TEACHING/LEARNING IN A *e-SCHOOL*

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Education based on ODL and e-learning platforms are giving their first steps in Portugal. This paper gives a general overview of the main projects that tried to implement e-learning environments in Portugal and discusses the advantages and the problems that these platforms can raise. It is also referred a present application under Comenius 2.1 developing a curriculum for in-service teacher training.

Learning activities and the problems they involve have been related and will go on being related as one of the most dignifying challenges of mankind teaching and learning. In spite of all the knowledge we have on methodological approaches none seems to fulfil our constant dissatisfaction on the learning act. Freitas [2] says, supporting this idea, that the way one has to learn how to learn was not written anywhere yet: we have to discover it as long as we move through life.
Commitment to lifelong learning is increasingly recognised as key for improved performance for employers and career progression for individuals. Everyone knows that besides the classical way of education, the distance one is becoming an important and decisive factor of success in the present society. With the fast introduction of ICT learning and teaching is affected by the innovations the 'civil' society faces. However the Portuguese educational system has not coped with the technology that already governs the Portuguese society yet. To overcome this situation the 'Green Book' for the Society of Information (1997) in measure 6.4. suggests the development and implementation of Distance Teaching through the use of ICT (internet or telematics). Education based on ODL materials is becoming very important and essential to cope with the needs of society.

Some definitions of ODL

Several authors tried to define ODL in different ways, but there are not meaningful differences in there definitions. All of them point out a type of teaching/learning/training out of the walls of the teaching/training institution. ODL is always associated with part-time and non-traditional learning. Several reasons can be the goal of those who enrol in this kind of teaching, is mainly to improve and deepen basic knowledge and obtain post-graduation, diplomas and degrees.

The efficiency of learning regimes depends, to a great extent, on the profile of the students the institution aims to serve (age, availability and self-learning capability) and on their final objectives (to obtain a certificate or diploma, to up-grade, up-date or reconvert qualifications or just to learn interesting new subjects). (Trindade, [10])

However some of the people try to fill in their free time without being worried to get an academic diploma. Baer [1] says that ODL may include different kind of participants/students as 'full-time students temporarily off-campus because of illness, work or travel; on-campus students who want to take classes from another institution; people working full- or part-time; military service personnel and their dependents; parents at home with small children; people living away from educational centres; prisoners; and, retirees and others not actively working.'

Being an internet based instruction (Tsai [11]) ODL can be considered the most appropriate way to get a teaching/learning environment at an individual level as well as group level located in different places using the means that allow participants to communicate synchronously and/or asynchronously (text, audio, virtual reality…). So Open Distance Learning (ODL) can be defined as 'an art, a methodology or a process where learning takes place remotely, through a physical, geographical or timeless distance between the teacher and the learner' (Santos [9]).

Educational research institutions are nowadays investing in activities based on Internet. Baer [1] says that institutions 'believe it is necessary for them to be competitive to attract the best students and faculty.' It seems that there is an urgent need for the institutions to cope with society through Internet.

Ways to implement ODL

There are several approaches to implement ODL. However experience has shown that two models overcome:

1. The first has as goals the improvement of conventional existing structures in order to create a cheaper, faster and with better quality learning platform. Within this model the access to Internet is promoted (students, teachers, administrative and management). Libraries are digitised in order to allow the on-line access. Within this approach the teaching institutions can use this infrastructure to improve their initial and/or in-service teacher training or post graduation courses.
2. Another approach, more radical, consists in the use of Internet in order to change and modify the teaching/learning process. Baer [1] says that 'the Internet can transform higher education into student-centred learning rather than institution – and faculty – centred instruction.' Being so, collaborative learning is encouraged among everyone involved in order to react more effectively to the new demands and needs that will rise from this new reality: campus independent education. Drucker has even a more radical position saying: 'Thirty years from now the big university campuses will be relics… The college won't survive as a residential institution.'

