
ON EDUCATION, LEARNING AND TRAINING: BRING WINDOWS WHERE JUST WALLS EXIST

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As mudanças de século tem-se revelado como um factor de destabilização para os sistemas então vigentes. Como noutros contextos históricos é possível questionar o quadro de valores actual, desafiando a nossa capacidade de lidar com estas mudanças.

Quais os efeitos que potenciais mudanças na educação podem produzir na sociedade? Quais serão essas novas formas de educação, modelos institucionais e relações de poder que se podem estabelecer de modo a garantir uma maior aproximação da educação às pessoas? Qual será a forma predominante de interacção em sociedade: pessoal, colectiva, em grupos de interesse comum ou uma combinação destas? e ainda, quais serão as novas formas de interacção que surgirão?

Avançar com respostas estas questões não é fácil, nem tão pouco, existirá uma resposta única a cada uma destas questões. No entanto, é possível considerar como importante o papel que a tecnologia possui na quebra das tradicionais barreiras do tempo/espaco quer para a educação quer para a sociedade em geral. O presente artigo oferece uma primeira contribuição para a discussão destes tópicos.

Turning a century is always troublesome for common and well-established systems. Like in other historical contexts, several questions arise to challenge our values on the way the world is working.

What are the real effects that the evolving education system will bring to the society and the political global balance that we knew? What will be the new forms, institutional models and power relations that will have success in bringing education to people? What will be predominant form of interaction in society: personal, collective, in groups of common interest or in a combination of some of these situations? And will they be emergent ones or completely new?

There is no easy (or even just one) possible answer to these questions, however one important factor is the role of technology in breaking the traditional time/space continuum and its natural impact in society in general. The present paper gives an initial contribution to discuss these topics.

1. Introduction

"There is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the creation of a new system. For the initiator has the enmity of all who would profit by the preservation of the old system, and merely lukewarm defenders in those who should gain by the new one"

The Prince, Machiavelli

Education, learning and training is on the move. Each day we see new signs of more difference between what students want, and what society needs and what institutions can do. Even the teachers seems somewhere lost by the

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pace of change and by the lack of interest among students to attend, discuss, and make things work in a traditional education environment (Gouveia, 1998a).

Never the less, the great majority of these students believe that the key for their future is education, but not the traditional one. Recently, they can learn more specific contents in order to leverage their know how. It is more important for them, to get diploma certifications from enterprises that have a major market share (this is yet more visible on some areas, like information technology, but eventually it will cover all the areas, including medicine, and at an undergraduate level).

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This situation introduces some of the differences that regular education can not be easily handled. Why? Change and innovation is more difficult in older and bigger systems. And, also crucial, it can not be regulated nor can it be based on recommendations. It must be an inside "each one" impulse and it will need to be a place where we can celebrate difference. Another situation that occurs in the last years was the vulgarisation of education which is an excellent thing but have their own drawbacks in the need to a fast transformation on the number of professors needed, and on the number of students per class: these factors change but the practice in class have not (Puttnam, 1996).

2. Information technology and education

So, what can be the role of information technology (IT)? We can state that it will be a regulator one. In fact, with technology we can balance quality and quantity and return to the situation where teachers are more than terminal output devices in the regular education system.

At last, IT can be used to make some change. In fact, education experts coin a term for the use of these facilities: ICT - information and communication technologies. They study the use of ICT in systems to deliver ODL (open and distance learning) systems.

What is the relation that ODL have with traditional face-to-face classes? They may be more related then a first analysis will show. We think that it is already a trend announced, and that its adoption will grow up in the next years. The trend is the use of on-line applications in classroom education, an already widespread trend in industrialised societies, that can be distinguished from on-line education. The on-line education is now an important trend: in U.S., where it has been estimated that 55 per cent of all the 2215 four-year colleges and universities have courses available off-site (Gubernick and Ebeling, 1997). Many of the top-rated universities in the U.S. offer on-line degrees and act now as dual-mode education (providing distance education and on-campus) (Bastos, 1998). When it will be possible to have a similar situation in countries like Portugal and other European countries? (although some examples like the English Open University exist).

To close this section, how can educated people cope with change? The common answer to this is life long learning (LLL), where people return to education, learning and training situations several times in their life. We can characterise that education (r) evolution in many possible ways (Kerkhove, 1996) but our discussion will be concerned with time/space continuum change.

3. Technologies that reinvent time and space

Students can now have access to the same information that teachers have, using Internet, CD-ROMs, computers and networks. They can also communicate with other people (students, teachers, professionals, institutions, and enterprises) and gather information, share problems and solutions and be part of the Information Sea available both as consumers and producers. This means a real difference with strong impact in the education system.

This means things like passing from *stockknowledge* to *flowknowledge* (Barnett, 1995), which is passing from a situation where knowledge is a cumulative activity based on a well oriented line of thought to gather related information, to a situation where interaction and discussion brings new redefinition of structure in basic knowledge.

That way, there is also a future need to connected classrooms with new forms of interaction. Regular lectures to alternative forms of lecturing where students have their own active roles and make them believe that they are individuals belonging to a potential group where they offer, create, influence and modify value in the form of knowledge.

When basic skills are related with information we have to have strong competencies in information technology. Old IT for knowledge is paper and pencil hardware and language software. Nowadays, we need more in order to cope with the strong connection needs to cooperate, collaborate, compete, discuss, communicate, to relate, compare, decide, store and, of course, create (Gouveia, 1998).

We can do this in an asynchronous or synchronous way, connecting whom we want to at different or same time. We are reinventing our physical perception because we are starting using technology as a possible way to "be there". We can combine place and time to make four different possible relations with other people (figure 1) (Rada, 1995). With the same time and space we can expect to have traditional face to face meetings. Face to face is the more friendly and used human to human communication. A common example of same time but different space is the telephone, where two people need to be available at the same time to talk to each other. However, if we want to avoid the requirement to the person in the end of the line to be present at the same time people, we can use, for example, a voice mail

system as an extended functionality for the telephone technology. This way we have an asynchronous situation where the user to be contacted will be on the same or different place but always with the possibility of "being there" at a different time. This means that the need to interrupt someone is not required, allowing communication beyond the synchronous situation, independent from the distance factor.

4. Conclusion: a request for innovation

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Between users technology extends communication facilities. That's the case for the use of pigeonholes for correspondence in an office environment, of blackboards in schools, and modern information technology artefacts. Artefacts like cellular telephones and electronic Internet versions of newspapers make their roles in putting people connected by related needs, beliefs and matters, creating new notions of communities.

So, where is the innovation? Many years before computers, we belonged to clubs, had correspondents by post mail, travelled a lot and could become citizens of the world. But now it is different, with technology, the growing number of people doing that bring a new reality. Physical place is no longer the more important factor, (it is just the easiest one). We can buy books by Internet and expect them arrive faster than the same ones we buy in a normal bookstore (it actually happens to me!). We also can make contracts with people from other places without communications problems (at least really different from the same problems that we have with local people).

Two aspects very important to distinguish modern systems from old ones are the predominant interaction mode and its dynamic characteristic to represent and visualise information. What makes the difference is our capacity to interact: the ability to take advantage of technologies offer to cope with knowledge and communication skills. Preparing the future education system using technologies and innovation is a must for all kinds of institutions, because nobody can wait for this answer: is education the more important industrial sector of the next century?

	Same time	Different time
Same place	Face to face [meeting room]	Asynchronous interaction [group writing]
Different place	Synchronous interaction [electronic communication]	Asynchronous

Figure 1 - time and space dimensions in which technology may be used to support social interaction (Rada, 1995)

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