FOSTERING SELF-DIRECTION AND AUTONOMY THROUGH THE USE OF WEB TECHNOLOGIES

Lia Raquel Oliveira
University of Minho
Institute of Education and Psychology
Department of Curriculum and Educational Technology
Campus de Gualtar, 4710-075, Braga, Portugal
lia@iep.uminho.pt

Abstract: As the Internet has transformed modes of accessing, producing and diffusing information, universities need to rethink pedagogical approaches, including the effective use of the web. A website (dynamic, interactive and multimedia data base) was created in 2001/02 as a didactic device to support teaching and learning Educational Technology in pre-service teacher training programmes at the University of Minho. It aims at making lesson time and space more flexible, fostering the collaborative construction of knowledge, and promoting interactivity, reflectivity and self-direction. The model is briefly presented, and a case study project designed to test its potential value is described.
FOSTERING SELF-DIRECTION AND AUTONOMY THROUGH THE USE OF WEB TECHNOLOGIES

Lia Raquel Oliveira

University of Minho
Institute of Education and Psychology
Department of Curriculum and Educational Technology

Campus de Gualtar, 4710-075, Braga, Portugal
lia@iep.uminho.pt

Abstract: For the knowledge society to be real, the university needs to reflect upon the kind of education it provides and to undertake changes in its pedagogical practices. One of these changes includes the use of the Internet as a didactic device for learning. A web site was created in 2001/02 (dynamic, interactive and multimedia data base) with the purpose of make attended classes more flexible, in terms of time and space management, by creating a virtual environment based on “good pedagogical practices” (community, sharing and collaborative construction of knowledge). The design of a case study (methodologies and strategies) is presented.

INTRODUCTION

For the knowledge society to be real, the university needs to reflect upon the kind of education it provides and undertake changes in its pedagogical practices. One of these changes includes the use of the Internet as a didactic device for learning. A web site was created in 2001/02 (dynamic, interactive and multimedia data base) with the purpose of making attended classes more flexible, in terms of time and space management, by creating a virtual environment based on “good pedagogical practices” (community, sharing and collaborative construction of knowledge). The outline of a case study (methodologies and strategies) is presented, which is part of the collaborative research project entitled Transforming pedagogy at university – experiences of research into teaching and learning. Its main purpose is to develop a scholarship of teaching and learning, as defined by Shulman (2000: 50):

“We develop a scholarship of teaching when our work as teachers becomes public, peer-reviewed and critiqued, and exchanged with other members of our professional communities so they, in turn, can build on our work. These are the qualities of all scholarship.”

Underneath this idea are concerns about the future of the academy and the pressures of society and the labour market but, mainly, about a professional ethics which obliges us to be responsible for the quality of students’ learning under our guidance. For this reason we consider that effective peer collaboration is urgent. We also think that the dissemination of “good practices” of teaching and learning is essential, to allow transfer to similar contexts.

1 TECHNOLOGIES AND LEARNING IN HIGHER EDUCATION
This case study approaches the use of web technologies in pedagogy at university, within a course on Educational Technology that integrates the curriculum of pre-service teacher training programmes. The new technologies of information and communication, and more specifically the Internet, have radically transformed the ways in which information is accessed and produced, as well as the scale of its diffusion. At the same time, forms of communication have changed, too. The university – by producing knowledge and human resources – is in the origin of these transformations and should never stop having some control over them, for reasons that seem obvious to us. Society is changing, and so is the available knowledge. The work market requires professionals who are flexible, critical, with high self-learning competences, ability to adapt and a collaborative pro-active spirit. A professional with such characteristics needs to get used to being autonomous and responsible in his/her initial training.

“L’idée n’est pas nouvelle: dès 1792, Condorcet, ne disait-il pas que les jeunes gens devaient acquérir ‘l’art de s’instruire par soi-même’, pour continuer à apprendre tout au long de leur vie. Et ce princeipe fondamental est à la base de toutes les conceptions modernes de l’éducation depuis Pestalozzi, Rousseau et Kant… Ce qui est nouveau, c’est que cette belle et noble idée est devenue une exigence de société.” (Jacquinot, 1993:65).

