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The Impact of Digital Technologies on Academic Libraries - a study in Greece



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**To our families for their
love and endless support
throughout our lives...**

Abstract

Purpose: This study explores both library users' and librarians' experiences, benefits, and challenges depending on the implementation of digital technologies in academic libraries. The research has been taken place in two Greek academic libraries; In the Panteion University Library and in the Central Library of T.E.I. of Athens.

Approach: Two research questions were developed for this research to be conducted and a sample size of 55 respondents (39 library users and 16 librarians) of the Panteion University Library and Central Library of T.E.I. of Athens, was evaluated.

Findings: From the findings of the study, it was concluded that the general perception of both library users and librarians towards digital material and E-resources and services of the Panteion University Library and Central Library of T.E.I. of Athens, is satisfactory. Library users were satisfied with the convenience of digital material, the availability of E-resources provided by both academic libraries such as World Wide Web, WIFI, and online databases. They were not satisfied with library technology (i.e., computers) and library staff. Besides, results showed that services such as e-mail and Open Public Access Catalogue were used more often. Librarians were less satisfied with the digital library system, the limited personnel, and the financial funds for academic libraries in general.

Implication: The results of this research have implications in the stakeholders of an academic library including the institutional management, the library administration, the librarians, the library users, the researchers, the community at large, and others.

Value: This paper identifies critical issues related to the utilization of digital technologies and digital material; their benefits and challenges faced by librarians and library users as well as their effective operation from academic libraries in this information age.

Keywords: Digital material, Digital technologies, Digital libraries, Librarians, Library Users, Panteion University, TEI of Athens.

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Abbreviations

Information Technology	IT
Digital Libraries	DL
Library and Information Science	LIS
Information and communication technologies	ICT
United Nations Educational, Scientific and Cultural Organization	UNESCO
International Federation of Library Associations	IFLA
International Council on Archives	ICA
Digital Library Federation	DLF
Quality Assurance Unit of Academic Libraries	QUAL
World Wide Web	WWW
Technological Educational Institute	TEI
Online Public Access Catalogue	OPAC
Intellectual Property	IP
Intellectual Property Rights	IPR
InterLibrary Loan	ILL
Tagged Information File Format	TIFF
Graphics Interchange Format	GIF
Portable Document Format	PDF
Plain Text	TXT
Joint Photographic Experts Group	JPEG
Hypertext Markup Language	HTML

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1. Introduction

The 21st Century or the Information Age is characterized by new ways of information generation. Information and Communication Technologies (ICT) have been developed since the 1970s as a result new products emerged in people's everyday lives (Dahlbom, 1993). United Nations Educational, Scientific and Cultural Organization (UNESCO,2002) defined ICT as the range of technologies that are applied in the process of collecting, storing, editing, retrieving and transferring of information in various forms. "ICT is increasingly being used in almost every activity and embedded in more and more things" (Bradley, 2010, p.184).

The appearance of the ICT and the evolution of World Wide Web (WWW) enabled people to use the Internet for many reasons; for communication, for entertainment, for education, and so forth. Friedman (2005) says: "Never before in the history of the planet have so many people, on their own, had the ability to find so much information about so many things and about so many other people" while Bradley (2010) says that "...all technology is for humans" (p.183).

We are living in an information society and ICT is an increasing phenomenon anymore. The father of librarianship, Ranganathan (1975), in his five laws states that "Library is a growing organism" so the adoption of Information Technology has a great impact on libraries as well as on librarianship which could not avoid being affected by such a societal change and has been adapted to Library and Information Science (LIS). During the last decade, the use of technology has become an essential part of the institutional objective of libraries promised to transform the dissemination of knowledge and to change how libraries work for the better.

Now, in the 21st century, with the emergence of ICT & Web 2.0 technologies, libraries have a new, more dynamic role in knowledge society and as the individual is affected by ICT, in the same way, the individual can also influence the technology (Bradley, 2010). Libraries began to recognize the presence of the web experience and utilize such services in order to create a *new environment* for libraries' users where interaction plays a basic role. "Interaction means that technology interacts with social world with values and beliefs" (Bradley, 2010, p.184).

These services have also reformed academic libraries which face greater demand for access to resources; they should store all kind of material forms; the librarians have to task crucial duties and roles in disseminating and sharing of knowledge and users need to transfer information inside and outside of the walls of a library. Hence, university libraries would be upgraded and becoming digital.

Digital libraries, Institutional repositories and Open Archives are the new trend in the present era, satisfying users' needs for precise information since they have become more information conscious for accessing electronic information compared to different purposes such as academic or research needs. According to Fabunmi, Paris, and Febunmi (2006), Library Digitization has become part of the work of librarians, and most libraries are involved in digitization projects.

In Greece, many university libraries have created digital ones so as to provide new information services to the users such as preserving digital information, providing 24/7 access to library resources, improving research and sharing knowledge.

1.1 Purpose of the Study

The aim of this research is to explore how librarians and library users interact with digital material, electronic resources, and online services and review their perceptions towards their benefits and challenges in two academic libraries; the Panteion University Library and Central Library of T.E.I. of Athens.

1.2 Research Questions

In this research we will explore the following research questions:

- 1) How do librarians and library users interact with digital technologies?
- 2) How do digital technologies affect the interaction between librarians and library users?

1.3 Significance of the Study

The results from this study will provide useful information to the university management in the identification of the existing circumstances (i.e., possible problems - solutions) in the assigned academic libraries in order to meet organizational objectives, to the library administrations on provision of new strategies and development programmes in digital area, to the librarians on the application of a range of mechanisms and new techniques facilitating effective communication, the library users on use of effective digital library services, and the community at large on provision of adequate resources. Finally, this study could also be beneficial to the National Educational System on creating new educational policies in the country.

1.4 Research Settings

The research has been conducted at the Panteion University Library and Central Library of Technological Educational Institute (TEI) of Athens, both academic in Greece. Librarians and Library Users have been taken part in this research.

1.4.1 Technological Educational Institute of Athens

The TEI of Athens was established in 1983. TEI of Athens consists of 5 faculties and 27 departments. TEI of Athens provides a central library. In this library are working 10 employees from which 9 of them are librarians and one of them is support staff. Every librarian has to perform a different task in the library. This library provides both analogue and digital material. According to the statistical data of Quality Assurance Unit of Academic Libraries (QAUAL) report 2015, the total population (teaching staff, postgraduate students, undergraduate students) of the TEI of Athens served by the library is 25.958. Moreover, according to QAUAL report 2015 the total number of circulation activities in the library was 12.580. The library of TEI of Athens provides various services to the library users. These services are: students can loan printed material, they can use 25 computers that are connected to the network, they can order articles that are not included in the library's collection. Additionally, librarians provide seminars to users in order to educate them. Moreover the library provides Interlibrary loan service and online services (OPAC catalog, e-journals, databases, the institutional repository (Hypatia) and the Union Catalog of the Hellenic Academic Libraries (Zephyr). The Institutional Repository includes "Faculty's published and unpublished work, students' theses and a major collection called "Institutional Archives". " (Kyriaki-Manessi, et al., 2013, p.777)

1.4.2 Panteion University

Panteion University of social and political sciences was established in 1930. It consists of 4 faculties and 9 departments. Panteion University provides a central library. In this library are working 14 employees. The 14 employees include the director and the employees that work in the library. Every employee belongs to a specific department of the library and does specific works. According to QAUAL report 2015 the total population of the University is 22.247. In addition, according to QAUAL report 2015 the sum of circulation transactions in the library was 64.793. The library provides various services such as circulation services, Interlibrary loan, provides seminars to users, provides services for disabled users, users proposals for the library's material orders and digital services (i.e. Online Public Catalog system, the digital library Pandemos, Interlibrary loan systems, subject portal, services with the use of PDAs and smartphones). Pandemos is the digital library of Panteion University "which hosts specialized material such as theses and digitized scientific journals." (Kakali and Papatheodorou, 2010, p.6)

1.5 Responsibility of the Work

Having worked together on many work tasks successfully during our studies in the Linnaeus University we decided to conduct our master thesis together. During our master thesis work we had a great collaboration. We were making every decision together. In this master thesis we wanted to see how librarians and library users act in their daily lives and how they perceive about various issues. Before every section of our degree project we were communicating, discussing and deciding what part will be allocated to each person. The work was always divided and each person was responsible for conducting it. Firstly, we divided the literature review part. Secondly, very nice part of our master thesis was the data collection. Sofia was the interviewer and the moderator and Lamprini was the one who was keeping notes. After collecting our data from interviews, focus groups and participant observation we divided the data analysis part. We talked to each other and separated the creation of codes, categories and concepts. The final concepts were a decision from both of us. Subsequently we started writing the analysis of our data and the discussion. All the master thesis work was a result of dedication, great collaboration and confidence between the two researchers.

1.6 Thesis Structure

The rest of the thesis is structured as follows:

In Chapter 2 the new role of academic libraries in the 21st century and responsibilities of librarians in the digital era are introduced. The Digitization concept follows and the development of digital libraries in academia as well as their preservation.

In Chapter 3 the Research Methodology and methods were used are presented with the participants and the principles of validity & reliability. The ethical considerations are followed.

Continuing to Chapter 4 the data analysis is given by the empirical findings of the research according to the six final concepts have been presented.

Chapter 5 comes next with a discussion based on empirical findings that have been emerged through the analysis.

Following the last Chapter present the Conclusion and the Contribution of this study as well as researchers' personal reflections.

2. Literature Review

This chapter introduces the new role of academic libraries in the 21st century and responsibilities of librarians in the digital era. It continues by presenting the Digitization concept and the development of digital libraries in academia as well as their preservation.

2.1 Library in General

The revolution in technology has brought about critical changes and a demanding environment in academic libraries. The introduction of technology in libraries has changed the way librarians work, their duties and their roles. In the past, traditional libraries were physical buildings where users could visit them and find printed books. Traditionally, the librarians were responsible for the collection development, for the material processing and the provision of services without using computers. Nowadays, academic libraries make use of technology. They provide not only printed material but also digital material that is born digital and material that is digitized (converted from analog to digital). The introduction to the digital era in libraries, created the need to computerize most of the operations. Technology has changed the way traditional librarians used to do work. Nowadays, librarians use technologies to acquire, catalogue, preserve, diffuse, provide reference services and so on. This doesn't mean that traditional libraries will stop existing. Traditional libraries as buildings will continue to exist for many years and support the digital libraries. Thus, traditional libraries co-exist with digital libraries. This means that librarians play and will continue to play a significant role in libraries. It is important for librarians to keep a balance between their traditional role and the digital role.

