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E-learning assessment using the Aula Virtual platform at the University of Valencia

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Abstract

This article describes a process of research and innovation developed in different subjects around e-Assessment and its application in the Virtual Classroom platform of University of Valencia. It highlights the most important theoretical aspects of e-learning oriented e-assessment and developed evaluation procedures. This research, Eval-Aula, is part of the Educational Innovation Project of the University of Valencia during the 2011-12 and 2012-13 courses. The results obtained showed related skills of students and improvements in e-assessment procedures implemented by the university teaching changes.

Key words: e-assessment, higher education, virtual platforms, learning, innovation, teacher collaboration

Resumen

En este artículo se presenta un proceso de investigación e innovación desarrollado en distintas asignaturas en torno a la e-Evaluación y su aplicación en la plataforma Aula Virtual de la Universitat de València. Se destacan los aspectos teóricos más relevantes de la e-Evaluación orientada al aprendizaje y los procedimientos evaluativos desarrollados. Esta investigación, Eval-Aula, se enmarca en los Proyectos de Innovación Educativa de la Universitat de València durante los cursos 2011-12 y 2012-13. Los resultados obtenidos permiten observar cambios relacionados con las competencias de los estudiantes y mejoras en los procedimientos de e-evaluación implementados por los docentes universitarios.

Palabras clave: e-evaluación, educación superior, plataformas virtuales, aprendizaje, innovación, colaboración docente

Resum

En este article es presenta un procés d'investigació i innovació desenrotllat en distintes assignatures entorn de l'e-Avaluació i la seua aplicació en la plataforma Aula Virtual de la Universitat de València. Es destaquen els aspectes teòrics més rellevants de la *e-Avaluació orientada a l'aprenentatge* i els procediments avaluatius desenrotllats. Esta investigació, Eval-Aula, s'emmarca en els Projectes d'Innovació Educativa de la Universitat de València durant els cursos 2011-12 i 2012-13. Els resultats obtinguts permeten observar canvis relacionats amb les competències dels estudiants i millores en els procediments d'e-avaluació implementats pels docents universitaris.

Paraules clau: e-avaluació, educació superior, plataformes virtuals, aprenentatge, innovació, col·laboració docent

1. Introduction

The university context has been immersed since 1999 in a process of education paradigm shift and has had to undertake successfully a total remodelling closely linked with the interests of present day societies. The changes include the need to rethink and update curricular content in order to adapt it to citizens' needs in the 21st century. This requires readjusting educational practice and renewing teacher and student roles, as well as the teaching-learning methodologies used, changing the procedures for learning and teaching assessment and widening university-linked learning scenarios, among others. (Calderón y Escalera, 2008; Álvarez et al., 2004).

Thus, the curriculum for the new university degrees is conceived as an integrated educational project and, although the decisions educators must make are still the same – content, methodology and assessment -, the emphasis is on the need for the whole teaching device to be articulated to facilitate the development of the degree competencies required. Specifically, the notion of competency functions as a base and a product of training focused on each student and the expected outcome of their learning (Rué, 2009). Considering the teaching dimension of these considerations the following issues are evident: the need for teaching innovation in the university context and teaching collaboration (Chiva et al., 2012; Rodríguez Espinar, 2003; Zabalza, 2006).

Although the possibilities and expectations of teaching innovation cover a wide horizon in the current university scene, the main purpose of our work is to experiment a change in the way student assessment is understood and applied, not only regarding the subjects involved but also the procedures.

To do this, as Ibarra and Rodríguez (2010a) point out, we must be aware that although in everyday practice in university lecture rooms the emphasis is still on assessment performed by teaching staff, changes and innovations are being introduced in assessment systems and procedures that give students more prominence, as they are actively involved in the learning process and its assessment, i.e. Learning-oriented Assessment (LOA) (Ibarra y Rodríguez, 2010b; Padilla y Gil, 2008).