In this context, the university needs to reflect upon the kind of education and the forms of learning it provides. We believe it has to undertake some changes in its pedagogical practices. One of these changes has to do with an effective use of the web as a didactic resource. This means that it is necessary not only to transpose study materials to the net but also, and above all, to conceive and develop environments that sustain methodologies and strategies which allow significant learning and lead to autonomy. We are not dealing with the issue of long-distance teaching but rather with the reconceptualisation of formal education through the use of technology at hand, exploring its potential for communication and distribution. As a matter of fact, precisely due to this technology, we are facing more and more, and mainly since 1985\(^2\), a strong convergence between the two teaching modes that results in e-Learning\(^3\).

We accept the following definition of autonomous learning:

“Autonomous learning (within the context of a learning institution) is a process in which the learner works on a learning task or activity and is largely independent of the teacher who acts as manager of the learning programme and as a resource person. Under these circumstances the behaviour of the learner is characterized by responsibility for his or her own learning, a high level of independence in performing learning activities and solving problems which are associated with the learning task, and the use of the teacher as a resource person” (Higgs. 1988: 41).

We are aware of the risks involved in the use of methodologies and strategies that lead to autonomous learning in which the student is an actor of his own learning. This is not the tradition on any teaching level – the teacher is supposed to “teach” because that is the prevailing paradigm. We obviously assume a necessity to move from the traditional paradigm of learning as the accumulation of knowledge to a constructivist paradigm that envisages “le passage de la doxa, celle du savoir-chose ou substance à une connaissance émergente, au caractère socialement construit et ‘toujours déjà coopératif’ de l’acte de connaissance.” (Boulier, 2000:157) Paradoxically, when a student “doesn’t learn”, it is, inexorably, his fault.

2 THE BACKGROUND TO THE CASE STUDY

According to Blanco (1999):
“The great educational richness of the Communication and Information Technologies, because of the nature of their structure and of the new communication circumstances they enable, is the fact that they provide new options in school and curriculum organisation, and their potential value may have an influence upon different levels: organisational (flexibility of time and space), content (construction of Knowledge Society) and methodological (creation of unique and various methodologies).”

In the particular case of teacher professional development, these technologies, though not being “the” solution to the problems of education, offer unique and concrete opportunities: the creation of learning communities and the actual possibility of communication and sharing, the access to specialized professional support for up-dating knowledge, methodologies, cultures – according to each teacher’s particular needs –, saving time and money if the working places are properly equiped. Besides creating appropriate working conditions, teachers must be self-motivated and become aware of the need to become life-long learners.

It is our belief that one learns by doing, and the sooner the better. It is of the highest importance that initial teacher education includes technological training through the use of technologies within a theoretical and methodological framework. The University of Minho has been making an effort in this area by investing in the domain of Curriculum and Educational Technology. We lack studies that can tell us about the impact of that training in schools.

This case study builds on an on-going research-development study (Oliveira & Blanco, 2001), whose primary objective is to discuss and understand the process of conceiving and implementing a web device for education. Its purpose is to provide a working tool which allows pedagogical and didactic reflection on the use of web technologies in higher education, within initial teacher education programmes.

In this context, a web site was designed, aimed at providing support for teaching and learning any subject-matter at university. This prototype can be used outside and/or in the classroom and has been developed, both as a model and an example, within the subject of Educational Technology (3rd year of the teacher education curriculum).

The purpose of the web site is to make attended classes more flexible, in terms of time and space management, by creating a virtual environment based on “good pedagogical practices” which can be translated into the notion of community (group, the feeling of belonging), sharing and the cooperative construction of knowledge. Flexibility will give students more autonomy in their learning process because, during their training period, they have access to an interactive reference online regarding the subject, and may use it in accordance with their personal characteristics (learning styles and pace).

More concrete objectives include the way in which access to relevant information is facilitated, making thematic communication more dynamic (students-students and students-teachers), promoting the development of information literacy skills (Oliveira, 2002), and simplifying some of the teacher’s administrative and organisational tasks, thus contributing to improved quality in learning.

