

THE MANAGEMENT OF A PLE FROM THE PERSPECTIVE OF HIGHER EDUCATION STUDENTS

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ABSTRACT

This paper presents the results of an exploratory study. The goal is to understand the nature of the difficulties faced by higher education students, when they are encouraged to use methodologies based on the use of online Personal Learning Environments (PLE). Two groups of 2nd-year degree students were surveyed through a questionnaire, in two different academic years, as part of a curricular subject that promotes a working strategy based on the presentation and discussion of theoretical content in the classroom, and additionally on the undertaking of tasks outside a face-to-face context, involving students exploring the potential of the Internet and the social software. Analysis of the results led to the conclusion that, despite the students recognising, in general, that the undertaking of PLE depends largely on themselves, namely the organisation and management strategies they implemented, they did not feel prepared for this type of learning. The students experienced difficulties in personal organisation, the adoption of continuous and systematic working methods, participation in the tasks set and completion of the learning tasks. To overcome these difficulties, the students preferred to ask the teacher about their doubts rather than to interact with their classmates, and use the different tools and technologies available online. The conclusion was that preparatory work must be undertaken in advance to encourage the creation and use of personal online environments as a learning method in higher education, aimed at fostering competencies such as autonomy in learning, the ability to reflect and the capacity for critical analysis of the students' own output.

KEYWORDS

Personal learning environments; Strategies for learning; Self-regulation; Autonomy; Social software

INTRODUCTION

Personal Learning Environments (PLE) are a response to the pedagogical approaches advocating that e-learning systems need to be under the control of the learners themselves (Van Harmelen, 2006.), but also a response to the desire to build bridges between the worlds of formal and informal learning, from a life-long learning perspective. Both responses acknowledge the importance of the learner's action as an agent of his own process of change, with the capacity to use learning strategies tailored to the demands and opportunities afforded, namely "by increasingly prevalent forms of social software and the new paradigms of the web as a technology platform" (Wilson, Liber, Beauvoir, Milligan, Johnson & Sharples, 2006, p.10). We are referring, specifically, to web-based technology, which allows interaction, discussion and collaboration both in real time, as is the case with chat rooms and audio and/or video applications, and asynchronous communication such as e-mail, lists or discussion forums, blogs, wikis, the social networks and many others that every day emerge and which have huge potential, if used properly at the service of learning goals. Although the specific benefits of using the emerging technologies are often reported, the enormous number of online resources available end up bringing added difficulties to the teaching and learning process, especially as regards the management of information, above all when contrasted against the kind of information and the way it is traditionally transmitted in university.

Recognising precisely that the use of technologies requires both teachers and students to mobilise a set of regulation strategies and processes that will help them satisfy the search for meaning, inherent to the learning tasks set, Laurillard (1993, 2002) set forth and described four strategies that, from our point of view, take on particular interest when the intention is to use the potential of the digital technologies to implement working methods that require greater cognitive involvement by the students and

consequently the mobilisation of meta-cognitive, self-assessment and self-regulation strategies. Taking into account the type of interaction between teacher and student when a given tool is used, in general these strategies can be characterised as follows: (i) discursive strategy, as manifested by recognition of the importance of adopting an inquiring attitude and systematic search by both parties; (ii) adaptive strategy, which takes us to the necessity to adjust processes, procedures and actions, taking into account the concessions of the different intervening parties; (iii) interactive strategy, which invokes the need for constant listening and dialogue between the teacher and the student; and (iv) reflective strategy, which calls for the creation of opportunities that facilitate the reflection not only of what is being learned, but also about how one learns it and about the role of each intervening party in the teaching and learning process. Based on these four strategies, this study aims to understand how higher education students manage the learning processes when placed in a working dynamic that is based on the exploration of the potential of the Internet and the social software technologies to construct knowledge.

CONTEXT AND METHODOLOGICAL APPROACH

A work strategy was implemented in a degree subject at Lisbon University based on the presentation and discussion of theoretical content in the classroom, and to complement this, the undertaking of tasks outside a face-to-face context, involving students exploring the potential of the Web and the social software technologies. Using the functionalities of the ELGG system, but at liberty to use any of the tools provided on the Internet, the students were asked to regularly report on the work they would carry out in an environment we called *Escola 2.0*, where each student had their own personal space and could freely register their thoughts, searches and connections.