Distance educators have tried to develop a methodology for the design and organisation of written documents in order to elicit constantly the student activity by means of question posing, problem solving, exercises, suggestions for tasks and other pedagogical activities. (Trindade [10])

Internet has been used as a support in classrooms. However it can be used according with the students' availability (time and space). It should be noticed that the existence of a significant weight of compulsory face-to- face sessions in a distance education regime is not a pacific theme In fact some schools of thinking sustain that face-to-face sessions are essential in any learning process as they facilitate:

- the understanding of the communication process and human behaviour;
- the acquisition of habits and attitudes of relevance for the study;
- the mutual inspiration and motivation of fellow students;
- the training in co-operation, dialogue capability and critical judgement;

- the acquisition of verbal and argumentative capacities through the interpersonal classroom relationship;
- the integration of the individual as member of the different groups he is supposed to belong to. (Trindade, [10])

Some questions have to be raised:

- Can students accede Internet?
- Are the students computer literated?
- What experience do students have in browsing the Internet, using the mail, participation in newsgroups, in uploading and downloading files and software?
- What pre-requisites (know-how) is needed for the course?
- What are their opinions and attitudes towards the content and the platform?

However the major problem of this learning environments is the drop out of students, that have to be constantly motivated as they have to do individual tests, be assessed by the teacher, participate in virtual debates, in on-line workgroups. They also have to get in touch with the virtual school at last once a week (Rosa, [7]). This implies the existence of a tutor to help and motivate the interpersonal relationship among the students.

Vrasidas & McIsaac [13] defend that it is necessary the presence of students besides the on-line sessions. Based on our experience in in-service teacher training as well as on the results of some studies (Ferry et al, 1996; Parker, 1999), we think that the success of these courses relies on the clear formulation their objectives and the understanding of the participants' characteristics. They also corroborate this perspective: 'In distance education feedback is more important than just a mechanism of informing the student on how well he/she did on assignment. In face-to-face situations nonverbal gestures are constantly exchanged thus providing both the teacher and learners with feedback.'

The role of the teacher

The role of the student is the most crucial in this process as Santos [9] says 'the role of the individual becomes more and more important: his wish to act, his permission to act and his knowledge to act are decisive factors.' It is essential an active role in the learning process as it is a personal act when we have in mind self-learning/training. It could seem from the above quotation that the role of the teacher is not meaningful. On

the contrary the role of the teacher is fundamental but he/she has to adopt a new approach to the learning/teaching process. Mendeiros [6] says that the teacher/trainer must have initiative, know to manage timing, be responsible, know how to solve problems, and plan carefully. Also Rosa [7] says that the teacher must have a pro-active behaviour, i.e. must answer quickly the problems raised by the students, send exercises to be solved individually or in groups, promote on-line debates, motivate students permanently to give feedback to the students that perceive that teachers are experts and their participation in the debates as advisors is welcomed by the students. Baer [1] refers to some of the aspects teachers must keep in mind that 'doing this well requires a good deal of instructor time, thought, and effort. In many cases it will also require support in the course-design phase from multimedia experts, support that few academic institutions today are able to provide.'

A good conventional teacher can be a bad virtual one because his/her performance must be quite different.

Advantages of ODL

Several authors have discussed the advantages of ODL courses which can be summed up as (Santos [9]; Vaquero [12]; Baer [1]):

- self and long-life learning autonomously;
- student can work at his/her own rhythm and choose the contents that interest him/her;
- multimedia/Internet are attractive, interactive and motivate students.
- students can repeat the lessons as often as they want;
- new methods and ways of working which allow the share experiences;
- price is reduced;
- geographic and time barriers are removed;

The regimes that offer few or no temporal restrictions represent, on the one hand, an ideal situation of adaptability to the individual learning paces: but on the other hand they run the risk of demotivating the student before the conclusion of the course because they accentuate the characteristic isolation of a self-learning regime From this point of view, any Increased level of flexibility leads to an increased demand of a high level of maturity and autonomy from the student This kind of flexible regime also requires a higher response capability and adaptability from the educational structure

(counselling, tutoring and examinations), which will have to adapt its organisational and management structure to the specific needs and paces of each of its students. (Trindade [10])

All these points integrated within the constructivist approach make ODL and CMC a very important way of teaching/learning.

