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recognised that students' interaction with their teachers and with the learning materials is also vital (Dillenbourg; Järvelä & Fischer, 2009). Collaborative learning is also expected to provide opportunities for the development of students' generic competencies, such as to share and to discuss ideas, to negotiate meanings or to constructively criticise solutions to problems (Gunawardena; Lowe & Anderson, 1997, or Naismith; Pilkington & Weeden, 2007). Sometimes collaborative work aims at providing extended possibilities to produce an artefact (a resource or written document) and to reflect on its quality, as well as the effectiveness of the process that led towards its production (Gray, 2002; Ozogul; Olina & Sullivan, 2008, Van den Berg; Admiraal & Pilot, 2006). In this kind of contexts, self-directed learning and regulation (self or hetero) is essential in order to develop lifelong learning competencies, one of the key competencies of the 21st century. Additionally, since conflicting views, for instance, about the learning goals, the expectations, the learning tasks or the students' roles, may emerge in collaborative learning, motivation and other affective factors are critical for the success of the collaboration process (Dillenbourg *et al.*, 2009).

The above mentioned focus on learner self-directed and collaborative learning (Coughlan, 2004, Rourke; Mendelssohn; Coleman & Allen, 2008), led teachers and researchers to increasingly pay more attention to alternative assessment strategies and assessment for learning, such as self and peer assessment (Naismith, 2007, Topping; Smith; Swanson & Elliot, 2000), taking into account not only the final product but also the processes (Loureiro; Pombo & Moreira, 2010a). As pointed out by some authors, research on collaborative processes and regulation will disclose their effect on "students' motivation, for example, in terms of opening up new opportunities for sharing goals and regulating their achievement" (Dillenbourg *et al.*, 2009: p.1). In addition, in online collaborative learning environments, evaluation and assessment strategies should consider the specificity of the communication media in use, as new technology allows frequent and varied assessment strategies, as compared to traditional learning environments (Meyen; Aust; Bui & Isaacson, 2002).

Draper points out three different but mutually reinforcing reasons to include self and peer assessment in educational design (Draper, 2007): (i) to develop students' autonomy and, consequently, to develop lifelong learning; (ii) to enlarge sources of information and of feedback; (iii) to engage students in working things out for themselves and ask for peer explanations, which can sometimes be better understood than those from the teaching staff. However, it seems that HE teachers put emphasis on measuring learning achievement and knowledge through traditional instruments (Blin & Munro, 2008, Peng, 2008), i.e., assessment is based mainly on tests, scored by the teachers. As Peng (2008) suggests, these assessment methods are quite narrow because the students are not implicated in the process.

Taking into account that peer assessment is a process whereby students assess or are assessed by their peers, several authors advocate that students can benefit from it and put forward the effects of peer assessment (Topping *et al.*, 2000). Although peer feedback has been extensively used to support students' learning in face-to-face classrooms and questions related with the goals and quality of peer assessment practices are addressed by different researchers (Gielen, 2007), the literature indicates that there is a lack of empirical studies about online peer assessment. Moreover, little is known about its efficacy in these contexts (Ertmer; Richardson; Belland,; Camin; Connolly & Coulthard, 2007), namely in online collaborative learning contexts, using Web 2.0 technologies. As referred by Waycott; Gray; Thompson; Sheard; Clerehan; Richardson & Hamilton (2010: p.1041) "there has been little guidance in the published literature on what constitutes good assessment practices when students are asked to create and publish content, or participate in networking activities, using social web technologies". The study presented in this paper is a contribution to reduce this gap.

As to the methodological approach, the study has a qualitative nature and is part of a wider project that seeks to develop and test evaluation and assessment strategies in online contexts. In previous publications the authors discussed the rationale that underlies the

assessment options and the results of the evaluation of a post-graduation module about Distance Education (DE) (Loureiro et al., 2010a, Pombo; Loureiro & Moreira, 2010). This paper describes how the explored e-assessment strategies evolved considering the learners' voices, crucial to evaluate the development of elearning, and the assumption that assessment is a powerful strategy to improve students' learning. The first two authors have a double role, since they are the teachers of the module under analysis and researchers. As reflexive teachers (Schön, 1993), the authors' research question concerns the potentialities of online assessment to promote students' learning in HE. The last two authors have a very important role since their involvement is a way to have peer feedback about the evolving practices of the DE module.