The academic libraries of 21st century depend on technology. As technology evolves fast and continuously, the users' information needs change and have more expectations from librarians. Librarians need to continuously update their technological skills in parallel with the technological changes that occur. Academic libraries need to adjust to the evolution of technology. Librarians need to accept their new roles and duties and be able to respond to these changes by learning how to use the new digital technologies effectively. In order to respond to an environment that changes continuously they need to be educated so as to acquire the adequate technology skills. Academic librarians should have the adequate skills to manage, organize and provide services to the students. Nowadays, librarians have to work with both printed and digital material. Librarians after having learnt and having acquired digital skills are ready to provide their services and assist the library users to meet their goals. Additionally, librarians apart from the technical skills it is important to have other skills such as managerial skills, teaching, consulting and so on. We could say that academic librarians of the 21st century have various roles as they combine the traditional skills with the technology skills. Having worked as academic librarians in the past, we have in our mind that librarians should provide the best services and

satisfy users. In order to provide the best digital library services to users, librarians need to be trained to the new technological changes.

Additionally, according to our experience as librarians we have observed that the introduction of new technologies in libraries creates technostress to some employees. The fact that some librarians suffer from technostress is related to the rapid development of technology and the implementation in libraries. Ennis states that technostress is a “modern disease of adaptation caused by an inability to cope with new computer technologies in a healthy manner” (2005, p.10). But why librarians feel stressed with the use of technology in their workplace environment? There are a number of factors that may affect librarians and lead to technostress. Some of the factors that procure technostress are: “ (1) the rate of change of technology; (2) lack of standardization; (3) lack of training individuals on the equipment; (4) reliability of the technology; (5) increased workload placed on each individual; and (6) the changing roles of librarians” (Laspinas, 2015, p. 206). Some library professionals and specifically some old librarians are not familiar with the technology evolution, they do not have the adequate technological expertise, feel anxious on how to handle a problem that might arise in their computer, they feel fear of technology and do not want to know how new technology works. Moreover, due to their inadequate knowledge in Information Technology (IT) some librarians might realize computers as a threat in their expert status. Nevertheless according to a result of Laspinas’s study, there were librarian professionals who had become accustomed of information technology and thought that it was part of their jobs (2015, p. 212). Furthermore, Laspinas states that those librarians when they were addressed problems with their computers they were coming in contact with the technicians so as to find a solution for them (2015, p. 212).

We would like to state that there are many roles of the librarians have changed in the 21st century. Nevertheless, we decided to focus on the most important changes in librarian’s daily work, according to the literature and our personal experience as professional librarians and not to present an exhaustive list. Nowadays, the advent of technology in libraries and the usage of digital material have changed librarians’ technology skills and the way they educate and interact with library users.

2.2 Digital Libraries

Today, there is a misunderstanding around the term *digital library*; many people consider the World Wide Web as a digital library because of gathering thousands and thousands of documents in several formats and in several versions. Yet, a document may exist at one network the first day, and disappear the second.

Thus, *what is a digital library?*

There are many different perspectives. For instance, for the most of people, it is a large database providing direct access to all kind of information to the people from anywhere, for Engineers and Programmers, it is different collections of computer algorithms, For Computer Technicians, it is still a web application whereas for Librarians, it is another step in Library & Information Science (LIS) field and it

includes a collection of resources and systems created for exact purposes meeting demands to specific communities and user groups.

Locating information on the internet is inefficient relative to library resources, and does not provide high-quality services. Specifically, Clifford Lynch (1997) states: “The Internet was not designed to support the organized publication and retrieval of information as libraries are. It has evolved into what might be thought of as a chaotic repository for the collective output of the world’s digital “printing presses.” ” (p.52). Thus, according to Clifford Lynch “the Net is not a digital library”. (1997.p.52)

“Digital libraries are organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collection of digital works” (Schwartz, 2000, p.385). Thus, people can make use of the resources easily and economically (Schwartz, 2000, p.385).

The term digital library was first used by the computers scientists referring to the electronic version of a library; and the truth is that the term digital library explains nothing more than the nature of its collection. “A digital library is a collection of digital representations of numerous types of media, such as documents, images and sounds that are stored in an information repository and are available through a local computer network or anywhere via the internet” (Slovney, 2004)

Lynch (2005) comments that digital library can be worth to various people such as engineers, technicians, social scientists and another diversity of scientists whereas Hughes (2004) recommends “everyone can search, browse and compare materials in useful and creative ways” (p.10). In this way, creating a digital library is a very good solution but librarian E. Rama Reddy emphasizes that “Introducing a digital library just because it is new technology is wrong” (2001, p.4).

According to Hemlata & Meena (2013) Digital libraries have their basic characteristics compared to traditional libraries and are the follows:

- (a) *Digital library is a digital object*, and can be merged with others.
- (b) *Digital library provides faster access to information*, because it provides advanced search and hyperlinks for navigation.
- (c) *Digital library enables easy management of large amounts of data*, because it provides access to a large and wide amount of information resources.
- (d) *Digital library collections are fixed permanent*, in order to provide useful and understandable information to the users.
- (e) *Digital library support formal and informal learning procedures*, as it provides access to both basic and secondary educational sources.
- (f) *Digital library can be accessed by any user from any workplace*, since it provides a user-friendly system (pp.20-21).

These features are built upon the follow steps:

- (1) Selection & Acquisition: selecting the appropriate material to be digitized (i.e., old - unique collections) or/and acquiring original digital works (i.e., e-books, journals, datasets).
- (2) Organization: assigning the metadata (bibliographic information) to each material being added in the digital library collection.
- (3) Indexing & Storage: indexing and storing digital documents and metadata for efficient search and retrieval.
- (4) Search & Retrieval: developing a web-based connection of search viewing the digital library through the appropriate metadata and information exchange protocols. It is usually presented as a Hyper-Text Mark-up Language (HTML) page to the library users (Alhaji, 2009)

A general idea is that a digital library is cheaper than traditional one; but, creating a digital library means creating a complete organization of machines and people; and is an expensive project. Digitization tools are not cheap. Financial budgeting plays a crucial role in development of digital libraries because no matter what library professionals want to do, or what are the user's needs, money is the source of all decisions (Kastellec, 2012). According to Fabunmi, Paris and Febunni (2006), as detailed below, budgets for digitization projects should include:

- (a) salaries,
- (b) staff training,
- (c) digitization equipment,
- (d) legal fees,
- (e) overhead and indirect costs,
- (f) communication fees,
- (g) contingency.

The initial cost depends on the material to be included in the digital library. The conversion of paper (printed material) into a digital form is surely expensive and time-consuming. The type of material also affects the cost; the fragile material added to the cost because of its special care needs and attention such as photographic and audiovisual collections which are prone to deterioration. Besides, the digitized material should be implemented into a specific library application whereas the born-digital material should be stored in the digital library database. "Unlike the situation that applies to books, digital archiving requires relatively frequent investments to overcome rapid obsolescence introduced by galloping technological change" (Feeney, 1999). Apart from this, digital documents are bigger than traditional ones as a result; lot of storage space is needed. These networks servers and applications supported need to be continually upgraded so as not to become unusable. If the services are to be provided outside of the library, like electronic databases, then there are additional costs for legal fees. Due to financial crisis, many Greek academic libraries cannot subscribe to the required journals and databases. Apart from the above expenses, there are also costs for library staff and users' training. Today, a common assumption is that

information is free; actually, it never really was. There is always a cost for its creation, its maintenance, and its dissemination. Libraries have already been tasted this irony with legal licenses in digital data usage.

2.2.1 Concept of Digitization

According to International Encyclopedia of Information & Library Science (2003), “Digitization of information materials is the process of converting analogue information to a digital format” (p.138). Nowadays, libraries adopt digitization with the purpose of preserving information and dissemination knowledge. There are many reasons for libraries to go for digitization but the main profit is to preserve the rare and fragile objects; especially these items of high quality such as old manuscripts (Conway, 2010). As the material digitized can be easily accessed by anyone; libraries, institutions, individuals; from anywhere at any time without hindrances.

Fabunmi (2006) recognizes three reasons for digitization:

- (a) preservation of endangered library resources,
- (b) efficiency of information search mechanism,
- (c) improvement of access to library resources.

Whilst, Mauyra (2011) adds to these:

- (a) the new generation needs,
- (b) the cost reduction, and
- (c) the preservation of the virginity of the environment.

2.3 Academic Libraries in Digital Era

In the 21st century, academic libraries have a new role in sharing information. Libraries are not piles of books anymore; the general library environment has been changed from analogue to digital. Library automation systems have helped libraries to provide easy access to their collections through the use of computerized library catalogues (On-line Public Access Catalog – OPAC) which more recently led to digital libraries (IFLA,2013).

With rapid spread of electronic resources (i.e., E-resources) in the field of Information Science & Information Technology at the recent times, the sharing of information through digital sections has become an attractive idea for Librarians and the need for digital libraries to academic universities has been emerged so as to improve educational development and provide online educational resources to students and scholars for effective learning. According to the UNESCO Institute for Information Technologies in Education (2003) digital libraries render educational resources for E-learning.

Dissemination of knowledge has always been one of academic libraries primary goals as long as they have served as learning institutions, cultural repositories and research centers but in this digital age of knowledge, they have to expand these roles and stop being passive repositories for printed material. To the contrary, academic libraries should upgrade their services and providing education of high quality by storing

resources in various forms and maintaining easily accessible for online use among academic community. This would be possible by implementing a digitization project. Hughes (2004) reported to concept of digitization as “the process by which analogue content is converted into sequence of 1s and 0s (these ones and zeros are called bits) and put into a binary code to be readable by a computer” (p.4). So, we could generally say that the digital material is every computer readable material.

According to Pandey&Mishra (2014) “Academic libraries are digitizing materials because they know the continuing value of library resources for learning, teaching, research, scholarship, documentation, and public accountability.”(p.137).

Academic Libraries are an important part of the National Educational System as long as they serve as information centers fulfilling basic library users needs; efficiency, effectiveness, and utility. Evaluation plays a key role in the improvement of information services. Digital era has produced many changes in the society such as expansion of the served community; products and services; the need to break the space-time barrier in communication and further expectations from library users for high-quality and user-friendly online services. Therefore, the library manager has to impartially evaluate qualitative and quantitative value of the library resources and plan services for better functionality in order of making the invisible to be visible.

Academic libraries have gradually been completed many criteria for their development of better products and services which are the follows:

- (a) effectiveness: how well does operate the digital library system?
- (b) efficiency: at what cost does it operate? (costs can be either financial, temporal or related to effort)
- (c) usability: services & products utilization
- (d) accessibility: characteristics of the digital system (technology performance, speed, time, error rate)
- (e) quality: qualitative material
- (f) users satisfaction: how users interact with the digital library system?

This is supported by Jeng (2005) who suggested an evaluation framework on usability of academic digital libraries focusing on the following characteristics: 1. Effectiveness, 2. Efficiency, 3. Satisfaction, and 4. Learnability.

The methodology for digitization in academic libraries changes according to policies of each educational institution. Different institutions have different views of the material to be digitized depending upon the mission and vision of the parent institution. Brindley (2009) pointed out that academic libraries serving digital duties should position their role as strategic guides upon formal learning settings, academic programmes and research by providing teachers and learners with broader, faster and better information as they noted the heart of the entire educational institution and the only root of knowledge. She also emphasizes the need for planning, vision, and strategy.

