

INFORMATION SOCIETY AND NEW LEARNING POSSIBILITIES

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ABSTRACT

The following communication starts with a reflection about the present society, linking it with the potential of using technology to support the training activity. Then, a brief reference about andragogy and the main characteristics of an adult learner is done. Follows some electronic learning possibilities and a report on the practical application of the “Student Response System” (SRS) tool, illustrating the m-learning possibilities at the level of adult learning.

Keywords: andragogy, b-learning, e-learning, learning, information society, information and communication technologies, m-learning, training

1. Introduction

Network communication, add to the network, make a “like”, “follow” an organization, “googling”, among many others, are expressions that are nowadays part of our daily lives. It’s normal to receive a job offer through a social network, if a contact is located on the other side of the world, and we still manage to talk and watch him in real time and to see what’s happening around him. The same way, it’s not expected that an e-mail takes more than a few seconds to reach our destination contact, located thousands of kilometers away from us. Most of our lives can nowadays be run at distance, through the internet. Searching and choosing a house to buy, shopping, share moments with friends or even learning. Technology is so present in our lives, that many times we realize that we are talking directly with our computers as if it comprises human characteristics. We are separated apart, but as if we were close to each other. We manage to capture reality and, at the same time, to share it with other, causing emotions and actions at a speed never experienced before.

The present global context is therefore characterized by a very high flow of available information. In parallel with a high volume of

information available, the technical capacity at the level communications is increasingly higher, allowing its dissemination at a very high speed and lower costs. In parallel, the usage of mobile devices with internet access increases very rapidly. We live in a society in which everything is happening at the speed of an eye blinking, and where new today means obsolete tomorrow.

Concerning this technological determinism, Castells (1999) makes an interesting observation, referring that technology doesn’t drive society, nor society defines the course of technological changes, appealing to the existence of other factors such as creativity, and entrepreneurship attitude, which interfere in the process of scientific discovery, technological innovation and social applications. This scenario brings to individuals new challenges concerning the usage of information flow and available technology, since information or access to it, represents nothing if not applied and converted into knowledge. Based in the fact that the simple exposition to stimulation doesn’t generate learning alone, the role of the educational system becomes central since very early, in answering these challenges, and it’s not possible to ignore the fact that we live in continuously changing society strongly

driven by technology. Junior & Firmo (2004) refer that it is not possible to promote digital inclusion simply by buying computers and by making available high speed internet access. Equipment and internet are just tools in a process that includes providing individuals with skills, capable of converting data into information, and information into knowledge (Coutinho & Junior, 2007).

2. Learning in the Information Society

Learning can be defined as a change in human disposition or capabilities, which can be retained, and which is not simply attributed to the process of grow (Gagné, 1965, p. 5). It's therefore, a continuous process that occurs throughout life, and is not simply attributed to the process of growing. The inborn possibility or capacity of lifelong learning becomes a quest in a continuously changing society. The permanent technological evolution and increasingly volume of available information, demand for educational systems, capable of promoting the skills that allow for individuals to adapt to new contexts and new demands, namely in the labor market, strengthening the need for lifelong learning. For those born in the digital era, the idea of the permanent need to follow the available information flow has grown with them. This is not always true, for individuals that were not born in this era, and find themselves forced to go into requalification processes, as a way to ensure their competitiveness within the organizations, and in limit situations to save their jobs.

Being aware of the importance of lifelong learning and simultaneous of the lack of time of many professionals to get into conventional processes of skills upgrading, e-learning comes as a solution, fostering the usage of information and communication technologies (ICT), serving the learning process. There are several definitions for distance learning, most of them being very similar. Litto (1999, p.59) defines distance education as a learning system in which the learner is away from the teacher or from the source of information, in terms of space or time, or both, during most of the time of the course duration, or during the evaluation of the knowledge process, making use of conventional communication materials (such as printed materials), or more recent technologies, as a way to overcome these barriers, with the backup support of one or more institutions responsible for planning, implementation, control and evaluation. From this definition results that distance education is a student/trainee centered teaching method, where he has access to the information source through multimedia and electronic devices which, depending the level of complexity, provide him with a high degree of independence in space and/or in time as well as different interaction possibilities.

