PREPARING STUDENTS TO USE VIRTUAL LEARNING ENVIRONMENTS: INFORMATION LITERACY AND INDEPENDENT RESEARCHING

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ABSTRACT

The basic characteristics of Virtual Learning Environments (VLEs) and e-learning are presented. The issue of information overload and the production and dissemination of digital information is discussed. The importance and the necessity of access in evaluated information are reported. It is concluded that for underpin of VLEs, the organisation of information literacy programmes with the collaboration of faculty members and library personnel, is essential.

KEYWORDS
Virtual Learning Environments, Information Literacy, Web-based Learning

LIFE-LONG LEARNING AND VIRTUAL LEARNING ENVIRONMENTS

Life-long learning includes a variety of experiences, practices and learning styles. It includes formal lecturing that takes place in the university classrooms, where the physical presence of students is required, learning in the work environment, flexible learning programmes and distance learning, while recently the use of online courses through the World Wide Web and multimedia applications have been added as well.

In the learning environment, when we refer to online learning processes, we refer to the application and use of local and international networks, as well as the use of Internet to distribute information, communication and, in general, all the actions involved in the formation of student teacher relationships. Substantially, we refer to a learning process based on the Web (web-based learning) that can be offered as an integrated and independent process or offered simultaneously by use of the so called conventional/traditional learning methods within the framework of a hybrid learning environment. Among the advantages of e-learning the following can be mentioned (Hadengue, 2004):

- Access to a great volume of information is achieved with the greatest ease possible.
- Simultaneous offering of controlled (conventional teaching material) and free (that the student is able to discover alone) information sources is achieved, stimulating the student´s critical abilities and enriching the learning process.
- The basic difference between conventional learning and e-learning possibly concerns more the processing of the available information and their distribution and access channels rather than the volume of the available information.
- Ability to simultaneously activate different tasks, such as the search, production and management of information and communication, tasks that would have probably constituted separate processes if conventional learning methods had been applied.

- Can lead to a greater diversity of the learning process, through which the student can dominate the produced information.

The means for achieving the above is the development of a Virtual Learning Environment (VLE). VLEs are electronic systems, management software particularly applied to the field of higher education. These systems combine software functionality that enables communication via the Internet (e-mails, newsgroups etc) with the provision of direct online communication and exchange of various kinds of information between trainees and trainers, including online learning and learning material provision. The aim of most systems is not just to reproduce the conventional environment and the sense of teaching in the physical space of a classroom into an online environment, but also the use of technology in such a way so as to provide the trainees with new, dynamic learning instruments. Their objective is to provide a greater variety of learning methods, to encourage co-operative learning, multiple-sources-based learning and to enable full and substantial use of the available digital sources (Sitas, 2006).

VLEs change the way that learning and teaching are disposed and already experience widespread application. Before their adoption by an academic institution, the pedagogic dimensions of their application should not be ignored, since they must lead to useful and creative learning environments. They are used either to make the learning process more efficient within the university or for e-learning. They can offer the following advantages to the faculty members and students (Sitas, 2006):
- Flexibility in the place and time of learning.
- Successfully handle the increasing number of incoming students.
- Learning based on multiple sources.
- Strengthen co-operative study.
- Strengthen student-centred learning.
- Decrease administrative load.

Huge progress has come on the use of information technology. These changes had an influence on librarians as well as the academic staff and the students. Independent learning requires a broad spectrum of general skills, among which the information skills taught in libraries become of even greater importance. As a result, the role of the librarian is changing and their traditional duties are extended by the teaching of certain skills that are required by the new information search tools (Patalong, 2003). Academic libraries' staff must confirm its traditional role as administrator of information resources by participating in the support of such developments. Librarians often act as intermediaries in matters of new technologies and information and as far as the role of libraries in applying VLEs is concerned, it is stated that (Prinsen, 2001):
- VLEs change the way teaching and learning are disposed and already experience widespread application.
- Libraries should confirm their traditional role as administrators of information resources within this new environment by promoting courses that are available through the Web.
- Academic liaison between academic staff and libraries is essential.
- Virtual Learning Environments should also be useful and creative learning environments.

VLEs COMPONENTS

Before designing a course using a VLE, it is important to study how to introduce it to the students. A well-studied and organised introduction method is essential, so that students are allowed to use it only after having understood the reason why this method is used and how this will benefit them. Some of the issues that should be taken into account for the introduction of a VLE to students are the following (JISC, 2007):
- Psychological components of such an environment. Many students might feel isolated or uncomfortable with this type of independent learning.
- Access to a reliable computer. Availability of computer facilities and equipment, not only in the students' personal space but also at the university area.
- Information Technology (IT) skills. Backing and support of these skills by offering information literacy programmes inside the university.