The initial work of the teachers resided in the clarification of what this work strategy intended to achieve, the type of products that would make sense to include in the individual environment, and the need for organisation, care and effort this kind of work implied. Given that the curricular work carried out with the students was based on the use of digital technologies, as an incentive to the creation and use of personal learning environments (Attwell, 2007), in strict articulation with the learning portfolio concept (Barrett, 2000), this study is part of work and reflection that aims to identify the possible convergence between the pedagogical potential of the digital technologies in a network and the learning aims, whether these are set out in a formal learning perspective, or from the perspective of learning that occurs outside the formal teaching context of education and training (Osborne & Hennessy, 2003; Hague & Logan, 2009).

In order to describe and understand how higher education students manage the learning processes in methodological terms, we have opted for an exploratory approach, of a descriptive and interpretive nature (Bogdan & Biklen, 1994; Almeida & Freire, 2000). To gather data we built a questionnaire, structured and organised in three essential parts. The first part aims to find out the students' perception concerning the difficulties felt in the management of the learning process. It included 22 items with a 6-point Likert scale based on agreement/disagreement (1 – completely disagree; 6 – completely agree). The items resulting from an analysis of the content carried out prior to the final reflection work delivered by the students at the end of the semester were organised and split into four categories of an inductive nature (Organisation, Learning, Participation and Resources). The second part, focused on the strategies used by the students in managing the learning process, encompassed 12 items with a 6 point Likert scale based on their frequency (1 – never; 6 – always).

The items were organised and split into four categories (Discursive, Adaptive, Interactive and Reflective), inferred from an interaction analysis model between the teacher and student when a given tool is used in an educational context (Laurillard, 1993, 2002) described earlier in the introduction of this work. The third part intended to identify factors that, from the students' point of view, could hinder or help the success of the implementation of PLE in higher education. With this intention, an open question was asked so that the students could add any aspect they considered relevant on the subject. The questionnaire was applied two months after the semester finished and after the students knew what mark they had obtained in the subject. The analysis of the quantitative data (1st and 2nd parts) was

carried out using the functionalities of the Survs application (<http://www.survs.com>), the same that was used to create and apply the online questionnaires. The answers to the open question (3rd part) were the subject of content analysis, in line with the recommendations in the literature of the speciality (Bardin, 2004).

Two groups of students attended the 2nd year of the Education Sciences Degree in 2010 and in 2011. From the total number of students (n=67) in 2010, thirty took part in the study (44.8%), the vast majority of whom were of the female sex (90%), and were 22 years old on average. In 2011, out of the total of 75 students, forty took part in the study (53.3%), 88% of whom were of the female sex and were 23 years old on average.

RESULTS

We now present the most significant results to enable an understanding of the students' perception regarding the proposed work strategy, especially highlighting the difficulties felt in the management of the learning process, the way these difficulties were overcome, and finally the underlying factors to complete the non-classroom tasks set.

Difficulties in managing the learning

The items relative to the difficulties felt by the students are set out in Table 1, which shows the average (\bar{X}) obtained for each of the items included and the average of the averages ($\bar{\bar{X}}$) obtained in the different categories. Based on the latter, one can conclude that in 2010 the main difficulties shown by the students are linked to the "Participation" in the tasks set ($\bar{X}=3.33$) and personal "Organisation" ($\bar{X}=3.25$). In 2011 however, the difficulties revealed were more linked to "Participation" ($\bar{X}=3.09$) and the "Learning" process ($\bar{X}=2.94$).

Table 1. Averages relative to the difficulties felt in managing the learning process

