BEST PRACTICES IN ACADEMIC ASSESSMENT IN HIGHER EDUCATION:
A CASE IN FORMATIVE AND SHARED ASSESSMENT

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Abstract

The aim of this article is three-fold: (a) to present an example of best practices in formative assessment in university instruction, offering three different methods of learning and assessment to pass a subject; (b) to analyze differences in academic performance depending on method of learning and assessment chosen; (c) to consider professors´ and students´ evaluation of these assessment methods, as well as analyze the workload these methods suppose for both students and professors. The design is based on a single case study. The study analyzes the results obtained in a third- year course at the University of Valladolid (Spain) that participated in an ECTS pilot program. Data was collected during academic year 2009-10. Total number of registered students was 77. This paper describes the procedure to develop a formative assessment system and collect data, as well as the main techniques to obtain and analyze data. Findings indicate that there are important differences in student academic performance depending on the learning and assessment method employed in an academic course. Courses are using formative and on going assessment result in significantly higher student academic performance than courses using other learning and assessment methods. Lastly, empirical data suggest that the workload is in line with the ECTS European Credit Transfer System, and is no excessive for the professor. However, students´ subjective perception is that this method involves a heavier workload. These findings may be important, given the current process of convergence towards the new Degrees and ECTS credit system, and the need to adapt these degrees and credits to students' real workload.

keywords- Formative Assessment, Shared Assessment, Higher Education, Learning Oriented Assessment, Academic Performance, student performance, workload for students and professors.

1   INTRODUCTION

The process of convergence toward the European Higher Education Area (EHEA) implies a series of changes in ways of understanding, organizing, and carrying out university instruction. Firstly, convergence aims to move from a paradigm focused on teaching, to a paradigm where the student is in the centre of the learning process. Therefore, the key lies in shifting attention away from teaching processes on the part of the professor, and towards learning processes on the part of the students. The administrative application of this new learning paradigm is that subjects and degrees be organized in "ECTS credits" that measure student study and work hours in order to generate planned learning (1 ECTS credit is equivalent to 25 hours of student work-study) instead of measuring classroom instruction hours—as previously done in earlier curriculums (i.e. 1 credit equals 10 hours of classroom instruction).

There are additional dichotomic classifications that provide interesting nuances to this new way of understanding teaching and learning. One very significant dichotomy distinguishes between "Bank Learning"— the traditional and dominant paradigm in university instruction—and "Dialogue Learning", which is the learning paradigm that best facilitates acquisition of the complex learning and competencies that university training requires [1, 2]. The second dichotomy distinguishes between "superficial learning" and "profound learning" in university instruction [3]. It is only possible to generate a complex learning process when the student is

actively involved in the learning process; when the student is capable of understanding in depth the relationship between different knowledge content, and is able to employ this knowledge correctly; and when this knowledge content is closely tied to negotiated learning processes.

This change in approach implies a change in methodology and in planning and assessment systems used by a large segment of university professors, both in the way of organizing and carrying out class activities; as well as in how students learn and are assessed. For example, a fundamental aspect refers to using assessment as a strategy for improving learning rather than as a simple certification of student academic "success" or "failure". Student assessment is one of most basic tasks of professors, and an indisputable factor in improved learning and quality teaching. Student assessment is also an extraordinarily influential factor in student work and learning processes, as it clearly and directly affects the quality of the latter [3]. For example, it is important to be aware that no curriculum changes will be effective if they are not accompanied by innovations in how student assessment is [4]. We understand that the process of convergence toward the EHEA implies, minimally, the following changes in current understanding and practices in assessment in university education:

- Give more importance-- and therefore more time and effort—to ongoing and formative assessment than to final and summative assessment.

- Carry out assessment in order to improve—rather than simply monitor-- learning, and teaching-learning processes.

- Assess all the different learning and competency types that we have planned, rather than only those assessable via traditional exams.

- Assess the learning process and its development, and not only the final and demonstrable product.

Student involvement in learning assessment processes becomes a basic work tool when the ultimate aims of instruction are to make the student the chief actor in the learning process; and to foment student autonomy in directing his/her learning. One of the most useful tools to achieve these aims are processes of formative and shared learning.