- At least an elementary level of information literacy is essential.

AVAILABLE INFORMATION

Opportunities developed in the digital environment have led to a fast increase in the volume of available information. This has made users vulnerable against misinformation, but the education concerning information literacy provides the necessary skills to handle this problem (Andretta, 2005). It is often mentioned that undergraduate students today, although more capable than previous generations in using technology and available digital sources, are less prepared and willing to conduct research. Research studies show that the students use search engines, like Google, to collect information mainly for reasons of saving time (Senn Breivik, 2005).

According to a study conducted in 1998 and funded by the European Union, 95% of all produced information refers to digital information and 10% of all produced information is distributed through digital channels (Bokos, 2003). Today, almost seven years after that research and based on the evolution of technological means and the ease information is created and disposed, we could assume that the above percentages should be much bigger, particularly the percentage regarding the digitally distributed information.

The definition of information as: "data, the meaning of which is produced within a specific frame of their use" is something that remains substantially fixed in course of time. What is constantly increasing (and the question is whether it is improving) is the volume of the distributed information and their distribution channels. Today's students accept and distribute information via electronic messages in their telephones, via emails, in chat rooms, through the Internet and magazines (or e-zines) and generally through multiple sources. However, there is a general impression that this volume of information is not necessarily translated to better-educated and informed students. What leads to these findings? What happened and all this enthusiasm expressed because of technology and the new reality created by the Internet doe not have the results expected (Senn Breivik, 2005, p. 1)? What happened and the saying "we are drowning in information, but we are thirsty for knowledge" has came true?

The ease of producing, publishing and accessing on digital information is taken for granted. But how reliable is this information? According to a research conducted in 2001 by the Library of Congress (Senn Breivik, 2005, p.22):
- The percentage of sources listed on individual simple search engines is only 17%.
- 83% of existing information in these engines contain commercial information and
- Only 6% concerns educational or scientific material.

INFORMATION LITERACY AND ITS RELATIONSHIP WITH OTHER "LITERACIES"

Besides information literacy, other forms of "literacy" are mentioned, such as computer literacy, media literacy, etc. Often, these terms are used equivalently. Today, information literacy is accepted as a broader term containing all the above "literacies". Within this broader frame, information literacy mainly concerns the critical thinking ability (Senn Breivik, 2005).

We should also distinguish between the terms "information skills" and "information literacy". Information skills refer to education as far as the acquisition of mechanical skills is concerned, whereas information literacy refers to the application and mental use of these mechanical skills for academic and research purposes (Joint, 2003).

Information literacy, though also related to information technology skills, has a broader effect on people, the educational system and society. These skills allow someone to use computers, software application, databases and other technologies to achieve a wide variety of researching, professional and personal goals (ALA, 2004). To obtain these information skills in terms of information literacy, it is essential to conduct it in the context of mainstream curriculum learning activities (Joint, 2003).

Despite the confusion and the different views of approaching the definition of information literacy, there are strong similarities between the different declarations of the skills defining information literacy; however, regardless of how the essential skills and knowledge of information literacy are described, the procedure is always the same (Owusu-Ansah, 2003).

INFORMATION SKILLS AND CURRICULA

It has been said that higher education does not need librarians but, instead, needs knowledge managers. These knowledge managers should support teaching staff in organising their courses, actively support the development of learning programmes, take care of obtaining access to sources and the issues of copyright, ensure funding for research programmes, create thematic gates in the Web and participate in local and international programmes. In order to be able to accomplish these tasks, they should possess good interpersonal skills, skills of creating and supporting work teams, pedagogic knowledge and good knowledge of information technology (Prinsen, 2001).

The interest that educational personnel show on technology, may create opportunities for the development of libraries. Libraries could provide seminars and relevant demonstrations addressed exclusively to faculty in order to increase their comprehension of the value of incorporating information literacy courses in their classes. Other professors might prefer to attend information literacy courses provided by the library to their students. Because of their occupation with computers, librarians experience an increasing influence that could help them establish themselves as technology leaders, thus strengthening their efforts for offering information literacy courses to the teaching staff and their students (Black, *et. al.*, 2001).

In order for of e-learning to function efficiently, it is essential to have the support of the information literacy programmes in order to encourage independent learning and students' inclination for life-long learning and to provide them with the ability to successfully handle and overcome the problem of information overload. Without the skills obtained through information literacy, fast multiplication of available sources might turn out to be an insurmountable obstacle (Andretta, 2005).

