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The distant learning librarian: Information  
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## ***Declaration***

This dissertation is the sole work of the author, and is developed from a research proposal submitted by the author as part of the second year of the Master in Information Studies.

## ***Abstract***

This research explores the perceptions and behaviour of the students of the Master in Information studies provided by the University of Northumbria (UK) and the University of Parma (Italy).

The description of the framework in which the students work to prepare their assignments is obtained with informal consultation of different key informants, undertaken mostly by e-mail. The teachers of the Master are consulted to explore what they demand and expect from the students as to information resources; the librarians involved with the service to distant learners are also consulted, to complete and explain the information offered by the libraries homepages.

The project focuses on a specific category of distant learners: the librarians and information specialists who are continuing their education and professional development. It studies their strategies and problems with personal, local and remote information sources and facilities, in the context of their everyday information seeking activity. The students behaviour is explored first through the analysis of the literature review and related critical account they have written as assignment paper. This investigation is followed by semi-structured interviews on their information behaviour for the Masters course, and library use.

Key findings are that, in the complexity of students behaviour, a general pattern is recognizable. Their use of the libraries and other information resources is intense: they make extended use of electronic resources with International scope, and they refer to the libraries that offer faster and convenient services: they exploit the “traditional services” of their own library, the Library of Northumbria University, for electronic resources, and other Italian libraries for document delivery. The libraries of the University of Parma are not considered by students that cannot easily reach them.

However, there is a minority of students that make prevalent use of materials in paper format and in Italian, and do not exploit the information resources of Northumbria University.

The communication with the teachers, fellow students and work colleagues is appreciated by all the students to obtain advices and to discuss issues and problems.

## ***Abbreviations***

AIB	Associazione Italiana Biblioteche (Italian Library Association)
DL	Distance learning or distant learners
OPAC	On-line public access catalogue
UNN	University of Northumbria
UNIPR	University of Parma



## **One: Introduction**

The world of higher education is undergoing deep changes.

It is influenced by the revolution of Information and communication technologies that are bringing the *information society* at home, at school and at work. Over the last two decades, information technologies and the Internet have been transforming the way companies do business, the way in which governments provide services to their citizens, the way students learn and the way scientists carry out research.

The process of internationalization of higher education has benefitted from the evolution of communication technologies: more and more universities offer courses to students in other countries, and can reach out to them using the internet, developing e-learning strategies and tools. But introducing ICT in this sphere is essentially a question of teaching methods rather than equipment, and educational institutions are developing new theories and experiences of e-learning.

If this new educational context will influence also the way student search and use information resources, is an issue that still needs to be investigated. One of the contexts in which those new features are relevantly present, is the experience of the Master in Information studies offered by the University of Northumbria and the University of Parma. In fact, the course is designed in an international context, and aims to provide the necessary theoretical basics and capacities to anticipate technological and social changes in the information profession. Moreover, it is delivered mainly through distance learning.

### **1.1 The context**

The Master in Information Studies, inaugurated in May 2001, is a degree awarded by two European Universities, the University of Northumbria (UK) and the University of Parma (Italy).

It is designed for distance learning on 2 years, part-time study.

The course uses different tools to support distance learning: paper based learning materials, the "study packs" delivered to students for every study unit, and access to electronic resources through the University library; individual and group support using electronic mail, discussion lists and a "virtual classroom" on the Internet, for general support and for specific academic problems.

The programme includes two residential periods, during which the course team encourages the establishment of a network of learners through peer interaction, enabling students to share experiences and to learn from one another. The first study school was held in Parma, in June 2001, when students were prepared for studying at a distance, developed their skills in communication and presentation and began to study the first units. The second was held in Newcastle, in June 2002, when the students were introduced to the Masters dissertation and could take advantage of the library facilities. The first class encompassed 20 students, coming from all over Italy. Within this number, a group of 5 persons have joined the course later, and haven't attended the first residential period in Parma. They are defined as the "distance learning class", and their schedule is partially delayed from that of the original class.

## 1.2 The research

The framework of this research is the world of distance learning, its structure, facilities and, most of all, its learners. This project will focus on a specific category of distant learners: the librarians and information specialists who are continuing their education and professional development. It will study their strategies and problems with personal, local and remote information sources and facilities, in the context of their everyday information seeking activity.

## 1.3 The purpose of the study

How do librarians and other information specialists use their knowledge and skills to fulfil their own information needs?

The key issue to be described is the relationship between

- students' information needs awakened by the Master course and required for completing assigned tasks,
- their information seeking activity,
- and the availability of suitable library support and facilities.

## 1.4 Project aims and objectives:

### **Aims**

1. To build a model of the information behaviour patterns of the distance learners at Master level.
2. To assess students' level of satisfaction in finding answers to their need of resources and information
3. To provide information to assist university decision makers and academic libraries in order to better support distance learners, in a British as well as in an Italian context.

### **Objectives**

- 1a) To explore the information needs of distance learning students in fulfilling the requests of the Master's course
- 1b) To investigate the behaviour of distance learning students in their information seeking activity, considering:
  - students' information skills,
  - the requests of the Masters course,
  - the resources available to them through university libraries or other information services and sources.
- 2a) To state what arrangements course providers are making for library use,
- 2b) To understand the role of the library in their information seeking activity, discovering how the students perceive the role and use the available library services of UNN and UNIPR,
- 3a) To explore possible solutions to provide more efficient library services to Distant learners.

## 1.5 The significance of study

The field of information behaviour studies is rich of literature and researches on general and specific problems. This study aims to further enrich the discussion and knowledge of the information specialists' community and, at the same time, give to university administrators and course providers new information and suggestions on which further improvements can be built.

Apart from the small contribution to the theoretical discussion, this research can be significant for several audiences. Course providers can gain a deeper knowledge of the behaviour of their students and be able to improve the academic and technical infrastructure for future courses.

Teachers and tutors will have the possibility to see the master course from a different point of view: that of the students, who study their study pack materials, search for other resources, interpret and follow the unit outlines to write their assignment. This will help them to understand what difficulties student find and how to develop and improve their teaching instruments and strategies.

Librarians will learn what services both the university libraries offer, and what resources are preferred by the students. This will help them to give better information to their users, about local and distant services, as well as help them to strengthen the cooperation between the two institutions.

## **Two: Literature review**

### **2.0 Definition of the topic**

This chapter contains a brief review of the literature on two two main fields of studies interested by this research: the history and theory of library support for distance learning, and the studies of information behaviour.

The first part will present a review of the relevant literature in the field of the library support for distance learning programmes; it will include a brief overview of the history of distance learning and its actual evolution, and an historical introduction on the early experiences on the services that libraries have offered to students based away from the main campus. The review will focus mostly on current trends and ongoing experiences in the field of higher education.

The second part is a review of the literature on information behaviour theories and studies.

### **2.1 Distance education**

We can define distance education as the learning process in which there is a quasi-permanent separation of teacher and learner throughout the learning process; it is characterised also by the presence of specific learning materials and student support services and by the use of different communication media (Keegan 1990).

#### **2.1.1 The history of distance education**

The history of distance education is usually divided in three periods (Trentin 1998 and Sumner 2000), according to the development, production and distribution of communication technologies. Technology has an intimate relationship with distance education, because it mediates the separation between teacher and learner through the use of print, radio, telephone, television, tapes and computers. This relationship, moreover, is taking a heightened importance because of technology's growing accessibility and ease of use.

The first generation is that of correspondence study, based on postal services, started at the end of the 19<sup>th</sup> century to reach students living far away from schools and colleges. Those institutions mailed printed materials to students, including both didactic and feedback tools.

New communication technologies gave way to the second generation of distance education, where printed material is integrated by the use of different broadcast media: courses were diffused by radio (1922), telephone (1965) and satellite television (1968). The main objective of the first and second generation was the production and distribution of teaching/learning material to the students; communication with learners

was marginal, and communication amongst the learners more or less non-existent (Nipper 1989).

The third generation of the distance education is developed in the information age by the use of the Internet and the World Wide Web: modular coursework on CD-ROMs, computer conferencing and chats are the main tools of this experiences. The improvements in educational technology are so radical that with them distance education is transformed from “a poor cousin of the real classroom to a key delivery channel for educational content of all types.” (Coffman 2000)

E-learning, web learning and on-line learning, are widely used as interchangeable terms for activities involving computers, learning materials delivered in a Web browser and interactive networks simultaneously. Colorni (2002) stresses the relevant difference between e-learning and on-line learning: the former uses technology and informatics, while in on-line the distinguishing feature is interactivity.

Today, the traditional distinctions between distance and campus-based learning start blurring: the "mixed-mode" approaches, in which face to face interaction and traditional modes of information access are combined with the use of online communication and electronic resources - are increasingly prevalent. (Levy 2000)

### **2.1.2 The role of technology**

The literature insists on the difference between teacher-dependent (i.e. face to face) education and teacher-independent (i.e. distance) education. We can differentiate between distance education technologies that allow one-way communication (as radio and television), and those that permit two-way communication (as e-mail and computer conferencing).

Teacher-independent education is based on the use of didactic and feedback materials on which the student works mostly on his own. This kind of “one-way communication” characterises the first two phases of distance education. In the third phase, the learning process takes place in the interaction of teachers and students during the lesson.

Two-way technologies not only allow for interactivity between teachers and learners, but also among distance students themselves (Bates 1991). Interactivity involves the ability of the learner to respond in some way to the teaching material and to obtain comment or feedback on the response, and this considerably increases learning effectiveness. No amount of one-way technology can achieve such interaction: the

distinction between one-way and two-way communication technologies has implications for distance education far beyond the technological.

Information and communication technologies are starting to affect learning in more profound ways, enabling new methods of delivery and changing fundamentally the nature of the learning experience. Such learning is not simply an on-line version of the classroom, but at its best allows and encourages new forms of interaction and connections: between one learner and other learners, between learners and tutors, between a learning community and its learning resources. The term "networked learning" usefully describes this range of educational approaches. (Brophy 2001).

### **2.1.3 Future trends of development**

The market of distant learning is an expanding one. According to faculty and administrators, many are the reasons of this success: the possibility of large enrolment in spite of the shrinking public budget, the desire to provide educational access to students who are unable to attend a traditional institution; the challenge of providing quality education through a new medium. Clearly, however, one critical component of the expansion of distance education is the perception that it offers the potential for high profit. (Kriger 2001)

The explosion of this market and the appearance of many new educational experiences, distant from the traditional campus environment, are raising doubts about their educational validity.

The claim that the virtual university represents an "enriched educational environment", would be challenged by many observers and many students, at least on current experience (Brophy 2001).

The distance university certainly offers a hope of a different environment, but it still has to be proved that it is better than the traditional counterpart. Different authors pinpoint strengths and limitations in this kind of learning (Druker and Gumpert 1995, Levy 2000, Brophy 2001). Among the strengths are its interactivity, flexibility, the promotion of active engagement by the learners, the reduced inhibition of talking/presenting face to face, the easy access to the global resources of the web.

Among limitations, authors refer that it lacks of expressive richness and immediacy, and it reduces barriers of confrontational behaviour. Its style of communication (mostly short text messages) do not suit everyone, it requires access to equipment and network

connections, and some competence in their use. Moreover, it "further privatizes the educational experience" (Druker and Gumpert 1995, p.73).

## 2.2 The role of libraries in distance learning

The role of the library in distance learning has its ground on two different arguments. The first is that distant learners must be given the same services and opportunities as the ones offered to traditional learners, including also full library support. (ACRL 2000)

The second reason is a more general remark on the nature of distance learning: the role of information resources is much more relevant in distance learning than in traditional, face to face education. As interactivity between students and teachers is more difficult, the learner must rely more on the learning material to answer to his questions. This is particularly true for the first two generations of distance education, but it is still valid for the third generation, where, in spite of the facilitated communication between faculty and students, the learning process is still defined as "resource-based".

*"Resource-based learning means that students will learn from their own use of learning resources, either individually or in a group, rather than from conventional exposition by the teacher."* (Jackson and Parker 2000)

Not all educational institutions have integrated this principle in their practice. There is a strong tradition of packaged information resources provision in traditional distance learning. Among traditional as well as recent education providers, there are schools and universities that believed (and in some cases still believes) that the didactic pre-packaged material was enough for passing the exam: the student needs only the delivered (via mail, e-mail or fax) material and is not expected to read or consult sources beyond that (Hardesty 2000, Levy 2000). This kind of study seems to be limited and confined within a prescriptive framework, against any idea of independent study (Stephens and Unwin 1997).

On the other side, there are more advanced educational environments which consider the library resources as fundamental for the learning activity. These institutions are usually those with a longer history in education, and with a well-established library service.

The history of the British Open University, a model for many open learning institutions around the world, is a clear example of both these situations. For 20 years the OU Library served only faculty and researchers. It wasn't big enough to serve all students, the pre-packaged material seemed to be enough, and learners could use other public and



academic libraries. In the 90's innovative teaching methods, the growing number of researchers and the new government policy on education forced OU to re-think its library service. The OU library is now open to all students, and the Open Libr@ry 's web site is organized to guide users through electronic resources and other library services, as the document delivery (Bremner 2000).

In the 80's many different models of library support for distant learners are developed, depending on the dimension of the academic programme and available funds, on the relationship between administrators and librarians and on the geographical distribution of students and campus (Lessin, 1991).

The proliferation of distance learning programs require great efforts of libraries, to follow and assist the increasing number of remote users with suitable resources and services. This mission is facilitated by the evolution of libraries toward a digital environment.

Library support for distant learners share with digital libraries projects the aim of serving equally remote students that never come to the campus as well as those who are based in the campus but prefer to use the library from their home. The issue of library support for distant learners can really benefit from the interest raised by the digital library and the hybrid library, the discussion and the activity around them. (Faulhaber, 1995)

### **2.2.1 The Guidelines for distance learning library services**

The discussion of many librarians and information professionals affiliated to Library Associations has brought to the development of official Guidelines for distance learning library services.

The guidelines of the ACRL, first published in 1981, with the fourth revision ongoing, include issues arisen from the diffusion of distance learning programs and the evolution of related technology.

