Teaching Information Science students for the use of different methodologies

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Abstract: The Information Science course of the University of Porto in Portugal has a learning unit designed Research Methodology. As a teacher of this discipline I encourage students to develop research studies using either qualitative or quantitative methods applied to possible future professional scenarios, namely when analyzing librarians’ users satisfaction. The aim of this communication is to present some examples of those research essays and to discuss future ways for teaching and learning those issues as well as different professional frames where those methods are needed to solve problems.

Keywords: Librarian students; Information Science Students; Teaching quantitative methods; Teaching qualitative methods; librarians’ users satisfaction.

1. Introduction

Since 2001 the University of Porto in Portugal has an Information Science course that resulted from a partnership between Faculty of Arts and Faculty of Engineering. It is based on a large and integrated perspective considering subjects of different interdisciplinary areas and is organized according to the spirit of Bologna Declaration in what concerns professional profiles and competences (Ribeiro, 2005).

The curriculum design supposes that technical procedures of information’s representation (such as description or classification) are a part of any information system, namely archives or libraries. This unitary perspective also aims to synthesize the so called Information Systems (technological systems devoted to the storage and retrieval of information) that are increasingly implemented inside organizations in general. Thus, learning contents include: (1) theory and research methods, (2) systems analysis, (3) technical procedures for organizing and representing information related to storage and retrieval, and (4) informational seeking and behavior. Complementary subjects include applied components of Information Science related to the different kind of information systems (archives, libraries or technological information systems). This Information Science course has a strong technological component and is oriented to information management problems in any organizational context (Ribeiro & de Pinto, 2009).

The main goal of the Bologna Process is to be capable of creating until 2010 a European Higher Education Area making it possible for students to choose from multiple high quality courses and have easier recognition procedures with comparable degrees across Europe. It supposes the idea of an educational system based on the development of competences rather than on the transmission of knowledge and is planned for a lifelong learning and development. It meant a total reorganization of curricula and teaching methods in every cycle of study in order to development of a reformed and modernized system.

In order to fit these new educational ideas, either the general curricula of
courses or the particular learning activities proposed in each discipline had to be modified. If the system is supposed to develop competences it has to tell what a graduate of an education must be able to do in order to graduate. This also means students must show in action that they are competent, that is, that they are able to interpret the situation and have a repertoire of possible actions to choose which have been trained and were previously found to succeed. Regardless of training, competence grows through experience and the extent of an individual to learn and adapt.

In the same sense, the fast development of working life and technology requires an equally fast development of competences and knowledge which implies a lifelong learning carried out in close cooperation with the education system, and society.

The new educational challenges are, in some way, related with some classic pedagogical issues: (1) the importance of learning by doing, (2) the need for learners to take the responsibility of their learning and (3) learner-centered model. In reference to the first aspect, Jerome Bruner following the ideas of Dewey and Piaget proposed the so called discovery learning a constructivist approach to education and states that discovering for oneself teaches how to acquire information making it more ready in problem solving (Bruner, 1961). However Mayer (2004) points out that more important than being behaviorally active is to be cognitively active. The discovery learning is also a method of instruction through which students interact with their environment by exploring and manipulating objects, wrestling with questions and controversies, or performing experiments.

Finally according to the learner-centered model (McCombs & Whisler, 1997) learners bring to the learning process diverse references as a consequence of their previous experiences. To learn is seen as a constructive process that is facilitated when learning issues are relevant to learners and when they are actively involved creating their own knowledge and comprehension putting together their previous knowledge and experiences. Teaching methods must attend students’ goals and promote the self regulation learning through experiences of self regulated teaching and learning.

2. The discipline of Research Methodology

As already said the Bologna Declaration obliged curricula to include aspects of some similarity all over European countries and to implement the development of professional competencies which was also the case of this Portuguese Information Science course. This course has a learning unit designed Research Methodology that has as fundamental objective to prepare students in order (1) to adopt a critical attitude toward professional problems (2) to question the logic of the social processes of scientific production, (3) to characterize and to apply different methodologies in the scientific production of Social Sciences (4) to critically apply and analyze different data collection instruments (5) to know and to apply formal norms for research presentation. Students must also (1) know scientific research fundamentals, (2) develop a critical and creative spirit when confronting problems related with their future profession (3) present skills for team work, (4) develop skills for organizing and presenting individual work and (5) organize and plan research work based on acquired knowledge.

One of the main objectives of the discipline of Research Methodology is to develop research competencies on students through the planning of short research studies where typical methods of data collection and treatment used in
Social Sciences are applied. To be capable of doing research planning, data collection and treatment and to know how to write and present research results means students have learned by doing.

As seen before authors point out the importance of developing competences by doing and this way students measure their difficulties and can update their theoretical knowledge in order to accomplish their work. This application component of the discipline is based on: (1) theoretical aspects of research planning steps, namely documental research, (2) data collection methods (observation, interviews and surveys) and (3) data treatment methods (content analysis and statistical methods using statistical analysis software). All these aspects are usually present in Social Sciences some in qualitative and some others in quantitative research. Special importance is given to the construction of surveys and to the use of interviews in data collection as well as to the application of statistical methods with the use of the SPSS software. Among qualitative methods the one proposed by De Bruyne (1974) in which evaluation is based on four poles or elliptical stages (epistemological, theoretical, technical and morphological) is presented as an alternative that fits the needs of a qualitative research. Some colleagues of the teacher team (Silva & Ribeiro, 2009) have already used this method to study information evaluation seen as a methodological operation, and applied to information in any context of production and use, in the scope of Information Science. In that study authors proposed criteria and parameters in order to apply evaluation taking into account the information’s life cycle, the renewal and obsolescent of knowledge and the importance of memory for the long time preservation of informational products.

