

## **Emergent skills in higher education:**

From know-how to know-where, know-who, know-what, know-when and know-why

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### **Abstract**

New models and strategies have been on trial for the advantage of emerging information and communication technologies over the last decades. Among these, a particular group of technologies impacts the way time and space constraints are now considered.

Additionally, the information and knowledge society requires new skills to both the professional and the learner. In particular, considering a higher education context, the need to deal with change, innovation and evolving models of competition and collaboration brings new challenges.

Although higher education keeps a traditional background of sharing ideas, experimentation and reflection about impact and future applications of available knowledge, it lacks the ability to embed within its own practices both its work and ideas as also efforts from its community. Presential teaching, organisational structures, administrative processes, curricula organisation and knowledge sharing strategies are now put on pressure by an increasing number of high education newcomers who fail to adhere to the current status and learn the skills that the so called information and knowledge society may require.

A huge challenge is on place, based on a transition from processes to information based activities, from an individual approach to a collaborative one, from a knowledge-oriented learning to a skill-oriented learning. It seems that the network both for

individuals, organisations and also for organising the learning in higher education is a central concept: connecting people and sharing knowledge not efforts

The use of virtuality, considered here as the desmaterialisation of learning settings and experiences, provides the opportunity to cope with time and space constraints and to innovate both on practices as on what individuals need to know-how. This paper discusses the skills that may emerge from adopting a virtual approach to higher education and its impact to know-how, turning it in a complex (from our current viewpoint) know-where, know-who, know-what, know-when and know-why relationship network.

## **Introduction**

Some years ago, I perceived university as the house of knowledge. It seems that the best ideas and the more in deep theories must have their beginning inside their walls. It is at the university that people discuss and shape both the science and technology that could change society. Thus provides a very strategic position and turns university as a central partner even when political concerns are at stake.

People within the university, mainly its professors have the responsibility as gatekeepers of knowledge and provide the last word on available truth. They have the ability to compound available information, process it, and more importantly put it into perspective with more classic views. Finally they can provide insight to what other people could do with available knowledge.

The interesting point is that as a result of university success in both providing knowledge to society and train many people using it, the university role itself change a lot and university no longer is the unique, the best, or the definitive place where knowledge lives and is puts forward.

A number of evolving phenomena concerning with the way knowledge is generated processed and delivered needs to be addressed by the university. University seems to be challenged by other players as enterprises, media, and government and not for profit institutions concerning its role as knowledge builders and knowledge gatekeepers.

Among those phenomena, a number of issues are of interest for our discussion.

## **Key issues to analyse the current status**

Saying that education, learning and training is on move is neither a new concept nor a new situation. In fact, many authors from different generations report change both on the way education can be delivered and on technologies used for such delivery. Despite this evolving situation no much is actually changed concerning the higher education model, which remains virtually the same since the introduction of universities in early XV century.

Current times bring a number of changes that are now in a mature state and present a radical change to which university needs to address in order to accomplish its role of higher education within society:

- Increase use of information and communication technologies that provides a huge movement towards the digital. This means that multimedia, the use of computers and communications and powerful applications such as World Wide Web and email are now widely use and available.
- Due to the media and communications effect information are much more visible now. This means that everyone if wanted can know more and faster than ever, turning information a problem not a solution: people now need to cope with information overload.
- Time and space constrains are now different and people can have a double presence: the physical one and a virtual who provide new forms of contact and a variety of alternative styles and self-identification. This means that each individual have now new forms to identify itself and to perceive other, both physical and virtual.
- The number of educated people is getting bigger. This means that an increase number of people are now able to advance knowledge and provide critical insight concern not only their activity but used knowledge.
- The nature of knowledge itself is more complex. It's much more integrated, with a wider range of disciplinarily and each day more difficult to a single individual to cope with. Also, its pace and growth is enormous requiring great effort, money and

greater and better teams to deal with it. This means that collaboration becomes a big issue to support networking.

Together, these issues introduce a completely different way to deal with information and the knowledge required for it. An all new set of skills are now needed and this may be a real problem for universities concerning the way they organise their main activity of furthering knowledge (research) and higher education (training).

### **Individual skills and information and knowledge society**

Some of the issues described earlier as ongoing changes are due to the information and knowledge society. This concept is used to group a number of changes caused by the composed effect of the growing use of information and communication technologies and information, in particular, in a digital format.

A number of skills can be considered to better equip each individual to cope with emergent opportunities in an information and knowledge society. They must assure a minimum competence level and fulfil the following requirements:

- *ability to perform*: know how to do and to act in new situations and contexts;
- *work capacity*: demonstrate ability to work under pressure, both individually and in groups;
- *flexibility*: each individual must be able to work under different contexts and to take decisions and cope with change;
- *self learner*: be able to learn alone by own practice as well as by own needs;
- *reporting*: be able to analyse a situation and to outline it. This will assure the individual role as a communicator;
- *creative*: considering the need to be a leader, to propose new perspectives, to take winning decisions and be proactive.