The guidelines assume the following precepts:

- 1. "Access to adequate library services and resources is essential for the attainment of superior academic skills in post-secondary education, regardless of where students, faculty, and programs are located. "*

2. *“Members of the distance learning community are entitled to library services and resources equivalent to those provided for students and faculty in traditional campus settings. Effective and appropriate services for distance learning communities may differ from, but must be equivalent to, those services offered on a traditional campus.”*

(ACRL Guidelines, 2000)

The first consequence is that every university is responsible for an adequate library service to all its students, and must therefore supply funding, personnel, spaces and resources.

We will discuss some of the issues surrounding the library service to distant learners introduced by the ACRL guidelines.

### **2.2.2 Know the needs of distant learners**

Librarians tend to focus on disseminating the information that they think their students need, while they should first understand who their students are and what they want (Dew 2000). To provide the adequate service, librarians really need to know the nature of programs and classes and the location, learning characteristics and expectations of all the potential users of the service.

Libraries need to identify and understand groupings of library constituents (Cooper 1998). This can be done assessing the needs of the distance learning community for both electronic and traditional library resources, the existing library support, and surveying regularly distance learning library users, to monitor both the appropriateness of their use of services and resources and the degree to which needs are being met.

### **2.2.3 Promotion**

ACRL recommendations underlines also the issue of promotion. The distance learning community has to be kept informed about services and facilities available to them through the library. The promotion of the library is really important to both students and library. Students will get to know and learn to use library resources, and consequently be able to complete successfully their assignment, while the library will better fulfil its function and see its usage statistics grow, to better justify the expenses of the services.

#### **2.2.4 Integration**

Collaboration on many levels is key to successful provision of library services to distance learners: collaboration among libraries, and within libraries among faculty, librarians, and administrators, and collaboration between libraries and publishers (Kirk and Bartelstein 1999).

The guidelines, as well as many authors, recommend to involve library staff in the detailed analysis of planning, developing distance learning program from the earliest stage. Librarians must also collaborate with the faculty (Davidson 1999). The dialogue between them is the key for a successful service: teachers can adjust their expectations to match the reality of the library resources available; they see the students and can promote the library service among them; they know what students require so that librarians can be aware of their demands.

Cooperation with other libraries and institutions is a good tool for implementing the quality of library services with lower budget investments. The library services offered to the distance learning community should be designed to meet effectively a wide range of user needs. A mixture of different services and solutions are necessary: it might be difficult for a single library to build an independent unit of service for distance learners with its funds only.

#### **2.2.5 The services**

The elements of a web-based library service can be divided into three areas (Barnard, 1991):

- the information resources themselves,
- the means of delivering them to the users,
- the interaction between the library users and information professionals

#### **Information resources**

##### Traditional resources

"The growing amount of digital information available free via the Internet has created, for some, the mistaken impression that all information is available electronically."(Hardesty 2000)

In reality, electronic access to information resources cannot provide the equivalent of a traditional campus-based library collection. The currently available digital resources have serious limitations in supporting an entire curriculum; relatively few of the millions of journals and books that fill academic libraries have been retrospectively converted

into digital formats. At this point, access only to digital databases is hardly equivalent to access to an adequately supported academic library.

Even in the future, the value of printed resources will still remain. Libraries will continue to collect and preserve printed material alongside electronic resources, and access methods will have to address the nature of hybrid collections.

A distance learning library service will need a complex planning and policy, that considers resources of both formats and that makes available to its users the best resources, no matter the support. While there are great innovations in the delivery of electronic materials, the supply of paper-based resources uses more traditional channels.

#### Web access to electronic collections

*The "library stock" is no longer limited to a physical collection in a number of buildings.*

- from the Collection management policy of UNN learning resources

In recent years, electronic information has been, and will continue to be a major growth area. Many information professionals have come to accept the Web as an important part of the library. Electronic publishing increase accessibility to information, and in academic libraries that serve geographically dispersed users, there is a great pressure to provide global access to information resources through the technological infrastructure. One way in which libraries have adressed the issue of high subscription rates to electronic resources is through joint subscription via library consortia.

This trend improves accessibility of resources for remote users and moreover, once accessed, electronic information is ready for manipulation, processing and integration with other data. Users prefer options that take less effort to get required information, and full-text databases are ideal in that respect.

#### Free web content

Although libraries had little to do with it, the sheer amount of information available online has increased enormously with the development of the Web. Libraries have tried to organize electronic content the same way that they organize printed materials: by cataloguing and classifying it. Making the Web part of a library collection of resources promotes the idea that the Internet is just another source of information, and it should offer some sort of guarantee of the information contents of that page. The latest trend is

to build library web portals with gateways to various resources organized by discipline, subject or target group. "A Web portal or gateway is now the standard interface to aggregate a library's resources and services through a single access and management point" (Ketchell 2000)

### **The means of delivering**

Each kind of information needs a different mean of delivery. Paper-based materials can be delivered directly from the main library, with a courier service or by fax, if the size is suitable. Distance learning students can request items via telephone, fax or e-mail and their loan period can be longer than the one for "local" loans, considering the time taken for delivery.

The delivery of this service is the situation in which seeking cooperation with other libraries can give good results. Users can access to collections and loan materials in more reachable locations; in this case written statements of collaboration or mutual cooperation are necessary, because most of the times distance learning students are often admitted to other institution as external users, with limited right and services (Snyder and Fox, 1997).

The delivery of electronic resources to patrons located away from the library presents other problems. The necessary pre-requisite for every user is the access to a workstation connected to the Internet: this can be obvious for those taking courses via the Internet, but not so common for traditional remote students.

The main issue that affects how libraries facilitate access to their electronic resources is that of licensing and authentication. When the library buys a license for accessing a fulltext database it has to define its user population: this is easy for traditional users, that comes to the library, but in the case of consortial and cooperative agreements, "defining user population for the purpose of licensing electronic resources is a challenge" (Moyo 2002). The licence must admitt also distance learning students and, when possible, students and staff that want to get connected from their home or other workstations.

### **Interaction with users**

User instruction and information literacy are considerably changing because of the transformation of the library itself into a hybrid organism, where the electronic resources of the digital library are more and more integrated with traditional resources.

The impact of the Internet on learning today is rapidly becoming manifest: broader range of information sources and the open-ended linkages to additional resources are establishing new expectations of student interaction and engagement with their subject. (Marcum 2001)

The digital library must be adapted to allow widespread use: mediation and instruction will be required for students to obtain needed skills and appropriate learning behaviours. The importance of skills in selecting, assessing, using and processing information will increase within networked environments. (Brophy 2001)

On-line reference assistance is a service in which the newest technologies are experimented. Up to now, libraries have structured their virtual reference service around e-mail. This tool is effective, but has some limitation: it does not offer the immediate response that students have come to expect from the Web. It is difficult to conduct any effective reference interview using e-mail, and e-mail reference places most of the work of answering the question on the librarian, while librarians usually work with the student to help him find the answer instead of doing the researches for him.

Another new, evolving tool for the interaction between the library and its users is the MyLibrary program. Many library web sites attempt to become knowledge portals for their users, but it is difficult to organize resources into categories that are intuitive for every kind of user, when "users" include undergraduate and graduate students, staff and teachers of many different subjects. In response to the need of a personal interface to the World Wide Web, the Cornell University Library is implementing a service called "MyLibrary", which is now available in several libraries. It permits to the user to organize in a personal manner, information resources that may or may not be "official" library resources.

## 2.3 Information behaviour – A theoretical framework

Many authors (Dervin and Nilan 1986, Hewins 1990, Wilson 1997) identify in the mid-eighties, the appearance of a shift on the orientation in information behaviour studies. The main features of this change are:

- the recognition of the interdisciplinarity of these studies (Saracevic and Kantor 1997): information science does not have a monopoly on research in this field. Several disciplines are concerned with understanding how people seek and make use of information; these include: cognitive psychology, artificial intelligence, computer science, philosophy, mathematics, semantics, linguistics and many other disciplines.
- the need to put the user at the centre of the research and to focus on users more than on systems; this issue influences also the choice of research methods.
- the concern for finding a conceptual framework for practice. Researchers concentrate on users' cognitive process and a few authors build models that are precursor of a great part of present - research and discussion.

Since thirty four models of information seeking behaviour were identified by Pickard (1998), the following review doesn't mean to be exhaustive, but to present the most relevant ones, and to introduce the model adopted for this piece of work.

### 2.3.1 The Sense-making theory

In 1983 Dervin enounces her "sense-making theory", and develops it in a number of years. It is not only a model of information seeking behaviour, but also "a set of assumptions, a theoretic perspective, a methodological approach, a set of research methods and a practice designed to cope with information perceived as a tool designed for making sense of the reality" (Dervin, 1983). This approach is based on a model of four elements: the situation, the context in which information problem arise; a gap, which is the difference between the contextual and desired situation; the outcome, consequence of sense-making process; and a bridge, the means of closing the gap between situation and outcome.

Research techniques employed try to reconstruct in detail, step by step, what happened in a situation, decomposing it in many micro-moments of analysis.

The approach is being applied and expanded by the efforts researchers worldwide, as the numerous published articles and researches demonstrate. (A bibliography can be found in Sense-Making Methodology Site <http://communication.sbs.ohio-state.edu/sense-making/>)

### **2.3.2 Belkin's ASK**

Belkin (1982) defines the information need as an "anomalous state of knowledge". His hypothesis is that an information need arises from a recognized anomaly in the user's state of knowledge concerning some topic and that, in general, the user is unable to specify precisely what he needs to solve that anomaly. This concept gives way to a critique of traditional Information Retrieval systems, because they are based on the principle of "exact match": the user has to specify precisely the information he requires, whereas the most usual situations in the one in which what is appropriate to satisfy the information need is not known in advance. Belkin believes that an IR system should discover and represent the user's knowledge of the problem – not asking the user for the question, but trying to find out the question from the user.

### **2.3.3 Kuhlthau's ISP**

Belkin's model makes an analysis of needs, and Kuhlthau has buildt on it to create her six-stage model of the ISP, developing it through empirical researches (Kuhlthau 1988). According to this author, the information researcher goes through seven stages, characterized by different cognitive and affective features. The cognitive stages of the research are: task initiation, topic selection, topic exploration, focus formulation, resource collection, presentation and evaluation. Even thou Kuhlthau states that this process is engaged recursively during a complex research, the limit of this model seems to be that the information search is seen as a linear process.

### **2.3.4 Wilson's model of information-seeking behaviour**

The model taken as a basis for the design of this research is the one developed by Ellis and Wilson.

Ellis (1993) offers a "behavioural model of information search strategies". This pattern is based on empirical research, and it identifies different features that can appear in different sequences during the information search. These features are defined below:

*starting*: the means employed by the user to begin seeking information,

*chaining*: following footnotes and citations in known material

*browsing*: semi-directed or semi-structured searching

*differentating*: filtering the amount of information obtained;

*monitoring*: keeping up-to-date searching;

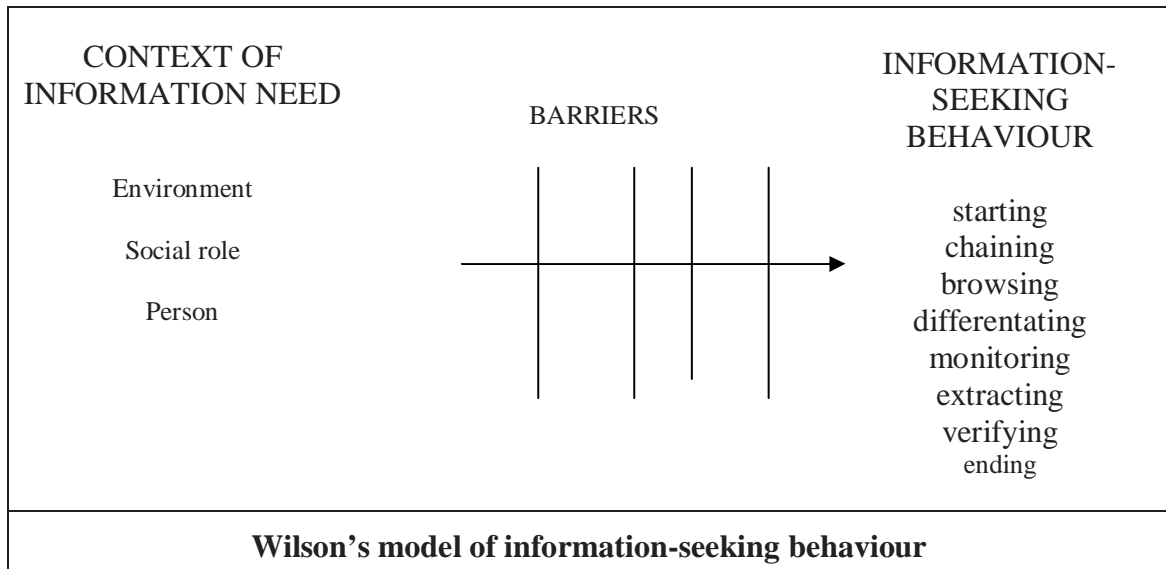
*extracting*: selectively identifying relevant material in an information source;



*verifying*: checking the accuracy of information;

*ending*: tying up loose ends' through a final search.

Wilson (Wilson et al. 1999) gives an interesting integration of Ellis's model, including in comprehension of the process the barriers the every enquirer is likely to encounter.



These barriers can be of different nature. Some of them are intuitive, such as age, the time available, the stress of the situation, the use of unfamiliar technology, other can be geographical, social and economic barriers.

Information sources can pose barriers, such as the form in which they are presented (Pickard 1998), access, credibility and the channel of communication. Other are less intuitive and have been explained by research such as, in the context of library research, the "library anxiety" theorized by Mellon (1986): when the library user feels his skills are inadequate and fear to ask reference questions that would reveal this shameful inadequacy.

Even the educational level and knowledge base can be a barrier, not only for the less knowledgeable, because "more knowledgeable the individual, the easier they would find it to encode information, thereby making further information acquisition easier." On the other side "people may seek less information on topics they feel knowledgeable about: the more important a topic is to individuals, the more likely they will view themselves as knowledgeable about the subject." (Wilson et al.1999)

### 2.3.5 Factors influencing information behaviour

Besides the initial status of researcher and problem, different variables can influence the process in its development, oth positively and negatively.