Thus, coming from mixed learning contexts as in this case that integrate virtual education into presence teaching-learning contexts, we encounter the e-Assessment oriented to e-learning concept. According to authors like Rodríguez, Ibarra y Gómez, (2011:23), this is understood as "any electronic assessment system that uses ICTs to present activities and assessment tasks and register answers". That is, authentic continuous assessment, and student participation in their own assessment with a focus based on diverse forms and student participation (peer assessment and self-assessment) (Bretones, 2008; Chiva, Ramos y Moral, 2013).

Specifically, based on proposals by different authors (Ibarra, 2007; Padilla y Gil, 2008; Stödberg, 2012; Yuste, Alonso y Blázquez, 2012) we consider that assessment procedures for university students based on learning-oriented assessment must focus on the following theoretical proposals:

· Firstly, this is a real assessment that requires students to use the same competencies or combination of knowledge, abilities and attitudes that they need to apply in critical or real situations in their professional life (Monereo, 2009).

· Secondly, students are seen as active agents in the assessment process, as they must make reflexive judgements and appraisals concerning what they or their classmates know, master or express with regard to conception of knowledge. Thus, assessment procedures must be organised in the interests of involvement and motivation levels, with an emphasis on student participation, as this is what makes it a tool to enhance learning (Marín, 2009).

· Thirdly, it is a new way of presenting student productions or work (Carless, Joughin y Mok, 2006).

· Fourthly, and no less important, is the application of Information and Communication Technologies (ICTs) in the assessment process, which enables us to discern new teaching horizons in the framework of their digital influence (Brink y Lautenbach, 2011; Dermo, 2009; Rodríguez Gómez, 2009; Stödberg, 2012; Webb, 2010). In this respect, as noted by Suárez Guerrero (2003), Virtual Learning Environments (VLEs) are social areas with a virtual infobase that boost intersubjectivity among students as a condition for learning. This means working from the enriching capacity of virtual platforms to develop intersubjectivity using self or peer assessment processes.

What emerges from the combination of all of these aspects is the true function of assessment, that is to guide or change the direction of practices developed by teachers and students according to the results obtained, in order to achieve true learning using ICT potential efficiently.

In short, both in this paper and those of other authors, the emphasis is on integrating assessment in the learning process and on its role in favouring learning development in a formative way (Ibarra, 2007; Pérez et al., 2008).

2. Goals

The present paper was produced within this theoretical learning and assessment context and its main aims are:

1. To describe the methodological context followed in an innovative teaching experience, intended to implement *e*-Assessment processes in student learning by means of the *Aula Virtual* at the University of Valencia.
2. To show the different assessment procedures developed with different groups of students from different degree studies at the University of Valencia during the academic years 2011-12 and 2012-13.
3. To detect improvements in teaching innovation: at the level of assessment procedures implemented, at the level of teachers involved and in the learning competencies of the students that participated in this experience.

3. Methodology and description of the teaching innovation experience

3.1. The innovation context

The teaching innovation experience presented in this paper began with the participation of a Group of teachers at the University of Valencia in an Interuniversity Excellence Project called *Re-evalúa: Re-engineering e-assessment, technologies and development of competencies in teachers and university students* at the University of Cádiz (Chiva et al., 2012). After collaborating in the project and in accordance with the group's motivation and interest in teaching and teaching research, it was considered important to continue

EVAL-AULA Project (2009-2013). Re-engineering e-assessment, technologies and competence development in university students and teachers (Proyecto de Excelencia P08-SEJ-03502). Developed by the Research Group EVALfor at the University of Cádiz.
EVAL-AULA Project (2011-2012). e-Assessment development and methodology for their incorporation in Aula Virtual (Teaching innovation project at the University of Valencia)
EVAL-AULA II Project (2012-2013). Implementation of the e-Assessment methodology on the Aula Virtual platform (Teaching Innovation Project at the University of Valencia 2012-2013)
EVAL-AULA III project. (2013-2014). Optimization of e-assessment processes in virtual classrooms (Teaching innovation project at the University of Valencia 2013-2014)

Table 1. Context of teaching innovation experience of the group of teachers

this research at the University of Valencia, specifically on the University's .LRN open source virtual platform called *Aula Virtual*[1], joining the different learning innovation projects that are underway at the university (see Table 1). The group of teachers is currently working on the last 'Eval-Aula III' project in the 2013-14 university course, intended to optimize e-assessment processes on this platform.The research team is made up of seven teachers in the first project (Eval-Aula) and eight in the second project ('Eval-Aula' II), with between 7 and 20 years experience in different areas of university knowledge and degrees. Likewise, these projects affect a wide group of over 400 students, as shown in Table 2.