To be part of the information and knowledge society four levels of literacy must be acquire. These levels describe general skill that any individual must have in order to be able to take advantage of the opportunities provided. Some of these are quite basic and

the actual educational system also presents some sort of solution but others must require new approaches to deal with.

Those four levels are:

- *basic literacy*: know to read and write and to use the language. Nowadays, along with the native language it is expected that at least, another language can be used with a regular level of proficiency.
- *technological literacy*: know to use and take advantage of information and communication technologies. In particular, the computer, its use and the knowledge of the most common applications of word processing, spreadsheets, number crunching, presentation, and databases are needed. Additionally, a basic skill it to take advantage of computers to solve its own problems and needs.
- *information literacy*: know how to use information, how to deal with information overload, and develop a critical use of information. This level in particular is very important as it provides individuals with the tools to minimise their efforts in day to day lives: who can use information has the ability to perform smarter, faster and cheaper.
- *communication literacy*: both consider group interaction or on an interpersonal basis. It provides the necessary skills related to human communication and leadership. This may include self-motivation and group motivation as well as reporting and negotiating skills.

The last two levels: information literacy and communication literacy are major concerns in the information and communication society and provide an opportunity to higher education renewal.

### **Emergent skills in higher education**

Maurice Duverger defends the possibility of the 21<sup>st</sup> century become known as the communities' century, as the 5<sup>th</sup> century has been known as the cities century, and the 14<sup>th</sup> century as the states century [Duverger, 1987]. Following the same author, the trend is towards the growth of the communities both on number and quality, and to the union of the states, without losing their identities.

The interaction between states established among them a mutual enrichment, based on information exchange of their history, their culture and language, and by sharing different values. The sharing of knowledge fosters societies' development; not only economic but also social, cultural and even political.

As a result higher education must provide the necessary skills to enhance knowledge sharing and foster the skills that provide a true global citizenship. Information literacy and communication literacy are major concerns for societies and presents an important issue to the development and planning of strategies for an information and knowledge society.

- ? information literacy can be defined as the ability to recognise when information is needed and to know where we can find it, and how to assess and use information in an effective way (Burnhein, 1992);
- ? important skills concerning information are ability to access, use and understanding various information sources. Who possess information skills wants to know more, is capable of making the right questions and perform information analysis, identify search strategies and to access obtaining results. (Lenox and Walker, 1993);
- ? the individual must be able to understand and analyse what is being perceived, i.e. which information to sort, identify, select and analyse (Lenox and Walker, 1992);
- ? a list of skills associated with the information and knowledge society is proposed by (Doyle, 1992):
  - o recognise that complete information is needed to better decision making;
  - o recognise the need of information;
  - o be able to draw questions based on its information needs;
  - o identify potential information sources;
  - o develop successful information search strategies;
  - o access information sources based on computer and other technologies;
  - o be able to assess information and information value;
  - o be able to organise information for its practical application;
  - o be able to integrate new information in a previous existent body of knowledge;

- be able to use information to critical thinking and to problem solving;

As proposed by (Castells, 2002) the network is an essential organisation model to connect people and to enhance individual power over its ability to deal with information, decision and expertise in a particular area of knowledge. As opposed to the traditional isolation of who have the know-how, we are going to assist a smooth but inevitable transformation towards the need to network and thus learn how to learn and who, what, when and why learn something in special may be of importance. This requires new knowledge and skills to be developed named here as know-where, know-what, know-when and know-why.

### **Final remarks**

It seems that a lot remains to be done. This defines by itself the huge challenge that university and higher education must do to provide answers: its own change towards a more oriented skill approach where people become central.

One of the main challenges is to abandon the knowledge centric approach. University is not anymore the restricted place where knowledge lies and its difficulty can be seen as the knowledge store for society. Although university has its place even with a higher relevance considering knowledge not for content but for its management, not for knowledge transmission but for knowledge organisation, and not for just training people but for let them acquire the skills to deal with knowledge and cope with information overload.

We must take into account that the “game” is not anymore with data and information, but with information and knowledge and thus requires a new kind of university. This means that further important than provide a know-how approach (data and information) is to provide critical skills on where, who, what, when and why to use information and knowledge.

As a result, a number of questions must be placed. One such example is the following: are knowledge-oriented degrees for a given area (sociology, computer science) still is the best approach?

As a last point, we must remember that who feels information needs are people and thus, the motivation for learning has somewhat related with emotion, one of the

keywords to be regarded when we want to bind technology, information and people.  
This is also true for higher education.

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