When speaking about student participation in academic assessment, it is important to clarify the most common terms and concepts used in the literature. Some of these terms may be found in [5-9], and a review of terminology in the English-speaking literature [10].

The most commonly used term is "Self-Assessment". This refers to an assessment that one makes of him/herself, or of the process. (If what is being evaluated is a collaborative or group work, self-assessment must also be as a group). In our profession, this term is most often used to refer to student self-assessment, though it may also refer to professors´ self-assessment—usually in regard to processes of professional improvement.

The following term to consider is "Peer-assessment". Normally this term is used in the literature to refer exclusively to student assessment of other students. This does not mean that the term is not used among professors. However, the most common terms used in professors´´ assessment of one another are "professor-observer", "critical friend", and "outside observer". Both self-assessment and peer-assessment usually refer to individual tasks. For our part, we understand that from the moment learning activities are carried out as a group, these processes can and must be as a group, as well. Self-assessment and peer-assessment do not necessarily imply diluting individual responsibility. It is possible—and often times necessary—to evaluate both the group, as a whole, and the personal contributions of each individual to the group.

The term "Shared Assessment" refers to processes of dialogue between the professor and students regarding learning assessments taking place. These types of dialogs may be individual or in groups. They may be based on or related to previous self- and co-assessment processes, as well as to parallel or complementary processes of "self marking" and "negotiated marking". The term "co-assessment" is similar to these process types, though it has does not have the same meaning in Spain, but rather indicates that the professor tutors, reviews, and monitors student self- and co-assessment for determination of the final grade for student work [10, 11]. In any event, these terms are rarely used in the specialized literature.

 "Self-marking" refers to the process in which each student assigns himself the mark he believes he deserves. In the majority of cases self-marking takes place following a process in which the professor reminds students of marking criteria (though self-assessment may take other forms as well). These type of previous dialogues and

agreements with students regarding marking criteria usually form part of a broader process of curriculum negotiation.

The next term to define is "Negotiated mark". Given that current educational systems include student marks, we understand negotiated marking to be coherent with, and a logical consequence of, a shared assessment process.

In the specialized literature one can find numerous studies, proposals, and experiences about university student participation in assessment processes: [3, 6, 10, 12-22], etc. The case we present in this article is based on a proposal known as "Formative and shared assessment in university instruction" [23]. In recent years a number of studies have come out on formative and shared assessment with more explicit concepts: "assessment for learning" [3, 4, 18, 24-27], or "learning oriented assessment" [28], "innovative assessment", "alternative assessment" and "authentic assessment". What these authors define as formative and shared assessment has a number of advantages in improving teaching quality and learning levels in higher education. Some of these advantages are [23]:

(1)- Considerably improve student motivation and involvement in learning process.

(2)- Helps timely correction of gaps and problems arising in teaching-learning process, thus improving student learning and teaching-learning processes in the university.

(3)- Constitutes a learning experience in itself.

(4)- Is the most logical and coherent form of assessment when teaching is based on Dialogical Learning and/or models focused on student learning and development of personal and professional competencies in line with those set forth in the process of convergence towards the EHEA.

(5)- Facilitates the development of critical analysis ability and self-criticism.

(6)- Develops student responsibility and autonomy in the learning process (acquiring great potential in developing life-long learning strategies.

(7)- Significantly improves and raises academic performance in subjects where this type of assessment system has been implemented. This important improvement in academic results is the logical effect of these mentioned advantages.

Many of these proposals refer to the portfolio, both physical and electronic, as the most commonly used tool for compiling evidence of the learning process, as it lends itself to these types of assessment systems. References to the use of portfolios in university instruction may be found in [3, 4, 27, 29-33]. It is important to differentiate between the "selective portfolio" and a "complete portfolio". While a "selective portfolio" is a compilation and selection of examples of the learning process and/or development of concrete skills, a "complete portfolio" gathers together all the student´s work during the entire learning process. The differences between selective and complete portfolios involve a number of advantages and disadvantages when assessing a subject, which must be considered before deciding which assessment type to use in a given case and context.