First of all the characteristics of the seeker himself, his **personality** (Heinstrom 2000), his **learning style** (Pask 1976, Ford, Wood and Walsh 1994, Brophy 2001) and his abitual **search pattern**: users have personal patterns that are consistant over time; they are sometimes conscious, but most often reflect unconscious behaviours that can be discerned over time and across different information problems and searches (Marchionini 1995). Research has demonstrated that these patterns are independent of the original physical library environments and don't change in a virtual learning environment. (Byron, Young 2000)

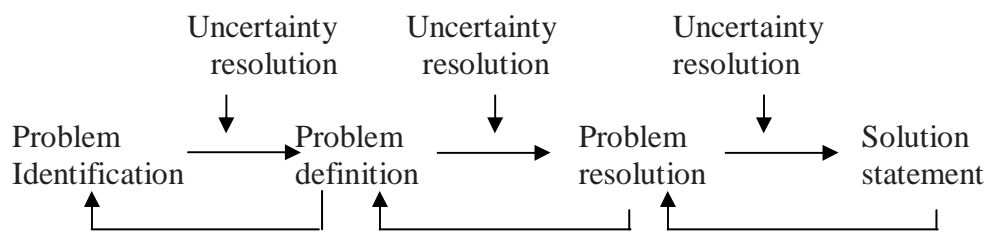
Even the seeker's perception of the **complexity of the task** determine the seach strategy. He estimates the level of task complexity at the beginning of the performance, on the basis of his knowledge of the task procedure and requirements. "As task grows more complicated, the information need also becomes more complicated", and influences the choice of channels and sources. (Bystrom and Jarvelin1995, p.582)

**Affective aspects**, such as attitude and motivation, may influence the search as much cognitive aspects. (Kuhlthau 1991, Brophy 2001)

Also **collaborative aspects** are to be considered as influencing the information seeking pattern of students; they can be developed, when people work together in the classroom (or virtual classroom) or in a working environment and discuss their researches. (Prekop 2002)

#### **Information seeking as a dynamic process:**

According to Wilson (Wilson et al.1999), at the basis of every research process there is a problem, that can be defined as a "state of uncertainty". The researcher goes through different stages , in the attempt to solve his problem, and move from uncertainty to certainty. These stages can be defined as: problem identification, problem definition, problem resolution, solution statement. Each stage sees the successive resolution of more and more uncertainty; when uncertainty fails to be resolved at any stage, the researcher goes back to the previous stage for further resolution



- THE PROBLEM RESOLUTION CHAIN -

The information seeking process is dynamic rather than static: as the search progresses, the problem changes and evolves through the information encountered. As the state of the problem changes, so does the information needs, affecting the use of source and the decision of relevance.

### **Relevance criteria**

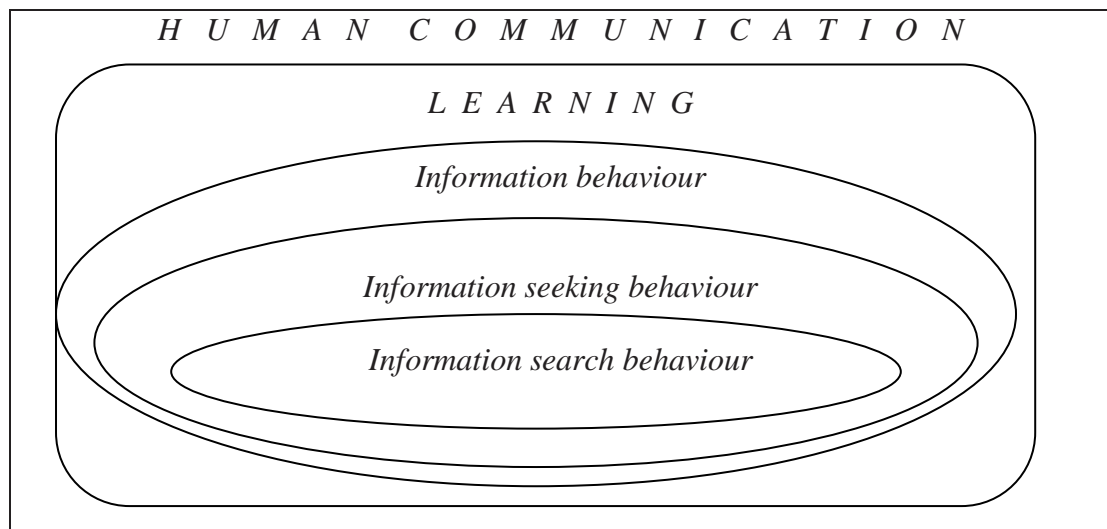
The user judgement on relevance changes during the information seeking process (Saracevich 1975, Schamber, Eisenberg and Nilan 1990, Kuhlthau 1991, Spink, Greisdorf and Bateman 1998). At the beginning the retrieval of partially relevant items may have a crucial role in providing users with new information that may help the user to understand better his information problem. Moreover, “while highly relevant items may only confirm what the user thinks he needs to know, partially relevant items can be related to shift in the user’s thinking toward the resolution.” (Marchionini 1995, p. 58)

## 2.4 The object of research – some definitions

Information-seeking behaviour has been defined as the “complex patterns of actions and interactions which people engage in when seeking information of whatever kind and for whatever purpose” (Ellis 1997, p. 216).

Following the assumption that “the information-seeking behaviour must have a beginning and end points to be describable” (Heine, Winkworth and Ray 2000), the object of this research has to be accurately identified.

**Wilson’s** (Wilson et al.1999) **nested model of the information seeking and information searching research areas**, can be adopted, with the integration of other relevant concepts.



- NESTED MODEL OF THE INFORMATION SEARCHING RESEARCH AREAS -

At the most general level, two “dimensions” were added. These are fields of human activity at the basis of this research. First of all learning. As suggested by Marchionini “information seeking is often a type of learning, because the goal in both cases is to change knowledge” (Marchionini, 1995, p. 8).

Moreover, recalling the well-known principle expressed by the philosopher John Dewey: learning is a social activity. As wider framework of all the activities that concern information and that are central to this research, the field of human communication has been indicated.

The basis of social learning is communication, which Nipper (1989) characterises as the degree of “noise” accepted by the institution. The more communication there is with and amongst the learners, the more noise there is in the system. That noise is “the sound of people coming together to learn”. Nipper’s noisy learners are active and creative learners, who are involved in social learning through their interactivity.

The fields of the the original model of Wilson are clearly defined.

The most general field of *Information behaviour* is concerned with all the phases from the expression of the information need to the methods of processing and using resources to organize solutions.

The field of *Information seeking behaviour* is concerned with the variety of methods people employ to discover and gain access to information resources.

The studies of *Information search behaviour* are particularly concerned with the interactions between information user and computer based information systems.

The focus of this study is identified in the general level of *Information behaviour* and will take into consideration the higher contexts of *learning* and *communication*, since the aim of students’ researches is learning and the interactions between students themselves, and with teachers and librarians will help building a complete picture of the case study.

#### **2.4.1 Restictions**

Some restictions in the object of the study have been necessarily determined. The field of information behaviour is wide and complex, and all the possible variables could not be considered, as resources and time at disposal are limited.

The narrow focus is on the search of information: what specific use of the retrieved data the students make, when they have searched and reached for the resources they consider most suitable, will not be investigated.

Another limit lies in the origin of the information search itself: the information need.

This issue is really difficult to investigate. While information use is concrete and measurable, the needs that lie behind every search are subjective and occurs only in the mind of the person in need (Wilson 1997). When facing the issue of defining needs, so many distinctions can be made: there are dormant needs and unexpressed needs, that

never reach a conscious stage; otherwise they can progress into information wants and demands, and this is when the information seeking starts (Nicholas 2000). This research will try to approach the latter stage of this process.

Moreover, the research does not take into consideration the point of view of the single library systems of UNN and UNIPR. The focus is on the “personal information systems” of each student, composed by those academic libraries, as well as other local or private libraries and every other source of information they use.

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## **Three: Research Methodology**

### **3.1 Choice of method**

To choose the most suitable research methods for this specific investigation, many factors have been considered: the aims and objectives, the characteristics of the situation and the constraints of time and resources.

#### **3.1.1 A qualitative approach**

The choice of using a qualitative method of analysis was determined by the idea that a qualitative approach would facilitate the exploration of perceptions, beliefs and attitudes among the group studied. (Creswell 1994) The existence of a well defined and quite narrow group of people involved offers the possibility to make an in-depth analysis of the situation.

Small amount of quantitative data were collected and included in the research. Many qualitative researchers recognize the usefulness of using quantitative analysis from small sample sizes (Miles-Huberman, 1994). By combining the two types of data, quantifying research acts as a measure of activity and helps building the picture that qualitative data can explain.

#### **3.1.2 A short literature review on user studies**

The distance learning students of the master class will be the object of an investigation that can be placed in the context of “user studies”. A review of the literature on previous user studies has been useful to identify possible solutions.

User studies have followed the same evolution of the theoretical discussion around information behaviour. Traditionally, the field of user studies has been characterized by an orientation toward quantitative methods, most frequently some form of structured questionnaire and basic statistical analysis. These methods give an overall quantitative picture of information use by a particular group, but they do not provide a view of the perceptions of the researchers in their seeking activity.

Recent years have seen a change in the way empirical research has been conducted. There has been a move away from the traditional study of large groups via

questionnaires to a more intensive study of small groups via observation and unstructured interview techniques.” (Ellis 1993)

There has been an increased interest in the use of qualitative methods in information studies, with the aim to focus on the needs and information-seeking activities of individuals. Since the perspective of each person is considered valuable, the researcher attempts to understand people from their own frames of reference.

Current literature tend to focus on research on the use of electronic information retrieval systems, but there are still many studies devoted to the more general field of “information behaviour”, that focus in particular on different categories of users, from undergraduate students to artists, humanists, chemistry researchers, physicians, journalists and many more (Brown 1999, Cobbletick 1996, Lehmann and Renfro 1991, Holland and Powell 1995, Gorman 1995, Nicholas and Martin 1997).

The literature offers several examples of techniques employed to obtain data on the activity, the problems encountered and the perceptions of information seekers: semistructured questionnaires (Brown 1999), flow-charts and process surveys (Kuhlthau 1990, Byron 2000), research activity timelines (Barry 1997), critical incident technique (Flanagan 1954, Urquart et al. 2003), explication, or the “thinking aloud” (Ingwersen 1982), observation techniques and, most of all, semi-structured interviews.

Among these techniques, most of them were not considered for this research, because they are to be conducted during the research process: they are applied from the beginning, or at least immediately after the search process has ended. If such enquires are conductor later, people may give insufficiently detailed answers, because they lack sufficient memory of the different situations and information-seeking methods and are unable to estimate the frequency of their use of different sources. (Barry 1997, p.155).

For a research that aims to cover and analyse the activity of information users over a period of two years time, and to discover their information seeking patterns at a general level, not considering single searches but strategies as a whole, the most suitable technique seems to be the use of in-depth, semi-structured interviews, preceded and prepared, whenever possible, through the analysis of users’ previous literature review works.

The path followed is the one indicated by Ellis (1993) and followed by other researchers (Ellis, Cox and Hall1993, Reneker 1993, Ellis 1997) in the study of the information behaviour of academic and professional researchers in different field of studies, even in the field of the information behaviour of distance learning students (Thorsteinsdottir 2001).

The concept at the basis of this kind of research is that to investigate the state of the user's problem within search process, it is necessary to apply methods which allow individuals to describe and explain the perceptions that lie behind actions and experiences (Kuhlthau 1988).

### **3.1.3 The case study**

With the choice of a qualitative approach we seek to understand as much as possible about a narrow issue. Case studies is particularly usefull for this, because the result of this kind of inquiry is a so-called "thick description" of the subject (Stake 1994). Because of its emphasis on "deep data," the case study is out of reach for many large-scale research projects, but it seems to be the ideal method for a small unit of investigation as this one is.

Yin states that "A case study is an empirical inquiry that investigates a contemporary phenomenon, within its real-life context especially when the boundaries between phenomenon and the context in which the phenomena occurs are not clearly evident." (Yin 1994, p.13)

This is exactly what we want to obtain: a complex picture will be built combining voices and views of the partecipants, in the framework of the situation described by key informants.

The case study qualitative approach studies individual patterns of behaviour: it can reveal useful information that may not come to light in more quantitative research, where the aim is to produce generalizations about behaviour.

Moreover, the technique of case study, has the advantage of being particularly flexible. It emphasizes exploration rather than prescription (Palmquist 1997) and the researcher is partially free to address issues as they arise in the experiment, beginning with broad questions and narrowing the focus as the inquiry progresses.

### **3.1.4 Methodological triangulation**

Case study is known as a triangulated research strategy, because it relies on triangulation to confirm the validity of the processes. Triangulation will be obtained by crossing the results of different investigations:

- ◆ Analysis of library web sites and consultation of librarians as key informants,
- ◆ Consultation of teachers as key informants,
- ◆ Documentary analysis of literature reviews and critical accounts, and interviews to students.

Triangulation is used not only as a validation technique, to check the conclusions from one data source against the other, but also to gain a fuller perspective on the situation investigated. (Lacey and Luff 2001, Creswell1994)

Since the focus of this study is the user's perspective, the interaction with librarians and other information providers will be analysed only externally, to support the findings of the main investigations.

The primary method of gathering information are the formal, in-depth interviews with the students and the analysis of their literature reviews; other sources of data will be the voice of identified key informants and the information gathered through casual conversations.

### **3.1.5 The sample**

Since the size of the unit of investigation of this study is quite small, there isn't any need for sampling. The entire population of the class is considered. Instead of "sample", this is called "census".

This consideration is valid for the proper object of the research, the class of the master in Information studies, as well as it was kept in mind also for the choice of key informants: all the teachers of the course have been consulted, by e-mail or face to face. Among librarians, the choice was to consult the responsible for the services to distance learning students. When not possible, the most representative members of the librarians community, or those who were more likely to be informed and involved in the service for the distant learners of the master, were identified.