Disadvantages of ODL

The greatest disadvantage is, with no doubt, the lack of visual and aural contact. In the educational act, body language, facial expressions, gestures, intonation are ways to facilitate learning (all these absent in ODL). Sometimes the educational structure recognises the need for presential activities as an efficient supplement to the self-learning process: individual or small groups face-to-face tuition, cycles of traditional lectures group debates, seminars, summer schools (mainly when dealing with laboratory or experimental work), which may have a compulsory or a merely recommended attendance. (Trindade, [10])

The list bellow results from the opinions of several authors (Vrasidas & McIsaac, [13]; Leiria, [4]; Freitas [2]):

- impossibility to promote an human relationship (teacher/student);
- many students like to attend classrooms to establish interpersonal relationships;
- some contents can not be part of an ODL course because of their practical aspects;
- multimedia is expensive and there is a need to make teams with experts of several areas (both technical and pedagogically);
- changing practices is hard;
- the need to be a computer literate.

Other reasons can be the traditional use of Internet, as a complement instead of an alternative (Baer, [1]) to teaching/learning process. The budget of higher education institutions is based on the number of seat time students and with ODL courses the budget would be lower.

Some limitations

Innovation is always difficult and expensive. The strategy of the institution to implement ODL courses as a priority is decisive in the success. Besides hardware the team is crucial with several experts in different areas. The efficiency of learning regimes depends, to a great extent, on the profile of the students the institution aims to serve (age, availability and self-learning capability) and on their final objectives (to obtain a certificate or diploma, to up-grade, up-date or reconvert qualifications or just to learn interesting new subjects) (Trindade, [10]).

Internet based teaching is a new reality. Teachers are forced tom use materials that were not made by them and that were not assessed before so they do not feel at easy with these multimedia materials and according to Baer [1] the results obtained by ODL students were similar to those in traditional classes. However and in spite of not having meaningful differences the motivation was higher in ODL students.

Results of national ODL courses

In Portugal ODL is giving the first steps. However there are already some data of early experiences: UNAVE (University of Aveiro), TRENDS, PROF2000 and PT Inovação (Portugal Telecom).

The courses promoted by UNAVE began in 1999 and lasted four months. They were organised in short modules with 20 different small sections and a final exam to certify the course. Each module had a tutor who was responsible for the organisation (materials and bibliography).

Three main profiles were created:

- Multimedia
- Internet programming
- Authoring Multimedia Tools

As final results 70% of the 350 students enrolled were well succeed. 20% were advised to enrol again and 10% failed. These results were very encouraging and courses like this one are going to be re-implemented. More information can be seen in http://www.unave.pt/fd.

The course promoted by TRENDS integrated basic and secondary education teachers. The Ministry of Education gave official certification for the first time in a ODL course in Portugal.

The aims of this project were:

- Create a LAN integrating all the schools that participated to massify the access to Internet;
- Create and develop intranet services within the school to support self teaching/learning;
- Train and create a team of IT leaders in each school to be responsible for both technical and pedagogical support on IT applications;
- Compulsory integration in the national teacher training development courses.

The ODL training was based in two different kinds of interaction: asynchronous (internet as a searching tool supervised by tutors) and synchronous (chats).

Table 1 shows the number of phases and the number of teachers involved:

Table 1

	Number of sessions	Teachers involved
Phase 1	6	96
Phase 2	8	106
Phase 3	6	139

Table 2 shows the results of the project:

Table 2

	Negative	Neutral	Positive
Phase 1	10.18%	13.77%	76.04%
Phase 2	7.94%	13.42%	78.65%
Phase 3	3.74%	11.37%	84.88%

According to the results there was an increase of acceptance/success of the participants that had to learn and understand the concepts concerned with the *e-learning paradigm*.

The success of this project (TRENDS) resulted in the creation of PROF2000, sponsored by PT and Ministry of Education/DREC that involved 99 schools and 35 training centres. In 2002 there 43 on-line courses (the majority on Internet/ICT).