After this brief introduction, the next section describes the activities explored in the DE post-graduation module, where students were asked to collaboratively write a literature review about a topic of their choice. Special attention is given to the online assessment activities and how they evolved from the first edition of the module (2008/09) to the second one (2010/11). The e-assessment activities included teachers' as well as self and peer assessment. The methodological options and results of the study are also presented and discussed and, finally, some recommendations are put forward in order to take full advantage of online assessment for learning.

2. Evolving practices of e-assessment

This section describes the context and the study, two editions of a post-graduation module. The post-graduation module under analysis is related with Distance Education (DE) and part of the curricular year of a doctoral program on Multimedia in Education, offered at the University of Aveiro. The research competencies that students are supposed to develop in the doctoral program and that underlies its creation, are those required for independent research, such as: seeking and systematizing information, data gathering and analysis, communication, collaborative work and assessment skills (self and peer assessment). Bearing this in mind, in the DE module students collaboratively wrote a literature review about a topic of their choice.

The expected learning outcomes of the DE module are: i) to retrieve, select and analyze relevant information (papers, books, dissertations, reports...) about a topic related with DE; ii) to share, discuss, negotiate meanings/points of view expressed in the selected information and point out criteria to evaluate its relevance for the topic; iii) to contribute towards the creation of a friendly and participatory atmosphere; iv) to systematize and synthesize information regarding the construction of an academic publication; v) to use ICT properly and critically in the research process; vi) to communicate, orally and in writing, and contribute for the development of that skill among peers; vii) to assess the progress of the work that was produced collaboratively, as well as individual contributions (self and peer assessment) and provide constructive suggestions, based on the literature; and, finally, viii) to reflect upon the competencies that were developed by each one and by the colleagues (Pombo *et al.*, 2010).

Project work, problem solving, collaborative learning and assessment for learning are valued as strategies that promote effective online learning. The duration of the DE module was, in the first edition (2008/09), a five-week period with extensive online elements and two face-to-face sessions. In the second edition (2010/11), the module was delivered in a shorter period (four weeks).

Following the results of the evaluation of the first edition (Pombo *et al.*, 2010) some changes in the design of the DE module were introduced, namely concerning the e-assessment activities, as well as the used communication technologies. Table 1 shows that the assessment activities included a formative component, to which special emphasis was attributed, and that, in both editions, the assessment framework (e.g., the weight of the different dimensions, criteria and indicators, students' involvement...) was negotiated with the class in the first face-to-face session.

In order to contribute towards the reflection about the ongoing work and the learning outcomes, in the 2008/09 edition, students were asked to do a weekly individual reflection (self assessment). The first version of the group work was assessed by peers (each group assessed another group) and by the teachers (table 1). The teachers' and peer assessment of the first version of the ongoing work should include a score as well as qualitative feedback to facilitate the improvement of the work (Pombo *et al.*, 2010) and was provided through the module Wiki based webpage and therefore open. Although this option could strengthen lack of confidence feelings as well as fear of exposing errors (Topping *et al.*, 2000), it could also help students fulfil the task by learning from the feedback posted by their peers.

The assessment instrument used by both the students and the teachers to assess the ongoing work (literature review about a theme chosen by the groups) is available at the 2008/09 module website (<http://ead0809.wetpaint.com/>). It includes criteria and indicators to assess literature review papers, such as: i) clear definition of the research questions or objectives; ii) writing adequacy (for instance, use of academic writing norms); iii) relevance of the structure (including an introduction, the methodology used to retrieve and analyse the information, its systematisation, that could be organised in one section or several, and a conclusion); iv) originality of contribution (added-value, new information...); or v) adequacy of the information seeking and evaluation strategies (that should indicate the databases, the keyword, criteria for the inclusion and exclusion of the gathered information...).

Taking into account Topping *et al.* (2000) typology of peer assessment, in the first edition (2008/09), the peer assessment of the ongoing project work can be described as being both summative and formative, made by groups of students of the same year/module, using an online open tool, and thus not confidential, compulsory, supplementary (teachers assessed the ongoing group work, after the peer assessment), contributing to final grades (only the summative peer assessment) and without extrinsic reinforcement. The analysis of the quality of the formative peer assessment provided by the students in the 2008/09 edition showed that the overall quality of students' peer assessment could be better, since the majority of the groups didn't provide enough constructive feedback. Moreover, although peer assessment included criticism (both positive and negative) and suggestions for improvement, the groups didn't question their colleagues (Loureiro; Pombo & Moreira, 2010b).