Items		Items (\bar{X})		Categories ($\bar{\bar{X}}$)	
		2010	2011	2010	2011
1. Keeping up with the tasks set by the teachers.	Organisation	2.83	2.68	3.25	2.53
2. Managing time in accordance with the tasks set.		3.83	3.61		
3. Sticking to the delivery deadlines of the tasks requested.		2.74	2.64		
4. Defining my personal learning objectives.		3.09	2.86		
5. Working continuously and systematically on my portfolio.		3.74	3.38		
6. Remembering the work concepts in the lessons.	Learning	2.96	2.75	3.11	2.94
7. Regularly reflecting on the learning carried out.		3.57	3.32		
8. Using and taking advantage of some of the tools discussed in the lessons in other contexts.		3.35	3.11		
9. Explaining the knowledge involved in undertaking the tasks set.		2.78	2.64		
10. Managing the quantity of information made available in <i>Escola 2.0</i> .		3.09	2.90		
11. Selecting and summarising the relevant and pertinent information.		2.91	2.75		
12. Deepening the questions discussed in the classroom through complementary research.		3.13	3.10		
13. Regularly taking part in the "Family in a Network" discussion forum.	Participation	3.83	3.38	3.33	3.09
14. Reading the material suggested by the teachers.		3.39	3.03		
15. Documenting the learning process in the individual portfolio, on a weekly basis.		3.91	3.59		

16. Keeping track of the work carried out by classmates, giving them constructive feedback.		3.43	3.25		
17. Exploring some of the tools suggested by the teachers independently.		2.74	2.61		
18. Sharing information, reflections and experiences with classmates, teachers and other participants in the process.		2.70	2.68		
19. Knowing how to use all the functionalities provided in the <i>Escola 2.0</i> tools (blog, discussion forum, chat, videos, etc).	Resources	3.13	2.93	2.69	2.54
20. Accessing <i>Escola 2.0</i> .		2.39	2.25		
21. Having to use the digital technologies to achieve the aims of the subject.		2.57	2.46		
22. Managing the public exposure that the <i>Escola 2.0</i> tools entail.		2.65	2.50		

[Scale: 1= Completely disagree; 6= Completely agree]

In the case of “Participation”, the greatest difficulties felt by the students from the two classes were linked to “regularly taking part in the discussion forum [...]”, “documenting the learning portfolio in the individual portfolio, on a weekly basis” and “keeping track of the work carried out by my classmates, giving them constructive feedback”. In relation to personal “Organisation”, the issues that most stood out are the difficulties in “managing time in accordance with the tasks set” and “working continuously and systematically on the [...] portfolio”, in the 2010 class. As for the 2011 students, the difficulties linked to “Learning” are mostly “reflecting regularly on the learning carried out”, “using and taking advantage of some of the tools used in the lessons in other contexts” and “deepening the issues discussed in the classroom through complementary research”.

Management strategies of the learning process

Among the strategies that the students said they most used (Table 2), the “Interactive” nature of the strategies came to the fore in the two groups of students, i.e. the strategies that resulted in interactions established with a variety of resources (technological and human) and which manifested themselves in the students’ ability to independently manage their learning process.

Table 2. Averages relative to the strategies used in managing the learning process

Items		Items (\bar{X})		Categories (\bar{X})	
		2010	2011	2010	2011
1. I shared and exchanged information with classmates using the communication tools of the <i>Escola 2.0</i> (e.g. chat, message box, comments, direct messages, discussion forum, etc).	Discursive	3.27	3.04		
2. I asked for support from the teachers whenever issues arose in carrying out a given task, by e-mail or via <i>Escola 2.0</i> .		3.86	3.54	3.53	3.23
3. I tried to deepen my grasp of certain ideas or concepts by writing an individual blog.		3.45	3.11		
4. I adapted the use of the tools available on <i>Escola 2.0</i> in accordance with my learning objectives.	Adaptive	3.95	3.68		
5. I adopted a constantly curious attitude, seeking to record my personal portfolio which was the best illustration of my learning progress.		3.59	3.25	3.86	3.58
6. I selected the <i>Escola 2.0</i> tools that best suited my personal learning interests.		4.05	3.82		
7. I independently developed my portfolio throughout the semester.	Interactive	4.36	4.04		
8. I appreciated the assessments and/or suggestions provided by the teachers, seeking to improve my portfolio output.		4.73	4.36	4.27	3.93
9. I took advantage of the different digital systems to present ideas		3.73	3.39		

and content in a diversified manner.

10. I regularly reflected on the teaching and learning process, seeking to better understand my role in the process.	Reflective	3.73	3.57		
11. I took part in the different digital systems to organise and record my reflections in a creative way.		3.64	3.43	3.62	3.93
12. I adopted a critical attitude in relation to the different teaching strategies developed by the teachers.		3.50	3.18		

[Scale: 1= Never; 6= Always]

Considering the set of strategies adopted to improve the students' output, the following stood out from the rest: the assessments and/or suggestions supplied by the teachers (item 8), the independent management in the development of the portfolios (item 7) and the profitable use of the different digital systems to present ideas and content in a wide-ranging manner (item 6).