### **3.1.6 The researcher's role: Participant observation?**

*Partecipation reduces the possibility of inaccurate observation, because the researcher gains through subjective involvement direct access to what people think, do, and feel from multiple perspectives”* (Jorgensen 1989, p. 57)

The researcher is one of the students of the class focus of this research. The original idea was to adopt the “participant observation” methodology for this research, but this choice has been abandoned for a number of reasons.

As Ellis (1993, p. 474) states, regarding inquiries on academic researchers “the ideal method for research is direct observation, but it is often substituted by indirect observation in the form of interviews. In the case of the study of information patterns of academic researchers this was particularly so, as information seeking is integrated within the rest of their activities in a way that makes observation almost totally impracticable.” This is true also for the students of the Master: their information-seeking activity is conducted most of the time individually. There is sometimes the possibility to observe the interaction between students and their information providers (i.e. librarians, teachers..), but students conduct searches and use libraries and databases individually, in their own homes or offices.

Moreover, since this research is conducted at the end of the course of study, when most of the searches are completely done or nearly concluded, there is no possibility to observe any information research process in its natural context and development.

For those reasons, the integral methodology of “participant observation” haven’t been applied; nonetheless, as a member of the group studied, the researcher encountered the advantages of this situation as well as the negative aspects and risks.

*Positive aspects:* all the four positive features, theorized by Labaree (2002), that characterizes the state of the participant observer were available to the researcher: the possibility of shared experience, of greater access, of cultural interpretation, and of a deeper understanding and clarity of thought.

*Negative aspects:* the researcher can be subject to the possibility of bias, first of all the lack of objectivity and accuracy. The observer is already part of the group and possesses a considerable amount of pre-constucted assumptions and knowledge about the community. This advanced knowledge could serve as a source of understanding, but it could also false her objectivity.

*The researcher “ enters the field with an open mind, not an empty head”*

*(Creswell 1994, p.44)*

It is undeniable that this research have partially been conformed to the researcher's experience; even the initial idea for this research was born from her observations on the difficulties of use of information sources for the master course. In the same way, some of the data gathered during the two-years course have, for example, been used to prepare interviews.

These are precious information and data for the research, and can be the basis on which the ideas and features of the other students will build upon to construct a complete view of the situation. Nevertheless the researcher was conscient that this could also be an obstacle, that blinded the capacity of recognizing other, different or even opposite themes and views, that are equally part of the outcomes of the research.

Factors that were considered were, for example, the researcher's confidence in the use of the English language and IT skills, the possibility to share the experience of the Master with a colleague, with whom problems are discussed and supported, and, as a consequence, the ability to keep the pace in sending assignments. All these factors could alter opinions and ideas about the master course in general.

These problems have been faced with a constant confrontation with all the other students, mostly with those with different characteristics.

### **3.1.7 The use of Internet tools for communication**

A great part of the investigation was conducted by e-mail. This is due, mainly, to the distance between the researcher and the subjects of the research. On the other side this kind of tool helped to mantain among the students the same method of communication used during the two-years course, which has become familiar to them. Through the use of e-mail lists the group has created a sort of virtual community, in which the students gather across distances to exchange ideas. This virtual environment, together with the study school meetings, have provided a feeling of membership, similar to that found in face-to-face interactions.



The use of this medium for social research has proved to have benefits and limitations, in comparison to traditional communication tools (Clarke 2000, Coomber 1997 , Murray 1998).

Online qualitative research can suffer from problems with technology, for example when a message is not received or delayed by the system, and from the lack of a range of supplementary features that can be found in face-to-face communication: emotions, or pauses of reflection and body language.

On the other hand, apart from the reduced travel costs for the researcher, among the benefits we can include: the ease of negotiating collaboration among interviewed, the reduced need to find suitable interview times and availability of the persistent textual record of the conversation. Clarke (2000) considers that asynchronous electronic communication's capacity to provide opportunity for reflection and editing of messages before sending them contributes to the production of a closer fit between ideas, intentions and their expression in writing.

### **3.1.8 Validity and reliability issues**

The effort to ensure validity and reliability to this research has begun within the planning of the research and maintained throughout the process (Morse et al. 2002).

Apart from the technique of triangulation, to support the validity of the processes, and care to avoid the bias from the role of the researcher within the case studied (Cooper 2001), other strategies were actively undertaken during the research, to ensure its reliability and validity.

According to Morse (Morse et al. 2002), verification strategies include: methodological coherence, that is to find the right research method for every question, frequently refocusing questions and methods during the research; sampling sufficiency, by finding the participants who best represent the topic, seeking also negative cases, and a dynamic relationship between data collection and analysis: these activities has to be undertaken concurrently, in mutual interaction. All these aspects have been considered and applied during the planning of the research and its development into its definitive form.

### **3.1.9 Data analysis**

The methods developed within grounded theory (Strauss and Corbin1990) are used to analyse the information obtained through the different instruments. This is an inductive

approach: a theory must emerge from the data, hence, the researchers has to enter the field without preconceptions.

As previously stated, the researcher can not avoid to remember her position in the study and the knowledge hence derived. When analysing the data, she have kept as separate as possible her own ideas and opinions on the topics.

On the other hand, grounded theory requires that pattern is emergent from the data, but does not see these as separate: data collection, analysis and theory formulation are regarded as reciprocally related. To mantain the "groundedness" of the approach, in the consequent steps of the research, the data from previous stages were incorporated in the conduct and analysis of subsequent researches.

Data collection and analysis are deliberately fused, in the general knowledge derived from the review of the literature and from previous research. As suggested by the constant comparative method, initial data analysis was used to shape continuing data collection.

## 3.2 Key informants

### 3.2.1 Definition and purpose of the consultation

A first, schematic framework of the situation of the importance and the use of information, as well as the availability of information facilities was build around simple consultations with the teachers of the course and with librarians responsible for the services to distance learners in Northumbria and Parma universities.

### 3.2.2 Librarians

To draw a complete picture of the situation of information facilities available to distance learning students information was gathered in two ways.

The basic information about services and facilities available were extracted from the analysis of the web sites of the libraries of Northumbria and Parma University.

This information resulted to be incomplete in some cases, so that more data on the development of the services, the relationship with the teaching staff and the personal and professional perceptions were explored by consulting some librarians as key informants for the research.

#### **Analysis of web pages**

The web page of the library is often the first (if not the only) presentation of this facility to the students, it is important to consider its role in the information and promotion to distance learning students.

The aim of the review was to extract information that can be relevant for distance learning students, who cannot visit the library physically, but have access to its web page. General information for all users, as well as the pages and services available to distant learners only were considered. The quality of the web sites is not discussed, and similarities and differences were analyzed without taking into account the different web presentations.

#### **The consultation**

Some librarians were identified as key informats on the situation of library services for distance learning students of the Universities of Parma and Northumbria. While UNN

has a person in charge for DL students, the situation at UNIPR was investigated through the voices of different persons: the former librarian of the Institute of librarianship; the head librarian of the Literature and philosophy Faculty library, the head of the university library system and the librarian in charge for the electronic resources.

The librarians were contacted by e-mail. Not only because of the distance of the researcher from Parma and Newcastle , but to awake the attention of librarians and mantain the focus on the issue of distance learners. A list of questions on relevant aspects of the service to remote users and distant learners were submitted to the librarians. The scheme of questions was piloted on another librarian of Parma University (head of Law Library) and partially modified after her suggestions.

The topics covered were:

- the situation of library services for distant learners
- the availability of quantitative data on the use of services
- the librarians' perception on the use of library services by distant learners and remote users
- the relationship with faculty for the adherence of the library to University curricula.

### **3.2.3 Teachers**

The role of teachers in the framework of the information behaviour of the students is fundamental.

They are placed at the very beginning of the process, since their requests stimulates the information needs of the students. Moreover, in the context of distance learning "The role of an educator in distance education is different from that of the classroom educator. The new distance educator has been characterised as being a manager of resources." (Wolpert 1998)

But from another point of view, teachers' requests are only the starting point; they are the background in the process that takes each student from the reading of the "unit outline" to the clear formulation of an "information need", but this is a personal process. Each person who read the "assignment brief" has a different, personal way to re-elaborate lessons and learning materials, to procede with searching and evaluating new

pieces of information, and to compose and write the report for the assigned task. All the stages above mentioned are essential parts of the learning process itself, and learning is certainly facilitated by teachers, but it depends strongly on personal characteristics and features. Information needs arise from the learning experience itself, and they are not directly caused and created by the requests of teachers.

The focus of this research are the students and their information behaviour; the inquiry on teachers aimed to understand their general approach towards information resources for the master course: the importance they give (and transmit to students) to the use of information resources, and the level of comfort with new information they request to the students through the course units and their assessment. They were consulted about the importance they give to the libraries of the home university and their recognition of they services for students.

### **The consultation**

Italian and English teachers were consulted mainly through the e-mail.

A questionnaire with a majority of open ended questions and some close ended was developed, to cover the main issues on discussion: the use of information resources by undergraduate and postgraduate-master students and by traditional and distance learning students; the importance of learning resources and the role of teachers in “resource-based learning”; the use of study pack materials, of suggested readings and of other information resources for the comprehension of unit contents and to complete assigned tasks; the availability of resources to distance learning students.

Five e-mails where sent out. Even after the follow-up message, only 2 useful answers where received. The answers sent by a teacher of Northumbria University, who did not teach in the Master course, could not be included in the analysis of results.

To gain a deeper and wider knowledge of teachers view on these issues, one Italian teacher was interviewed in person. The questionnaire scheme was in this occassion used as interview guide.

### **3.3 The students**

The students of this Master have complex characteristics and can be considered from different points of view: they are recognized "distant learners", and the curriculum and course is built for this kind of learning. They are, at the same time, "remote users" of the

libraries of Parma and Northumbria Universities, and they can also be traditional users, during study schools or other residential periods. Finally, they are “reflective practitioners”, information specialists that are continuing their education and specialization, using their professional information skills for their study.

The research in the latter field is supported by the idea that: “Information behaviors cannot be purely defined by the situation, they must also take account of other areas of individuals’ lives that help to inform situational contexts.” (Given 2002)

Job-related information-seeking and everyday life information-seeking complement each other, and is if this is true for students of a variety of disciplines, it is even more evident for information specialists. The use of academic information sources and everyday problem solving influence each other: the intellectual work involved in university study seeps into students’ everyday lives, they must work everyday, including evening and weekend hours, to fit the academic information-seeking into their tight schedules (Savolainen 1995).

The students’ everyday experiences can inform their academic work; the choice of an assignment topics related to the occupation is the most obvious example. That is why the survey included some questions that aim to collect the features of the personal and working life of the students of the Master.

### **3.3.1 Analysis of literature reviews and critical accounts**

At the end of the first year of the Master course, the students are asked to do a research in the literature on a topic of their interest and write the result, to get a broad overview of the most important publications in the field, to gain basic knowledge of the topic, to understand if it really is of their interest and if it is a convenient topic for their research.

The literature review is intended to have a critical look at the existing research; not all the published has to be included, only relevant literature has to be considered, and put in relation with different researches, to build the background to the research the student is expected to write at the end of the master course.

In their critical accounts students are asked to explain how the research was conducted, the research questions, the methods of enquiry and even the keywords used; they included comments on their difficulties and limits. In other words, they have to explain their search strategies.

This reports frame the information behaviour of each student, without any time between the actual search and its description. While the interviews are based on experiences that students have lived in the past, nearly one year before, so that memories can be vague and generic, critical accounts are immediate recordings of actions and steps, when the memory is still fresh and detailed. Moreover, while interviews refer to a generic "information seeking behaviour", the account describes a singular, thou complex, "research problem".

In the analysis of students' literature reviews, considerations on the strucure and the text as a whole were not considered. Only the "information behaviour issues were taken into account: the intended focus of the research, the intent of the author, and all the other features that could be interesting for the understanding of the information seeking activity of the authors. The greater analysis was done on the last pages of the submitted works: the bibliographies and the critical accounts contained the most interesting information.

The bibliographies have been studied with quantitative methods, to obtain an overview of the students' preference in, for example, language or types of material studied and cited in the reviews.

Critical account were accurately scanned and analysed to reveal common problems and selection criteria, or behaviour patterns.

### **3.3.2 Interviews**

Nicholas (2000) describes the interview as the "real star" among research methods on information needs. Many authors agree that interviews are the most suitable tool to explore such issue: this subjective issue can be discovered only through the report of the person in need (Wilson 1997). Interviews offer a fuller, richer source of data: the person in need is given the opportunity to tell how it works as he or she sees it (Kuhlthau 1988).

In the interview data comes out in the words of the interviewee, not in those the interview has suggested in a questionnaire. The form of words, expressions and quotes

that expresses the view of people, are “the diamonds in the methodological mine of the interview” (Nicholas 2000).

Though the preferred method is the in-depth, semi-structured interview, the choice for this research was to adopt a more structured scheme. The choice was made for two main reasons: for the inexperience of the researcher, obtaining a massive amount of unstructured data could lead to difficulties in the coding and analysis phase: results from structured questions are more easily codable (Bell 1999).

The second reason lies in the choice of undertaking a part of the consultations with the students, through the e-mail. Another researcher has used face-to-face interviews together with e-mail interviews and proved the validity of this methodology (Kimber 2000). Her comparison of the findings of the two methods reveal that, even if there is a great difference in the quantity of data, (obtained through word-counting), the difference in the quality of data is not so relevant: in written interviews, many repetitions are avoided, but there is more attention to synthesis and the significance of answers.

The use of a structured scheme of questions, in which respondents could answer freely within the context, aimed to obtain, from the two different forms of investigation, data that are comparable and similar in form.

### **Selection of topics**

The questions scheme for the students contains different investigation tools: a majority of open ended questions, but also close-ended and rating questions.

Topics covered are:

- Professional education and experiences,
- Use of the information services of the libraries of Northumbria and Parma Universities,
- Use of other information sources (other libraries and internet, tutors and colleagues)
- Personal information strategies: use of different languages and formats, unit study packs, depth of research.