2.4 Building Academic Digital Libraries

Planning plays a crucial role to a successful digitization project. According to Madu (2004) planning is a set of decisions for future action in order to achieve the set goals. According to Akintude the moment that the policy will be decided, the process of digitization will be referred to “what materials to digitize, human resources involved in digitization, users to benefit from the digitization effort, beginning and ending date of the digitization process, hardware and software considerations, access to digitized content, standards, and funding”(2007, p.3). Besides, it is essential to set up a planning committee (i.e., project manager, personnel) that will run the digital project by recognizing tasks related to creating a digital library collection, developing strategies for organizing these tasks, formulating a timeline in order to reach its goals (Gbaje, 2009).

According to literature, in order to implement an effective digitization project there is a need of a detailed plan to be developed including the follow basic steps:

(1) ***Put clear goals*** (*what, why, how*) that library wants to achieve depending on the needs and limitations of it. The first step is about stating exactly the need for creating a digital library collection, its desired goal, its purposes and its target user group.

(2) ***Select material*** (*print, manuscript, audio-video records*). The second step is about defining the source material included the digital library. What kind of material is the library going to digitize; the damaged or the sensitive material to damage; book or/and non-book material; Why the library wants to digitize the chosen items; is this material unique. Digitization is a priority for old and rare library materials have been totally damaged by the passage of time since these publications cannot be handled by the library users anymore.

The UNESCO, IFLA, and ICA advice digitization projects should be based on high demand for access (UNESCO, IFLA & ICA, 2002). In addition, according to British Library website, “The choice of materials to be digitized depends on the priority of each library but there are widely accepted criteria which are normally applied. These include materials that are on high demand by patrons especially when such materials are available in limited copies or are on restricted access; local and unique materials; useful materials that are out of publication, and materials that are difficult to handle”. So, selecting the material is not only affected by its physical condition nor by the desire of each institution but also by the type of users served. It is of great importance to take into account users’ needs and their priorities (i.e., university publications, theses, dissertations, etc.)

(3) ***Choose appropriate technology*** (*hardware & software*). The basic technical scanning equipment includes a high quality camera, a scanner and a computer. The scanner is physically connected with the computer and combined will perform the digitization process. For an effective scanning of library materials, apart from hardware equipment, an appropriate software package must be accompanied. The

most acknowledged is Greenstone (www.greenstone.org) which is supported by UNESCO and it is available in a variety of foreign languages. Other examples are OpenDLib (<http://opendlib.iei.pi.cnr.it>), Fedora (<http://getfedora.org>), and DSpace (www.dspace.org/). After scanning, the material become digital and they are stored in different formats such as JPEG and PDF on the hard disk of the computer as a result, to be visible and searchable on the Internet through the search engine of the Library Website. It is worthy of attention that over time, more and more memory space will be required to add for storing new digital copies. “The project team needs to determine if the materials to be digitized warrant the time and expense of transferring the digital files to new formats every few years as technologies change” (Lopatin,2006,p.276). At any time, engineers in cooperation with librarians can make changes in the system (i.e., databases supported different digital formats). It should also be mentioned, provided that digital library is supported in computers, it should provide an easy access for library users (i.e., fast connection to the internet) so it will need to upgrade its current technical architecture to a high-speed network.

The planning, the evaluation of collections, and the implementation of a digitization project are basic to its prospective success (Ming, 2000).

(4) ***Preservation***

The purpose of preservation is to protect valuable information for access by present and future generations (Conway, 1990) as a result, in recent times, many academic libraries have established preservation programs for preserving traditional material in paper for research and education. “Digitization is rapidly becoming one of the standard forms of preservation for libraries, archives and information centers’ analogue materials” (Routhier, 2014, p.1). Preservation of books has been an integral part of libraries and a big concern of librarians, but preservation of digital material raises crucial issues.

In our era, information is digital; even so, material can be either *born digital* (i.e., originated from an electronic/digital source) or *digitized* (i.e., converted of analogue equivalent). On the one hand, digital technology offers opportunities by providing efficient and effective access to information. On the other hand, there is a real threat for digital materials because of their short-term lifecycle; which lead to a general awareness of how to manage them effectively in such a way so as future generations have the prospect of widespread access to them.

Conway (2010) indicates that “it is important to establish clear distinctions between the terms *digitization for preservation* and *digital preservation*” (p.64). Digital Preservation has similarities with traditional preservation provided that refers to actions required to ensure access beyond the limits but there are also significant challenges in preserving these collections. In particular, in pre-digital age, libraries had to worry about climate control or the deterioration of paper. This problem looks

of no importance anymore. In the preservation of digital material, some of the main concerns are technological obsolescence, changing formats, data loss, human error, lack of expertise, copyright issues (Kastellec, 2012); with the two first to be primary.

“Digital Preservation encompasses a broad range of activities designed to extend the usable life of machine-readable computer files and protect them from media failure, physical loss, and obsolescence” [electronic resource]. According to the Library of Congress official website, “Digital preservation is the active management of digital content over time to ensure ongoing access”.

Digital media have a limited shelf life and are very complex. Computer hardware and software change very quickly in a rapid time period; new documents formats are more complex because of multiple editions of text, images and sound; as a consequence, can easily become obsolete. Updating digital files from an obsolete program to a modern format can lead to information loss. “Digital materials are especially vulnerable to loss and destruction because they are stored on fragile magnetic and optical media that deteriorate rapidly and that can fail suddenly from exposure to heat, humidity, airborne contaminants, or faulty reading and writing devices” (Hedstrom & Montgomery, 1998). Over the periods of time, materials stored in older media can be lost because there will no longer exist the appropriate hardware or software to read these data or the storage medium might be minimal.

Therefore, libraries have to move digital information from one digital system to the next over the long time so as to ensure that digital information continues remaining accessible and usable by the users. This is called *data migration* and the purpose of such a continuous modification is to keep the ability of library users to retrieve, display and use them despite the fact of continual changing technology. About, software and formats for storing digital information can be both the problem and the solution since software companies have designed them for obsolescence with a view to ensuring the sales of their newer software (Reyes, 2013). For libraries, it is necessary not only to preserve the format of the information but also the hardware and software created to be used parallel.

According to Feeney (1999) “Three...approaches to digital preservation should be developed:

- Preserve the original software (and possible hardware) that was used to create and access the information. This is known as the technology preservation strategy. It also involves preserving both the original operating system and hardware on which to run it.
- Program future powerful computer systems to emulate older, obsolete computer platforms and operating systems as required. This is the technology emulation strategy.

- Ensure that the digital information is re-encoded in new formats before the old format becomes obsolete. This is the digital information migration strategy.”(p.11)

“Archives, libraries, and other institutions with preservation responsibilities will benefit if the information systems which generate digital information are designed to support long-term preservation needs” (Hedstrom, 1998, p.196). Ensuring long-term access to the digital information is recognized as an integral part of the design and management of a digital library but it can bring into picture insecurity possibility. According to Library of Congress (2009), intellectual property (IP) is one of the challenges facing digital libraries. The basic element is the recognition and the protection of legal rights associated with ethics of sharing access. Berger (2009) examined the role of ethics in digital preservation. Copyright and intellectual property rights (IPR) issues in digital media are certainly more significant than in traditional one and stay important factors in digital preservation activities; and, as Chepesuik (1997) stated “copyright is the single most vexing barrier to digital library development” (p.49)

On the other side, authenticity is always an important consideration when preserving material so any attempt to reform any item into a digital one will bring about a piece of value loss of the original (Gladney, 2009; Galloway, 2009). A concept of digital preservation is, each digital record having at least one copy stored in a safe computer network never accessed by any other and saved strictly for archival purposes. Another solution is to be preserved in a simple digital format without requirements for specific retrieval software. International Federation of Library Associations and Institutions (IFLA, 1998) recommends at least three copies of the digitized material into different formats included Tagged Information File Format (TIFF), Graphics Interchange Format (GIF), Portable Document Format (PDF), Plain Text (TXT), Joint Photographic Experts Group (JPEG), and Hypertext Markup Language (HTML). It is really important since only above formats can function in various platforms. Indeed, guarantee the authenticity of an object and preserve it for historical use. Librarians argue that should be built digital collections that can be preserved to the future generations without missing the record of human knowledge. Digital preservation strategy is reformed by the needs of digital library in accordance with requirements of present and future users of digital resources.

(5) *Copyright*

A major case of digital libraries is to comply with copyright and other legal issues such as plagiarism. There is a great anxiety among the library community as Kuny & Cleveland (2009) emphasized that “copyright could end up preventing libraries from providing open access to the digital information they collect. Questions of copyright must be managed so that digital information can be created and distributed throughout digital libraries in a manner that is equitable for both information producers and information customers. Copyright could become an insurmountable barrier to the

development of digital collections”. So, this is a real challenge for Librarians who are obliged to take permissions for including copyrighted material in digital format and develop preventive measures which allow library users to supply with information without violating Copyright.

2.5 Librarians in the Digital Era

Traditional librarians differ from the digital librarians in the way they provide services. Traditional librarians provide services focusing on printed catalogs and books. Nowadays, librarians having conformed in the digital era are supposed be able to use the newest technology, to organize and diffuse data in a digital form, to manage digital material, to provide information services in a digital form, provide digital reference services, to anticipate how technology concerning the library can be improved in the future and so on. Academic librarians are supposed to have various technological skills in order to provide services to students. We will present the most important skills that librarians need to have according to us.

Nowadays, librarians provide both analogue and electronic services. Thus, in order to deliver electronic services to users, they have developed various digital skills. Many academic librarians have the knowledge and experience in “accessing, searching, browsing, navigating, retrieving, indexing, storing, organizing and dissemination of digitized information.” (Sreenivasulu, 2000, p.15). Moreover, librarians’ role is not only to provide services to users but also to advice them how to use analogue and digital material effectively. Thus, librarians can consult library users on what digital library tools (i.e. OPAC catalog, databases) to use so as to access the right information. Academic libraries provide various e-services to users. The access to e-services does not require the physical presence in the library.

Furthermore, we could say that librarians have the role of preservator. Nowadays, many libraries present material in a digital form. Additionally, many academic librarians have the knowledge on how to preserve the digital material for future usage. When we talk about preservation we mean to preserve the access to the information (the format that contains the documents might become out-of-date) and to preserve data that are placed in technological devices.