2   METHODOLOGY

2.1   Design and Context

The design of this study is based on a case study [37]. The data for this study were collected in academic year 2009-10, in the course "Teaching Physical Education II". This is a third year, 5 -quarter course, taught in the morning. The course is 4 credits (40 class hours, over a 13 week period—which translates into 3 class hours per week. Two of these classes are conducted in a sports facility ("praxis" class) and the third class at the university ("theory" class). This course is part of the degree program, Primary Teacher Education, specialization in Physical Education (University of Valladolid). This course is taught the last year in which students receive classroom instruction, as the following year is dedicated entirely to "practicum". 77 students are registered in this course. As this is a practical course, students are divided into two groups of 38 and 39 students. Each

group of students receives 3 hours of classroom instruction separately. Therefore, for the student the workload is 4 credits, while for the professor the workload is 8 (4X2), as the same professor teaches the two groups. Students have two occasions per year in which they may choose to be evaluated —in February and July.

2.2 Procedure

The assessment and marking system used in the course is explained, debated and agreed upon with students during the first week of class. The class syllabus and synopsis is also handed out to students at the beginning of the course. Students are offered three different learning, assessment, and marking options in order to pass the course: (A) Continuous; (B) Mixed; (C) Final Exam. Students may also elect combinations of these options, depending on circumstances of each particular case.

Students may change assessment options during the year, but only in one direction; i.e. a student may change from A to B or B to C, but may not go from C to B or B to A. The Mixed option was begun 12 years ago in order to offer an option to students that were unable to attend all the classes and or were unable to keep up with the constant workload that Option A requires. Thus a student starting with option A could shift to a mixed option. A mixed option is extraordinarily flexible, as it allows for different types of solutions depending on the personal circumstances of each student. Table 1 shows the three options available to students, along with the basic features of the assessment and marking system, and the conditions and requirements for each learning option.

Table 1 – Three options for taking and passing course: Conditions, assessment, and marks.

Options	*Conditions*	*Evaluation and qualification*
Option A: *Ongoing and shared (collaborative file).*	Continuous class attendance and punctual assignment submission, as well as correction of those assignments. All learning activities are performed collaboratively in groups of 2 -4 students.	Continuous and formative assessment through assignment revision and tutorials. Shared marking is done on basis of final interview, and student self-evaluation and marking, using pre agreed on marking criteria. The final interview is usually conducted with all people in the collaborative group.
Option B: *Mixed*	Class attendance and submission of "assignments (without deadlines). Compulsory Tutored Learning Project (PAT) carried out in Group of 3-5 students	Take exam. Final mark based on marks of exam, PAT, and class assignments. Additional learning activities may be individual or in groups.
Option C: *Final Exam*	For students that are unable or do not wish to attend class, or who come only sporadically and do not turn in class assignments.	Take three final tests: theoretical exam, practical exam, and a defence of PAT. Students must pass each of three exams in order to pass the course.

The process of learning and formative assessment carried out with students that regularly attend class (Continuous and Mixed Options) is schematically described in Table 2, and indicates the close relationship between the assessment and marking system and the learning activities and assignments, and strong coherence in objectives, learning activities and assessment. This assessment system satisfies the requirement, essential to Biggs [3], of "aligned instruction", closely related to the concept of "curricular appropriateness or coherence" [23]. For students choosing Option A, marking criteria is established at beginning of course through

process of curricular negotiation with whole group. Table 2 shows those students that passed in this academic year. In parenthesis of table is the number of assignments required in each learning activity.

Table 2: Relationship between different course curriculum elements: Objectives, learning activities, formative assessment, and marking.

Main objectives and professional competences	*Learning Activities*	*Formative Assessment*	*Percentage of final mark*
- Analyze, reflect, and describe Basic topics in Physical Education Instruction (PE) - Search for information and properly handle bibliographic sources - Review innovative proposals in PE instruction - Create educational model supporting intervention principles. -Seek professional autonomy, and group and collaborative skills in education -Encourage individual and group reflection as basic work tool in teaching activities -Skills in respectful dialogue and debate.	Practical sessions reports (10-11)	Written assignments are corrected and returned to students in less than one week. If an assignment is not passing quality, it must be corrected in a one week maximum time period. This process may be as many times as necessary to correct assignment. -Professor´s Notebook -Self-assessment for each written assignment	20 %
	Assignments (8) and negotiated discussion groups (3-4)		20 %
	Tutored Learning Project (1)		30 %
	Tutorials		---
	Partial Exam with immediate peer assessment using rubrics (1)		20 %
	Topic Reports (2)		10 %
	Self-assessment report and final interview		Final negotiated mark

It is important to clarify the differences between the formative assessment process and the marking process.