This web site was first implemented in the second semester of 2002 with approximately seventy students from teaching degrees (languages and science). From the analysis of the data obtained by means of a questionnaire handed out to the students who used the web site, we noticed a very positive response (over 90%) to every question posed. However, participation
on the Discussion board (described below) and the amount of messages via E-mail were extremely reduced, denoting not exactly a lack of interest from the students but rather an absence of the need to use those communication alternatives. In fact, because of the methodology and strategies implemented in the course, students were so involved in the projects they developed that the web site became only a “space” of reference, not assuming a relevant role in the communication dynamics. Anyway, this was not surprising if we take into account the nature, the intentions and the objectives of the platform, particularly the fact that it is a virtual (“that can be”), parallel, complementary learning space. A “free” and voluntary use necessarily implies an intrinsic motivation from the potential users. We assume that the motivation and autonomy of the adults (or young adults) is not taught but can be learnt and developed if the appropriate conditions are created. Epistemologically, we consider that the first of those conditions is freedom to act, which allows sustained and authentic individual initiative.

Given the preliminary results, we decided that the platform (web site) should be further explored and we designed this case study as an attempt to gather more and better information that allows us to advise its use to other colleges, in different subject areas.

3 THE DEVICE

The notion of device has its origin in the relation between Man and technical objects (Jacquinot-Delaunay & Monnoyer, 1999). It is associated with a means-ends rationality (intentionality) aiming at the efficiency and optimisation of performance conditions, in association with the concept of strategy (Peeters & Charlier, 1999:18-19). However, from the constraining and normalising nature of the device as theorised by Foucault, and Pierre Schaeffer’s communication machines to our days, the concept has moved towards the individual who is no longer oriented by the device but rather orientates him/herself through the device. This phenomenon clearly illustrates the move from knowledge transmission to knowledge experience (ibidem). Thus, the device is defined within a support function, as a guide and framework for action, though it does not ensure that action is produced (ibidem). Thinking that the device produces meaning is ignoring that meaning only exists because it is socially shared – the symbolic does not exist outside the social (Hert, 1999:102).

From this perspective, we will consider the existence of two devices in our case study: one is institutional and refers to space arrangement and temporal limitations; the other is electronic or virtual (the web site).

The classroom where classes take place is equipped with seven round tables for group work, seven computers (Multimedia PC’s with links to the internet) placed on tables that are leaned against two of the walls, one printer (black and white, laser), a scanner, a video-projector and other audiovisual equipment. Students can schedule their access to the labs (video, photography, audiovisual) and the mediateca from the Multimedia Resource Center. Three technicians are available during the working hours. The course takes place once a week, for a period of three hours in about twenty four weeks. The teacher assists students for six hours a week at his/her office.

The web site is lodged in the server of the Institute of Education and Psychology. Its system has two interfaces: the student interface, that is, the shared environment (students and teacher) and the administrator interface (teacher) for updating and managing the information on the site. To make this possible, the online content is dynamic and is fed by an information system created by Microsoft Access (using Dreamweaver, Ultradev, HTML, ASP and Java Script). We are, therefore, dealing with a data base whose interfaces allow data uploading without
authorized access to the server. We consider this aspect to be important for real interactivity at the level of both interfaces, so that the platform is not reduced to unidirectional communication (teacher-students) and directive discourse. Access to any of the interfaces requires login and a password.

The student interface is made up of five sections: Home, People, Projects, Resources and Information. Their aim is to reflect a metaphor inspired by the categories of narrative (since Man is a consumer/producer of stories): elaboration of a story (i.e. construction of knowledge) in a specific dimension of time and space, by someone who makes something, using the resources required to meet common objectives and depending on some conditioning factors.

The Home section (Fig.1), presented as the site map (deeper information is accessed after a maximum of three clicks, due to the use of pop-down menus) proposes a type of simplified forum — a discussion board. A statement is under discussion (weekly suggested by the teacher) and the comments introduced are automatically inserted using a click (bypassing identification). These comments will be used to start a discussion at the beginning of the class. The principles underlying this option are reflectivity and voluntary participation. Thus, the Home is supposed to generate interactivity and participation.

**Figure 1 – Web site homepage.**

The People section allows four entries: data entry and three classes. In the data entry, students will find a form where they fill in personal data (photography included) which becomes available on a personal page made accessible via the course page. The teacher is part of the page since she/he integrates the group/community, although she/he obviously has different objectives from those of the students.

The Project section also allows four entries: data entry and three courses. The data entry is also a form where students are asked to fill in synopses of the work projects in which they are involved. Their names (nicknames identifying them in the group) are connected with their personal page.