Some questions were inspired specifically by the situation studied, as for the question on the use of the university libraries of Northumbria and Parma, the use of different languages, the relationship with students, colleagues and tutors. The review of other user studies have been useful to identify some of the other issues of discussion: the need to consider the collaboration among students (Prekop 2002), the way students choose the topics for their research papers (Kuhlthau 1988), the feeling of having collected “enough information” (Limberg 1999)

The issue of satisfaction with the services offered by the two Universities regarding information resources haven't been addressed directly: student weren't asked to express any evaluation of the available information resources. This is partly because their other answers gave a clear idea of their opinion and were surely more useful than the grades of a ranking scale; moreover, their judgement could easily encompass not the simple information resources but also the course as a whole, disturbing the value of the answers.

### **Data analysis**

In qualitative research the data gathered can be of different formats and of a discursive nature: their analysis is more complex and time-consuming then for quantitative data (Moore, p. 121).

As suggested by Ellis (1993), since qualitative research generates very large amounts of text and the initial impression can be that there is no pattern in the mass of information, two different coding techniques were applied. At first, the key concepts referenced in the interviews were categorized; and later, when all the main theme had emerged, all the interviews were analyzed again to ensure analytical exhaustivity.

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## **Four: Analysis and discussion of results**

### **4.1 Findings from librarians**

#### **4.1.1 Analysis of web pages**

The web sites of the libraries have a basic difference: while the University of Parma has a separate site for its libraries, with a general page of introduction and then separate pages and web sites for the single libraries, the information and services of the libraries of the University of Northumbria are presented and integrated with all the other “learning resources”: IT services as students’ e-mail login, access to Blackboard, the electronic learning environment, and teaching and learning information sources.

Moreover, UNN learning resources web page has a particular section dedicated to Distance learning students; in UNIPR libraries web site, distance learning students are not recognized as entitled to special services. The Central library of the Faculty of Literature and Philosophy, which is the main library for the students of the Master and is in charge for the library services of the Department of Librarianship, has recently prepared some special services for them, but they are not presented in the library web page.

What follows is a brief synthesis of the services available for distance learning students by the two university library systems.

Note that UNIPR libraries all have different services and many have individual web pages with resources that are not shared with the whole library system. For “traditional services”, we take into consideration the Central Library of literature and philosophy.

Services	University of Northumbria	Università di Parma
Postal loan	Yes, it's free but user have to pay postage fees to return the material	Yes(*)
Document delivery (materials of the library)	Yes, by mail. £ 2.50 per article	Yes(*)
Document delivery (materials from other libraries)	Yes	Yes(*)
e-journal and databases	Yes, most of databases and e-journals are accessible off-campus	Databases and e-journals are not accessible off-campus
Reference and assistance	EARS - On-line reference service.	In presence(*)
Tutorials	On-line "library and information skills modules"	No, planned
Internet directories	Yes, for all disciplines	Only general or library-related
Use of other libraries	Information and facilitated access to other libraries	No

The field characterized by the (\*) mean that the service is available to Distance Learning students, even if the page doesn't mention it. Students were informed only by verbal communication.

This scheme puts in evidence the strong difference between the services offered by the two Universities. A reason for this was investigated with the help of librarians themselves.

## 4.1.2 Consultation with librarians

### **The Libraries of the University of Parma**

#### Situation of library services for distant learners

The Library system does not have a development plan for services for DL students, nor for any other service. As a consequence, each library organizes its services individually, paying more or less attention to the needs of remote users and distance learners.

While there isn't any "official policy" for remote students, librarians declare to be willing to provide phone and e-mail reference when requested.

Electronic resources suffer from different problems: there are many useful databases and e-journals on subscription, but they are accessible only on campus, since the contracts permit access on the basis of IP addresses. Remote users can access the list of databases and e-journals available, but they can not access the information.

#### Availability of quantitative data on the use of services

Distance learners are not considered as a particular category of users, and the data on their possible use of libraries is recorded together with all the other users.

This is the actual situation, but some improvements are planned: a web survey for students and teachers will orient the re-organization of the web site of the library system.

#### Librarians' perception on the use of library services by DL

All librarians agree that facilities for distance learners have to be developed, because they are the natural evolution of library services. They should be necessary also to traditional students that live far away from campus, that want to study and make research without spending time and money travelling to the university.

Many are the problems recognized by librarians: most basic are the lack of spaces, workstations and support staff in the libraries, then the great number of services that are not integrated and the confusing variety of library services, opening hours and locations. The lack of personnel is easily verifiable when considering the condition of the library of the Institute of Librarianship: it is closed from December 2002 and its resources are available only through the Library of the Literature and Philosophy Faculty, even if this does not result of the web page. The web site doesn't even mention that this library provides loan and document delivery of its materials to the distance learners. These services have been introduced recently, the students of the second class of the Master

were informed of this during the study school in May 2003; the students of the first class didn't receive any information on these services.

### Relationship with faculty and adherence of the library to University curricula

The choice of books and resources is a responsibility of the teaching staff.

In some cases, the library itself has taken over this role and takes care of collecting book list and suggestions from the teachers. Librarians declare that teachers are not always willing to cooperate and that they have to make big efforts to reach for course information.

### **The Library of Northumbria University**

#### *Situation of library services for distant learners*

There isn't any particular statement of purpose or development plan for Library services for DL students. The Collection management policy of UNN learning resources doesn't mention remote users specifically, but it declares: "The University library undertakes to consider the particular needs of individuals or groups and, within resources available, to try to meet special needs, including flexibility in loan regulations".

Distance learners can take advantage of many services, as postal loan, document delivery, access to databases/e-journals, reference, on-line tutorials.

These services are introduced to the students through web pages, information specialists and circulation staff. Learning Resources is continuing to develop ways to increase awareness of and access to electronic resources.

#### *Availability of quantitative data on the use of services*

Distance learners are not considered as a particular category of users, and the data on their possible use of libraries is recorded together with all the other users.

#### *Librarians' perception on the use of library services by DL*

The services are "well used by some, ignored by others". Most common problems are the poor postal services and the difficulty of students to explain to librarians exactly what book or resource they need.

#### *Relationship with faculty and adherence of the library to University curricula*

The paramount objective of the acquisition policy is the support for the University's teaching and research programmes. Stock is selected by information specialists. They liaise closely with academic colleagues, researchers and students to ensure a balance between subject areas and between books, journals and resources in other formats.



Sources of stock selection include reading lists, recommendations from academic staff, researchers and students, loan information.

Academic staff are asked to send their reading lists and recommendations for purchase to the Information Specialists well in advance of the programme commencement date, preferably two to three months. Information specialists usually have also formal and informal consultation with the teaching staff.

#### **4.1.3 Discussion**

The main reason for this gap can be identified in the different histories and background between the two universities of Northumbria and Parma. These library systems have different experiences in providing courses to distance learning students, and this clearly reflects in the offers of services to their remote users.

The library of Northumbria University has a history of many years in the service for remote users, while the libraries in Parma are receiving their requests for the first time. That is why they are more structured and advanced, while the services from Parma are only at their beginning, meeting the immediate needs of the students that refers to them.

The library of Northumbria University has developed not only its services, but also a clear and user-centered web page and promotion activities. The libraries of Parma University are developing their services, but still lack the capacity to make facilities and services known to their public.

## 4.2 Findings from teaching staff

Teachers have clear ideas on the importance of the use of information resources in the context of the Master course.

### 4.2.1 Use of information by undergraduate and postgraduate students

Undergraduate students often can rely only on the book list of the courses, without reading more widely, using a little amount of journals and web based resources.

In Italy they are not educated to use the information available through the Internet. Their teachers do not acknowledge the value of such resources and strongly discourage its use; on the other side, when students are trained to discriminate among different information and shown the power and the value of carefully selected web based resources, they are amazed, but still have difficulties in integrating them into their information seeking behaviour.

### 4.2.2 Use of information by traditional and distance learning students

On the other hand, the students at Master level need to perform complex searches among the wide and various world of information resources. While students attending traditional, in presence courses, have access to electronic sources as well as physical sources more easily, their access to information is wider and quicker. This is bound to affect the use they make of information: traditional students can be less structured in their information seeking, while DL students, to make the most of the materials, "need to know what they want". In a distance learning context, students are dependent on on-line resources in order to carry out their tasks; that is why, when a university outlines a distance learning program, a great offer of online resources should be one of the first facilities to implement.

Students they must operate a lot of procedures by themselves, therefore information skills should be taught, so that students can make the most of their own independent learning.

### 4.2.3 Resource-based learning

The preminent role of learning resources, rather than the centrality of the teacher in "resource-based learning" is fairly accepted by the teachers. On the other side, their role

in planning and coordinating the work and providing the basis of the learning activity, remains absolutely important for a successful study program.

One of the aims of this Master course is to make the students independent learners, capable of finding , evaluating and using all the necessary resources to fulfil the academic assignments as well as other professional tasks.

#### **4.2.4 Study packs and other information resources**

Materials included in the study packs delivered to the students can be sufficient for some of the units, but not for a whole master course. Further reading of suggested material and other resources is valued as "very important" by all the teachers, both for the comprehension of the didactic unit and for the fulfilment of assigned tasks. The majority of them are in English and refer to the international situation: this is due to the fact that there is no suitable Italian literature at the level of this Master course: for example research methods are taught at a general level, and the work of reviewing literature is never explained in a structured and scientific manner.

Teachers have verified that the materials indicated in the list of suggested reading were accessible though the library loan services and some copies were acquired even by the libraries of Parma University.

#### **4.2.5 Library resources**

All the teachers consulted believe that library resources available to the Distance learning students of the Master course are enough to fulfil the assigned tasks and complete the Master course. In their answers, teachers always stress the role of the electronic resources of the University of Northumbria.

When regulating the cooperation between the two universities, special attention was given to learning resources from both sides. The access to UNN services and facilities was assured for all students, but also the resources of the University of Parma libraries were taken into consideration and monitored.

There is collaboration with the library staff of both the two universities, but teachers address the students toward the resources of Northumbria University. The paradox is that the libraries have acquired nearly the same resources, but while Northumbria university has build a user-centered electronic environment to promote and facilitate the use of these tools, the University of Parma can provide access to them only from

campus-based workstations. For a distance learning students, this means nearly no access at all. This is partly due to the fact the Italian academic libraries haven't yet adopted a user-centered approach: they imagine the students at the centre of their activities, but haven't designed their services to be easy to use and really accessible.

## **Five: Results from students**

### **5.1 Analysis of literature reviews and critical accounts**

#### **5.1.1 Responses**

Only a part of the class had submitted the literature review: the students that have joined the course later, the so-called “distance learning group”, have a different schedule from the other, and are still working on their reviews; within the original group, only 9 students have kept the schedule and submitted their work.

Since one of them belongs to the author of this research and has consequently not been included, only 8 reviews with attached critical accounts were received and analysed.

#### **5.1.2 Results from the analysis of bibliographies**

##### **Language of publications**

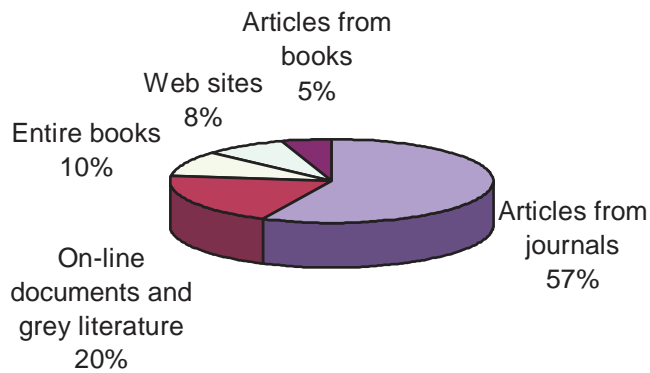
The majority of bibliographical records refers to publications in English (68%). The second language is Italian (30%): this is because even if in most reviews the amount of English record is heavily preminent, there are two reviews that consider nearly only Italian literature, also because their focus is on the Italian situation. Three students have also considered a few texts in German (1%) and French (only 2 records, 0,2%).

##### **Date of publications**

All the reviews focus on recent publication. One bibliography dates back from 1977, but the majority covers only the last decade.

##### **Type of publications**

Results are shown in figure 1. Among the 1034 bibliographic records analysed, 100 are citations of books and 53 are articles extracted from books, they represent the 15 % of total records. The majority of records refers to journal articles: they are 595 (58%). Then there are 87 references to whole web sites (not particular resources on the web but sites of professional associations or independent sites on specific topics) and 212 "on-line materials and grey literature", typically reports and guidelines of professional associations, web directories, or "web debates" hosted in the web sites of journals.



*Fig. 1 - Types of material*

It was not easy to understand the type of material cited in each record. The source of many documents was confused, in particular those related to report of professional associations and conference proceedings. The different use of students for indicating the Internet address (URL) of the documents have only increased this confusion. The absence of a internet adress in a bibliographic record does not always mean that this resource has been consulted in paper format; in fact some student didn't put any link to electronic resources, even when the cited item has been published in journal that has only the electronic version; on the other side some students have included all the possible WWW address to reach a particular document.

All these item of difficult classification have been grouped under the name "on-line materials and grey literature". An important part of the references belong to this group: it consists mostly of reports and papers of professional associations, textual resources made available through the web-pages of libraries, researchers or university teachers. The absence of the link makes a clear identification really difficult; in some cases even the authors, when asked for a clarification, couldn't remeber the nature of the cited materials.

The same happens with journals: it is not possible to determine whether an article has been accessed on-line or on paper. The students cited a total of 236 journal titles, including specialistic journal on economy, psychology and education and informatics as well as newspapers and librarianship journals. Most cited titles are: Biblioteche Oggi, Library Journal, Bollettino AIB, College and Research Libraries, American libraries, Journal of the American Society for Information Sciences and D-Lib Magazine.

### **5.1.3 Results from the analysis of critical accounts**

The critical accounts describe the process of choosing the topic, searching and collecting materials and writing down the reviews. Their analysis has followed the same

path, trying to capture common features and differences in results and behaviour of the authors.