The formative assessment process is the more important of the two processes and occupies the main part of nonclassroom teaching tasks (tutorials and assignment correction). Formative assessment is carried out daily over the duration of the course; all assignments are corrected and returned to students as soon as possible (normally within a week, or at times in a day or two). Common errors are reviewed in class, as well as how to correct them. Individual questions are dealt with right after class or during tutorial hours. Once an assignment is of passing quality, it is kept in a personal file. Students with inadequate assignments have a one week period to correct assignments and bring them up to passing quality. This process may be repeated as many times as necessary to achieve a passing assignment. Corrected and returned assignments are never marked.

Rather, there is a self-assessment report rating quality in different areas, in which comments may be made regarding questions and aspects to be corrected and or improved (see Table 3). The file is organized and presented at the end of the learning process with established and agreed upon deadline.

Table 3 – Group self-assignment report of practical sessions

Aspects to evaluate	*Group Members*				*Group work*	*Comments*
	1	*2*	*3*	*4*		
Learning						
Organization and presentation						
Detailed and thorough discussion						
Depth and analytical quality						
Preparation Time						
Other aspects						
Individual contribution to group work						
Meeting minutes:						

-The final mark (or grade) is understood exclusively as a formality that is done at the end of the learning process, once the course has finished. The marking process is clearly explained and agreed upon at the beginning of the course. Each learning activity is assigned an established weight of the final grade (see Table 1). As marking criteria are agreed upon from the outset of the course, these criteria may be used to help guide students throughout the learning process. To ensure negotiated marking, the professor assigns his/her mark after reviewing the student's progress, the quality of his accumulated work, and before reviewing the student's self-assessment form.

Below is a student self-assessment form filled out according the established marking criteria. Several days later a personal interview with the student is held in which questions on form are clarified, and a negotiated mark arrived at. This procedure ensures that neither the student's nor the professor's assessment is unduly influenced by the other. The professor assigns a mark before reading the student's self-assessment, and the student assigns himself a mark without having spoken previously with the professor.

2.3   Data collection instruments

-Semi-structured student questionnaire for evaluating course. This anonymous questionnaire is handed out to students at the end of course in order to collect students´ evaluation of course strengths, weaknesses, and suggestions for improvement in the future.

-Semi-structured self-assessment guide. This guide is handed out to students during the last week of the course. The purpose of this guide is to help students review and evaluate his or her learning process, both on the individual level, as well as in small and large group efforts. The student is able to rate his or her work according to criteria set at the beginning of the course. The guide is turned in with the collaborative learning portfolio at the end of the course.

- Collaborative Student File and course evaluation tools. The collaborative folder is used to compile all the documents and evidence produced by students throughout the learning process (life stories, session reports), summaries, negotiated discussions, reports, tutored learning projects, etc.) This portfolio is best understood as a comprehensive portfolio, as explained in the introduction of paper.

- Individual and group formal interviews. Interviews are carried out at the end of the course during final exam period, after the professor has reviewed all collaborative folders. The interviews have several aims: (a) review details in student self-assessments that were either unclear or inconsistent; (b) return collaborative learning files; (c) share parting words with each student individually.

- List of final marks of first evaluation period.

- Student workload data collection logs. A table-summary of partial and total data (see Tables 8 and 10).

- Professor workload data collection logs. Generated weekly to collect information on time dedicated to correcting student work and preparing classes in formative and continuous assessment processes. Tutorial time is only considered if greater than the required 6 hours per week of teacher tutorials.

