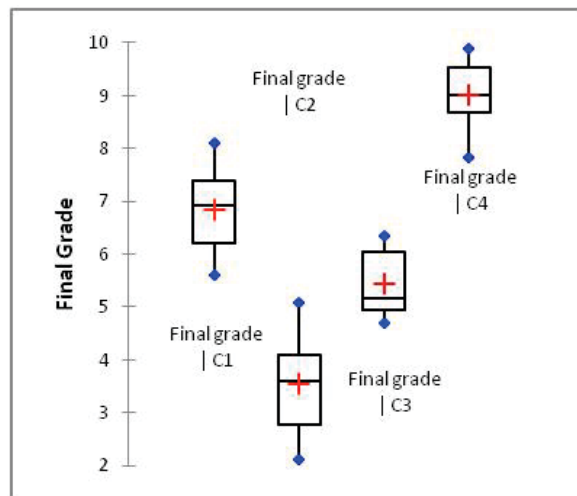
Figure 7d: Final grade box plots by course

Figure 8a and 8b show the gender and subject distribution by cluster. C3 is mainly male, while gender distribution is more similar, despite the differences, in the other three clusters (C1, C2 and C4). C1 and C2 are mainly Accounting, while C3 and C4 are mostly Statistics.

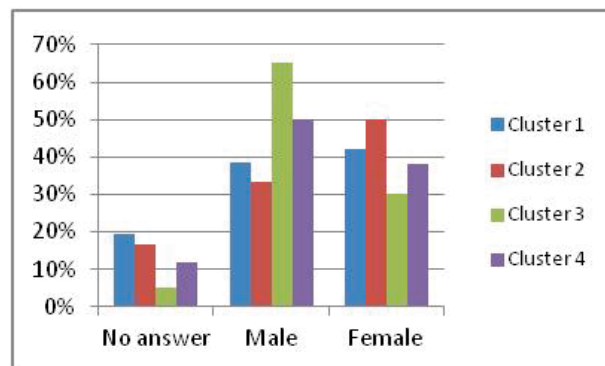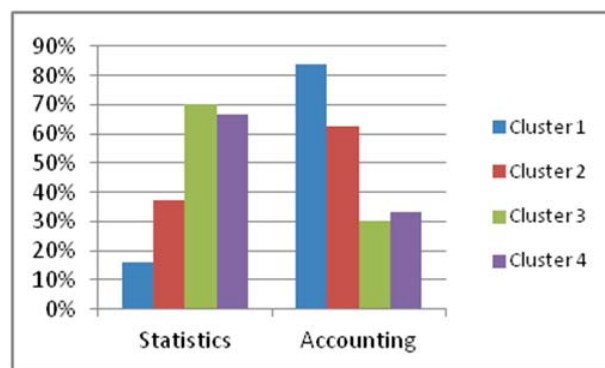**Figure 8a:** Gender distribution (%) by cluster

Figure 8b: Subject distribution (%) by cluster

In order to answer the second research question, regression and variance analyses were carried out on the grades and the answers to the questionnaire. The coursework (CW) and the final exams marks (FE), as well as the difference between them (Diff) were used as dependent variables whereas the other 16, three quantitative and twelve qualitative factors, coming from the questionnaire (final grade, number of calls, preferred evaluation type, University Access examination, Maths grade, gender, motive for electing the degree, degree position in the university application, type of lecturer, study method, learning style and team work preferences) were used as explanatory variables. All of them there were found not to have any type of influence on the coursework and final exam differences between the analyzed groups from Finland and Spain.

Discussion and conclusion

The aim of this paper was twofold: first, to analyse the comparison of coursework and final examination between Finland and Spain in order to test if there are differences in assessment methodologies; second, whether there are different factors (such as gender, age, subject, students' motivation and preferences) that have an impact on the assessment between students from the two countries. Our findings question the concept of assessment validity (Yorke et al., 2000) and the relationship between assessment and learning (Furnham et al., 2011). Firstly, coursework marks have resulted higher than the examination ones (Murdan, 2005), except for cluster 3: male/statistics. Moreover, there are some differences in gender in the same way as Woodfield, Earl-Novell and Solomon (2005) and in course in line with Simonite (2003).

In general in both universities and for both subjects learning was enhanced by student involvement in the learning activities and environments that were most directly related to the learning outcomes (Struyen, Dochy, Janssens, Schelfhout & Gielen, 2008).

Secondly, there are differences in Finland and Spain depending on the university's assessment culture, gender and course. Those differences may be due to cultural factors (Baeten et al., 2008). Another explanation could be that Spanish teachers are not assessing in a right way the skills and competences defined to be assessed in each coursework because of less experience in active learning methodologies.