2008/09	2010/11	Activities	Assessment
1st week	1st week	- Diagnosis of students' perceptions about how to do a literature review and about "Distance Education".	Self ➡ Self + PA
		- Familiarisation with the module guide and discussion of the proposed activities, including assessment.	
		- Individual readings of recommended literature and/or other materials related with theoretical and methodological issues to be taken into account to do a literature review.	
		- Exploitation of the reading sheet – instrument developed to help students analyse and document their readings.	
1st f2f session	1st f2f session	- Teacher, tutor and students' introduction and definition of work groups.	2010/11 ➡ – criteria transparency improved
		- Negotiation of the module activities, schedule and assessment framework.	
		- Expository session about online literature search tools (library technician).	
		- Presentation of tips on how to do a literature review (teachers).	

	2nd week online	- Discussion of the reading sheet (classroom).	
		- Discussion and syntheses of the students' readings about how to do a literature review	
		- Information search (groups).	
2nd week online		- 1st reflection about the ongoing activities and students' learning	Self ➡ Self + PA
		- Definition of the literature review themes related with DE and of the work plan (groups).	
		- Formative e-assessment of the work plan (each group assessed another group).	Teachers ➡ Teachers + PA Open ➡ Conf.
3rd and 4th weeks online	3rd week online	- 2nd reflection about the activities and the developed competencies	Self ➡ Self + PA
		- Development of the first version of the literature review.	
		- Formative e-assessment of the ongoing work (each group assessed another group).	Teachers and PA Open ➡ Conf.
		- Revision of the paper and preparation for its presentation.	
2nd f2f session	2nd f2f session	- Presentation, discussion and assessment (made both by peers and by the teachers) of the groups work.	Teachers and PA
		- E-assessment of the competencies developed (within each group and considering the learning outcomes of the module).	Self and PA
		- Module evaluation.	

Table 1 – Activities schedule of the DE module in both editions: 2008/09 and 2010/11 and changes in the proposed e-assessment strategies (PA – peer assessment, Conf – confidential, f2f – face-to-face)

Taking the above mentioned results into account and since in the first edition the the students did not valued the used assessment strategies (Pombo *et al.*, 2010), to improve the students' attitudes and perceptions about assessment for learning, as suggested by (Loureiro *et al.*, 2010a, Sato; Wei; Darling-Hammond, 2008 or Sluijsmans; Brand-Gruwel; Van Merrienboer & Martens, 2004), in the 2010/11 edition it was decided to provide students with extra opportunities to use the assessment criteria of the group work (formative e-assessment of three versions of the ongoing work was provided instead of one). On the other hand, the assignment of the task to the different groups was made by email. This way the assessed group didn't know which of the others groups analyzed their own group work. Consequently, peer feedback was confidential and could therefore be more authentic. The peer and teachers' assessment feedback, like in the first edition, could be accessed by all the persons involved in the module, making it possible to learn from all the provided feedback. However, unlike in the first edition and to increase students' confidence, the feedback was not public, it was delivered using GoogleDocs.

Although, in the first f2f sessions, library technician made a workshop sessions about literature search tools, in the former edition students felt difficulties with the criteria and indicators related with the "adequacy of the information search strategies" and the "evaluation of the information using appropriate criteria" (Loureiro *et al.*, 2010b). Consequently, the teachers concluded that punctual sessions about information retrieving techniques were important but not fruitful, especially if they were not reinforced throughout the module. Thus, in the 2010/11 edition and because that constraint was identified, the teachers decided to follow the students' work more closely and provide them regular feedback related with the methodological options and issues to find out and synthesize relevant literature. Additionally, the criteria and indicators to be used to assess the ongoing work could be accessed from the beginning of the module – which did not happen in the

2008/09 edition. Consequently, the transparency of the assessment criteria and indicators was greater.

3. Methodology

Given the lack of studies regarding e-assessment of online collaborative work exploring Web 2.0 tools, this study has a qualitative, exploratory and descriptive nature. The data, presented in the following section, was collected through an online questionnaire¹, in two different academic years, corresponding to the 2008/09 and 2010/11 editions of the DE module. The questionnaire was anonymous and the majority of the students enrolled in the modules submitted their answers – 22 (out of 24) from the 2008/09 edition and 18 (out of 18) from the 2010/11 edition.