In this learning unity students, as already said, develop some research studies applying the methodology proper of Social Sciences. This means that most works focus on the opinion of information users either it is related with libraries or any other context of information use. Once one of the possible Science Information professional careers is related with libraries, the objective of this paper is to present some examples of students’ work related with libraries’ context.

In the great majority of the works students choose to use a survey as it is an easier and more rapid way of obtaining data than it is interview, for instance, and it allows applying statistical methods. Both issues are felt as important needing some training in order to be able to use them in the future. Some of their studies are presented below and some methodological aspects are referred namely the main objective, the participants, the data collection method and the main results and conclusions.

**Study 1 (1)**

This study aimed to understand the degree of knowledge showed by the users of the library of the Faculty of Arts and Humanities of Porto, namely, the familiarity with the electronic resources available and their regular use. It also analyzed if those resources are public and used by them.

The information collected during this research work corresponds to a sample of 127 Library users of the Faculty of Arts and Humanities of Porto (FLUP). An inquiry comprising 15 questions was given to this sample of the library users. Its aim was to understand to what extent the academic community is familiar with the use of electronic resources.

The inquiry is composed of four major points: (1) characterization of the interviewees regarding gender, age and academic qualifications, (2) the
interviewees’ general information technology knowledge, (3) direct and objective answers about their concrete knowledge of what electronic resources are (this question was later object to a content analysis). The library users were also asked if they were aware of which electronic resources were available, they were asked to express if they felt the need of attending training courses to fully use the available resources, and how they learned about them and (4) different electronic resources available in the library were listed and interviewees must answer about their knowledge and importance given to these resources, as well as about the frequency of their use.

Results showed that age, gender and academic qualifications are important to determine the interviewees’ degree of knowledge and how they use the electronic resources available also affecting the importance users give to the presence of those resources.

Although the library made a considerable investment in new technologies in order to provide different electronic resources the potential of these tools is still far from being fully explored. However there is a continuous development and promotion of the library’s electronic resources.

Study 2
The aim of the study was to know the degree in which students of both Faculties (Engineering and Arts and Humanities from the University of Porto) were opened to the existence of e-books and other digital documents and to point out the possible differences between Faculties.

A survey was presented to 40 students, 20 from each School. Responses were given to sentences in a 5 point scale from totally agree to totally disagree.

Results showed that students didn’t know much about e-books, especially about the free availability of them on the Web. However a great percentage read books (60%) although not digital ones (only 20%) but in the Library (60%) and know few digital Libraries (only 20%). There were no differences statistically significant between Faculties.

Study 3
This study analyzed the differences between a random sample of 50 students from the Faculty of Arts and Humanities in their use of Libraries. Some differences between courses were found but the main differences were between sexes. Female students go to the Faculty Library more frequently than males.

Study 4 (2)
The aim of the work was to know which methods of information research, first year university students from some Faculties of the University of Porto use in the first place when they have to make a research, namely the Internet versus the Library.

A questionnaire was constructed for the aim of the study and was presented to a sample of 20 students from each of five faculties (Arts Faculty, Engineering Faculty, Law Faculty, Science Faculty, and Medicine Faculty) in a total of 100 surveys.

Generally students prefer the Internet to search the information needed for their studies although the vast majority of respondents know that the information from that environment is not always reliable or valid. University students of the first year prefer to make research on-line saying that it has the capacity to catch more information and to accede to an enormous number of contents in a fast form. However, students prefer Libraries to study because they think they have a more reflective and calm environment.
Universities must inform students about information sources at their disposal and the best way of using them.

2. Conclusions

The possibility students have to plan and carry out research work is a way to developing different capacities. They have the opportunity of applying the acquired knowledge but also of confronting themselves with their difficulties. Normally the themes of their research work are freely chosen by them making it possible to serve their interests providing that they are related with Information Science questions and analyzed by scientific methods of research. Those are also moments of creativity and team work implying task division and, most of the times, direct contact with situations of the real world and with people (the respondents) either they are other students or professionals particularly those working in the area of Information Science in libraries or other kind of Institutions or even in a company.

Students are encouraged to do rigorous work in order to present it in international Science encounters. This is a way of challenging them and of making them follow the norms of doing research and writing scientific reports but it is also a moment of learning and confronting themselves with their strong and weak abilities.

In their future professional settings many will be the times where assessing users preferences, needs or satisfaction will be necessary to better plan manage and evaluate their performance or, for instance, the impact of new technologies in people’s lives. Being capable of organizing a research to answer some of these questions is an important outcome of their professional education.

These kinds of teaching and learning activities are important tools in any area of knowledge particularly in disciplines that have a practical component that can be applied in the future.

References


(1) This study resulted in a poster that was presented at the BOBCATSSS Conference – Porto, Portugal, 28-30 January 2009.


http://www.bobcatsss2009.org/programme/abstracts.html#posters1
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