Within this action framework, the teachers involved in the experience intend to develop the study from a mixed teaching-learning context, by implementing an e-Assessment process based on an open, flexible and knowledge-sharing concept, focusing on the use of learning strategies that promote and make optimum use of student competence development, while allowing the assessment of activities and tasks in presence and non-presence contexts.

We shall now analyse the key points that shape the methodology implemented in this experience in order to achieve the goals described above.

3.2. The Virtual Teaching-Learning Environment: the Aula Virtual platform

The *Aula Virtual* virtual education platform at the University of Valencia has been a key aspect in the development of this teaching research and innovation experience. The platform provides virtual group spaces for teachers and students as a back-up to presence teaching groups, enabling the different subjects to be managed in a presence-learning environment and on-line (mixed learning context) where students can build their knowledge and learning.

In our case, as part of our curricular projects, teachers and students have used mainly the related modules: Course Planner, Task Module, Questionnaire Module, Forum Module and Student Card Module (see Table 1). One of the main modules of this platform for assessment processes is Student cards, an application designed to facilitate student follow-up in each of the subjects during the course. Teachers create the assessment procedure that will serve as a guide for themselves and for the students during the whole course. Students are assessed quantitatively and qualitatively with marks and comments on the tasks performed, corrected activities are sent, andG the marks of the completed questionnaires/exams are imported.

3.3. The e-Assessment Procedure designed for each subject

On the basis of the theoretical approaches of learning-oriented assessment, it is essential to establish an exhaustive and systematic procedure to guide the assessment of student

Number of Teachers	7 in year 2011-12 8 in year 2012-13		
Years of teaching experience	From 7 to 20		
Fields of knowledge	Health Sciences Social Sciences		
Subjects	***Qualifications***	***Year 2011-12***	***Year 2012-13***
Automated cataloguing	Information and Documentation Degree (2nd)	60	60
Odontopediatrics	Dentistry Degree (4th)	78	75
Motivation and emotion Psychology	Psychology Degree (2nd)	133	70
Teaching assessment Methodology	Teaching Degree (3rd)	80	130
Spanish language for teachers	Teaching Degree (1st)	45	50
Education measurement	Social Education Degree (2nd)	-	100
Total		***396***	***485***

Table 2. Areas, qualifications, subjects and teaching courses participating in the experiment (Chiva et al., 2013).

[1] Available at http://aulavirtual.uv.es

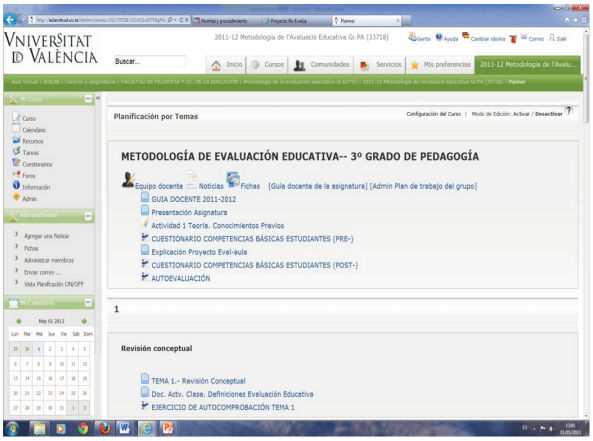

Figure 1. Example application in virtual classroom of Education Assessment Methodology

learning and competences using the virtual learning environment. In this respect we are aware that assessment influences what and how our students learn, that is why we need to ensure both assessment design and application in order to achieve learning (Carless, Jounghin y Wok, 2006).