### **Choice of topics**

For many students the choice of their topic for the review was guided by personal interest, the possibility of applying the studies to the professional reality and the previous knowledge of the field. The first idea of the topic has been followed by some background readings, the consultation with tutors and colleagues and a first research in the literature. This has helped to become confident with the subject, to clarify initial ideas and refine the parameters on time, language and type of publication limits.

Sometimes this first investigation has brought to a radical redefinition of the initial ideas, taking into consideration also the availability of resources in a particular field of study and the limited time available.

Once the research questions have been expressed, the students defined also the keywords for searching, including synonyms, antonyms, narrower and broader terms for research, sometimes with the use of glossaries, dictionaries and encyclopedias.

### **Starting to search**

The starting point of the real bibliographic research, when declared, seem to be different for each student: some start with a book, or with some review articles, from the opac of their own library, or browsing journal issues in their library or through the on-line service.

### **Continuing to search**

The sources used in the following steps of the research are often the same, but every searcher follows his own strategy and order. In an evolving search the subject uses different search methods and sources to find information and, at the same time, re-define the topic and the search parameters.

All the students cite databases (mostly LISA and ERIC) and e-journals, accessed as services from UNN libraries or from their home library.

Seven reviews refers to different resources available on the web: academic and professional pages, directories, web debates, other "free resources" and search engines, even if with some caution: one says that it is dangerous to believe in resources found on the net, another tells she will only use paper based resources, because they report accepted and widespread theories, a third one refers that she has used a search engine at the end of her research, but didn't find nothing more than what she had already found with alternative strategies.

Six students declared to use the OPACs, but only four of them specify the use of the on-line catalogue of their own library system.

While only four students have consulted independent bibliographies or review articles, six students describe the activities grouped under the so-called "backward searching": it means to trace the bibliographical records cited in references and footnotes of known, relevant articles.

Other strategies used to find bibliographic information are the browsing of library shelves; browsing complete series of journals, in paper or electronic format is also a common strategy, explicitly declared by five students.

Finally, four students refer to have taken advantage of other web-based services: web debates, mailing lists, reference desks, ask a librarian services and e-mail contacts with other librarians. The results are different: some experiences were disappointing, other were stimulating and interesting.

### **The importance of the Internet**

It seems important to underline the importance of all the services and different information sources available through the net. The internet is used in many different ways:

- to find and locate useful resources in OPACs, indexes and directories,
- as a mean to reach for the full text of traditional materials, as reports and articles published on the web,
- to share experiences with other professionals in the field, in common places of discussion (mailing-list and web debates) or privately by e-mail,
- to take advantage of services offered by institutions located at a distance from the student himself: reference desks, document delivery and interlibrary loans.

### **Personal information sources**

It is necessary to stress also the importance of personal information sources used by the students to clarify their research ideas and to find relevant information. Personal contacts and discussions with tutors, colleagues and other librarians play an important role in the development of the research strategy and its results.

### **Access**

The sentences that describe the search for bibliographic records, and the following localising and accessing steps are sometimes a bit confused, so that it is not always easy to distinguish the different tool and strategies used for the different activities. Moreover



two of the accounts do not give information about this part of the research, so the number of experience to be considered falls down to six.

Five students declare to have directly taken advantage of the resources of their own library system (where they work or in their town), one of them has also visited in person a specialized library in another town. Document delivery services are of common usage: five persons has used them and, in addition, two of them have also taken advantage of interlibrary loan (only one student declares to have used the loan service from the Library of Northumbria University, and she reports that some mistakes and delays were encountered).

The second important group of resources is provided by and through the "internet": all the students refer to e-journals, either accessed through their own library system (that sometimes is the Library system of the University of Parma) or through the services of Northumbria libraries; four persons refer the generic use of resources that are "freely available on the net".

## 5.2 Interview findings

The interview to students was initially structured as a proper interview, with open-ended questions. Two pilot interviews were made, one in person and one by e-mail. After that, the interview was transformed into a more schematic and close-ended investigation for two reasons. The first was the need to distribute the investigation mainly through the e-mail, where the researcher had a limited possibility to explain the questions and deepen the first answers. As a consequence, the answers obtained resulted difficult to code and analyze.

It was decided to give to each student the same question scheme, and contact each of them in the best possible manner.

On a total 19 students (excluding the researcher herself) that were contacted for this research, 16 have answered to the questions, in three different ways:

- Those who agreed to be consulted in presence, received the interview scheme in advance by e-mail. As suggested by the pilot and some of the students, they used it to focalize on its topic and have the time to think back and recall their behaviour; the scheme was then partially used as interview guide.
- Those who could not be interviewed by person answered completely by e-mail. They received some further questions, when answers were not considered clear enough.

- Another case is that of those students that the researcher managed to meet at a unplanned meeting. The researcher managed to collect their written answers and they were taken as a basis, but there was time to add further question to retrieve more opinions and comments on the topic studied. This strategy can be compared to the technique of the drop-off survey, in which people deliver or collect questionnaires by hand. Personal contacts enables the surveyor to encourage respondents to complete the questionnaire. It allows him to clarify and interpret some of the difficult questions, and perhaps even supplement them with additional open-ended questions, asked in a face to face encounter. (Martyn and Lancaster 1981 ; Salant and Dillman 1994)

### **5.2.1 Analysis of the answers**

#### **Professional education**

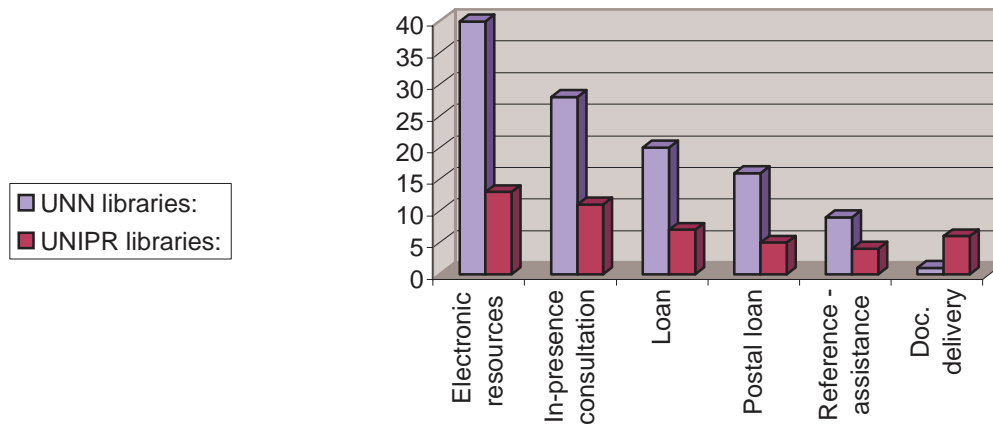
While few students have taken their degree in librarianship or have attended longer courses and master in the field. The majority of them have a degree in other subjects and have then attended shorter courses on different specific subjects: mostly cataloguing, but also school librarianship, archival science, web design and informatics.

#### **Professional experiences and current working situation**

Most of the students work as librarians and deals with all the aspects of the profession, from cataloguing, to reference and sometimes management of the web pages. Some of them deal especially with electronic resources, while two students work with library softwares.

The majority (12) works in University libraries, 3 work for public libraries and the remaining 4 work in research institutes, music schools or software houses.

Fig. 2 - Use of library services of UNN and UNIPR



### Use of University of Northumbria Libraries

Figure 2 gives an overall idea of the use that students make of the libraries.

Considering the answers about the use of Northumbria library, the data have to be split in two different contexts.

Many students have used the consultation and the loan services while they were in Newcastle for the study school. Unfortunately this experience is expressed in the questionnaire in different ways: 12 say they have consulted the library resources “often” or “sometimes”, while only 7 students declare to have borrowed books during the two weeks session. Comments say that the two weeks spent in Newcastle were really usefull: the library was well furnished with relevant literature, and student were able to borrow and copy a lot of materials for their researches.

Of the services available to remote users, the access to electronic resources is the most successfull, nearly all the students (14) refer to use it often; many also take advantage of the postal loan.

The comments cover all the services: general comment are positive, if not enthusiastic ("very good services"): electronic resources receive full approval, as well as e-mail assistance and the web pages, that are defined "clear and user-friendly"; only few person declares to have made scarce use of Northumbria's electronic resources: because they could use other similar facilities or because they had problems with passwords at the beginning and had then abandoned the idea.

Comment on distance loan and document delivery vary: they can be described as "slow and expensive" as well as very fast and efficient, with its on-line request form and the tags for sending books back . Another repeated observation is that it is difficult to

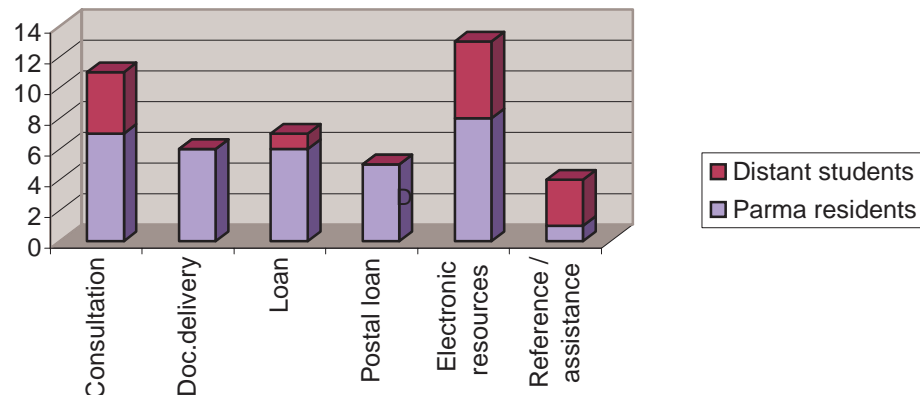
evaluate from the opac what book is the best choice, the possibility to read the abstract would be appreciated. In fact, the collection itself is defined good, but maybe too technical, and the shelves were often in disorder.

### Use of the libraries of the University of Parma

Considering the data on the use of Parma libraries, the first remark is that those libraries are much less used. Most of the comments refer students have never used those services and do not have information about them; one student says that the book of suggested readings are usually not available in Parma.

Even in this case, one observation is necessary to full comprehension: some of the student of the Master live in Parma and work at the university, the limits that have denied access to other students haven't affected them. If we try to consider only the answer of the students that are not located in Parma, the factors of usage diminishes remarkably, from a total of 46 to 13, as shown in Figure 3. Not only can these students have access to electronic resources; since the majority of the students who resides in Parma, are also working at the University, and have access to many services that are not available to other users.

Fig. 3 - Use of UNIPR Libraries

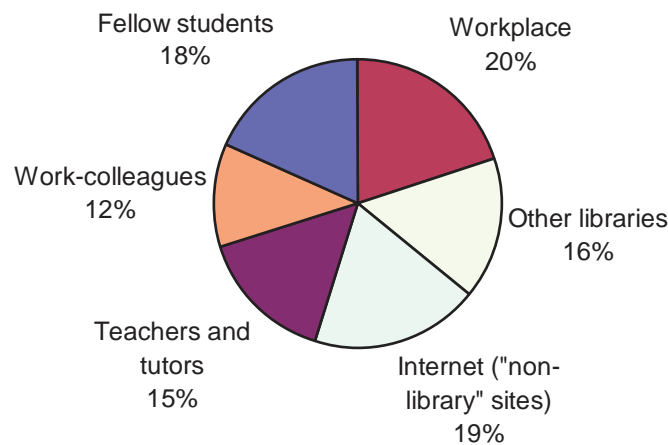


### Other sources of information

Students use many other sources of information, apart from the academic libraries of the two universities (Figure 4). In this question, different kind of “information providers” are grouped: from "library-information" to the information and assistance that teachers and fellow students can give.

For bibliographic references and sources, student use the resources of the libraries where they work as well as other libraries (usually local public libraries, but also specialized institutes and national libraries). They use the internet, for OPACs, search engines (Google is the most cited), mailing lists, thematical pages on research methods or management, personal web sites of researchers, library associations, open archives. For academical problems and personal support, they refer mostly to fellow students, then to the teachers (they are the second choice mostly for the problem of the language) and to work colleagues. Comments refer to the difficulty to search and keep the focus on a topic without getting lost.

*Fig. 4 - Use of other resources*



## **Information strategies**

### *Language*

Students refer to use both Italian and English, but there is a slight prevalence of English. For the reading activity English is used basically because not much of interest can be found in Italian. Italian is commonly used for taking notes and, sometimes also for drafts; on the other side some students prefer to use English for their drafts and sometimes even try to avoid Italian, to keep clear from later problems with the terminology. One student also referred that she was trying to go back to the use of Italian in her researches to be able to “use” what she has discussed and learned even in the italian working context.

### *Type of materials*

Ten students simply answer “digital” to this question. A few other state that they use in prevalence digital materials, but also paper resources, to find the basics of the issues studies in printed, reference books. Electronic articles are good because the student can

learn from them, not only the specialized topic of discussion, but the form and structure that academic papers must have.

### *Choice of topics*

The first declared reason for the choice of the topics of the papers is in relation to work: the themes are often ongoing or future projects in the libraries where students work. Sometimes it is a more general “personal and professional interest”, even when the person feels that the innovative projects designed for the course will never be accepted and implemented in their working reality.

Another factor that influences the choice is the ease to find and access materials on the topic.

### *How do you start your research?*

Answer to this question have all different formats, and are difficult to show with a graph.

Even among personal behaviours, a general pattern can be recognized:

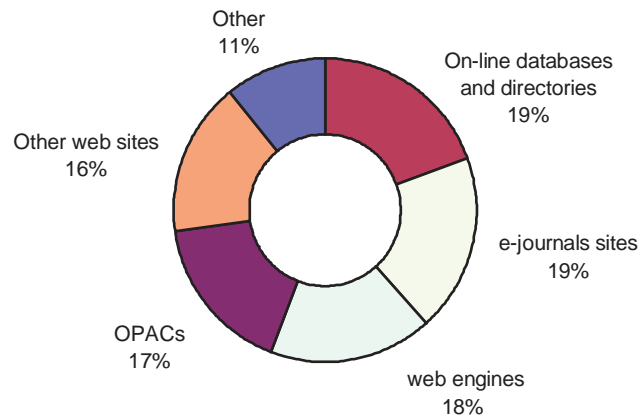
the first step is to understand the contents of the unit and deepen its knowledge, reading the study pack material and retrieving some titles of the annexed bibliography. Once the first idea of a topic for the paper is born, the students generally undertake a first search in OPACs or databases, to better focalize on the issue, and to retrieve keywords for further searches. Later on they ask tutors or colleagues for advice and, finally, they perform searches for articles in e-journals or to be delivered through document delivery. Bibliographic records are often derived by known articles and all the bibliographic items are stored and organized. The focus of the research is continually re-defined

## **Search strategies**

### *Where do you search?*

From figure 5, it can be noticed that students consult a wide range of sources: the first 3 answers refer to electronic resources and on-line services, both available thanks to library subscription (databases and e-journals), or free (Google again!). Then comes library on-line catalogues and other web sites and services, as mailing list, thematical sites suggested in the course bibliography, journal indexes and databases.