2.6 Librarians as Teachers

Teaching role of the librarians is something that exists for many years. The role of a librarian in not only to assist the users’ find the information they need but also teach them on how to find what they wish on their own. The rapid development of technology and the introduction in academic libraries has changed the librarians teaching role and has affected the “tools, and methods of teaching.” (Julien and Genuis, 2011, p.108) Librarians can organize training programmes so as to educate users on how to use the electronic resources of the library in the right way. According to Rader librarians should teach users being able “to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information” (1997, p.48) Universities should incorporate information literacy courses

in the syllabus of the departments (Rader, 1997, p.48). According to Chen and Lin “information literacy has been generally defined as an understanding and set of abilities enabling individuals to recognize when information is needed, and to have the capacity to locate, evaluate, and use effectively the needed information” (2011, p.401). Users are educated to acquire the adequate skills and knowledge of seeking and using printed or digital material effectively and ethically. “Designing instructional and educational programs and classes to assist patrons in using library services and learning information literacy is absolutely essential to gaining the necessary skills (trade) and knowledge (profession) for lifelong success.” (Bell and Shank, 2004, p.374)

But in the new digital era when we talk about information literacy we mean teaching skills that include computer skills. According to Kulkarni “there is a need for the library professionals to play significant role in promoting information literacy in digital environment.” (2014, p. 199)

Information literacy in the digital environment means:

- “The ability to use digital technology, communication tools or networks to locate, evaluate, use and create information.
- The ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers. (Kulkarni, 2014, p. 198)

Users can have access to the digital material inside and outside the library. Nowadays, academic libraries offer the opportunity to have access to the electronic resources from anyplace at anytime. This means that users can visit the library alone even from their home. Nowadays, students make extensive use of the web so as to find the information they need. The internet provides them the latest digital material for usage. According to Chen and Lin “digital technologies enable ultra-rapid access to the richest sources, wherever they are located in the world’s collection” (2011, p.399)

But can users find the right information on their own with ought being taught and without librarians’ help? It is difficult to find the right information as there are many sources in today’s digital environment. Librarians can educate students on how to improve their information skills. One way to educate users is to provide them seminars. In academic libraries there are various levels of seminars that are provided according to the degree the students make use of the library and the users’ different needs. There are introduction seminars and seminars that deepen. In the introduction seminars librarians show users some initial things on how to search online databases, catalogs. Moreover in a seminar lasting longer librarians teach users deeper about how to conduct a research, how to find the right information they need, how to evaluate the information. (Julien and Genuis, 2011, p.104)

Librarians by having the appropriate knowledge and technology skills concerning the digital material can guide library users on how to use the information in the right way. Librarians can teach users on how to use the OPAC catalog of the library, the e-

journals, e-books and generally to direct them with the use of the digital material, to facilitate them with the searching, evaluation and retrieval of the electronic material even when they are at distance (i.e. from their houses, from a cafeteria). Moreover, librarians can teach them to acknowledge if the retrieved information is the appropriate for them and show them how they can make the right decisions concerning the information.

2.7 Librarians as Communicators

A very important part is how the introduction of technology has affected the communication and interaction between librarians and library users. In traditional libraries users enter a library and have face-to-face contact with the librarians. They communicate through their eyes, they use oral or nonverbal communication such as facial expression. According to Sloan “The development of electronic libraries threatens existing forms of collaboration but also offers opportunities for new forms of collaboration” (1998, p.120). Technological changes in libraries have affected the traditional interaction but it has provided other types of interaction between librarians and library users. According to Rieh users intend to “ask more mechanical or technical questions than subjectoriented or reference questions” (1999, p.18)

Nowadays, many library users make use of the new library technologies. The fact that the information can be retrieved through the internet easily and quickly makes users “reluctant to use physical materials, perceiving the Internet to be the answer to all their informational needs.” (Tam and Robertson, 2002, p.370). Furthermore, the use of digital technology in libraries has created different needs to users and higher expectations. Library users can make use of the library’s online catalog, databases, digital libraries, ask queries digitally and receive answers, InterLibrary Loan – ILL, find material inside the physical library through the use of smart phones and so on. Nevertheless, academic librarians play a very important role on how students and library users in general will learn how to use digital material. The academic librarians facilitate the users navigate, search and retrieve the right information.

According to Tam and Robertson “the method of interaction has changed from a face-to-face to a more remote operation (2002, p.10). The fact that digital technology has immersed in the everyday working lives of librarians makes them in many cases providing remote services to users. In academic libraries, “students are overwhelmed by the various resources and need effective guidance from librarians through reference desk, chat or other modes of communication.” (Roopa and Krishnamurthy, p.11).

The internet has affected the way librarians provide reference services. A reference service has to do with the assistance that a specific professional librarian provides to users so as to find the information that they search for. A digital reference service happens when a user communicates through the internet with a librarian to ask something. The librarian’s answer is delivered electronically. “Lankes (1998) defines

digital reference as Internet-based question and answer services that connect users with individuals who possess specialized subject or skill expertise.” (Wan Dollah and Singh, 2006, p.7). Librarians can provide guidance, direction and answer various questions through the use of electronic means (i.e. telephones, e-mails, instant messaging). Moreover, librarians consult and give instructions to users on how to use and choose the most suitable library services. Thus, librarians apart from giving face-to-face aid, they provide services through the internet. It is important to point out that “students still need help so reference services are not dead, but the format and communication modes have changed.” (Roopa and Krishnamurthy, p.8) Users need the librarians’ assistance in real time on how to use a database, the online catalog and so on.

According to Wan Dollah and Singh, the digital reference service includes 4 components:

- Library User
- Librarian
- Means of interaction (i.e. e-mail, video chat, messaging through social networks, Web Forms)
- Electronic and analogue resources (i.e. digital material) (2006, pp.7-8)

In digital reference service, the communication between the librarian and the library user might occur in real time or with delay. On the one hand, when we talk about communication with time delay, users interact with librarians usually through the use of e-mails, Web Forms and so on. This is the asynchronous way of interaction. When users send an e-mail for asking question, the library staff might respond via telephone, e-mail and so on. On the other hand, real time interaction occurs when the librarian answers directly to the user’s inquiry. This is the synchronous way of interaction. The real time interaction occurs through instance messaging, video conferencing, chat and so on.

When we talk about a reference service librarian we have in mind a person within the library building that manages the users various queries and guides the users concerning the library services. In the past librarians used to provide reference services through telephone inside the library building. Nowadays, most of the libraries provide their own services (i.e. OPAC, Databases, remote services) through the use of the internet. Librarians use the internet/network to answer to questions and advice users. The University libraries and specifically the libraries of Panteion University and TEI of Athens have their official website where users can navigate, see what services are provided and contact with the librarians to ask a question.

When librarians provide services in real time, they have the opportunity to discuss with users. It is like an interview between the user and the librarian. The interview is a way for librarians to learn more things about the user, the information that he/she seeks, why he/she seeks this kind of information and generally is a way of knowing

better the users and have a better understanding about their needs. But when librarians interact with users through e-mail, the communication might be conducted with delay. This means that librarians do not interact directly with users so as to interview them and learn things about them and their information needs.

Additionally, there are various types of library users. According to Lincoln some library users tend to be self-reliant. This means that self-reliant users like “navigate the library, and all its textual and digital resources, independent or almost independent, of library staff” (2002, p.10). They communicate with librarians with the purpose of acquiring the adequate skills of using the library. These users communicate with the librarians in order to be taught on how to seek information and subsequently to be able to gather information on their own. If someone wants to be self-reliant it is important to be taught from the librarians. Librarians will give to them instructions on how to seek for information in the right way. Moreover, some other users like creating a relationship with a specific librarian, trust him/her and ask questions. These users do not feel that they should cover all of their library needs on their own. They prefer to come in contact with a librarian who will be willing to help them and give instructions whenever they want. Furthermore, there are some users that they want to rely on their own capacities resisting for asking librarians’ help or rarely asking for help. According to Lincoln some users prefer finding on their own the material that they need thinking that they are “more familiar with the language, the discourses, the terminologies of their own disciplines” (2002, p.11).

Moreover, users are not supposed to be physically in the library so as to use the digital material. Users can make use of the digital material from anytime at anyplace. Thus, by having access to the digital material anytime from any place, users and librarians might lose the face-to-face interaction that they used to have in traditional libraries. Rappale states that “librarians will play a major role in meeting this expectation, continuing to be in the forefront of helping faculty, students, and others gain access to the vast multitudes of information - whether digitized, print, or multimedia” (1997, p.45)

2.8 Conclusion

The rapid development of technology has changed the way librarians work and interact with library users. Various researches have been conducted on academic libraries about digital technologies (including digital material) and the interactions between librarians and library users. Nowadays, most of the libraries blend traditional and digital library. Academic libraries are modernized with the usage of digital technologies. Most of the librarians work by using the digital technologies. Librarians teach library users on how to use the digital material in a proper way. But as we can see from the literature review the digital technologies have affected the way librarians and library users interact.

Our research has been conducted within a wide framework accounting for experiences concerning digital technologies (including digital material) and interactions between librarians and library users.

This study attempts to explore the benefits of these new digital technologies in academic libraries and what kind of challenges librarians and library users face in a daily basis by using them through their personal experiences.

For the purpose of this study, we have designed to gather information from two Greek academic libraries used by a diversity of scholars (i.e., the undergraduates, the postgraduates, the PhDs) and librarians with the aim of achieving a credible response rate and a deeper understanding of their personal conditions that affect their choices.

The literature review gave us the opportunity to find multiple previous works concerning our topic and see how all these works are connected together. Thus by having understood the previous works, main and different perceptions about our topic, we will try to connect our study to the previous researches. The literature review was very important for us to understand what has been examined or not examined about our topic.

3. Methodology & Methods

The aim of this chapter is to present the interpretive paradigm which this study is based on as well as the research methods have been used for data collection and their analysis, justifying their selection. Moreover, the principles of validity & reliability and the ethical considerations are followed.

3.1 Research Design

A research method is about an investigation which turns attention from assumptions to research design and data collection (Myers, 2009). In other words, it seeks answers to a question through collecting evidence and producing results. All our research is based upon elements about interaction formed among librarians, library users, and digital material in present academic libraries. The interpretive paradigm has been assumed as the framework of the study and the research design is analyzed through qualitative methods. Participant observations, face-to-face interviews, and focus groups discussions were used for data collection.

3.1.1 Interpretive Approach

Interpretivism is associated with Max Weber (Crotty, 1998) and “suggests that the facts are produced as part and parcel of the social interaction of the researchers with the participants” (Klein & Myers, 1999, p.74).

Interpretivists believe in several complex realities and they used to draw a conclusion through an in-depth examination of the interest area. Walsham (1993) argues that there is no single correct or incorrect theory of knowledge and states that interpretive methods are “aimed at producing an understanding of the context of the information system, and the process whereby the information system influences and is influenced by the context” (pp.4-5). Grix (2004) also believes that according to interpretivism, society has been created through individuals’ interaction; the relationship between the subject and the object to be known. Individuals are part of an ongoing process which is formed by their personal experiences, gender, ethnicity, and social status. (Denzin & Lincoln, 2008).

Interpretive approach attempts to explain the subjective reasons behind any social action. Interpretive researchers do not interest of making a new theory but evaluating and improving the already existed. Interpretive paradigm is supported by observation and interpretation; Observation for collecting information and Interpretation for making meaning from this information. Interpretive researchers aim to collect their data from a direct interaction with the subject being studied and that’s why they need to support access for their fieldwork.

The interpretive methods of data collection enable researchers to make a relationship of trust with the subjects as they “see themselves as participants in the situation they investigate” (Edge & Richards, 1998, p.336). A close involvement in the situation

provides an in-depth access on people and data and it enables participation in observation. This method is called participant observation.

In the interpretive approach the researcher has a dual role; to become a participant in the social setting while also continuing to be an observer and selects sampling with rich information.