2.4   Data analysis techniques

To analyze collected qualitative data, we have used a system using two categories to group information collected on course development: (a) advantages; (b) disadvantages and possible solutions to these disadvantages. Quantitative data on student marks and their statistical distribution using categories generated by the university IT system.

2.5   Limitations

As this is a case study, no attempt is made to generalize results. However, the findings—with appropriate and opportune modifications-- may be transferrable to other university teaching contexts.

3   RESULTS AND DISCUSSION

We have organized the results into five sections. The first two sections correspond to the course evaluation on the basis of collected qualitative data. The third section analyzes student academic performance during the first evaluation period. The fourth and fifth section analyses the workload of students and professors in these learning and evaluation methods.

3.1   Advantages

The data revealed the most notable and valued advantages to be: (1)- Greater student involvement, participation and motivation; (2)- Facilitates acquisition of independent learning competencies, and personal responsibility in learning process; (3)- The students learns alternative methods to assess learning; this is especially important when training professors, due to its direct application in future professional practice; (4)-

Improves learning and academic performance; (5)- Greater knowledge on the part of the professor about students and their learning processes, as a result of improved communication and relations between professor and students. (6)- Promotes metacognitive processes, particularly with respect to self-assessment and peer assessment. (7)- Increases professor involvement, and allows for progressive improvement in teaching practices and contextual assessment.

Data reveals a generally positive student response to these types of formative assessment Systems.

3.2 Problems, weaknesses, and possible solutions

This section has been organized in a two-column table. The first column indicates the main problems arising in the assessment system employed. Each problem is rated according to its degree of difficulty on a scale of 1 through 4 (none- a lot). The second column indicates possible solutions to each of these problems (see Table 4). Working systematically with these two columns forms part of various research-action cycles that we carried out on our own teaching practices, and which help us to progressively perfect our teaching techniques and our students´ learning processes.

Table 4: Problems, weaknesses, and possible solutions

Aspects to consider	scale				Possible solution for the following year
	1	2	3	4	
Student unfamiliarity with system				X	One learns by doing therefore it is advisable that students become acquainted with systems in previous courses. Placing examples of corrected assignments as models on the web may be helpful.
Student Insecurity			X		Is related to earlier issue. Same possible solutions as for earlier problem, as well as establishing more detailed assessment criteria, using descriptive scales for each learning activity.
Excessive student workload on the part of students			X		Attempt to keep workload within reasonable limits, and above all, spread the work out evenly throughout the course, and coordinate better with other subjects in the same year.
Excessive professor workload.			X		Develop strategies to reduce it, such as collaborative folders or adjusting the number of assignments to turn in.
Student resistance		X			Explain the process well at the beginning of the course, agreeing with students on the assessment and marking criteria to be used.
Organization difficulties	X				Explain in detail the timeline for carrying out activities in the teaching guide. Be flexible in order to adjust to circumstances and to the real learning process.

3.3 Academic Performance

Table 5 shows the overall results from this group:

Table 5: Percentage distribution of total student marks

	Overall results	
Mark	*Percentage*	*Nº students*
Honors	3,90	3
Excellent	7,79	6
Very Good	51,95	40
Passing mark	11,69	9
Failing mark	15,58	12
Not appear	9,09	7
Total	100%	77

As one can see, the academic performance level is high, 82.86% of students passed the course. The dropout rate was low, at only 9.09%. Among those students passing the course, the most common mark, by far, was very good, at nearly 52%. The number of excellent marks was very low in comparison with other years, at around 8%.

In table 6 we present student distribution results according to the assessment and marking system chosen when taking the course. The majority of students chose the continuous and formative assessment option, though there was a considerable increase compared to past years, in number of students choosing the mixed option. The percentage of students opting for taking a single final exam option was very low, much lower than in previous years.

Table 6. Number of students choosing each assessment option

Continuous and formative	*Mixed*	*Exam*	*Not appear for assessment*
45	23	2	7

In Table 7 we show academic performance data according to chosen learning and assessment option. As one can see, there are appreciable differences among chosen options.

Table 7. Academic Performance in different options.