The Resources section allows two entries: resources on the site and external resources. The latter are traditional links of interest, which are progressively updated by students’ contributions (the links are inserted by the teacher).

The resources on the site are grouped according to the type of document: written texts (.doc), powerpoint presentations (.ppt), video extracts (.mpeg), still pictures (.jpg and .gif) and exercises (various formats). Various reference texts were made available, also powerpoint versions of some of them, assessment grids for projects to be undertaken as well as for various types of performance (student participation, teacher’s activity), autonomous presentations in powerpoint, video extracts of documents seen in class, a set of images and a few exercises on computing tools. The availability of multimedia documents constitutes an inevitable requirement due to the obvious advantages, for the process of learning, of using diverse symbolic systems to represent information (Depover, et al., 1998).

The Information section summarizes institutional and administrative aspects: the formal course syllabus, summaries and calendar (that schedules the activities over the time-period estimated for attendance of the course).
As for possible forms of communication, apart from the initial discussion board which can be used in an asynchronous or synchronous manner, priority is given to the use of electronic mail. All the members of the class-community introduce their electronic mail address on their personal pages, which then becomes available for communication from this interface.

Electronic mail, as we know, allows private communication from one person to another but also from one to various people (e.g. mailing lists). It also allows one to send attached files in various formats. On the other hand, e-mail applications allow one to establish rules for message reception and dispatch (e.g. various filters) as well as to file, register and confirm reception. Thus, we believe that this mode of communication is the most suitable in this kind of situation, ensuring the privacy, speed and general efficiency required in the exchange of messages. Furthermore, it is via electronic mail that the transmission of assessment results takes place (formative or metacognitive and summative) both by the teacher and the students, through the use of selective mailing lists (individual, small group or course groups). This option is based on the fact that we consider evaluation, in any of its forms, to be a context-sensitive process which concerns the people involved and that, therefore, a certain degree of discretion and privacy must be ensured. This, in fact, occurs in the traditional academic context of publicizing results (posting marksheets). It is our belief that using electronic mail for this purpose over the learning period contributes to higher degrees of personalization, transparency and fairness in the assessment process. Besides..., “Knowledge is always potential power” (Heron, 1988: 79).

4. CASE STUDY METHODOLOGY

4.1 Object and objectives

The study focusses on the uses that will be made of the electronic device (web site) in the given context and takes into account the activities that will be suggested. These uses will reflect the students’ appropriation dynamics and will, hopefully, allow us to infer characteristics of autonomisation processes.

The main objective of the study is to promote learner autonomy and metacognitive ability, particularly through evaluation activities, because:

“There have been a number of notable studies over the years which have demonstrated that assessment methods and requirements probably have a greater influence on how and what students learn than any other single factor. This influence may well be of greater importance than the impact of teachers or teaching materials.” (Boud, 1988: 35)

Other more specific objectives are the acquisition and/or development of information literacy skills and of particular informatic skills related to handling equipment and applications.

Finally, another objective is to involve, as far as possible, the team colleagues in the process, by creating situations of collaborative enquiry. This may happen through participation in classes (effective participation or non-participant observation) or through reflective dialogue (face-to-face or by e-mail).

4.2 Teaching and learning activities

Educational Technology is an annual course of pedagogical practice functioning as a lab. It favours project methodology and evaluation with portfolios. Classes are divided in shifts of
about twenty students each.

Besides reading various texts and participating in individual and group tasks, students conceive and develop documents/products in the several formats previewed in the modules of the course syllabus. Thus, we will suggest that students, in groups of 4-5 elements, produce a slideshow (analogic production and digital post-production) and a videogram (analogic production and digital post-production), as has been done in previous years. Individually or in pairs, one more assignment will be chosen within a number of options: an electronic presentation, a set of web pages, a poster, a transparency, or photographs.

These activities will be proposed, discussed and defined at the beginning of the academic year and so will the evaluation process. The students’ final evaluation will take into account the three assignments with a weight of 30%, 30% and 35%, respectively. By the time they are presented in class, they will be evaluated by the authors, colleagues and the teacher, through the use of assessment grids. The remaining 5% will focus on “engagement and participation”, to be assessed by the students in their working groups, on a scale from 0 to 20, with no interference from the teacher, in the final lesson.