Underlying factors to complete the tasks set

Grouping together the students from the two years and in accordance with the results presented in Table 3, the factors of an intrinsic nature (83,19%) clearly predominated in the answers in relation to the factors of an extrinsic nature (16,81%), with the "personal investment" put into achieving the tasks and the "motivation to learn" coming to the fore. Even so, the students' answers suggest that the way the teachers organised the learning has a considerable influence in completing the non-classroom tasks, namely through the interest generated by the content and the tasks themselves for the students.

Table 3. Underlying factors for completing the non-classroom tasks set from the students' point of view

Intrinsic factors (linked to the students themselves)	%		
	2010	2011	Total
- Effort/Dedication/Personal Investment	12,39	15,04	27,43
- Motivation to learn	7,96	7,96	15,93
- Adoption of attitudes favourable to independent work	5,31	3,54	8,85
- Adoption of attitudes favourable to participation in a classroom context	1,77	4,42	6,19
- Creative and innovative skills	1,77	3,54	5,31
- Ability to reflect and critically analyse	1,77	2,65	4,42
- Definition of the learning objectives and participation in accordance with these objectives	0,88	2,65	3,54
- Management and individual organisation	0,88	1,77	2,65
- Recognition of the value and benefits of using a PLE to learn (individual and social)	0,88	1,77	2,65
- Adoption of attitudes favourable to collaboration and sharing	0,00	2,65	2,65
- Responsibility and individual commitment in the learning	0,88	0,88	1,77
- Ease and comfort at handling and using the technologies	0,88	0,88	1,77
Total	35,40	47,79	83,19
Extrinsic factors (linked to the teacher, content and tools)	%		
	2010	2011	Total
- Interest aroused by the content and the tasks set	2,65	6,19	8,85
- Guidelines, support and suggestions given by the teachers concerning the tasks to be carried out	2,65	0,88	3,54
- Access to the different tools using <i>Escola 2.0</i>	0,00	2,65	2,65
- Teachers' encouragement for the students to participate	0,88	0,88	1,77
Total	6,19	10,62	16,81

CONCLUSIONS

Overall, the results suggest that the difficulties felt by the students are linked to participation in the tasks set and completion of the learning tasks. In effect, despite recognising that completion of the task depends to a large extent on the student himself/herself, given that each student has to take responsibility for organising and managing his/her own learning (Attwell, 2007; Barrett, 2000), it was noted that the students did not feel prepared for this aspect. They showed difficulties in the personal organisation and individual management of time and found it hard to adopt continuous and systematic working practices. In this background, and although it may appear contradictory as regards work focused on the student, guidelines have to be established to carry out the tasks.

Moreover, the students show a need to feel “controlled” in relation to the undertaking of the tasks set, and have to be systematically stimulated and encouraged to take part in the online personal learning environment. As for the students’ opinion about the work carried out, we can sum it up by saying to do work of this kind in higher education, and to encourage the students to create and use personal learning environments, it seems to be important to undertake prior preparatory work in order to develop skills such as independence in learning, the ability to reflect and the capacity to critically analyse based on the student’s own output.

In other words, we can say that the incentive towards the creation and use of online personal environments as an ideal strategy for learning should include a set of actions geared towards improving motivation, from the intellectual point of view, and the development of positive emotions (Torrano, González, 2004), which necessarily implies prior knowledge of the students (knowledge, attitudes and skills), including knowledge of their expectations in relation to the proposed methods of working that differ from more traditional educational methods. It is a question, basically, of helping students to draw up strategies to deal more suitably with the emerging difficulties, which in an online learning context implies redoubled attention by the teacher with regard to the communication processes and the interaction among the students and between the students and the teacher (Laurillard, 1993, 2002). To sum up, it is important to help the students incorporate these strategies, accepting that these strategies, more than those acquired naturally, must be constructed and will therefore benefit from environments that intentionally provide the conditions to enhance skills such as independence and individual organisation, taking advantage of the technologies available.

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