The purpose of this study is to investigate unique experiences of library users' as well as librarians' in the complicated usage of digital material in their natural setting; an academic library. Due to this fact, qualitative research was decided to be conducted under interpretive theoretical perspectives as a proper method for providing us with explanations of behaviors and actions and give meaning to existed events. Besides, the qualitative research supposed to be more reflexive than quantitative research.

The methods included in this study are:

- (a) Participant observation; observing of behaviors and documenting in detail.
- (b) Interviews: the interaction between the researchers and the study participants since participants were free to respond in their own words without forcing them to choose from set phrases. On the contrary, the researchers encouraged them to explain more their answers. Participant answers affected how and which questions researchers would ask in turn.
- (c) Focus groups discussions: describing individual experiences, focus groups interactions, explaining relationships, and multiple interpretations in the groups' norm.

3.1.2 Qualitative Research

Qualitative research is a scientific method consists of the above characteristics and its ability to study particular communities and different groups of people of how they experience an issue accordingly their values, opinions, and behaviors into their social and cultural contexts. "Qualitative research aims to explore and to discover issues about the problem on hand, because very little is known about the problem. There is usually uncertainty about dimensions and characteristics of problem. It uses soft data and gets rich data."(Domegan & Fleming, 2007, p.24). Qualitative research is realistic and it can help the researcher to become familiar with the given phenomena and better understand of how research participants interpret it.

Qualitative data is derived from people with similar characteristics. It is suitable for small samples and its result analysis includes also researchers' interpretation. (Cohen, Manion, and Morrison, 2007).

Creswell (2008) categorized qualitative data as follows:

- (a) Observations; participant, non-participant,
- (b) Interviews and questionnaires; face-to-face interviews, focus group ,
- (c) Documents; newspapers, journals, and
- (d) Audiovisual materials; photographs, pictures.

3.1.3 Participants

Our research was conducted in the libraries of Panteion University and TEI of Athens. We conducted interviews, focus groups and participant observations. The participants of our study were 55 in total, from whom 16 were librarians and 39 were library users. Our research included both women and men who live in Greece and talk the Greek language. In our research we wanted to collect data from library users and not from people that just visited the library. The librarians helped us selecting library users and avoid people that just visited the library one time. Moreover, many times according to the librarians' advices we used to visit the library in the morning for collecting data from undergraduate students and in the afternoon for collecting data from postgraduate students. All the participants took part in our research voluntarily. We will present in a table the participants and the methods they took part in.

Table 1: Participants

Participants	Number of Participants	Participated in
Librarians	16	Interviews
Undergraduate students (library users)	29	Interviews
Postgraduate students (library users)	8	Interviews
PhD students (library users)	2	Interviews
Librarians	11	Focus Groups
Undergraduate Students (library users)	14	Focus Groups
Postgraduate students (library users)	2	Focus Groups
Librarians	16	Participant Observation
Library Users	39	Participant Observation

3.2 Methods

Qualitative research employs many different data collection methods suited for getting a specific type of data. Our research aim is to explore the library users' and librarians' views and perceptions about the utilization of digital material and examine the benefits and challenges might face with operation of the digital facilities of the library. In order to acquire the most typical data in relation to our aim and research questions, we shared the three most common research methods; (i) individual interviews as we wanted to collect data on individuals' personal perspectives and experiences; (ii) Focus groups discussions so as to get more information on the norms of groups generating their wide overviews of the research issue represented; and (iii)

Participant observation because it is the most appropriate method for collecting data on “the personal context within which the research phenomena are located” (Ritchie, 2003, p.36).

We started collecting data on March 7th and we finished on March 21st. The three of methods were conducted in Greek language and then they were translated in English for writing the thesis.

3.2.1 Interviews

“Interviews are the most frequently used method of collecting data in qualitative research and their popularity is related to their being perceived as talking and talking is natural’ (Doody and Noonan, 2013, p.28). The main advantage of this method is the direct contact between the researcher and the interviewee as its purpose is to let the participants express their own perceptions, experiences, feelings, thoughts, knowledge and opinions about a specific set of topics in their own words. Thus, in order to discover more information about our research topic, we implemented individual interviews focused on semi-structured interviews where participants have answered open-ended questions as a result, have been giving us the opportunity to understand deeper librarians’ and library users’ attitudes and beliefs concerning the use of digital material. In our research we have both chosen to have different roles in the whole procedure; Sofia was the interviewer and Lamprini was the note-taker because it is really difficult to be an interviewer and note-taker at the same time since there is a possibility of losing important data during the session. In our research the time was limited so we decided not to record the interviews but just keep notes.

We decided to do a single interview to each participant as both librarians and library users were very busy with their jobs and studies and it was very difficult for them to conduct serial interviews. We interviewed 39 library users and 16 librarians from both TEI of Athens and Panteion University. The semi-structured interviews were conducted in March 2017 in the premises of TEI of Athens and Panteion University and they lasted 30-45 minutes for each participant. [see Appendix 2] We organized our questions and we created a topic guide so as to facilitate us in the interview process.

According to Crang & Cook (2007, p.40), researchers need to do a “background research” at first. In our study the background research had to do with the amount of personnel in two academic libraries, what kind of services they provide to users (e.g., digital or not), the amount and the type of users visit the libraries (e.g., undergraduates or postgraduates, visitors or users, ect.), users’ preferences, the existed technological equipment and the digital library services.

Before we start doing the interviews, focus groups and participant observation, we came in contact with the directors of the Panteion University and TEI of Athens libraries. Firstly, we talked to them through telephone and e-mails. Subsequently, we arranged a meeting in the library with them so as to talk about our research and get

the permission. We presented to the directors what our research is about, the purpose, our target groups. Both libraries gave us the permission for conducting our research.

Firstly, we came in face-to-face contact with the librarians so as to request for participation in the interviews and organize the meetings. Most of the librarians accepted our invitation for the meeting. Moreover, we discussed with the librarians of both libraries the time and the place of the meeting. We came to a conclusion that it would be convenient for all of us to do the meeting in a quiet office inside the library.

Moreover, we came in contact with various library users inside the library. We asked various library users to take part in the interviews. Some of them accepted our invitation, some others told us that they were very busy (i.e. some of them had to study, do an assignment, some of them had to be present in the classroom). We discussed with those who accepted our invitation, where they would feel more comfortable to conduct the interview and what time. Most of them preferred to do the meeting inside the library. Thus, the meetings for the interviews conducted inside the libraries quietly, in a place that we wouldn't disturb or be disturbed by other users.

Before starting the interviews, we introduced ourselves, talked about our studies, informed them about our research purpose and presented them their rights and our obligations. Then, participants were asked to read also the Informed Consent Form, to ask for any further questions and to sign it before starting the research process. Moreover, we started the discussion by asking the individuals more general questions at first for instance "Can you please tell us about your studies?" In this way participants feel more relaxed and less stressed. At the end of every interview, the interviewer was asking the interviewee if they wanted to add something and we expressed sincere thanks for their participation.

3.2.2 Focus Groups

"Focus groups are a form of group interview that capitalizes on communication between research participants in order to generate data" (Kitzinger, 1995, p.299). We decided to use focus group method because we wanted to examine how people interact, communicate, exchange ideas, agree or/and disagree inside a group. One benefit of this method is that it can stimulate even an unwilling person to take part in and express their opinion and perceptions. Participants are inspired by others thoughts. "The social nature of the focus group stimulates participants to tell stories and share experiences in ways that reveal their insights and perceptions that are unlikely to be obtained through other research methods." (Weare, 2013, p.48). Focus group is not just interviewing some people but their interaction.

According to Propst et al. (2008), "focus groups are defined by five characteristics:

- (1) people who
- (2) possess certain characteristics
- (3) provide qualitative data

- (4) in a focused discussion
- (5) to help understand the topic of interest” (p.2)

In this method, there is a need of a person who facilitates the whole discussion and it is called moderator. In our research, Sofia had the role of the moderator whereas Lamprini was an assistant moderator who was keeping notes during the whole process. Moderating was a challenging task since we have faced many different personalities (e.g., dominant talkers, shy persons, and non-active participants) that we had to control during the session. Sofia had to encourage all the participants to talk, encourage participants that speak less to start talking and ask for those who speak much to let others talk. We created a topic guide with the basic topics and some subcategories that should be discussed during the session. This list facilitated the moderator so as to guide the session and not forget anything important to mention.

Before the session starts, we presented ourselves and we explained the subject of the research by giving them the Informed Consent Form to read it and subscribe it and we assured them about keeping their anonymity. Subsequently, we gave them the open-ended questions [see Appendix 2] to have a quick look and subsequently we started the discussion. Reading the questions facilitated the whole session as the members of the group organized their thoughts, and it wouldn't be so difficult for them to follow the discussion.

Thus our target groups for the focus group session were librarians and library users. Both discussions held inside the two libraries and they lasted approximately 60 minutes.

We came in face to face contact with librarians to talk about the focus group session. Professional librarians from both academic libraries, TEI of Athens and Panteion University were very busy in their working environment. This means that they didn't have so much time to spend for the implementation of multiple focus groups sessions. Thus we decided to conduct a single meeting group of librarians in both libraries. We discussed the time and the place of the meeting and we decided to conduct the meeting in their time and place preference so as to make them feel more comfortable. These meetings, is an opportunity for the librarians and library users to come close and share perceptions about their common experiences that they wouldn't have thought about to discuss together. The goal is to make the group feel comfortable and be straighter concerning their answers as time passes during the session.

We conducted the focus groups of librarians and library users in 14th March 2017 in Panteion University and in 16th March 2017 in TEI of Athens.

All of the participants (librarians) were female. We requested eight librarians from each academic library to participate in the process. Nevertheless, 5 of them were able to take part in the process from the library of Panteion University and 6 of them from the library of TEI of Athens. This size of the groups gave us a good diversity of perceptions. The focus group session was conducted in the librarians' workplace

environment. A quiet and shiny office was the best idea for the implementation of the focus group in the library of Panteion University so as not to bother library users and be able to talk without being interrupted by anyone. In the library of TEI of Athens the focus group conducted in a conference room in the 1st floor of the library. We tried to create a friendly atmosphere where everyone would feel comfortable. The rooms of both libraries were full of desktops and chairs for all of us. Moreover, the rooms were relaxed places without noise so as to make participants feel good to speak. Most of the librarians that work in the 2 academic libraries are women. Thus, the focus groups of librarians were included only women in both libraries.

The focus groups of library users included postgraduate and undergraduate students, both men and women. The focus groups conducted outside the TEI of Athens and Panteion University libraries in a cafeteria. We chose to do each focus group in a cafeteria near the academic libraries. Inside the libraries most people were studying and we didn't want to bother them while speaking. We requested eight users from each academic library. Eight of them were available from the TEI of Athens library and from the Panteion University. We decided to do one focus group from each academic library as the users were very busy with their studies and didn't have more time to spend. The cafeterias that we chose to do the focus groups were quiet places with not many customers and the music was soft and enjoyable. The users liked the place and felt comfortable very quickly.