Specifically, the teachers involved in this innovation have used the following steps to design and implement e-Assessment procedures in each of the subjects:

a) Plan and Design the specific assessment procedure for each subject. Each teacher designs their own assessment procedure in accordance with the following general guidelines:

· Diversity Assessment: implements new forms of presentation of students' productions or tasks.
· Authentic Assessment: assesses students' ability to apply their competencies in that real world.
· Ongoing and Final Assessment: this proposes an evaluation that analyses the execution process and the final product.
· Shared assessment: based on students' participation and involvement in their own assessment, as this aids learning and contributes to ongoing regulation of learning (Marín, 2009).

It is also interesting to point out that the following elements were considered explicitly in all the procedures:

· the competencies to be developed by the students and the learning outcome to be achieved;
· the assessment tasks (evidence/products) required;
· the assessment instruments and the marking system to be applied.

With regard to the last of these elements, involving the students in the assessment criteria and standards was essential, as these are the base on which both students and teachers must formulate their value judgements concerning the quality of the work.

b) Student training. The teachers of each of the subjects involved begin by implementing an initial task with the students, the aim of which is to ensure the success of the teaching innovation concerned. This task is posed to the students on the first day of class, using a *Training Seminar* format to explain what the project consists in, the subject assessment system, the tasks to be performed, the instruments and tools to be used and the benefits that this type of assessment will provide, as well as the competencies to be acquired. This Seminar ends with a visit to the *Aula Virtual* digital platform, pointing out the main accesses and e-assessment uses. Students are also urged to complete the first task, which consists in making a *Basic Student Learning Competencies Questionnaire* in Pre-Test format[2].

c) Implementing *the assessment procedure* designed during one four-month period in each of the subjects included in the research.

d) Applying instruments and specific strategies in order to assess teaching innovation and student learning *competencies*.

Evaluation items of the Questionnaire on Student Satisfaction with the assessment procedure
1. I consider that the assessment process implemented in this subject was useful for assessing my learning process
2. The teacher explained adequately the assessment criteria established in the subject teaching guide
3. In this subject the teaching content was coherent with the assessment procedures used
4. The variety of assessment procedures carried out in this subject was appropriate to assess my learning
5. I am satisfied to use the 'Aula Virtual' modules (tasks, questionnaires, forums, index cards) for developing my assessment
6. I am pleased that student participation was considered as an assessment criterion in my learning process
7. This subject has allowed me to better understand the uses of the 'Aula Virtual' platform
8. On the whole I am pleased to use the 'Aula Virtual' platform for developing my assessment
9. I am pleased with the assessment competencies I have developed in this subject
10. On the whole I am pleased with the assessment procedure developed in this subject

Table 3. Assessment items in the Questionnaire on Student Satisfaction with the assessment procedure.

[2] We would like to inform that this questionnaire has been adapted from the Basic Students Competences' Questionnaire created by Ibarra Sáiz (2006) in the EvalCOMIX project: Evaluation of Competences in a Blended Learning Context.

Specifically, several instruments and information collection techniques are presented that enable the progress and end goals of this teaching innovation to be evaluated. These are real, physical and technological instruments used to assess innovation and learning shown through the different assessment methods, as described below:

· *Basic Student Learning Competencies Questionnaire in Pre-Test and Post-Test format*. This survey was drawn up using the *Aula Virtual* Questionnaire Module and is made up of 6 identification items (age, gender, college, qualifications, year and subject) and 20 basic student learning competencies (see Table 6).
These competencies must be assessed by students as a personal reflection in *accordance* with the frequency with which they perform the different learning actions, on a scale of 1-6 (where 1 is zero; 2 - not often; 3 - sometimes; 4 – quite often; 5 –often and 6 – always).
Students are requested to answer the same survey in the Post-test format. The questions in this survey are not exclusive to an area of knowledge but include very valuable data concerning the level of competencies acquired by students at the end of their subjects.