The questionnaire designed to evaluate the above-mentioned modules includes five sections. The first section was used to characterise the students' profile in terms of age, profession and academic qualifications. The second section aimed at collecting students' opinions about the module in general, the teachers and the teaching and learning strategies. The third section intended at gathering students' opinions about the tasks and the fourth about the e-assessment process. Since the reflexive tasks were different (individual in the 2008/09 edition and in group for the other one), the formulation of the statement pertaining to that item was different. The questions related with the tasks, in the fourth section, were also formulated differently. In 2008/09 students were asked to point out the most difficult and most relevant tasks, while in 2010/11 the students were asked to use a five Licker (don't agree to completely agree and no opinion) scale to indicate the difficulty and the relevance of each task. Finally, an open question aimed at gathering students' suggestions for the improvement of the module. A total of 40 answers were obtained and analysed using quantitative techniques, namely descriptive statistics.

As to the profile of the respondents, specifically their age:

- a) Most of the participants in both editions were more than 30 and less than 40 years old (11 in the 2008/09 edition and 10 in the 2010/11 edition).
- b) 6 students of the 2008/09 edition and 5 of the 2010/11 edition were between 40 and 50 years old.
- c) 3 students of the 2008/09 edition and 1 of the 2010/11 edition were more than 50 years old.
- d) 2 students (of both editions) were less than 30 years old.

The majority of these students (16 of the 2008/09 edition and 18 of the 2010/11 edition) had already finished a MsD (pre-Bolonha Masters Degree in Sciences) and thus had some research experience. The others had a graduation degree in several different areas. 19 students enrolled in the 2008/09 edition and 12 in the 2010/11 edition, of the DE module, were teachers in different education levels.

The results of the evaluation of the first edition of the DE module were presented elsewhere (Pombo et al., 2010). In general, the students enrolled in the DE module felt interest for the module from the very beginning, mentioned the academic significance of the module, and referred that they had developed the proposed competencies, namely at the literature review and the collaborative work levels.

The students of both editions did not find it difficult to make the literature review (9% in 2008/09 and 11% in 2010/11). As to its relevance of the purposed group work, the percentage of students that found it important increased considerably from 50% in 2008/09 to 89% in 2010/11. In addition, several students of the 2010/11 edition appreciated and used

¹ The questionnaire, in Portuguese, can be accessed at <http://questionarios.ua.pt/index.php?sid=27459&lang=pt>.

in subsequent modules of the doctoral program the information seeking strategies and the reading sheet they have learned to explore during the DE module.

The next section will only present the results related with the e-assessment strategies explored in the two editions of the DE module, in order to analyse if the changes introduced (described above) may help to transform students' attitudes towards the e-assessment strategies and how e-assessment should be implemented.

4. Students' perceptions about the e-assessment tasks of the Distance Education module

This section is divided in two parts. In the first, the results of the analysis of the data collected are put forward: on the one hand, concerning the difficulty that the students felt in accomplishing the e-assessment tasks; on the other, concerning the relevance of those tasks for their learning process. In the second part, the focus is on their level of (dis)agreement regarding: i) the privacy of self and peer assessment, i.e. if it should be shared with the other students or not; ii) the participants on the e-assessment process; and iii) how the collaborative work should be assessed, i.e. if it should be divided into components, resulting in individual marks or if it should be assessed as a whole, i.e. resulting in one single mark at the group level (and for all the elements of the group).

4.1. Students' opinions about the e-assessment tasks: difficulty and relevance

Concerning the difficulty and the relevance of the proposed e-assessment tasks, when comparing the 2008/09 and the 2010/11 editions, even though sometimes considered difficult, it becomes clear that they are increasingly seen as relevant for a considerable percentage of students (see Figures 1 and 2). Actually, if in 2008/09 the percentage of students that considered the tasks relevant was between 23% and 50% (depending on the task), in the 2010/11 edition at least 89% of the respondents considered the e-assessment tasks relevant to achieve the learning objectives. Hence, the results seems to provide evidence that the students are more aware of the relevance of the e-assessment tasks when they have access not only to the objectives defined for the module and to the specific and systemic competences that they are supposed to develop but also, at the e-assessment task level, to the criteria and indicators to be used to assess their performance, since the beginning of the module.