Options	NP	Failing mark	Passing mark	Very good	Excellent	Honors	Total
Continuous	-	-	4	32	6	3	45
Mixed	4	12	3	8	-	-	27
Exam	3	2	-	-	-	-	5
total	7	14	7	40	6	3	77

Students electing the formative and continuous option have much higher marks, by far. Nearly 70% of students in this option had a mark of "very good". In this course, two changes occurred with respect to previous years: the number of passing marks increased, while the number of excellent marks decreased. The low number of excellent marks may be explained by the low marks obtained in the partial exam in December— worth 2 out of 10 points—making it difficult for students to obtain an excellent final mark.

In the mixed option marks were very low, with a high number of failing marks, a fair number of very good marks, and no excellent marks. There are two possible explanations for these results: (1) Most students choosing for the mixed option only did the tutored learning project, and neither attended class nor did any other learning activities. Under these conditions it is very difficult to pass an exam in the theoretical part of the course; (2) Very few students in the mixed option attended class or did other learning activities. Many took the exams merely in order to pass, and not to necessarily achieve a high mark. This would explain why none of the students in the mixed option obtained a high mark. This was the first year that such results occurred. In previous years it was common to have some excellent marks-- and even an occasional honors mark- - in the mixed option. In other respects the mixed option maintained its typical mark distribution.

The final exam option continues to demonstrate that it is truly difficult for a student to pass a course on the basis of a single final exam. A final exam is logical only if during the duration of the course students have undertaken a series of learning activities that have allowed them to better master the content and competencies required of them in the exam. Without these learning activities, it is very difficult for a student to acquire this content knowledge and competencies.

Thus, results reflect significant differences in student academic performance depending on the learning and assessment option chosen. Scholastic performance is high with the formative and continuous option; very low and uneven with the mixed option; and very low with the final exam option. There are two possible—and most likely complementary-- interpretations for these results. The first interpretation is that the first option results reflect a better learning process that is more constant, systematic, and that allows students to correct errors early and produce minimally acceptable assignments. The second interpretation is that students with greater interest and involvement in the course choose the continuous option—or in some cases the mixed option— which would explain in part the sharp differences in results from the final exam option.

3.4   Student workload

Data collection on student workload was done daily and systematically on all assignments and activities carried out. At the end of the process, data was tabulated in a table-summary, organized by months and types of written assignments and learning activities (see Table 8).

Table 8 – Table-summary of student work hours according to month and activities

Supposed work time (nonclassroom hours)	Oct	Nov	Dec	Jan	TOTAL WORK HOURS and COMMENTS
Assignments					
Practical session reports					
Topic reports					
Tutored learning project (in group)					
Other					
Partial work hours					

The results indicated an average student workload of 62 hours of independent work during the quarter, not including the 36 hours spent in class. Statistical distribution of data is shown in table 9.

Table 9. Statistical Distribution of student workload

N	Minimum (hours)	Maximum (hours)	Average (hours)	Typical Distribution
45	28	126	62	26.56

These results show wide variability. The majority of students vary between 42 and 80 hours, even while there are extreme cases on the ends of the distribution. As it is a 4-credit course---equivalent to 40 hours of classroom instruction—students spend about one and a half hours of independent study a day for each classroom hour. Expressed another way—about 40% of total student work time is spent in class, and the remaining 60% spent in independent study.

These proportions are the most recommended when working with the new ECTS credit system. Total student work time is approximately 100 hours, which corresponds perfectly with the supposed workload for 4 ECTS credits (4 x 25 = 100). Thus, even if students believe the course workload is heavy, the empirical data shows that the workload is in fact perfectly in line with the number of credits awarded in the course. A possible explanation for differences between the empirical data and students´ perception of workload is that students are not as yet accustomed to working on an ongoing, regular basis throughout the term.

3.5   Professor workload

In this section non classroom work hours for the professor were tallied and distributed over the course period. Table 10 shows the data. In the first column are the two courses taught that term; in the second column are three types of data for each course: number of students (N), student groups (G), and weekly classroom hours (H); for example, in the first row there are a total of 77 students, who are divided into 2 groups for the practical part of the course. The professor gives 3 hours of weekly instruction to each group separately (a total of 6 hours a week of teaching time). In columns 3-7 is the monthly nonclassroom workload for each course, measured in hours. In column 8 is the total nonclassroom workload for each subject, again measured in hours.