The quest for lifelong learning reinforces that it is never too early or too late to learn (Santos, 2007). In this context it becomes unthinkable not to consider

the usage of technology and all its potential, to promote lifelong learning, promoting the balance of family and professional factors with the learning possibility, from any geographical location and time schedule. It would also be unthinkable in the present context not to include all the existing technological resources in the academic and in the vocational training areas. There is a clear need to bring together the world we are living in with the learning contexts, due to the new skills developed in the learning and also in the teaching individuals. In what concerns the learner attitude, a more active and autonomous behavior is required. According to Novak & Gowin (1999, pp.9-10), in the present society it becomes central to learn how to learn, which implies that each individual assumes the goal of being himself responsible for the process of building its own knowledge. Its emphasized therefore, the skill of self-learning, which is closely related to an attitude of openness towards learning opportunities, allowed by daily formal or informal experiences, with the capacity to use it in an efficient way.

The new learner profile generates new challenges for the educators, namely at the technology handling level, and in new conceptions and teaching practices. Educators are now asked to promote the technological potential exploration, namely by launching challenging and creative activities, promoting collaboration amongst the learning group, assuring the preparation of individuals capable to follow the pace of the fast transformations and to adapt themselves to change. This demands, among other things, a capability to identify the best teaching and learning methods, and accessing, selecting and sharing information as well as team work skills (Junior & Coutinho, 2007).

3. Educational Technologies

The term Educational Technology, was developed by Skinner with the programmed teaching (Skinner, 1968). This term is not limited to the technical resources used for teaching but instead, to all the resources involved in it. The Association for Educational Communications and Technology (1994), aiming to establish a common terminology used in this domain, considers as synonymous the terms Educational Technology and Instructional Technology, referring to "the theory and practice of planning, developing, applying, managing and evaluating of learning processes and resources" (cit. Thompson, Simonson & Hargrave, 1996, p.2). Information and communication technologies (ICT), refers to the combination of computer and telecommunications technologies, lying on the internet its most important expression. There is a natural trend to associate the concepts of teaching and learning. The harmony between these two concepts, lays in the fact that the one who teaches, aims to make sure that the learning is accomplished, and the one who learns, aims to retain the received

information. In spite of this apparent harmony, it's well known that this relation is not always achieved. In the same way, there is a natural way of assuming a positive effect in teaching on the introduction of new technological resources. Though, it's important to keep in mind that it's not sufficient to expose the learner to technologies and its possibilities to achieve the goal of learning. The simple exposure to stimulation doesn't generate learning; it's important to use a pedagogical model which assures the efficiency of the cognitive processes, and which works under the existing technological context.

In parallel, it should be considered as well the intrinsic variables of the cognitive learner's profile and of the individual's learning process, which are many times forgotten when selecting and adopting the information and communication technologies.

4. The Adult Learner

In the 70's, Malcolm Knowles introduced the concept of andragogy as "the art and science of helping adults to learn" (1980, p.43), in opposition to the concept of pedagogy understood as "the art and science of helping children to learn". According to Knowles (1980, pp.44-45), andragogy is supported in four base principles about adult characteristics as a learner, which consider that once reached adult age, the individual: (1) modifies its self-concept, stop acting as a dependent individual, to become independent, self-run or directed; (2) builds up an experiences reserve and therefore an increased volume of learning resources; (3) has its motivation for learning increasingly more oriented towards the development of its social role; (4) changes its perspective of time in what concerns the application of acquired knowledge, with an higher interest for acquiring knowledge that is of immediate applicability, and consequently its learning is no longer centered in the contents to become centered in the problem.

Knowles' central thesis is based on the fact that since adults differ from youngsters as learners, in some critical aspects, they demand for different learning approaches (Knowles, 1980). Considering that pedagogy is based in the traditional approach based in the teacher, andragogy is based in self-directed learning (Gibbons & Wentworth, 2001). The teacher or facilitator should promote learners' responsibility to learn (Ross, 2002). According to Knowles (1980), the adult age is characterized by perception of the self-directed capability. An adult individual feels motivated to lookup for new information, for the occurring changes at his environment and by its will to learn (Knowles, 1975, p.18).

5. Electronic Learning

Information and communication technologies (ICT) are used or explored as a support in adult training in very different contexts with different

objectives. The technology's central role in distance education is easily understood, if we consider that technologies play a determinant role in content mediation and in communication facilitation amongst the different participants of the teaching and learning process. The use of electronic resources can assume different shapes, such as electronic learning (e-learning), blended learning (b-learning), or mobile learning (m-learning).