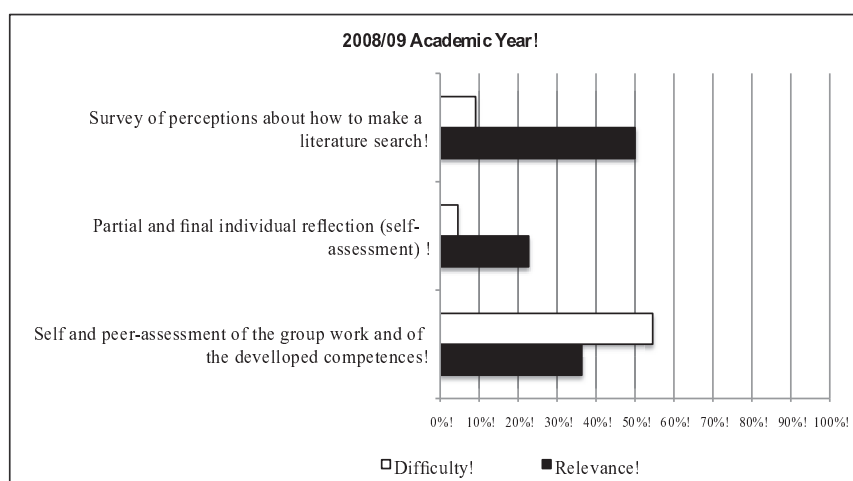


Figure 1 – Students' opinions about the e-assessment tasks: difficulty and relevance – 2008/09 Academic Year.

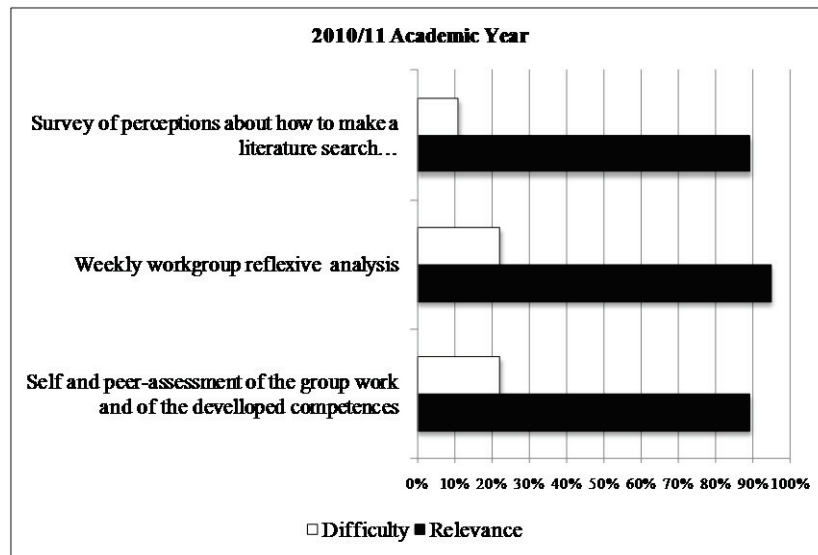


Figure 2 – Students' opinions about the e-assessment tasks: difficulty and relevance – 2010/11 Academic Year.

Regarding the reflexive tasks, i.e., “Partial and final reflection (self-assessment)” in the 2008/09 editions and the “Weekly workgroup reflexive analysis” in the other, and the “Self- and peer assessment of the group work and of the developed competencies”, in the first edition of the DE module, less than 40% of the respondents considered them relevant – 23% and 36 % respectively (see Figure 1). Moreover, 55% of the respondents (2008/09) also consider the self- and peer assessment of the group work and of the developed competencies a difficult task (see Figure 1). Since the majority of the students of the doctoral program in Multimedia in Education are teaching agents (in different educational levels), an explanation for this is the insufficient evaluation culture for improvement among teachers, as reported by (Marques; Loureiro & Marques, to be published, and Tomanek; Talanquer & Novodvorsky, 2007). Marques and colleagues concluded that the teachers' assessment practices tend to be mainly summative and test based. Besides that, “there is little research evidence suggesting that teachers commonly build or revise instruction and assessment based on evidence of student learning, a major part of a teaching for understanding practice” (Tomanek et al., 2007, p.1114).

As a consequence of the aforementioned, in the first face-to-face session of the 2010/11 edition, the teachers decided to discuss the goals of both tasks with the students, pointing out that the reflection that they were supposed to make each week would help them, as well as the teachers, to be aware of the development of their learning (and teaching) process. This strategy revealed itself very useful, once both parts (students and teachers) interacted, aiming at overcoming the difficulties identified by the students – an aspect that becomes clear in the comparison of the students' perceptions about the reflection tasks.