3.2.3 Participant Observation

We decided to use participant observation because by using this method we will have the opportunity to participate in the activities of a group of people and observe them. Thus, by immersing in librarians and library users' everyday lives we can have a deeper understanding on how people act, perceive, behave.

Participant observation gave us the opportunity to spend time with the participants, participate in their activities, talk with them and observe them. Participant observation gave us the opportunity to understand how people act and perceive in their everyday lives and try to learn how it is like to be an "insider" at the same time be an "outsider". When researchers are "insiders", they act as participants as they become members of a group of people, get involved in participant's everyday activities and acquire more in-depth information. Moreover, when researchers are "outsiders" they act as observers. "to be an observer of a 'culture' implies a detached sitting-back and watching of activities which unfold in front of the researcher as if s/he wasn't there" (Crang & Cook, 2007, p.22).

In this method, researchers participate in the daily activities of the individuals or group they study. "The process of participant observation requires the researcher to become involved as a participant in a social setting and make descriptive observations of him/herself, of others, and of the setting." (Mackellar, 2013, p.57)

The participant observations were conducted from 7th to 21st of March 2017 from 14:00-19:00 by keeping field notes in a field notebook which we were discussing immediately after the process end so as to have included all the appropriate -even, small- details which would provide us with more information. For instance, informal conversations, messages, and interactions among the members and nonverbal gestures.

Firstly, we participated as librarians. According to the fact that both of us are professional librarians with experience on academic libraries, it was quite easy to be embedded in the process. As a result, we perceived, communicated and interacted with librarians and users with easiness.

Secondly, we participated as users. However, it was a time-consuming procedure, there were revealed new attitudes. We had the opportunity to observe how other librarians act and serve library users; since we were one of them. That gave us the chance to recognize and understand the library users' dissatisfaction when they cannot find the specific material they need for assignments nor the current technological library equipment for research.

3.3 Data Analysis

In our research we had to analyze the qualitative data that produced from the interviews, focus groups and participant observation. Lichtman states that "The goal of qualitative analysis is to take a large amount of data that may be cumbersome and without any clear meaning and interact with it in such a manner that you can make sense of what you gathered." (p.250, 2013) The data analysis was a demanding process as we had to deal with a big amount of data. We decided to analyze our data by applying the 3Cs of Lichtman: Coding, Categorizing, Concepts. According to Lichtman there are six steps that need to be followed in order to analyze data.

"Step 1. Initial coding. Going from responses to summary ideas of the responses

Step 2. Revisiting initial coding

Step 3. Developing an initial list of categories

Step 4. Modifying initial list based on additional rereading

Step 5. Revisiting your categories and subcategories

Step 6. Moving from categories to concepts" (p.252,2013)

Thus in the analysis process firstly we organized the raw data collected into codes. Subsequently, we organized the codes into categories. Finally we concluded to final concepts.

Data Analysis Procedure

In step 1 we did the initial coding by using our notes and the participants' own words from the interviews, focus groups and participant observation. Our initial coding was a big amount of short sentences. We created 590 Codes. In step 2 we revisited the initial coding. Thus we changed the names of various codes when it was needed. Moreover, we shortened the number of codes. We removed the duplicated codes and we merged synonyms. In step 2 the codes were 567.

In step 3 we create categories. This means that we had to organize the codes that we created and changed in step 2 into categories. Some of the codes were used as categories and some others as subcategories. The first categorization was 90 categories. In step 4 we kept the most important categories. The remaining categories were 50. In step 5 we did some changes in the names of the categories and subcategories, we removed the duplicated categories and we merged synonyms. There were 19 categories left.

In step 6 we identified the most important concepts. We concluded to 6 concepts: New technologies issues, Preservation issues, Interaction issues, Digital material issues, Usage issues (Copyright issues and Economic issues) and Time issues. An example of the data analysis procedure will be given in Appendix 3.

3.4 Validity & Reliability

According to Eisner (1991), a qualitative study can help us to “understand a situation that would otherwise be confusing” (p.58). This relates to the concept of validity and reliability of research results and how credible they are. Patton (2001) states that these two concepts should have been taken into consideration as a criterion by any researcher; especially by a qualitative researcher since “the researcher is the measurement instrument” (p.14) while designing a study, analyzing results and their empirical findings are worth paying attention.

The current study was conducted based on Lewis and Ritchie's (2003) strategies of designing and selecting samples for qualitative research. To be more specific: i) the sample of participants was chosen with a representative purpose to reflect all the different views, needs and experiences of different target groups namely librarians and library users (i.e., the undergraduate, the postgraduate and the PhDs) of the presented academic libraries given that all of them were appropriate for collecting our data. ii) a diversity of answers is included as a result, a very strange answer cannot be characteristic for generalizations. There are a range of different approaches according to different persons of sample composition and these approaches are relevant only to the specific academic libraries. iii) the research was continued at the moment that collecting more data through interviews, focus group discussions or additional observations would not change our findings. Last but not least, a total description of the research design has been presented in the related chapter for detailed information by everyone interested in.

3.5 Ethical Considerations

Ethical considerations have an essential implication in qualitative research as participants express their opinion revealing personal sensitive data (Lewis&Ritchie, 2003). Anonymity and confidentiality are critical issues in any research, and they have been entirely applied to this investigation by the researchers.

First of all, we took permission of both Libraries' Directors of Panteion University and TEI of Athens to conduct our research in their settings. Then, concerning this study the participants were informed orally and by the informed consent form, about the aims and scope of the research, the researchers' identity, the way that the data would be used, the risks, and their rights according to the procedures that their participation involved (i.e., interviews and focus groups discussions). Before they signed the informed consent, they were asked to read it carefully and ask for any clarifications. In particular, participants were informed that their participation in the research was voluntary and that they could withdraw from it at any time they wanted. In general, participants were not extended to any risks. They were also confirmed about their anonymity and their data would be collected in a secure place until the accomplishment of the thesis and strictly used by the researchers and the supervisor of this study. It was also important to reassure participants that the research results would be used only for the purposes of this study, as well as other academic purposes.

Finally, the librarians as well as the library users were completely willing to participate in this research.

4. Empirical Findings

In this chapter the empirical findings of the research according to the six final concepts have been introduced into the previous chapter, are presented.

After collecting data from the interviews, focus groups and participant observation we decided to code data, categorize data and create final concepts. According Lichtman there are 6 steps that need to be followed in order to move from the coding of data to the final concepts (2013, p.252). This process gave us the opportunity to organize our collected data in a very useful way. Firstly we started reading carefully many times our notes from interviews, focus groups and participant observation. Subsequently we started creating some coding. In the initial coding we used sometimes librarians and library users own words. Using participants own words, was easier for us to start. Subsequently, during the coding process we created many codes that we changed their names again and again and omitted various unnecessary codes. We did this many times until we get to the desired coding. Subsequently, having decided and created the list of codes, we needed to “organize them into categories”(Lichtman, 2013,p.253). We used some of the codes as main categories and some other codes as subcategories. Subsequently, we changed the names of some categories, omitted unnecessary categories and decided to keep the most important categories. Our created categories were 19. Finally, we had to recognize and decide the strongest concepts. The final concepts should “reflect the meaning you attach to the data you collect” (Lichtman, 2013,p.254). We concluded to six major concepts.

The final concepts were:

- 4.1 New Technologies
- 4.2 Preservation
- 4.3 Interaction
- 4.4 Digital material
 - 4.4.1 Usage
 - 4.4.2 Copyright
- 4.5 Economic issues
- 4.6 Time

We decided to collect data from both librarians and library users to examine how users and librarians interact and perceive about the digital material.

In our research, all the librarians were asked about issues concerning the new technologies in libraries, their interaction with users, preservation , economic issues, digital material (i.e.copyright). Firstly the TEI of Athens and Panteion University librarians were asked about how the advent of new technologies in their libraries has affected their skills, their knowledge and their education. Moreover they were asked about their adjustment to the new technologies for instance their feelings and possible

problems that they have addressed due to the technological change in their working environment.

Furthermore the library users were asked to answer if they use digital material, and in what way had an effect on them; beneficial or not. Digital material plays an important role in respondents' life as the majority of them use it daily for studying, preparing notes, writing assignments, doing research and so on. The research investigates library users' habits of using digital material and their experience. Respondents were asked to announce, (i) if they use digital or/and printed material, for what purposes, and how often, and (ii) if they use digital library resources or other digital resources and for what reason.

4.1 New Technologies

Librarians were asked about their adjustment to the new technologies in their library. We listened to their feelings and perceptions concerning the new technologies. Concerning the adjustment to the new technologies, most of the librarians were positive, receptive, enthused, positive to challenges and open to new technologies. Most of them were enthused and happy with the new technologies. Some of them were smiling positively when they were talking about their adjustment to new technologies. Most of them expressed that they felt no fear with the integration of new technologies in librarians' working environment. Only a small percentage of librarians expressed that they were feeling unsafe, feeling fear of an unknown technology, a bit stressed and that they had addressed difficulties and misunderstandings in the beginning of the integration of new technologies in their job. Many of the librarians stated the importance of exchanging ideas and help each other with the new library technologies. A big percentage of employees stated that new technologies are part of librarians' job. A librarian stated "*If you want to be good in your job you must adjust to new technologies.*" The adjustment is necessary when new technologies are incorporated in the librarians' working environment.

All the librarians stated the importance of education in new technologies. Many of them pointed out that in order to follow and adjust in new technologies there is a need to be educated. All of the librarians were open and positive to be educated in new technologies that support their job. Most of them told us that they have attended seminars for their job. During the interview process we felt that librarians are feeling safer when education is conducted for their job as they gain valuable knowledge after the education. Moreover we felt that education is something that they like much and it is very helpful for them and their job as they learn and understand technology. Some librarians stated that they acquired many skills after seminars. Attending seminars facilitates librarians in order to learn and use new technologies in their daily work. Almost all of the librarians told us that apart from the seminars provided it is important to try alone use and understand technology in order to get used to it. But they stated that trying to learn alone without being educated spends much time. A

librarian stated “*I can understand some initial things but for something more specific there is a need of education*”.

Librarians told us their perceptions about the technology skills that they have now. Many librarians stated that technology skills are part of librarian’s job. Most of them told us that they do not have all the technology skills in all library’s digital technologies. The education facilitated to upgrade the technology skills that they already had. A librarian said that she had to use a new system in her job that she didn’t know at all how to use it. She felt that attending a seminar could be very helpful for her as she was feeling that someone will teach her how to use it. After the seminar she felt more confidence in using the system.

Subsequently, the librarians expressed their perceptions about the differences between traditional and digital library. They referred to traditional desktops, manuscripts and card catalogues. Furthermore, most of the librarians supported that traditional librarians were modernized, adapted to the new technologies and used different tools that fit to the digital environment. According to them, digital library is the evolution of traditional library. Nowadays, libraries are hybrid as they include both analogue and digital material. According to the librarians this affects positively academic libraries as users can have access to the library’s digital material from any time at any place. Use of digital material requires expertise, education, dedication. One librarian supported that what has changed is the way information is provided to users. Librarians seemed to be satisfied and happy with the evolution of libraries. Librarians need to adjust to new era and use the new tools in their job.