· Student *Satisfaction Questionnaire,* is another questionnaire aimed at assessing the experience at the end of each subject from the students' viewpoint (see Table 3). This *questionnaire* assesses student satisfaction with regard to the assessment process and procedure developed in each of the subjects. The questionnaire was created expressly for this experience and is made up of 10 items assessed on a 5-point scale, where 1 is completely unsatisfied; 2–rather unsatisfied; 3-undecided; 4-quite satisfied and 5- completely satisfied.
The teaching Staff Self-Report is another key instrument for assessing teaching experience. The procedure used for information collection is based on the survey method, specifically on the self-report. This strategy, designed ex professo, is defined as a document wherein the teaching staff reflect on and write about different aspects of their conduct (behaviour, thoughts, ideas, assessments, experiences, feelings, etc.), with an implicit self-observance concept. The list of items observed are presented below (see Table 4).

This instrument is designed for the teaching staff to assess the collaborative work developed for student learning e-Assessment with the virtual platform at the University of Valencia. The main aim is to find out what students learned from this experience and what aspects favoured collaboration, and also to detect aspects that require improvement so that working group innovation can evolve (Chiva *et al*. 2012).

4. Results

In accordance with the data collected during the academic years 2011-2012 and 2012-2013 regarding the teaching innovation experience described above, the results obtained are presented bearing in mind the assessment procedures implemented in the different subjects involved, the Student Learning Basic Competences Questionnaire with Pre-Test and Post-Test format, and the teachers' Self report.

a) Results of the assessment procedures carried out in the subjects involved.

The teachers developed important changes and innovations in the assessment implemented in their respective subjects, especially the implementation of systematic and comprehensive assessment procedures to guide student learning and competence assessment, and the specific formulation of the desired learning outcomes in the subjects.

The subject assessment procedure is based on the *Aula Virtual* pre-planned *Student Card* module, establishing the different learning products to be assessed in accordance with the learning outcomes specified in the relevant teaching guides. These products are evaluated by means of the evidence in practice or tangible products that serve to collect informa-

Teaching Staff Self-Report Items
What have I learned about student learning assessment?
What have I learned about virtual learning environments?
What have I learned about university teaching innovation?
What have I learned about peer teaching and learning/about collaboration with university teaching staff)?
What aspects favoured Communications/participation in the working group?
What aspects do we need to improve as a working group as regards communication/participation, learning and others??

Table 4. Teaching Staff Self-Report assessment items

Product	**Marking weight**	**Assessment responsibility**		
		Teacher	*Student: Self-Assessment*	*Student: Peer Assessment*
Final Exam	60%	100%	-	-
Session diary	10%	-	25%	75%
Report	10%	25%	25%	50%
Research work	20%	40%	30%	30%
	100%	**70,5%**	**11%**	**18,5%**

Table 5. Example of assessment procedure used in the subject Spanish Language for Teachers

Figure 2. Example from student Cards Module e-Assessment procedure in the Automated Cataloguing subject

tion, i.e. exams, session diaries, reports, research work, tests, objective proof, portfolios or a conceptual map (see Table 5).

As regards the participants and assessment control, in all the procedures implemented the strategies chosen were those that allowed cession and transfer of hierarchy and assessment power between teachers, colleagues and/or the student. Table 5 is an example where 70.5% of the mark is the teacher's responsibility, 11% is the student's responsibility and 18.5% lies with the peer group. Likewise, it is important to point out that in all of the subjects involved student participation focused on assessing the students' own learning products or those of their colleagues and not on establishing assessment criteria or on choosing the tools or the marking system.

In connection with the marking systems designed, different assessment blocks are assigned a weight and a mark, as shown in Figure 2: theory exam, practical exam, discussion forum and practical session, all of which contribute a percentage in the final assessment. In other words, although exams or end-products are programmed, they are not the only existing assessment methods, as the procedures intended to facilitate student learning follow-up throughout the subject are predominant. By way of example, and to clarify the procedure, Figure 2 shows that in the practice block (45% of the total assessment), each of the practices has a percentage calculated on 100% of that specific block. On the other hand, these practices are assessed using control lists, estimation scales and assessment rubrics that were designed with the *Aula Virtual* Questionnaires module. These instruments also allow us to develop self-assessment, co-assessment and teacher assessment, as explained in the subject assessment procedure.