More information can acceded in http://www.prof2000.pt.

The courses promoted by PT Innovation (Santos, 2000) were well received by the participants. The aims were:

- Appeal to the use of ODL
    - Certify ODL training courses
    - Demonstrate the ODL efficiency and applicability in the training process
    - Stimulate self-learning with the help of remote tutors

- Demonstrate the importance of ODL for schools and enterprises
- Reduce costs

These courses lasted for four years. Three different methods were used to be compared and assessed:

- traditional
- mixed
- ODL

The assessment did not show meaningful differences among the three different approaches. However they preferred the ODL because it allowed the access to more participants and reduced costs (in 1999 54 000 contos).

The main advantages found in the evaluation by PT were:

- Availability
- different learning rhythms
- Self learning
- Contact and use of ICT
- Successive repetition to study

The main limitations referred in the assessment were::

- were the lack of relationship between trainee/trainer,
- the difficulty in designing and implementing multimedia materials
- the courses were more theoretical than practical
- the lack of contact among participants.
- the lack of computer literacy was also a negative factor in browsing the Internet and using e-mail.

Some participants were affected by professional problems and could not cope with the deadlines. Rumble [8] considers that any timetabled requirement, like having to meet deadlines for returning assignments or to submit to examinations, reduces student's liberty and so, the openness of the system:

Open systems will allow a learner to decide when to complete assignments and be assessed. Along the same lines Holmberg [3] states: 'My liberalism […] makes me reject all kinds of pacing imposed on students, the sort of compulsion that, for instance (some institutions) submit their students to. The student should be in a position to begin and finish his course whenever he wants to.'

More information can be seen in http://formare.ptinovacao.pt

Further involvement

The design and implementation of a Comenius 2.1 Project was our involvement in ODL. The aims of this project was to develop a curriculum for in-service teacher training using European school research results which are relevant for practice in order to meet the changing impacts and needs of educational management. The project aims at developing a curriculum for in-service training representing a package of

-a set of in-service training modules for 1) trainers and 2) school leadership staff, in which the application of school research results for the task of leading schools is trained;

-tested recommendations and materials for the planning and running of training courses for school leadership staff;

-an internet-supported information service offering an overview and a justified selection of target-group-related relevant school research results of school leadership research and allowing networks of information on projects, institutions, publications, etc.

-a target-group-related database with relevant research results, addresses, contacts, etc.

The conceptual framework is based on the assumption that there has to be a set of interrelated structural as well as conceptual elements if activities of professional development shall have a lasting impact on individual and organisational learning.

Future ODL applications

The future of ODL should be **now**. There is a will in several institutions to consider ODL as a teaching model of the future (Leiria [4]). However the inexistence of official regulations put the experiences outside the legal framework of seat time teaching (Rosa, [7]) so it promotes misfits that can be decisive by a deficient implementation of ODL courses. Baer [1] says that it is urgent that the different institutions move a step forward in order to create and offer ODL degree courses besides post-graduation courses. Multimedia software must be designed having in mind three angles: hard, soft and brainware.Hardware is faster, cheaper and offer better performances, authoring programmes facilitate the development of software. The only problem is that students should be computer literated.

To train teachers using ODL platforms is also essential in order to develop new skills and technological knowledge oriented to communication and the management of virtual classes (Santos, [9]).

The actual use of a computer, either as a learning tool or as the main focus of the subject, like in courses on computer sciences; in this case, the ideal situation would be to postulate that each student should own (or have ready access to the use of) a computer. However, if this is acceptable for courses leading to professional activities wherein the private possession of such an equipment is a necessary requirement, this is not (yet) reasonable for any other kind of programme, due to the negative economic discrimination that such a compulsory requirement might lead to. (Trindade, [10])

Vaquero [12] says that the language used in these courses should be close to natural language in cultural contexts. In conclusion and quoting Freitas [2] what is necessary is that the student feels that the school (real or virtual) has as main objective the link to real life, preparing him/her for active life, so he/she has to find in the school what he/she finds in real life.

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