Table 10 .Professor workload by subject and month

Subject	Data	Oct.	Nov	Dec	Jan	Feb.	Total
Teaching Physical Education–II	N= 77 - G=2 - H= 3x2	3,30	9,0	10,0	9,10	9	40, 5 h.
	N= 86 – G=1 - H= 3	2,30	5	8,10	8,15	8	31,75 h.
Total		6	14	18,10	17,25	17	72,15 h.

Total professor workload does not appear to be excessive when taking into account that these courses total 12 ECTS credits. These credits suppose 110 classroom hours; 72 hours for classroom preparation, assessment, student work correction, and course website updating; and   another 78 hours for tutorials. In total, professors spend 260 hours in overall teaching tasks, divided into 14 weeks, giving a total weekly average of 18.6 hours of work for the two classes. As there 9 hours a week of classroom instruction, and 6 hours a week of tutorial, the result is that on average 3-4 hours are spent altogether in both courses on revision and continual assessment. The results to not reflect an excessive workload for the professor, particularly when taking into account the better workload spread throughout the term. Under this system work is spread out evenly throughout the course, rather than piling up during the final exam week period.

Data indicates that the workload is relatively low during the first month (October); notably increases in the second month (November); and mains steady during the three following months (December, January, and February). However it is important to remember that in February the workload piles up in the one or two weeks devoted to exams and final revision of portfolios.

It appears that in general 6 hours of complementary work (mainly revisions and corrections) are necessary for each course credit, which is not a an excessive workload. As with the students, one also observes differences between professors' subjective perception and the empirical data. One possible explanation for these differences may be that professors are comparing the new system with the traditional teaching method, where professors only taught their classes, and did no formative assessment of their students during the term. While it is true that a formative assessment system supposes greater work for the professor than simply giving lecture classes and a final exam, it does not, however, suppose an excessive workload impossible for a professor to assume.

4   CONCLUSIONS

In general one can conclude that students have a positive opinion toward theses types of formative assessment. Naturally, there are problems and weaknesses in the new system, most commonly relating to students' unfamiliarity with the learning and assessment process. This unfamiliarity often causes student insecurity, and at times, resistance to change. To solve these problems, we are working systematically on each one through a series of research-action cycles, in order to find solutions course by course. This pedagogical research and professional development helps us to progressively improve our teaching techniques, as well as our students' learning processes.

Among the problems there also appear references to: (a) Excessive student workload; and (b) Excessive professor workload. With respect to this question, it would be worthwhile analyzing the empirical data systematically collected on student and professor workloads with these types of assessment system.

The data collected on student workload shows wide variability, but also indicates that for most of the students the workload is appropriate for the number of credits awarded in the course. The fact that there is a clear difference between students' subjective assessment of their workload, and the actual empirical data on their workload, is probably due to students' lack of familiarity and practice in working on a regular and ongoing basis over the entire term.

As far as the professor's workload, the empirical data seems to indicate a workload that is perfectly assumable for a full-time university professor, even if at times a bit uneven. In general, the data shows that with assessment system, the professor must devote an average of 6 hours of nonclassroom time for each class credit (10 hours).

With regard to academic performance, the results indicate that there are sharp differences depending on the learning and assessment option chosen by the students. The formative and continuous assessment option produces generally good scholastic performance; the mixed option results in lower performance; and the final exam option produces very low performance, with high number of failing marks and no-shows (students that did not appear for test).

We believe our study is useful to professors interested in developing formative assessment systems oriented to improving learning, as well as to university professors involved in the new Degrees and Masters using the ECTS structure, within the convergence process toward EEES. Finally, this study may be relevant to professionals in university teaching research and management, as the empirical data included on student and professor workloads may be useful in adapting them to student's real workload.

Our prospects for the future are to adapt these new formative assessment systems to the new ECTS-structured degrees. We have been carrying out these types of research-action cycles for twelve years, and intend to continue doing so with the new degree programs. We will continue promoting the expansion of these types of assessment processes through seminars and research-action dynamics with university professors.

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