Elliott Masie (1999), defines e-learning as "the use of network technology to design, deliver, select, administer, and extend learning". The use of e-learning introduced flexibility in the access to contents, namely at the time level (the trainee can access to the contents when he has the time availability to do it), and at the space level (contents can be accessed from any desired geographical location).

With the advances at the technology level, e-learning is frequently used in combination with classroom training. This training modality, designated by b-learning, increases the flexibility of the educational systems, combining classroom training with the recognized advantages of e-learning.

Another variant of e-learning is known as m-learning. Pelissoli & Loyola (2004), define m-learning as the use of mobile and portable devices to facilitate the access to information. Through the use of mobile devices it's possible to access the pedagogical contents and to make the interactions inside the learning community. The use of mobile technology in education is a recent initiative fostered by the easy access and fast technological improvements and advancements of the mobile devices, namely smartphones or tablets such as the iPad. There are many expectations about the growing use of this modality of e-learning, and it has been the focus of several recent studies which resulted in relevant contributions, namely about the importance of the connectivity conditions and equipment design aiming educational purposes (in a general manner, these mobile devices are designed in a business oriented way, not in an educational driven way), in the importance of content development adapted to this kind of devices, keeping the multimedia potential quality to the levels that the users are used to have from these devices, and the need to prepare the educational community to the use of these new formats of technology at the service of learning activity.

6. The "Student Response System" (SRS)

ISQ- Portuguese Technology, Quality and Innovation Network, a private not for profit technological infrastructure, started in 1965, delivering technical inspections, consultancy and training services, supported in research and development and accredited laboratories in Portugal and abroad in different engineering fields, from welding to non-destructive testing, metallurgy to

environment and industrial safety and quality, renewable energies among others.

ISQ has been recognized in the last years for its innovative practices in the domain of vocational training, being presently involved in a transfer of innovation project “Global SRS” which supports the usage of the m-learning. This project supported by the European Commission’s Lifelong Learning Programme, in a partnership together with the developer partner Sør-Trøndelag University College (HiST), Swedish Centre for Flexible Learning (CFL), and Petru Maior University from Romania (UPM).

The project aims to transfer and incorporate in the national contexts of the partners, the SRS system, originally developed in Norway, and was object of a previously LLP funded project under Key Action 3, and was led by Sør-Trøndelag University College (HiST).

The “Student Response System” (SRS) for mobile devices is an online service that provides a just-in-time training, learning and evaluation methodology, supported by the most recent mobile technology.

Teachers/ trainers get instant feedback on the students learning progress along a training session, while students get instant feedback on their understanding of key concepts and have chance to discuss just-in-time.

The mobile computing based SRS system provides an economic and cost effective solution by utilizing widely available mobile, wireless multi touch pressure sensitive hand held devices.

Using mobile devices or laptop computers, both in the classroom or at distance, trainers can start discussions or introduce evaluation moments to the group of trainees, and get their participation and feedback instantly.

The SRS provides new pedagogical methods that enhance interactive and dynamic teaching models by enhancing communication and instructional feedback loops. Collected data is immediately available to the trainer, both in a qualitative and quantitative way, allowing the trainer to understand if the learning outcomes of the trainees are in line with the overall training objectives.

The system has been, in over 60 teaching and training organizations across Europe and outside, with main advantages:

- Increases the level of participation of the trainees (close to 100%);
- Significant higher engagement, it become fun to attend courses;
- Results in higher levels of motivation, both for trainees and trainers;
- Reduces the use of print training materials in organizations, thus contributing to more “environment friendly organizations”;
- It’s “user-friendly” making it very easy and fast to publish and operate evaluation questionnaires

within seconds, and to collect “treated data” immediately;

- Increases flexibility: it’s possible to use it to start discussions and as support tool for group discussion or for evaluation purposes (of ongoing training evaluation, trainer’s evaluation, impact of training evaluation, trainees learning outcomes).

Based on existing these collected existing data of previous tests of this technology and methodology of application, ISQ aims to introduce the SRS in its accredited Training of Trainers Course, contributing to an overall quality and satisfaction improvement and impact in the learning outcomes, as well as to disseminate it through the different networks in which is involved, such as the national forum for innovation in training, the national network for teaching and learning resources, and the sectorial technical commission for education.

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