In general, a teacher debate in assessment should be opened between both universities in order to discuss more creativity in the ways to assess learning outcomes. A proposal could be to mix the variety of evaluation methods (portfolios, quizzes, long and short exercises, problem based learning, etc.) in order to balance out non-systematic errors and avoid subjectivity. Another proposal may be to make an initial contract with the students who could choose the way of assessment depending on their preferences or learning strategies.

This study is not without limitations. The sample size is small and the analyses are focused only in two subjects and only two countries. More studies in this line are needed to generalize our findings. Our future research lines will be to amplify the sample with more students, more subjects and more countries in order to contrast our results. Moreover, it could be interesting to analyse the characteristics of students according to their clusters or to test different ways of assessment.

References

Aliaga F. & Orellana, N. 1999. The use of I.S.I. database for the publishing quality of education innovation in Spain: Arguments for a debate. In Nuevas realidades educativas, nuevas necesidades metodológicas. (pp. 29-34). Málaga: Centro de Ediciones de la Diputación Provincial de Málaga. (in Spanish). Retrieved from: http://www.uv.es/˜aliaga/curriculum/Revistas-ISI.htm

Baeten, M., Dochi, F. & Struyven, K. 2008. Students' approaches to learning and assessment preferences in a portfolio-based learning environment. Instructional Science 36, 359–374.

Bridges, P., Cooper, A., Evanson, P. Haines, C., Jenkins, D., Scurry, D., Woolf, H. & Yorke, M. 2002. Course marks high, examination marks low: discuss. Assessment and Evaluation in Higher Education, 27, 35-48.

Calo-Blanco, A. & Villar Notario, A. 2010. Quality of education and equality of opportunity in Spain. Lessons from PISA. Working papers no. 6. Fundación BBVA. Retrieved from: http://www.fbbva.es/TLFU/dat/dt_6_2010.pdf

Cox, M.J., Schleyer, T., Johnson, L.A., Eaton, K.A. & Reynolds, P.A. 2008. Making a mark-taking assessment to technology. British Dental Journal, 205, 33-39

Craddock, D. & Mathias, H. 2009. Assessment options in higher education. Assessment and Evaluation in Higher Education, 34, 127-140.

Dalziel, J. 1998. Using marks to assess student performance: Some problems and alternatives. Assessment and Evaluation in Higher Education, 23, 351-366.

Dochy, F., Segers, M., Van den Bossche, P. & Struyven, K. 2005. Students' perceptions of a problem-based learning environment. Learning Environments Research, 8, 41-66.

Downs, C. 2006. What should make a final mark for a course? An investigation into the academic performance of first year Bioscience students. Assessment and Evaluation in Higher Education, 31, 345-364.

Everitt, B. S. 1993. Cluster Analysis, 3rd Ed., London: Edward Arnold.

Fletcher, R.B., Meyer, L.H., Anderson, H., Johnston, P. & Rees, M. 2012. Faculty and Students Conceptions of Assessment in Higher Education. Higher Education, 64, 119-133.

Furnham, A., Batey, M. & Martin, N. 2011. How would you like to be evaluated? The correlates of students' preferences for assessment methods. Personality and Individual Differences, 50, 259-263.

Garside, J., Nhemachena, J.Z.Z., Williams, J. & Topping, A. 2009 Repositioning assessment: Giving students the 'choice' of assessment methods. Nurse Education in Practice, 9, 141-148.

Gibbs, G. 1992. Improving the quality of student learning. Bristol: Technical and Educational Services.

Gibbs, G. & Simpson, C. 2004-05. Conditions under which assessment supports students' learning. Learning and Teaching in Higher Education, 1, 3-30.

Grek, S. 2009. Governing by numbers: the PISA 'effect' in Europe. Journal of Education Policy, 24 (1), 23-37.

Hand, L., Sanderson, P. & O'Neil, M. 1996. Fostering deep and active learning through assessment. Accounting Education, 5 (1), 103-119.

Heywood, J. 2000. Assessment in higher education. London: Jessica Kingsley.

James, D. & Fleming, S. 2005. Agreement in student performance in assessment. Learning and Teaching in Higher Education, 1, 32-50.

Karran, T. 2005. Pan-European Grading Scales: Lessons from National Systems and the ECTS. Higher Education in Europe, 30, 5-22.

Kniveton, B.H. 1996. Student Perceptions of Assessment Methods. Assessment & Evaluation in Higher Education, 21, 229-238.

Lai, M. 2010. Teacher development under curriculum reform: a case study of a secondary school in mainland China. International Review of Education, 56, 613-631.

Michael, J. 1991. A behavioral perspective on college teaching. The behavior Analyst, 14, 229-239.

Muldoon, R. 2012. Is it time to ditch the traditional university exam?. Higher Education Research & Development, 31, 263-265.

Murdan, S. 2005. Exploring relationships between coursework and examination marks: a study from one school of pharmacy. Pharmacy Education, 5, 97-104.