b) Results of Pre-Test format Basic Student Learning Competencies Questionnaire

The results observed concerning student learning competencies in this experience were extracted from the descriptive analysis of the data obtained to date from the Pre and Post Test Questionnaire (sample of 200 Pre Test and 169 Post Test subjects). In general they show positive values in the 2011-2012 course, as shown in figure 8. In both cases the average score is above 4.5 points, with a slightly higher score in the Post Test, which may show that students think that their learning competencies have improved after their training in the subject. On the other hand, competence analysis showed that all of these students show positive competence evolution, as all their post-test scores are higher than their pre-test scores. The best-acquired student competencies were n. 14 (*I value and integrate colleagues' contributions in teamwork sessions*) and n. 16 (*I participate actively in teamwork*), both related to teamwork. On the other hand, the least developed competence in both tests is n. 6 (*When doing academic tasks I try to respond in an original and novel way*), a competence related to autonomous and individual student work (Table 6).Teaching staff Self-Report Results.

The reflections of the seven teachers involved in this Self-Reporting experience were collected at the end of year 11-12 and a qualitative analysis of the information was performed by means of a descriptive synthesis of the material. The summary of the results is as follows (Chiva et al, 2012):

· Regarding what the group learned about student learning assessment, there is clear evidence of the need to include e-Assessment as a teaching tool; also, to establish new peer-assessment methods/systems and to include students in the assessment process, and work on student involvement and commitment or responsibility.
· As regards university teaching innovation, the group learned that it is necessary to be able to give different assessment responses and adapt to different educational situations, that teacher assessment must be up-to-date, practical and attractive to students, and that it is necessary to think about the relation between incorporating new technologies and improving student learning.
· Regarding the virtual teaching-learning environment, the group of teachers learned that the *Aula Virtual* platform can become an essential element in student learning and assessment at the University of Valencia.

5. Discussion and Conclusion

As teachers concerned with e-Assessment processes implemented in our subjects via the *Aula Virtual* training Platform, who understand that both the processes and the tool are basic for developing student competencies, it is essential to consider certain evidences regarding teaching innovations made in the different subjects which may be of use to other university teachers in their teaching practice.

a) With regard to the methodological model used in this teaching innovation experience.

· Although there are difficulties and errors to be corrected in the model, we consider that it has the following potentialities:
· It is based on a theoretically sound learning-oriented e-Assessment model (Ibarra, 2007; Pérez *et al*., 2008).
· It is based on assessment planning and design as the key aspect to set up this experience.
· The students participate in their own assessment and in the research process.
· The assessment instruments allow us to continue experimenting and improving teaching innovation.
· The *Aula Virtual* virtual training Platform is used as a vehicle that allows us to carry out e-Assessment proce-

COMPETENCIES	*Mean PRE*	*SD**	*Mean POST*	*SD**
1. I complete the tasks posed satisfactorily	4,90	,857	5,08	,820
2. I am able to find ways of improving my work	4,47	1,036	4,74	1,019
3. I analyse and assess the work of others using clear, concise criteria	4,43	1,136	4,59	1,110
4. I apply my knowledge correctly to academic tasks	4,71	,866	4,95	,840
5. I distinguish the relevant and pertinent ideas from those that are not in the information available	4,79	1,068	5,08	,976
6. In academic tasks I try to answer in an original and novel way	4,16	1,258	4,39	1,264
7. Assessment contributes to my learning and training	4,80	1,206	4,88	1,174
8. I organise the available information and establish significant relations between ideas	4,67	1,008	4,93	,989
9. I feel that I am in control of my own learning process	4,36	1,107	4,57	1,148
10. I extract the relevant and useful ideas from the available information	4,86	,897	5,05	,844
11. I assess my work using clear and precise criteria	4,47	1,173	4,62	1,040
12. I try to bear in mind different perspectives and ways of doing my tasks	4,29	1,163	4,53	1,086
13. I adapt the way I communicate to the audience I am addressing	4,61	1,318	4,86	1,207
14. In team work I appreciate and include peer contributions	5,34	,905	5,45	,879
15. I state and defend arguments in a convincing and constructive way	4,44	1,073	4,69	1,063
16. I participate actively in team work	5,25	,901	5,43	,814
17. I identify my training needs	4,62	1,059	4,78	1,014
18. I make clear and coherent arguments and opinions	4,51	,930	4,71	,928
19. I locate, choose and revise the information necessary to develop a task	4,96	1,009	5,14	,899
20. When assessing or evaluating something, I identify the strengths and weaknesses to make decisions and improve the object under assessment	4,65	1,151	4,89	1,071
Mean Total	*4,67*	*,61512*	*4,87*	*,63354*