Moreover, usual information was arisen from librarians concerning their opinion about the future replacement of librarians from technology. Almost all of the librarians supported that libraries will continue to exist in the future. According to librarians there will always be a need for someone to manage the technology together with the material, organize and diffuse data. Moreover librarians are the ones who help users recognize useful from useless information. A librarian said “*Librarians are the intermediate between information and user*”. Librarians stated that libraries depend on technology. Technology improves but not replaces librarians’ profession. They stated that librarians’ profession will change, will evolve, will be developed and will adapt to the needs of each period.

The library of Panteion University provides some digital services to the users. According to the librarians some of the services are: Online Public Catalog System, Pandemos, ILL, Databases, Heal-link, electronic renewals from users without librarians’ participation, amelib. Additionally, librarians stated some of the digital services that TEI of Athens library provides: OPAC, electronic material, databases, Heal-link, the Institutional Repository (Hypatia).

Moreover, librarians of Panteion University library referred to some weaknesses and problems that they have addressed in the usage of digital material. While we were

listening to the librarians talking we saw many of them being thoughtful and we felt they would prefer to have been solved all these problems of the technology. Some of the librarians referred to a weakness in Pandemos search engine in Greek language. Pandemos is the digital library of Panteion University. Pandemos is an academic repository; it includes photographic and historical archives, digitized journals and university press. Another librarian referred to problems that have been addressed with digitized material where the scanning quality and the program quality used to open the digitized material has happened to be bad. As a result some pages were cut and the program was reading the pages blurry. Another problem is that sometimes the server was stop functioning. This means that when the server was down, no one had access to the digital library material until it was fixed. The computer center of Panteion University now fixes possible problems with the server.

The librarians of TEI of Athens expressed that many library technologies had weaknesses that needed to be addressed. Many librarians told us that they had addressed weaknesses and problems with the Institutional repository called Hypatia. Hypatia includes digital research and academic material of TEI of Athens. Firstly, all of librarians told us that they are not the ones who have created and manage the Hypatia. The Department of Library and Information Systems has created and manages Hypatia. Librarians have the same rights with users. This means that librarians can make use of Hypatia only as users and not as managers. Many librarians told us about searching problems and problems in opening pdf documents in Hypatia. According to most of the librarians Hypatia includes the 10 best projects of every year. Furthermore, most of the librarians were dissatisfied with this. They stated that all projects should be included in order to be open in challenges and academic comparison. Moreover a librarian from TEI of Athens shared that she had come in contact upon her own initiative with the managers of Hypatia so as to inform them about problems that they had addressed. She stated that after the communication some of the problems were improved.

In addition, librarians from both TEI of Athens and Panteion University have addressed problems with the usage of the libraries information system. Both libraries use the same information system so they have addressed similar problems. A company had undertaken the creation of the libraries' new information system at the same time for various Hellenic Academic Libraries. Moreover, the company had a contract for the creation and support of the new information system. Thus, librarians were communicating with the company to propose improvements to the information system and ask for solutions to various problems. Furthermore librarians were communicating with other librarians and computer scientists to exchange ideas about various problems of the information system. According to the librarians the communication for support is very efficient as they have seen many improvements and solutions to problems. While librarians were talking about problems and weaknesses that they had addressed with the usage of the information system seemed to be very tired with the ongoing problems that were arising in every period of time.

4.2 Preservation

Many of the librarians expressed their opinion concerning the preservation of born digital and digitized material in their library. TEI of Athens librarians stated that they are not the ones who created and manage the Institutional depository Hypatia. Thus, TEI of Athens librarians stated that they do not have knowledge about digital material preservation as they do not preserve born digital or digitized material in their library. Thus, some TEI of Athens librarians said that computer scientists are responsible for the preservation of digital material. All of them from both libraries were positive with preservation of digital material in libraries as in this way you make material open to users in a digital form. Most of librarians of Panteion University and TEI of Athens expressed that a good way to preserve digital material in order not to lose important information is a server, CDs and hard disks. According to a librarian *“a server is a safer means of preservation whereas CDs are more sensitive means of preserving material as there is a danger of physical destruction and lack of compatibility.”* Some of the Panteion University Librarians expressed with certainty that in order not to lose important information you can keep the digital material in different formats.

According to many of the Panteion University librarians in order to conduct preservation of materials there is a need for academic libraries to follow common policies, have equipment, have specialized personnel and have an economic infrastructure. Preservation is a big problem as academic libraries suffer from the lack of the abovementioned prerequisites. Many employees supported that preservation is a very expensive process. There is no economic providence in Greece about preservation of material in academic libraries. Several Panteion University librarians stated that in order to preserve material in a digital form there is a need to do a contract between publishers and libraries, subscribe and pay for this contract. During the interviews we felt that librarians were upset and disappointed with the lack of economic infrastructure in academic libraries.

The library of Panteion University has created and manages the digital library Pandemos. The digital library includes both born digital and digitized material. The library created a contract with a company for digitization of analogue materials. The company implemented the digitization process inside the library.

Panteion University librarians stated that they have addressed some problems with the storage space of digital material in Pandemos. Some librarians told us about a big problem that the Panteion University library had addressed some years ago with the storage space of Pandemos digital library. Due to the massive storage, the system overloaded to 10.000 projects. Pandemos digital library could store only a specific amount of material. As a result Pandemos couldn't function for some months. In this period the library didn't have a contract with a computer scientist. We felt that librarians were anxious this period and worried on how the problem could be fixed as no one computer scientist could help them fix the problem. Thus, librarians found a temporary solution to receive new projects through e-mail. We felt that this was a

painful process for them as the system that they were doing their daily job was down for many days. The problem was solved when new space was acquired. After the acquisition of new space the librarians had to transmit data from the e-mail to the new space. Nowadays, there are employees from the computer center who support Pandemos digital library.

Moreover, Panteion University and TEI of Athens librarians stated that the two academic libraries recently changed their information system that they work on. Moreover, several librarians expressed their opinion about the danger of information loss during a transition from one information system to another. A librarian said that the transition from the old information system to the new information system resulted to the 10% of data loss from the database. It was not good for them to lose so much data. When librarians were talking about the information loss problem were a bit nervous and annoyed. Many librarians expressed their concern about the availability of digital material to future generations.

4.3 Interaction

For Librarians the major step providing excellent library services is meeting library user's needs. Librarians communicate with library users in a daily basis as all kind of interactions are joined in the library. However, there is a variety of library users whom cannot use the traditional library technologies around; let alone the electronic ones, as a consequence, the interpersonal communication between them has been changed and become truly complex. This objective as stated in the first research question was developed to guide this research and studying the present condition and reported problems as regards both librarians' and library users' perspectives.

Interaction From Librarians' Perspective

An additional issue that was stated had to do with the interaction among librarians and users. Employees from both libraries shared their perceptions about their communication with library users. Librarians from both libraries told us that in their daily work they come in face-to-face contact with users for various reasons such as loaning books, asking specific books, ask a title of an e-journal, ask how to search an e-journal, ask in what databases to search, how to search a database, ask how to search material for a specific topic. Most of the librarians seemed to be pleasant with their daily communication with users. Some of them characterized interaction between librarians and users as a necessary element for the future existence of libraries.

Several librarians from TEI of Athens library told us being a bit upset, that most users when they visit the library they don't know how to move inside the library, they don't know what question to ask, what material to find for an assignment or how to use digital material in general. In Panteion University most of the librarians stated having a feeling of satisfaction that some users know how to use the library some others don't know.

Librarians from both libraries told us that they have observed some users don't hesitating to ask for help. Moreover many librarians from both libraries supported that when they inform users about digital material they see them feeling excited. When librarians told us about the users' enthusiasm about digital material we saw pleasure in their faces. Almost all of the librarians from both libraries told us that undergraduate students usually ask simpler questions and prefer using Google for searching digital material. The fact that they use Google and not library's electronic resources for their research is not good as they can find and use unreliable information. Whereas users of higher semesters or postgraduate students make a deeper usage of the library resources for example they use electronic databases of the library and ask more complex questions. A deeper relationship with the library's resources is very good for students.

Some of the librarians from both libraries stated that many times users are getting bored on searching and finding material on their own. They prefer the easy way of asking librarians. In TEI of Athens library we observed users going to a librarian with a title of a book in their cell phones and asking where to find a title of a book. During our observation this happened many times. The librarians every time were advising users to insert the OPAC catalog and see if the library has this book. Subsequently, the librarian was trying to answer them inserting the OPAC catalog from their computer and telling the users about its availability. Moreover some other users were asking librarians to find them material concerning a specific topic of their assignment. Librarians were advising users to search on the OPAC catalog or some electronic databases. After giving the advice, librarians were searching for them on the OPAC catalog to find material of the users' interest. On Panteion University library, users were asking librarians on how to search material. Other librarians were answering them "go to a computer, start searching on your own and I will come to help you". Some of the TEI of Athens librarians expressed that unfortunately many users visit the library focusing on social purposes (i.e. drink coffee, talk to each other). We observed many users inserting computers and playing video games or watching non academic webpages. Something like this shouldn't happen because many of them talking aloud inside the library and bother other users or occupy computers. In this way there are not available computers for users who want to use them for academic purposes.

Librarians from TEI of Athens and Panteion University do inform and give advice to the users concerning what database to use, how to use a database, the OPAC Catalog, searching techniques, where to search. Additionally, many users ask for distance access to library services. Librarians from both libraries told us that users ask if they can have distance access to libraries services and in what way. Subsequently, librarians inform them about the distance access ability to the libraries services. Many of the users said that distance access to library's resources is very beneficial for them as they have the opportunity to find important library information even from their house.

Employees from both libraries expressed the importance of education in library usage. On the one hand, TEI of Athens librarians told us that they provide seminars to educate users in the library. In the first semester they provide an introduction seminar where they are showing to the students the library place and they introduce them to the library services such as the OPAC catalog, the databases, Hypatia. The introduction seminar lasts approximately 15-20 minutes. Librarians were not seemed to be satisfied with the 20 minutes lasting of seminars as they don't have the time to tell everything they want to users. Thus they only introduce them to the library services. But we saw them being unsatisfied with the amount of users attending seminars. Some librarians from both libraries told us that they can educate users privately when users ask for education. Librarians seemed to be pleasant when they were talking about private seminars as they see users being interested for library education.

Moreover, TEI of Athens librarians apart from the introduction seminar, librarians provide seminars to higher semesters after the professor's request for the seminar. In these seminars librarians deepen as they show students how to use a database, how to search in a database. According to the librarians this is good for the users as they learn more and deeper things about the library's resources. On the other hand, Panteion University librarians stated that they provide seminars to all semesters. Each seminar lasts approximately 90 minutes. There are three levels of seminars 1st level is the introduction to library use, the 2nd level is how to use electronic resources and the 3rd level has to do with instructions on how to use electronic databases.