Payne, E. & Brown, G. 2011. Communication and practice with examination criteria. Does this influence performance in examinations?. Assessment and Evaluation in Higher Education, 36, 619-626.

Sanders, L.R. 2010. Improving assessment in university classrooms. College Teaching, 49 (2), 62-64.

Segers, M., Dochy, F. & Cascallar, E. 2003. The era of assessment engineering: Changing perspectives on teaching and learning and the role of new modes of assessment. In M. Segers, F. Dochy, and E. Cascallar (Eds.), Optimising new modes of assessment: In search of qualities and standards (pp. 1–12). The Neatherlands: Kluwer Academic Publishers

Simonite, V. 2003. The impact of coursework on degree classifications and the performance of individual students. Assessment and Evaluation in Higher Education, 28 (5), 459-470.

Smith, C. 2011. Examinations and the ESL student – more evidence of particular disadvantages. Assessment and Evaluation in Higher Education, 36, 13-25.

Struyven, K., Dochy, F., Janssens, S., Schelfhout, W. & Gielen, S. 2008. The effects of hands-on experience on students' preferences for assessment methods. Journal of Teacher Education, 59 (1), 69–88.

Tian, X. 2007. Do assessment methods matter? A sensitivity test. Assessment and Evaluation in Higher Education, 32, 387-401.

Tynjälä, P. 1998. Traditional studying for examination versus constructivist learning tasks: do learning outcomes differ?. Studies in Higher Education, 23, 173-190.

Yorke, M. 2010. How finely grained does summative assessment need to be?. Studies in Higher Education, 35, 677-689.

Yorke, M. 2011. Summative assessment: dealing with the 'measurement fallacy'. Studies in Higher Education, 36, 251-273.

Yorke, M., Bridges, P. & Woolf, H. 2000. Mark distributions and marking practices in UK higher education. Some challenging issues. Learning in Higher Education, 1, 7-27.

Yorke, M., Cooper, A. & Fox, W. 1996. Module mark distributions in eight subject areas and some issues they raise. In Modular higher education in the UK in Focus, ed. N. Jackson. (pp. 105-107). London: Higher Education Quality Council.

Woodfield, R., Earl-Novell, S. & Solomon, L. 2005. Gender and mode of assessment at university: should we assume female students are better suited to coursework and males to unseen examinations? Assessment and Evaluation in Higher Education, 30, 35-50...

About the Authors

Maria-del-Mar Camacho-Miñano

Bachelor in Business Administration and Ph.D. in Accounting. Assistant professor at the Financial Economics and Accounting Department at the Business School of the Universidad Complutense of Madrid. Main research areas: financial information and bankruptcy, and education. Director of the INIFCO Research Group UCM and member to the "Statistics and Accounting Education Research (SAER)" Group.

Cristina del Campo

Bachelor in Mathematics, M.Sc. in Statistics and Ph.D. in Computer Science. Assistant Professor at the Universidad Complutense of Madrid (Spain). Main research areas: Multivariate Analysis applied to the socioeconomic description of local and regional economies, teaching strategies using ICT and education. Director of the UCM research group on Decision Analysis (INVESDE), member to the "Statistics and Accounting Education Research (SAER)" Group.

David Pascual-Ezama

Bachelor in Business Administration and Ph.D. in Psychology. Assistant professor at the Financial Economics and Accounting Department at the Business School of the Universidad Complutense of Madrid. Main research areas: Behavioral Economics, Management Business and education. Member of the "INIFCO Research" Group UCM and member to the "Statistics and Accounting Education Research (SAER)" Group.

Carlos Rivero

Bachelor and Ph.D. in Mathematics. Statistics Professor at Universidad Complutense de Madrid. Main research areas: Mathematical Statistics and Econometrics. Last works published in journals as Scandinavian Journal of Statistics, European Journal of Operational Research, Journal of Statistical Planning and Inference or Journal of Multivariate Analysis. Member of the Statistics and Accounting Education Research (SAER) Group.

Elena Urquía-Grande

Ph.D. in Business Administration and MBA in the University of Houston (USA). Lecturer at Complutense University of Madrid. Last works published in International Journal of Critical Accounting and International Journal of Digital Accounting Research. Research lines: management accounting, education and cooperation for development. Member of the SAER group (Statistics and Accounting Education Research) and coordinator of the REEADEE project (Research in Economics Europe-Africa for the Development of Emerging Economies).

Murat Akpinar
He holds Ph.D. in international business. He is currently a principal lecturer in international business management at JAMK University of Applied Sciences in Finland. He teaches a variety of courses in the international business degree programs at both master and bachelor levels. His current research interests lie in internationalization of firms, growth strategies, clusters, stakeholders, European Union, automotive industry and bioenergy industry.