The web site will be introduced to the students in the first class of the academic year by presenting its objectives, purposes and functions. All the documents that are usually photocopied (syllabus, negotiated norms of evaluation, reading texts and other documents) will only be accessible on the site. The students will be asked to introduce their personal data in the respective section, and the same will happen with their project materials, as they are produced. They will also be requested to use the Discussion Board, where a statement (related to the course contents) will be put every week as the starting point for reflection at the beginning of each class. The results of evaluations undertaken during the year will be distributed by e-mail. The teacher will be available for assistance, preferentially, by e-mail.

Because of the close contact that the classroom environment allows, a good pedagogical relationship, based on mutual respect, collaboration, rigour and seriousness, will hopefully be created. According to Boud, the teacher’s attitude towards the students plays a crucial role (Boud, 1988:39):

“It is not any technique or teaching methodology which is primarily needed, but an attitude of acceptance and appreciation of the views, desires and frames of reference of learners. Perhaps the single central quality which fosters autonomy is the quality of the relationship between teachers and learners which develops through this acceptance.”

4.3 Data collection instruments

Data collection will be carried out through participant observation, analysis of the students’ records on the site and a student feedback questionnaire.

Observation records will be made on a personal research journal, in which all the occurrences considered relevant will be noted down: episodes, comments, suggestions, behaviours and attitudes (both from the students and the teacher).

The content analysis of elements introduced by the students on the site, as well as of their communication with the teacher by e-mail, will be carried out after the end of the academic activities by using adequate record grids.
The feedback questionnaire will be administered to the students in the last lesson. This lesson will be devoted to drawing up a balance of the activities and to the students’ final evaluation: filling in self-/co-assessment grids, calculation of final grades, assessment of teacher performance and course evaluation. The results obtained with the use of the questionnaire will be, in due time, sent to the students by e-mail as a way of involving them in the process in which they participated. The questionnaire will be designed using the referencing method (Figari, 1996).

The involvement of other colleagues in lesson observation and discussion of data will enhance the process of an enquiry and is expected to have a positive impact upon its outcome.

5 EXPECTED OUTCOMES

We hope students to become more autonomous and increase their metalearning capacity in significant ways. These results may become evident in the way they proceed in the accomplishment of their assignments, in the statements they make along the activities and in those they can make, by the end of the year, when questioned.

As for the informatic competences, the results will also be verifiable in the assignments and in the activities accomplished on the site. Diplomas of Basic Competences in Information Technologies will be awarded.

Finally, we hope to be able to share the results of this case study with whoever is interested, as we are, in these matters. As far as other teachers’ involvement is concerned, we hope to find partners for future uses of the web site in other courses.

I would like to finish with a quotation I am really fond of. When I recalled it in a text I was reading recently (Boud, 1988: 36) it made me remind that, in fact, when one goes back in the past, one advances in knowledge (Debray, 1992).

“The evaluation of one’s own learning is one of the major means by which self-initiated learning becomes also responsible learning. It is when the individual has to take responsibility for deciding what criteria are important to him, what goals must be achieved, and the extent to which he has achieved those goals, that he truly learns to take responsibility for himself and his directions.” (Rogers, 1983:158).

1 We consider that the following definition is adequate: “Good practices (or the best practices) require an understanding of what works out and does not work out in particular situations and why. Good practices are a dynamic group of opinions that evolve with time and acquired experience.” (JOCE, 2002: C 179/16 – translated).

2 Year of the World Conference of the International Council for Distance Education, assembled in Melbourne, where the issue of mixed systems was at the center of the debate (Jacquinot, 1993).

3 According to an European Union document, e-Learning is defined as “…the use of the new multimedia technologies and the internet, to improve the quality of learning, making the access to resources and services, as well as interchange and long-distance cooperation, easier.” (JOCE, 2002: C 179/16 – translated)

4 This study is funded by the Portuguese Foundation for Science and Technology (FCT: SFRH/BD/1297/2000). It is part of the author’s PhD dissertation.
The basic competences in Information Technologies have to do with using operating systems, text processing, net surfing and using the electronic mail.

REFERENCES

Figure 1 – Web site Homepage.