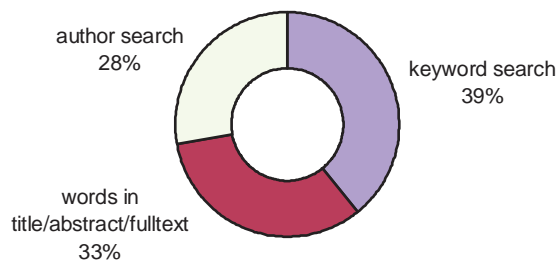
Fig. 5 - Where do you search?



### *How do you search?*

As shown in figure 6, all 3 types of suggested search strategies are used: students search by keywords, even if they do not make a frequent use of thesaurus: in the range 1-6, their average usage is 2,5. Searches of words in title-abstract or full text are performed, often (4 is the average use) with the device of truncation or combined with boolean operators. Author search is also commonly used but only after the first searched have put in evidence the most relevant authors.

Figure 6 - How do you search?



### *Problems*

The problems related to the use of resources are different. First of all the accessibility of resources: after having found the bibliographic record of an item of interest, and maybe even its abstract, it is difficult to get fulltext or the book in short time: articles may appear in journals to which there is no easily accessible subscription, or the right issue of that periodical can be missing; document delivery services are too slow or not available. There are problems with on-line searching and browsing: slow connections, dead links, the difficulty to learn and remember different passwords and interfaces.

Results of the first searches can give a lot of “noise”, while in continuing the search, it is difficult to stay focused on the topic and to constantly keep track and organize the bibliography.

The search process and the evaluation of resources is generally defined as difficult and time consuming

### **Enough information**

More than half of the students has selected answer A: “ I decide I have collected enough information and can conclude the information seeking when I have enough material to cope with. I would not have time or energy to go through more.” Some state that they stop between A and B (enough material to cover the topic) because they don’t have time to research more extensively. Five students declare to stop only when they have collected enough material to analyse and discuss the topic in a comprehensive, in-depth manner.

### **Tutors and colleagues**

Answers on the usefulness of contacts with teachers, fellow students and colleagues vary a lot.

The general comment is positive for 8 students, that consider it “important” or “fundamental”, while 2 of them say it is very scarce, nearly inexistent.

In fact contacts with teachers and tutors are fundamental for a couple of students, while other respondents consider it scarce: they are there if you look for them, but there is no real “learning platform”. Moreover, some students are afraid of being wrongly evaluated by the teachers, for the question they do.

Contact with fellow students is positive for all the respondents, it is of moral support, but also real support, for the ease of contact, the common language and the possibility, at the beginning of every task, to discuss the topics and to receive help in finding and obtaining useful materials.

At work only two respondents do not receive help, while the other find support and suggestions.

### **Unit materials**

A common observation is the disappointment for the material of the “Research methods” unit. Apart from that, students express different opinions. 6 comments are positive, they consider the material fundamental, and useful also outside the master. Other comments are less good: the material is a starting point for the study, but doesn’t give a deep presentation of the subjects: students expected clearer contexts and deeper



discussions. Bibliographies contain only British texts: they are difficult to find and the “international framework” of the Master is not respected.

Another recurrent comment is the lack of a clear the structure to give to the papers. It seems to students that teachers have in their minds a model, that might be clear to British students, but is unknown by Italian ones. The use of terms and "aim", "objective" and "recommendation" are not so clear, and the course should provide explanations.

### 5.3 Conclusions

The result of the different investigations on students’ information behaviour do confirm each other under many aspects.

This does not only support the validity of the results, but also describe a coherent and complete picture of the complex and varied information behaviour of the students of the Master.

Major results are that students choose their subject in coherence to their personal and professional interests, developed under many years of working experiences, often spent in different workplaces. They undertake complex and iterative searches in different sources, starting from the most convenient: the unit materials and bibliography, what they can reach in their workplace or, through the Internet, in the electronic environment of Northumbria university libraries. Later on, when the search parameters are shaped, they turn to other sources: specialized libraries and document delivery services. They refer to fellow students, colleagues and teachers to discuss their ideas. They continue their searches until they reach a balance between the success of the research and the time available.

They use, in prevalence, literature in English and in the form of journal articles.

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## **Six: Conclusions**

This study had three aims (see Section 1.4): to describe and build a model of the information behaviour pattern of the students and assess their satisfaction in finding answers to their need of resources and information.

The third aim, the provision of information to assist university decision makers and academic libraries in order to better support distance learners, is discussed in the recommendation chapter.

Conclusions are discussed in relation to the four objectives derived from the aims.

### **6.1 Information skills and information needs**

All the students of the Master class has years of experience in their professional field. Their information skills have been developed for their work as well as with appropriate training. Moreover, the first units of the Master course were devoted to verify and strengthen those skills.

To complete their assignment, students are asked to make use of a lot of different information resources. The materials contained in the study packs give often only the basis of the discipline; students must look for other information to deepen their study, referring to the suggested bibliography, or also independently.

Though teachers usually suggest mainly paper based materials, both traditional and electronic resources are accepted, as far as their scientific value is recognized. This value can be judged by the students themselves, the necessary skills have been the object of one of the first study units of the Master itself. The trustworthiness of resources can otherwise be guaranteed by the inclusion in the lists of web resources of the library portal.

While the context of the master course is international, and students are encouraged to discuss and research their own – Italian – working situation, most of the suggested literature refers to the British reality, and are not easily accessible by all the students.

### **6.2 Use of resources**

#### **6.2.1 University libraries offer**

The libraries of the University of Northumbria and Parma are involved in the services to distant learners in different manners.

The services of Northumbria are promoted and explained to the students from the beginning of the course; there are services especially devoted to distant learners, both for electronic resources and for traditional materials.

The libraries of the University of Parma are starting to organize some service for the DL students of the Master. The books of the “suggested reading” are being bought, but there are few established services for distant learning students: electronic resources are available only from the campus, and document delivery is being implemented only for the beginning of the second master course (May 2003). The services and facilities are presented and promoted during the first study school, in Parma, but there is no clear presentation of the services on the libraries’ web site.

### **6.2.2 Students’ use of UNN and UNIPR**

UNN library has a relevant role in the information seeking activity of the students of the Master: its resources and services, both for traditional and for digital materials, are accessible from the distance; students know the facilities and exploit them. On the other side, students who can use the libraries of Parma University in presence, give positive opinions, but these resources are little considered and used by the majority of the students: not only because services are less extended, but also because there is no information around the facilities.

### **6.2.3 Other resources**

Many other resources compose the personal information system of the students. They first refer to the sources more easily accessible, in their workplace and at their desktop, exploiting the free resources on the internet, the on-line services provided by their own library, and making requests for interlibrary loan and document delivery for materials found elsewhere.

They use published literature as well as academic and scientific on-line information; professional and general search tools, and they exchange ideas with colleagues, tutors and fellow students, as well as in professional mailing lists.

#### **6.2.4 Level of satisfaction**

Students expect a lot of improvements in the services of Parma libraries, while they suggest only a few adjustments to Northumbria services. These will be discussed among the recommendations.

Even if improvements in the services from Northumbria and Parma libraries would be welcomed, students are satisfied with their “personal information system”: when the resources of Northumbria and Parma Universities are not sufficient, they exploit other sources: the library in which they work or other specialized centres, what is available on the Internet and other libraries for document delivery.

### **6.3 Information behaviour pattern**

The information gained through the analysis of literature reviews, critical accounts and the interviews, describes students' research pattern as really complex and dynamic.

They start to explore a topic for personal or professional interest, and use a multitude of search strategies and information sources, repeating them in different contexts, and changing them as the research becomes deeper and more specific.

They use materials of different formats: mostly journal articles, but also books and online resources, in English and Italian. They exploit traditional resources, as libraries, as well as advanced digital databases and services.

#### **6.3.1 Opposite cases**

An important technique used to incorporate rigor into the study design is the use of the “negative case”, to serve as control (Zucker 2001).

To better describe individual patterns of behaviour, and avoid a generalization that would impoverish the research, instead of giving evidence to a single, negative case, a comparison of two “extreme cases” was undertaken.

The first case is emblematic, and presents features that are similar to many of the cases. In her literature review, which has an international in scope, student **A.** has cited only literature in English, covering a period of time from 1994 to 2002.

She cites a total of 77 bibliographic records, of which 4 (5%) are books or articles from books, 10 (13) are on-line resources. The great majority of citations, 62 (81%), are journal articles; most of them are retrievable on-line, through the services of Northumbria and Parma University.

She relies a lot on journals, even because the focus of her search is very actual and fast changing. She starts her searches by browsing journals in her own library and through the web pages of Northumbria. If she can't access resources on-line, she orders them by document delivery, or in loan by UNN or visits a specialized library in another town.

The other case presents some different features. In her literature review, student **B** has analysed her subject in the Italian context. She has cited only resources in Italian, published in a period of time from 1987 to 2002. On a total of 70 citations in the bibliography, 42 (60%) refer to books and articles from books. Journal articles are 23, and they all refer to Italian journals that don't have any on-line access. Only one internet site was cited.

She declares to use databases as LISA, but also that she reviewed only print resources, as a guarantee to include in the research only accepted and widespread theories.

In her interview, L declared that she has scarcely used the resources of Northumbria university: "on-line resources are fascinating, though I have to learn how to use them, they are new to me", and she has never used the resources of Parma University and does not know how to access them.

She uses the resources of her workplace and of a specialized library of her town, and discusses issues with colleagues or fellow students.

Her problems in searching are the slow connections, and the many, different passwords and systems to access.

Even if a general description of students' behaviour pattern can be built on their most common features, this comparison shows that the characteristics of each student are different from the others. Moreover, both of these students are successfully concluding their master course with their dissertation, so that none of their behaviour can be indicated as "better" than the other.

This is the confirmation that, as discussed in the literature review, the information seeking behaviour depends on so many variables: personal features, the subject of the search, the resources available and the constraints.

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## **Seven: Recommendations**

### 7.1 To course providers and teachers

The master course is preparing professional that will work and influence the Italian professional reality. It is up to the course providers to adopt an international point of view: the knowledge of an advanced reality, such as the British, can prepare the students to operate in other context, but even the Italian reality offers interesting issues of discussion and comparison that shouldn't be ignored.

This seems to be true in particular for more traditional subjects, in which the Italian tradition is long and rich of experiences. The international context of the Master has to be strenghten. The world of information studies is surely talking English, but it encompasses many smaller realities, that shouldn't be forgot, but rather supported.

Another weak point of the course, that the interview to the students have stressed, is that the knowledge of the necessary skills for writing essays and reports have been taken for granted. Students have spent a lot of time to understand and acquire them individually.

When asked to compose a report, an action plan or a proposal, students had the impression that teachers had clear in their mind the structure that the paper should have; but for the students themselves, who come from a different academic tradition, these terms and structures were new, and they felt they needed a better preparation on the actual shape and structure of these assignements.

Moreover, being in the position of mediators between the students and the providers of the Master course, teachers have the possibility and should demand and urge the library system of the University of Parma to implement its services in respect to the distance learning students of the Master.

For the fulfilment of the needs for information resources and library services for the Master, the teachers of the course seem to rely exclusively on the services offered by the University of Northumbria. They believe that even those students who don't have access to other relevant library service, can search and retrieve enough material to undertake their researchers and have access to them in time; this is also because of the particular subject of the master and the skills of its students: they are all information professional, prepared to work in the world of information and able to make full use of the available facilities.

In fact, students seem to be sufficiently satisfied by the services of UNN. Nonetheless, for the access to traditional, paper based resources, the students claim that the time for obtaining document delivery, interlibrary loan or postal loan from Newcastle is not always sufficient. The possibility to have access to a high-level library service from Parma would surely facilitate them in their assignment work and help them to study and undertake research even on Italian resources and around the Italian reality.

## 7.2 Librarians

The librarians of Parma and Newcastle have been involved in the services for the distant learning students of the Master in different conditions: the library of Northumbria University is proactive in promoting its advanced and structured services, while in Parma, where distant learning courses are a new reality, librarians are trying to meet the immediate needs of the students that refers to them and haven't had time to prepare and plan in advance.

### 7.2.1 The University of Parma

The Libraries of the University of Parma should start planning the services to this type of users with a more enduring and wide view, identifying priorities and possibilities. Basically, they should start to consider the features and needs of its distance learners in all the general planning activities, involving the whole library system, not only the single libraries that have been contacted by the students. Even services that can be accessed by remote users, as electronic resources archives, should be implemented - and made really accessible - also by the University of Parma. These services could be appreciated not only by the distant learners, but also by the traditional students and teachers of the university, that could start to take advantage of these resources without leaving their homes and offices.

### 7.2.2 Cooperation

The partnership that has been built between the two universities for this joined course should be enlarged, to include a mutual exchange in other areas of activities, such as library services and IT facilities.

Since the two library systems are called to serve the same group of users, a plan of cooperation could be adopted. Not only to help the creation of more advanced services in Parma, but also to rationalize services and expenses. Technological facilities (as e-

mailboxes for the students) and the acquisition systems of suggested readings or other information resources could be strategically shared and divided.

As Northumbria University has one person (as well as one sector of the library) who is responsible for the services to distant learners, so should also the University of Parma. These two persons together could discuss and project a scheme of cooperation, of which both libraries, and their home universities could benefit.