The incorporation of information literacy on curriculum demands the co-operation of three involved parties: teaching staff, libraries and university administration. Teaching staff determines the learning frame and study subjects and deals with teaching of these subjects as well as student guidance. Librarians in academic libraries deal with the acquisition of knowledge sources and co-ordinate the evaluation and selection of the sources necessary in the programmes, organise information resources and provide introductory search instructions to students and faculty members. Finally, university administration develops the conditions and opportunities necessary for achieving co-operation between the involved parties: teaching staff, librarians and all the other experts that are necessary to participate in the organisation and execution of an information literacy programme (ALA, 2004).

Information literacy is not something that concerns exclusively the academic and research domains. Like all knowledge and skills obtained by students during their studies, the abilities and skills obtained through information literacy accompanies them in their personal and professional life. In terms of time requirements, it is estimated that, on average, someone working in a specialized professional area can immediately locate about half of the necessary information. To locate the other half, almost 30% of their working time is necessary. Another study demonstrated that the average employee in such an environment spends about 150 hours annually searching for information (Senn Breivik, 2005).

The ability to search for information or as otherwise stated, the "information literacy", concerns three levels (Hadengue, 2005):

- Awareness of personal information needs.
- Ability to retrieve information efficiently.
- Ability to evaluate recovered information.

Most academic libraries, as far as the training of their users to access sources is concerned, apply programmes based on the following (Sitas, 2006):
- Organised visits.
- Special references.
- Educational seminars.

The development of special references and the incorporation of programmes to educate users in information literacy programmes has always been one of the library's activities. These seminars are the most difficult to apply, since, even when participation is voluntary, students tend to avoid them. It becomes apparent that co-operation between teaching staff and library is an essential prerequisite for the achievement of this goal. Participation of technology technicians is also considered *sine qua non.*

Librarians' participation to the organization of information resources concerns, apart from software administration, student training and class organization through the Web, aiming on the following (Hadengue, 2004):
- Informing and teaching students of the available information sources, tools and their search techniques.
- Teaching of information recovery strategies.
- Use and organization of recovered information.

The above learning programmes can be conducted entirely online or be organized and conducted in the physical space of the library, within the context of the conventional process of face-to-face learning. These classes could be (Hadengue, 2004):
- Independent and autonomous, conducted by library staff.
- Conducted under the supervision of a professor or offered as part of a professor's subject (the professor provides the correspondent evaluation of the student's skill acquisition).
- Compulsory or voluntary, according to the decision of the concerned department of each institution.
- Conducted by librarians or authorized scientific collaborators of the professors in charge.

STRUCTURE OF AN INFORMATION LITERACY PROJECT

Structuring a functional information literacy project demands: (a) co-operation with faculty, so that the goal of information literacy and the necessary skills that need to be obtained by students are clearly defined and (b) location of the requested capabilities as defined by ACRL (Association of College and Research Libraries):
- Location and definition of information by experts.
- Structure of information resources.
- Mental access to information resources.
- Physical organisation and access to information resources.

Each of the above four capabilities are defined by two sub-levels. The first level is related to the university's general learning programme. The necessary capabilities of the first level concern basic capabilities and elements of the research process. The second level focuses on more sophisticated and specialised research techniques and on sources concerning particular scientific fields defined by the specific Department or School, the students of which are offered information literacy education. Co-operation with specialised scientists outside library and educational staff space could ensure the functionality and validity of the new learning tools. Active co-operation between the teaching staff, the class designer and a class technology expert and a Web designer could provide an important perspective with respect to an effective presentation of the material for learning acquisition by students (Hoeth, p. 2).

CONCLUSIONS

Given the limited availability of human resources for the education of users in libraries and the limited teaching time in the physical space of a classroom, active co-operation between teaching and library staff could be applied. The result of such a co-operation could be the development of a series of tutorials available through the Web (Hoeth, 2000). Information literacy is considered the main tool for the forthcoming transformation in the learning environments because of the strategies of long-distance learning that demands substantial changes in its supply methods (Andretta, 2005). Information literacy is offered more efficiently inside the frame of learning activities of the official curriculum. New learning platforms, such as VLEs, are about to play an important role, providing a common space for the material of information literacy and the basic curriculum (Joint, 2003). In order to maximise the benefits of such an approach in teaching users and to minimise the drawbacks compared to the traditional learning methods, we should support the incorporation of online information-skills material into conventional curriculum through VLEs. At the same time, there must be a continuous process of evaluating the efficiency of information literacy programmes as well as complementary traditional learning, where and when necessary.

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