Table 6. Pre-Test and Post-Test student learning Competencies Statistics. Year 2011-12 (S. D. = Standard Deviation)

dures adapted to the characteristics of our students and our society.

b) Concerning the subject assessment procedures developed

First the need for systematization must be stressed, planning in detail the assessment procedure from the beginning of the course, and specifically the process to be followed by teaching staff and students (e.g. assessment criteria to be considered, the weight of peer assessment in the overall assessment directed by the teaching staff). This requires more effort from both teachers and students, as it means planning the assessment and establishing new assessment methods/systems (self-assessment; peer-assessment; co-assessment) bearing in mind the requirements/benefits of the virtual platform used.

Regarding the *Aula Virtual* training platform, from which these teaching innovations have been implemented, it should be underlined that in all the subjects included in this research student assessment was performed completely via this learning platform (Chiva *et al*., 2013). This meant that students performed Tasks, Questionnaires, Forums, Self-Check Exercises, and Exams. All these e-Assessment activities were assessed using the virtual learning platform online assessment models. Thus, each of the students received their individual mark detailed by blocks and tasks under assessment.

The aim of this experience, therefore, was to revise, improve, and make assessment innovations in a constant and collaborative way, and to highlight e-Assessment as a teaching strategy that develops e-learning and defines assessment as a continuous, comprehensive process that is integrated in learning. On the other hand, students were considered an active part of the assessment process, thus the importance of undertaking multiple and diverse tasks to enable them to fundamentally acquire the competencies. In our experience, this is a workload for students that should be *rewarded* "besides classic class attendance or content analysis, that should be recognised as such in the overall calculation of student dedication to study and carrying out activities" (Ibarra, Rodríguez y Gómez, 2012:225).

c) Concerning teaching innovation improvements at student and teacher level.

As regards the students involved, it is important to underline that their participation and involvement was achieved both in their own assessment tasks and in assessing the experience itself, but not sufficiently. On the other hand, they

showed a higher assessment of their own learning competencies after finishing the subjects involved in this experience (year 11-12), stressing especially their improved team work competence. This is because, as published by authors such as Ibarra and Rodríguez Gómez (2012) and Bretones (2008), if students feel they are an active part of their own assessment they will feel more involved in their learning. On the other hand, we have yet to establish the level of satisfaction with the assessment procedure implemented via the virtual platform, which will be based on an analysis of the pertinent questionnaires.

Regarding the teaching staff, it is important to stress that through these innovation projects we are learning to collaborate and cooperate with teachers from different areas, disciplines and faculties, which involves reflection and pooling of experiences regarding what we are doing and how (Chiva et al., 2012).

We became specifically aware of the following:

· We have acquired greater knowledge of the different e-learning strategies in the university sphere, as we have experienced a variety of actions through collaborative work developed as a group of teachers.

· We have equipped ourselves with greater technical and teaching resources to strengthen e-Assessment procedures as an alternative to the traditional assessment used in the different subjects.

· We have established some proposals for the improvement of the *Aula Virtual* virtual platform at the University of Valencia as a training platform for e-assessment.

Lastly, the group of teachers is now aware of the need to investigate and promote experiences that favour research in higher education so that teaching practices can be changed. We are convinced of the fundamental position of the use of information and communication technologies for greater efficiency in learning assessment processes in university education contexts. Consequently, we consider it essential that research continues.

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