Likewise, as to the self- and peer assessment of the group work and of the competencies developed making the criteria for the self- and peer assessment available, so that students could organise their work taking that into account, seems to be valued by the students. Figure 2 provides evidence of this, once 94% of the respondents considered the “Self- and peer assessment of the group work and of the developed competences” relevant – percentages that are very distant from the ones identified for the 2008/09 edition (see Figure 1). Moreover, only 22% of the students found these tasks difficult to achieve.

4.2. Students' opinions about the e-assessment tasks: privacy, participants and components

Concerning the e-assessment tasks and taking into account the students' answers, there is a lack of consensus on whether peer assessment should be published in the module's site. On

the one hand, in both academic years (2008/09 and 2010/11), the majority of the students (68% in 2008/09 and 78% in 2010/11 – see Figures 3 and 4) felt comfortable with sharing the results of the “Self and peer assessment of the developed competencies”, done within each group; but the same does not happen as to the “Self- and peer assessment of the group works”.

In other words, there is a significant drop in the percentage of students (from 55% in 2008/09 to 28% in 2010/11) that think that the self and peer assessment done between groups (in which each group assesses the work developed by the other groups) ought to be made available in the module's site (Figures 3 and 4). A possible explanation for these results is that students felt uncomfortable assessing the group work and reticent to openly expose their own reflections (self and peer assessment), since the groups were revising de literature related with different topics, i.e., students could have felt that their familiarity with the topics was not the required one to assess their colleagues' group work. This could also be linked to the fear of publishing errors that could be read by everybody, as referred by Draper (2007), given that the groups were supposed to comment the group work and provide suggestion to improve it.

As to the participants in the assessment of the online collaborative work process, the students' answers slightly different. In other words, in the 2008/09 edition, when asked if they agreed that the teachers should be the only agents in the process, even though 9% of the students answered that they agreed, the great majority (91%) disagreed or completely disagreed that it should be teacher-centred (Figure 3). Likewise, in the 2010/11 edition, 28% of the students answered that they disagreed and 44% completely disagreed, i.e. a total of 72% of the students answered that the e-assessment process regarding the collaborative work ought to be done by the teachers and their peers, i.e., ought not to be teacher-centred (Figure 4).

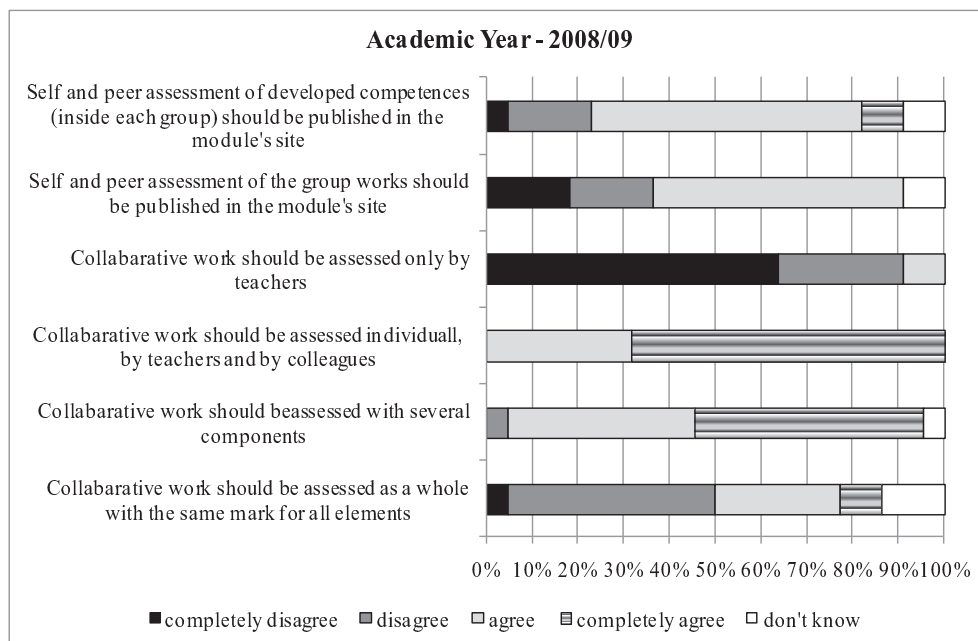


Figure 3 – Students' opinions about the e-assessment tasks: privacy, participants and components – 2008/09.