### **7.2.3 University of Northumbria**

The Italian students have really appreciated and exploited the services offered by the library of Northumbria University, both for printed and electronic resources. Their technological infrastructure let the distant learning students feel like being really close to the library and the learning resources. The system of passwords and accounts, even if it is well-explained and assisted, still gives some difficulties. Further integration, to reduce the number of steps to obtain identification to electronic environments and services is desirable.

Apart from the electronic resources, traditional paper-based materials are equally important and necessary, and shouldn't be forgotten. The document delivery service of UNN is a good compromise: traditional and distant students have equal right of access to the collection, and expenses are shared between the library and the user. A more extended service is presumably easier to implement by the libraries of UNIPR.

Moreover, if technology cannot overcome the problems of geographical distance in the circulation of paper-based materials, it can help users in the phase of choice and selection of the resources. The OPAC is hardly sufficient for a student who needs to choose among 15 titles he has retrieved by keyword search. When titles are similar and publication date are all acceptable, some other selection criteria is necessary: the abstract, table of contents or the comments of other users who have read the book could make the choice more easy and reasoned.

## **7.3 Recommendations for further research**

This research is transversal to many fields of study: it touches the research on the use of a single library, it collects information and data around this particular course, and it considers also the personal information systems of each student, considering geographical, digital, academic and personal features.



More than for the theoretical discussion, this kind of investigation seems to be a useful tool for improving the possibilities offered to the students of a distance learning course, when the resources of a single library cannot fulfil their learning needs and other resources are available.

Narrower enquiries on the single services that students use or don't, can be useful to deepen the discussion and aid the implementation of better services. Following the steps of Heine, Winkworth and Ray (2000), the analysis on the ways that users choose and move between the services of the single libraries involved, but studied from the point of view of distant users, could certainly help to improve the services.

Also the digital, academic geographical and personal characteristics, that can be barriers but also positive features, should be considered and studied, in their interaction and analytically.

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## **Eight: Reflective review**

### 8.1 Literature review

The first part of the review is a general introduction to the context of distance learning. This has become a very wide field of study; the review served mainly as introduction to the reader.

It didn't explore the reality of services for distance learning in the British or Italian context: not much literature on the attitudes of distant learners in relationship with library services couldn't be found, except for the book by Unwin, Stephens and Bolton (1998). This research involved librarians, teachers and distance learning students. Its focus and scope is different, so that the findings couldn't be integrated in this work, but it gave good ideas and suggestion to the researchers.

The second part is devoted to the theoretical discussion on user needs, and it's completed by the review of research methods for this kind of studies, discussed in the research methods chapter. In comparison to this research, the researches and discussions analysed in the review are much more complex and articulated, but the review was really useful to develop the initial ideas into a more scientific and structured research.

### 8.2 The role of the researcher

The role of the researcher, and the possible bias due to her being a member of the class, were kept into consideration from the beginning of the research.

For the collection of data, the researcher was facilitated, and took advantage of her position.

Besides she constantly tried to keep her personal opinions outside in the analysis of data; the variety of ideas and opinions expressed by the students, some of them so different from her own, made it easy to build a rich and complex picture of the information behaviour of the class as a whole, in which all voices have the same weight.

### 8.3 Consultation with key informants

The contacts with teachers and librarians were kept on the level of informal consultations, because the aim was to obtain from them information that could clarify and help to describe students behaviour.

The issues of the consultations have been limited to the near ideas and opinions around the services for distant learners. It didn't investigate topics such as the structure of the library system, funding, management and planning policies of the libraries and their major institutions. These topics surely have a role in the development and the future of library services for distance learners, but were too broad to be included.

The analysis of usage indexes of the services of the libraries by the students of the master class, could surely provide interesting information: objective data to compare to opinions and feelings of the students and librarians themselves. The idea to undertake that analysis was abandoned, because the data of the distant learners' usage are mixed with traditional use and very difficult to differentiate.

## 8.4 Consultation with students

### 8.4.1 Choice of topics

While reviewing different information strategy models, studying concepts like Marchionini's pearl growing (Marchionini 1995) and Bates' berrypicking, (Bates 1989) the image that best described all the possible personal solutions and mechanisms to find the "right information" was the image of a complex jigsaw, in which simple search actions, different devices constitute the pieces. Every searcher can put the different pieces together, using all, or just some of them several times, in a single session or combining the intermediate results, following a personal logic or recognized patterns, to build their own "information behaviour" and to solve the information need.

The possibility of surveying the population in object asking them to build their personal pattern of behaviour, putting together basic search actions (search by author, browse a journal, search the opac...) in a "jigsaw-like" structure was considered.

It could help to obtain from each student a personal description of his information search strategies, without suggesting him the answer or guiding him through the information model of the researcher. On the other hand the results of such an enquiry could hardly be codable and categorizable. Moreover, later on, and with the help of relevant literature in the field, it became clear that the investigation could not go so deep into details. The survey was made on a general basis, on events and actions that have taken place from two years to six months before the investigation. Students wouldn't be able to recall their exact behaviour, so that it could not be possible to ask them to

recollect in their memory the complex “jigsaw” of the information strategies they have followed.

#### **8.4.2 Analysis of critical accounts and literature reviews**

The analysis of literature reviews, and particularly of the related critical accounts, have been really useful. The information that could be found in these documents is partially different from the one collected through the interviews and, while none of them could be sufficient to draw a complete description of the information behaviour of the students, the comparison of their results could.

Unfortunately, only a part of the class that is the subject of this research. This is a shortcoming of the investigation: only 8 reviews were submitted and could be analysed. Not only those of the “second group” whose schedule provided for the literature review assignment only later in time, but also the reviews of some students of the “first group”, who were late on the regular schedule. Even if their delay could be seen as a signal of their difficulties to keep the pace of the schedule, and consequently, considered as a negative result in the analysis of students’ literature review assignment, they simply were not counted as “results”. On the other hand, the interviews to those students have revealed that their difficulties do not depend on problems with information seeking and library resources.

Moreover , even if the pieces of information given by the students are quite homogeneous, some topics were not covered by all the accounts, or, at least, the data were not sufficiently clear and accurate.

In fact, the results of this analysis helped to focus better on the general information behaviour of the students and to prepare a guide for the students' interview that is more realistically grounded on their previous experience.

The grades and evaluation of the literature review works were not considered. There is an on-going research (Limberg, 1999) that analyses the information seeking processes of students in relation with the grades their papers receive from teachers; this is an interesting method of enquiry, but wasn’t applied here. The focus of this research is quite different and being the researcher herself part of the group to be studied, she found impediments for privacy reasons and especially for a fair respect for her fellows students works.

### 8.4.3 Interviews

The response rate can be considered good: 16 students, on a total number of 19, answered to the questions sent out by e-mail or answered in-presence.

The use of both face to face interviews and e-mail questions have given good results for close ended and open ended questions: the answers on their use and preference of the different resources are clear. Nonetheless, the use of e-mail have given scarce results, when respondents were asked to add free comments at the end of a series of grading questions. Of all the answer sheets received by e-mail, 6 were did not contain any comment; since that type of comment proved to be really useful to deepen the discussion, when possible, the researcher attempted to obtain further answers from those students.

There is one question that have caused some problems in the analysis of the interviews and that was not considered in the design of the scheme of questions. It was not perceived from the pilot interviews that were conducted. It is the difficulty to keep separate from the real focus of the investigation, the role and the use of information resources for the Master, from the comments on the course as a whole. This inaccuracy, together with the inexperience of the researcher, made her waste time in coding data that were not sufficient or usable in the research.

On the othwer side, some issues haven't received enough attention, as for that of the influence of the availability of resources in the choice of materials on students researches. The prevalence in the use of journal articles, for example, can be intepreted as the proper kind of material to answer to the information needs of the students: their subjects are placed in a contemporary context, and journals give up to date and specialized information. On the other side, it is possible that in some cases the massive use of journal article depends not on the adequacy of that resource, but on its availability. The availability of some resources in respect to other haven't been considered "a barrier", but its effect on users behaviour should be investigated more.

## 8.5 Extent to which aims of the study were met

The aims of the study were answered successfully. The research have revealed a model of the information behaviour patterns of the distance learners of the Master course.

It has discovered students' opinions on their need of resources and information and on the answers they receive from the university libraries, and it has provided useful information to assist university decision makers and academic libraries in order to better support distance learners.

## 8.6 Resources and constrains:

The period of time chosen for this research is surely not the best one: it covers the final part of the Master's course, when a great part of students' researches have been conclude. All the students were busy with their own activities for the dissertation or other assignments, along with their and personal life and ordinary work activity, and might have no time for this research. On the other side, they understood the aims of this research and were willing to cooperate.

The researcher's activity itself suffered for time constrains: the data collection and analysis and the writing of the report was conducted in a period of 7 month, but only part-time. The time at disposal to develop the research was limited, so was the possibility to contact and visit all the student of the master class, who live in different parts of Italy.

It was financed entirely by personal resources and therefore often conducted at a distance from the people implied.

A third constraint was the relative inexperience of the researcher.

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# QUESTION SCHEME FOR LIBRARIANS

## SITUATION OF SERVICES

- A) Is there any statement of purpose, a written plan of development for the services to distant learners?
- B) What services are available? (e.g.: loan, document delivery, databases/e-journals, reference, information literacy and other tutorials)
- C) How are the services introduced to students of Distance learning courses?

## USAGE INDEXES

- D) Do you have and statistical data on the use of the services by distance students?  
(loan and d.d. statistics, log files..)
- E) Do you have any qualitative data on the usage of the services by distance students?  
(questionnaires..)

## PERCEPTION

- F) What is your opinion on the use of library services by distance learning students?
- G) In your opinion, what are the most common problems encountered?

## ADHERENCE TO UNIVERSITY CURRICULA

- H) How do you organize and adjust the acquisition of information resources in relation to the curricula and the study plans adopted by the university? Do you have (formal or informal) consultations with teachers?

## QUESTIONS FOR THE TEACHING STAFF

1. Is there a difference in the use of information resources between traditional and Distance learning students at university/master level? Please explain your answer.
2. Is there a difference in the use of information resources between undergraduate students and postgraduate-master students? Please explain your answer.
3. Do you agree with the sentence:  
*“Resource-based learning means that students will learn from their own use of learning resources, either individually or in a group, rather than from conventional exposition by the teacher.”*  
(Jackson and Parker, 2000 )  
Please explain your answer.
4. Do you think that “study pack” materials are sufficient to complete assigned tasks?  
If the answers to the previous question is negative =>
5. Is the necessity of use of further material explicitly stated in the Unit outline?
6. Have you selected a list of suggested “further readings” among materials evaluating their accessibility to Distance learning students?
7. For the comprehension of course units, apart from study pack material, how important is the use of:
  - other readings suggested in bibliography      very important – important - useful - not relevant
  - other sources, not mentioned by the teacher      very important – important - useful - not relevant
8. For the fulfillment of assigned tasks, apart from study pack material, how important is the use of:
  - other readings suggested in bibliography      very important – important - useful - not relevant
  - other sources, not mentioned by the teacher      very important – important - useful - not relevant
9. Do you think that the library resources available to the DL students are enough to fulfill the assigned tasks?

# INTERVIEW STRUCTURE FOR DL STUDENTS

**Professional information:**

1. Professional education (what you have done, with duration. Please include only “mayor” courses, at least 1 month long)
2. Professional experiences (what you have done, with duration)
3. Details on the current working situation (mansioni e compiti)

**Library services**

Please indicate what services you use and how often:

4. UNN libraries:	Often	Sometimes	Once or twice	Never
In-presence consultation of books				
Document delivery				
Loan in presence				
Postal loan from home				
Electronic resources				
Reference service / staff assistance				
Comments (and limits) .....				
5. UNIPR libraries:	Often	Sometimes	Once or twice	Never
In-presence consultation of books				
Document delivery				
Loan in presence				
Postal loan from home				
Electronic resources				
Reference service / staff assistance				
Comments (and limits) .....				

6. How much do you use other sources of information:	Often	sometimes	Once or twice	never
The resources of the place (library, centre, school..) I work in				
Other libraries (please specify).....				
The teachers and tutors of the master				
Work-colleagues				
Other master students (for exchange of information and documents)				
The web - not library sites (please specify).....				
Other (please specify) .....				
.....				
Comments.....				
.....				

### Information strategies

To answer this question it might be easier to consider only one or two assignments and remember the path followed.

7. What language do you use for reading, taking notes, writing drafts?
8. Do you use more paper-based or electronic materials?
9. Please describe the way you chose some of the topics for your research papers.
10. Please describe how you start your research.[Es.: The course bibliography, Reference books, ask questions to reference services or other people (tutor, teacher, colleagues...)]



11. Please give an index of importance of the following search strategies from 1 = I never use it to 6 =I use it very often		1-2-3-4-5-6
<u>Where</u> do you search?	library catalogues	1-2-3-4-5-6
	e-journals sites	1-2-3-4-5-6
	On-line databases and directories	1-2-3-4-5-6
	general web search-engines (please specify)	1-2-3-4-5-6
	Other web sites (please specify, ex.:Professors homepages, sources suggested by teachers or other..)	1-2-3-4-5-6
	Other (please specify, ex.: Citation indexes, mailing lists...)	1-2-3-4-5-6
<u>How</u> do you search?	author search	1-2-3-4-5-6
	keyword search	1-2-3-4-5-6
	words in title/abstract/fulltext	1-2-3-4-5-6
	other (please specify) .....	1-2-3-4-5-6
	use of boolean operators, truncation,	1-2-3-4-5-6
	use of thesauri or controlled vocabulary	1-2-3-4-5-6

12. What problems do you generally encounter when searching and using information resources?

13. When do you decide you have collected “enough information” and can conclude the information seeking?

- a) enough material to cope with. You would not have time or energy to go through more.
- b) enough material to cover the topic.
- c) enough to analyse and discuss the topic in a comprehensive, in-depth manner.

14. For the fulfilment of your assignment, how important have communication and collaboration been, with the fellow students, teachers and tutors, and colleagues?

15. How do you value study packs and bibliographies prepared by the teachers for each course unit?