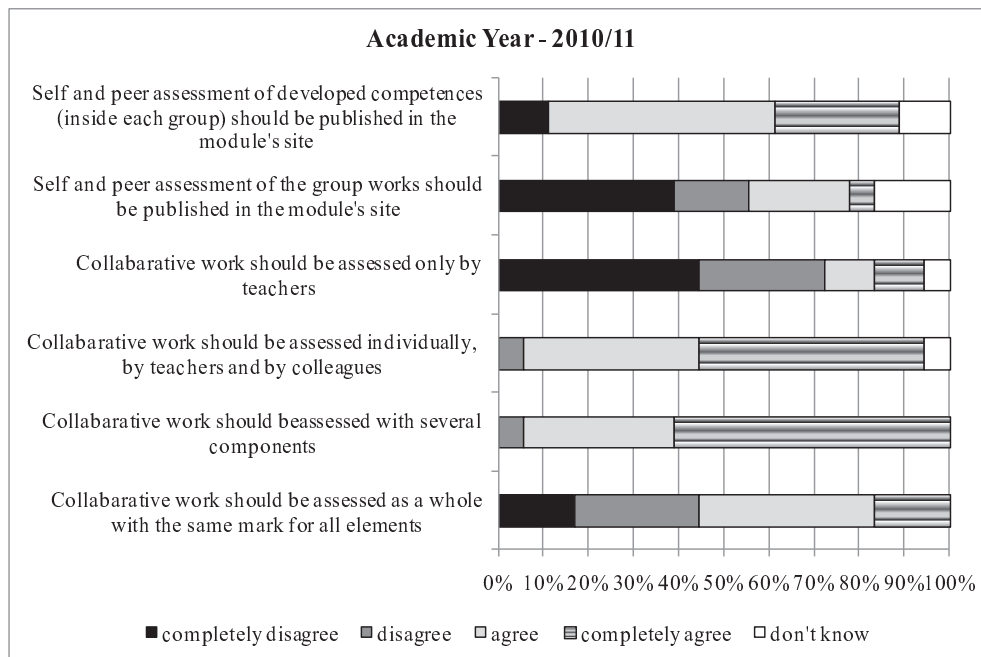


Figure 4 – Students' opinions about the e-assessment tasks: privacy, participants and components – 2010/11.

The increase in the number of students of the 2010/11 edition considering that collaborative work should be assessed only by teachers (more than 20% in 2010/11 while in 2008/09 the equivalent percentage was less than 10%) may be related with the students' confidence with the quality of their colleagues' feedback. In fact, while in the 2008/09 edition the quality of peer assessment was quite homogeneous, although it could be better (Loureiro *et al.*, 2010b), in the 2010/11 edition more than one group complained about the quality of the feedback provided by their colleagues, for instance, referring that the feedback was rather negative and suggestions for improvement were not provided. This suggests that within the class group there were different perspectives and expectations towards the peer assessment task. The previously mentioned comments may also have to do with conflicts generated by different learning styles or abilities concerning communication. In summary, as pointed out by Dillenbourg and colleagues (2009), emotional factors may have hindered the peer assessment tasks and explain the results obtained concerning how students' group work should be assessed.

Besides the above mentioned aspects, in both editions of the DE module – 2008/09 and 2010/11 – when asked if “collaborative work should be assessed individually by the teachers and by their colleagues, and not just by the teachers”, almost the totality of the students agree (32% in 2008/09 and 39% in 2010/11 – see Figures 3 and 4) or completely agree (68% in 2008/09 and 50% in 2010/11 – see Figures 3 and 4).

When comparing the answers collected in both editions of the DE module related with what components should be assessed, it becomes clear that an important percentage of students – more than 90% of the students – 91% in 2008/09 and 94% in 2010/11 (Figures 3 and 4) – considered that collaborative work should be assessed taking into account several components (e.g., the process, the final product and also the individual participation and competencies), which is in accordance with the proposed framework. As a curiosity, it is interesting to notice the increase in the percentage of students that have chosen the answer “completely agree”, probably meaning that the students increasingly see advantages in not focusing the assessment on one single product, but on several teaching and learning products and processes.

Figures 3 and 4 also show that there were diverging opinions about whether collaborative work should (or should not) be assessed as a whole, giving the same mark to every student

of a group, i.e. in 2008/09, 50% of the students had favourable opinions and 36% unfavourable ones and, in 2010/11, 39% were favourable and 45% unfavourable. The authors consider that this issue can be related with the way the students worked in groups, but also with time constraints. Students that worked in cooperation, dividing the tasks, probably think that it is fairer to have different marks. In the wiki of the DE module of 2008/09 it is evident that some groups explored cooperative work, with clear division of tasks and probably with different involvement among elements. The text was written in different colours and possessed different parts added by different students. The weekly reflexive task asked for in the 2010/11 edition also shows that not all the groups worked collaboratively. If the tasks were developed collaboratively (all the group elements contributing to the different parts of the group work), probably the students would feel that all the group members should have the same mark. The differences between the editions may be related with students' perceptions of assessment, learning styles, as for the previous results.

5. Final Considerations

Like suggested in the literature and from the authors experience students' attitudes towards assessment can hinder the potential of e-assessment as a learning strategy. The above presented study aimed to analyse if providing and discussing a proposed e-assessment framework (including the criteria and indicators) which HE post-graduation students from the very beginning of a blended learning module and organising several opportunities to receive peers' and teachers assessment may help to transform the students' attitudes towards the e-assessment strategies and how e-assessment should be implemented. Taking into account previously published results (Loureiro et al., 2010b , Pombo et al., 2010) and the results presented above, it seems that in fact the students of the second edition of the DE module had better perceptions concerning the designed e-assessment task, both self and peer assessment.

While relevant for the area, namely since the paper describes successful e-assessment for learning strategies, that can be adopted in similar contexts, further research is needed taking into account the limitations of the study. In fact, the reported results were gathered in a HE module i) involving a small number of students, in both editions of the module and ii) using a survey which has recognised restriction. On the other hand, the differences in the above presented students' perceptions about e-assessment may be attributed to the changes introduced in the DE module but also to other variables, like the students' perceptions of the group work and approaches to learning, as suggested by other researchers (Yang & Tsai, 2010). In fact, globally, the students of the 2010/11 edition had more research experience than their colleagues. In consequence, those students' perceptions (more positive than the ones of the first edition) may be attributed to more deep approaches to learning or to their positive perceptions towards the proposed group work, to make a literature review.

From the results of the study the authors suggest that, if learning objectives similar to the ones of the DE module are aimed in HE subjects, students should be encouraged to face e-assessment (self and peer formative and summative assessment) as a powerful learning strategy, since, on the one hand, this strategy can give students the possibility to gain a deeper knowledge of their own and their mates work and can promote collaborative co-construction of knowledge and, on the other hand, it is a way for faculty teachers to better grade the student's individual contributions within the workgroups, as suggested in the literature.

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Avaliação e promoção de competências relacionadas com a Literacia de Informação recorrendo às TIC

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Resumo

O presente contributo enquadra-se no domínio do uso das Tecnologias da Informação e da Comunicação (TIC) por estudantes do Ensino Superior e visa apresentar uma revisão sistemática da literatura da especialidade no que respeita à avaliação e caracterização de competências relacionadas com a Literacia de Informação (LI) recorrendo às TIC, bem como estratégias que promovam o seu desenvolvimento. Apresenta-se ainda um referencial de avaliação, nomeadamente as dimensões, critérios e indicadores, das competências relacionadas com a LI que desejavelmente os alunos do Ensino Superior deviam ter ao nível do 2º e 3º ciclo de Bolonha. O referencial servirá de base para a avaliação diagnóstica das competências destes alunos em LI em recursos digitais, com o objetivo de, por um lado, as caracterizar e, por outro, conhecer as necessidades de formação dos alunos. Neste estudo, LI envolve competências de pesquisa, seleção e tratamento de informação em recursos digitais, necessárias para a investigação na Educação.

Palavras-chave: Literacia da Informação; Avaliação; Estratégias de desenvolvimento; Ensino Superior.

1. Introdução e enquadramento

A utilização e o desenvolvimento das Tecnologias da Informação e Comunicação (TIC) nas diversas áreas do conhecimento têm contribuído para uma mudança considerável na forma como se pesquisa, seleciona e trata informação, em particular de cariz académico. Esta mudança requer que os estudantes do Ensino Superior tenham competências relacionadas com a Literacia de Informação (LI). Conforme Virkus (2009) e da pesquisa efetuada, outros termos estão associados a LI, por exemplo, *infoliteracy*, *information empowerment*, *information competence*, *information literacy skills*, *information literacy competencies*, *information competence skills*, *information handling skills*, *information problem solving skills*, e *information mastery*. Contudo, tal como refere a autora, o termo LI é o mais utilizado, daí o termos adotado.