Many librarians of TEI of Athens told us that they have observed users visiting the library and asking more questions concerning the printed material rather than the digital material. According to them many users think that they know how to use digital material on their own without asking librarians' help. By asking for librarians help users will learn how to use material effectively and ethically. Moreover, according to some librarians of Panteion University, some users believe that they can use the library material in a perfect way on their own without education. Moreover, some librarians stated the importance of information literacy existence in academic libraries. They stated that there is no department of information literacy in both libraries. It would be very beneficial for users to be taught on information literacy skills. Thus, students can learn for instance how to use information, develop a critical thought, evaluate or make decisions concerning the information.

All of the librarians from both TEI of Athens and Panteion University stated that the role of professors is very important as they can inform and stimuli users about library issues. Some of the Panteion University librarians said that professors should assign work tasks to students in order to motivate them go to the library and search for information. Thus according to the librarians, the use of the library resources for work tasks will be a practice on what students have learnt during the library seminars.

Additionally, librarians shared their thoughts concerning the distance communication of librarians with users through an e-mail or facebook. According to some of the librarians the communication through e-mail and facebook is a result of the technologies embodiment in libraries. Librarians stated that they usually communicate with users through e-mail for Interlibrary Loan, information about articles or books, for book delays, renewals of books, help for a database. Some librarians expressed that e-mail of the library can be used as a reference desk such as “Ask a librarian”. All of the librarians told us that both libraries do not provide the “Ask a librarian” service. Some librarians said that it would be good for the library to provide the “Ask a librarian”. Ask a librarian is an online library service. Users can ask deeper questions concerning for instance the library resources, they can ask about resources of their assignments.

Furthermore TEI of Athens librarians stated that the library does not have a facebook account as it has been forbidden in the library. Librarians characterized as negative the fact that facebook abolition inside the library. According to them facebook is a good way to promote the library. Panteion University library has an account on facebook. Moreover many librarians from both libraries said that a library facebook account should exist as marketing tool for the library but not as a reference desk asking deeper questions such as asking for articles, asking help with the databases and so on. In addition, they stated that facebook account can be used to inform library users for events, seminars, new library material or library’s working hours. It can promote library as many young people use facebook.

According to the TEI of Athens and Panteion University librarians, there is a need for more librarians and technological equipment as many of the computers are old. This means that if the computers under function the users address difficulties in the usage of digital material inside the library.

Interaction From Library Users’ Perspective

Minimal users ask librarians for help because “*it hasn’t put my mind across to ask a librarian for help*” according to a library user’s opinion whereas the majority of users ask librarians *only* for printed material. More than 20 out of 39 affirmatives were “*I am asking only for books*”.

The interviewees raised a main issue regarding their interaction with librarians. First of all, there are library users were concerned about library resources (i.e., OPAC, digital library/repository, online services, databases); but, they doubted if the librarians could help them. As clarified in these different students’ replies, on the one side:

- “*They are not all librarians friendly*”
- “*I would not ask a librarian’ help because there is no intimacy*”
- “*I feel embarrassed asking for help*”

- *“I would prefer fumble with searching rather than asking a librarian for help”*

Contrary to a minimum amount of others (i.e., 7 out of 39 respondents) who feel totally secure about asking a Librarian:

- *“ A librarian told us that in case of facing any difficulty, do not hesitate asking for help; I’ll be there”*
- *“Librarians are very helpful. Personally, I benefit 70-80% from librarians”*
- *“A librarian acts as a filter of Information”*

The results seem to correspond to the library users’ habits of not approaching librarians as shown in the following statement *“Could a Librarian help me with searching? I have never thought of this”* and conclude in high percentage of respondents do not really know the professional abilities of Librarians; they are in the dark. They, however, did not think that Librarians would entirely be replaced by a computer machine.

The previous section has shown that though most of the respondents never spoke to a librarian, they, however, preferred a face-to-face contact with them, as shown in results, 30 of the 39 respondents while a large number of users get in touch with librarians through e-mails; mainly for library resources (i.e., book loans). In contrast, a small number of users would choose the telephone for being in touch and even more minimum users would prefer contact via Facebook. A library user proposed *“Facebook would exist as a newsletter; for events, seminars, opening hours, etc.”* the time that another marked *“Facebook is not reliable. For these reasons, there exists the Library’s Web page”*. We also compared students’ opinions and resulted in the majority of respondents having been informed from Library’s Web page according to library issues (e.g., open hours, seminars, educational conferences, etc.) and their satisfaction level was high.

4.4 Digital Material

4.4.1 Usage

In general, respondents complied with using of digital material; usually, in daily base for educational purposes. University students (e.g., undergraduates and postgraduates) answered for writing assignments; master students answered for preparing notes for their thesis; and PhD students answered for making their research based their doctorate degree.

However, a small number of users draw upon digital libraries from the beginning; the majority of them turn first to the Web for their information needs; especially on Google Scholar. The reason for this based upon the fact that not all digital information can be accessed. A library user confessed that *“some kind of electronic material, for example, journals is under lock and key; I cannot download”*.

The most significant evidence is found in the comparison between central libraries of TEI of Athens (Hypatia) and Panteion University (Pandemos) digital resources. Most students of TEI -except for 2 students- did not know about Hypatia's existence whereas students of Panteion University use Pandemos with a large number of users have been satisfied regarding digital material they found, defined it as *"authoritative and totally reliable"* whereas a minority of library users expressed a high satisfaction level of digital library's services. Characteristically, a PhD student stated: *"Pandemos is great; it nearly reaches European Standards"*. This discrepancy is attributed to the fact that Panteion Professors allocate their teaching notes to their students through digital library Pandemos as a student of Western, International & European Studies Department explained by saying *"Pandemos is user-friendly and really useful to me"*.

The results show that Professors do play an essential role in informational learning. This section reports on 2 interviewees' responses: *"I have been attended in a library seminar. A professor took care of bringing us to the library and asked from librarians to inform us about library usage in total; search on OPAC, on PubMed database, etc."* and *"Our professor made a request for a computer room, we were separated on couples apprenticing us to make use of library resources; both physical and electronic. For three hours (!)"*.

As illustrated, the majority of interviewees replied being informed for searching digital material in scientific databases, basically, by their professors. In this case, a large number of users made also use of other digital databases; Heal-link, Science Direct, Emerald, Elsevier, PubMed and so forth, as a student replied *"I've downloaded journals from J-Store; it's easy!"*

The majority of respondents claimed that have not ever faced any difficulties in searching for digital content. *"I enter key-words and analyze the reported material"* has answered a student in a typical way. Most of them identified having the knowledge and skills for searching and retrieving the appropriate digital material by themselves without asking a Librarian-Information Scientist. Specifically, a user told us: *"First of all, I use Wikipedia. Besides, I get data from web pages with the greater hit"*.

These results are summarized from maximum users' answers that neither went nor were willing to participate in educational seminars about learning library resources in the opinion of *"At the first semester of my studies, a professor notified us of an informational meeting about the library features but I was not presented; I forgot"* and as stated in *"I would never go to an educational seminar; I would prefer go for coffee with buddies"* by another.

The previous section has shown that university students used digital resources often enough for their purposes but others thought using print books still have their advantages like a user who said that *"Print Books includes knowledge to the full"*

extent instead of digital ones". More than half of the respondents preferred physical material to digital. The majority who preferred physical material said that using traditional resources was a habit they had developed and they need to go physically to libraries and still read books. For example, a user announced *"I want to be in touch with print books so I can smell them"* or another aspect was *"I love library's atmosphere"* which reflects their preferences for these two kind of materials.

As illustrated results drawn from interviews, most of library users indeed enjoyed the experience of reading physically a print book. They were also comment on library as a space. In cases the interviewees answered *"It is a quiet place which motivates you studying, searching, researching, finding..."*

4.4.2 Copyright

Copyright From Users' Perspective

We heard maximum users being familiar with Copyright law and making always references in their work tasks. Students are familiar with copyright regulations because of their professors' advices. This consideration was mainly discovered through a student's response *"But of course I make references; I use Harvard's style"* in association with *"Professors force us to use References on a right way"* second reply.

Copyright From Librarians' Perspective

Some librarians told us that users ask rarely for advice concerning the ethical way of using material. Some librarians from Panteion University said that it is the library's responsibility to educate users on how to use material in an ethical way. But after education it is in his/her own decision if he/she will use the material in an ethical way or not. Almost all of the librarians said that digital material plagiarism is not more dangerous from analogue material plagiarism. It is more difficult to identify plagiarism in analogue material as there are no tools to identify easily and quickly plagiarism. Nowadays, there are tools that identify plagiarism in digital material and protect the copyright owners.

4.5 Economic Issues

All of the librarians stated that academic libraries in Greece face a very big economic problem. Nowadays, the budgets on academic libraries are very small. Moreover, due to the bad economics academic libraries cannot always pay the publishers for the contract renewal of e-journals. If the contract is not renewed, the e-journals won't be accessible to users on the libraries' databases. When libraries cannot renew the contract with the publishers they try to find alternative ways to meet the users' needs such as interlibrary loan. Many users expressed their disappointment when they were trying to find an article from the library's databases and it was not accessible as it was not paid.

Moreover, due to the bad economics in libraries there is a lack of staff and technological equipment such as computers. In Panteion University only 2 of their computers can be connected to the library's network. This affects users in a negative way as there are not available computers to work on and find digital material from the library place. Furthermore, TEI of Athens librarians told us that the computers in their library are old and are easily broken down. Some users from TEI of Athens told us too that computers break down easily and many times they have lost even the entire work task that they were processing in the library's computer. It is very annoying for the users to lose all of their work due to the bad computer quality.

Furthermore according to the librarians apart from the lack of technological equipment, there is a lack of staff, in both libraries. The lack of technological equipment and staff affects the libraries. Panteion University library has happened to function without the support of computer scientists. This means that when they used to face problems with the Pandemos digital library such as storage problems or problems they couldn't solve them if they didn't have a contract with a computer scientist to support them. Thus, the digital library was stop functioning until a solution could be found. This was very stressful for the librarians as they were trying to find a solution even on their own. Moreover if the librarian employees were more the provided services would be conducted with less pressure. As now a small amount of employees try to cover a very big amount of work.

4.6 Time

The study also examines library users effects of using digital material and other E-resources in terms of time. Library users were asked to indicate how often they used digital material or other online information resources in comparison with printed material. Findings showed that more than half of respondents used e-journals in a daily base for writing assignments and essays. Two participants prefer library physical resources (e.g., books and printed journals) as their first choice because *“not all kind of information in different areas of interest is available in digital format”* as the one answered.

The majority of them stated spending many hours a week searching for digital material. In particular, master and PhD students spend 10 up to 12 hours a week whereas, bachelor students spend maximum 3 hours a week. They agreed on digital material was very convenient since they did not need to physically go to library and could still search, study, download material from everywhere, anytime with a small number indicated their home as preferred place; *“I can search, find, download, and use digital material from my chamber when the library is closed. It is fast and significant”* as a student told. Additionally to this, a user pointed out *“it takes too much time searching to find analogue material”*.

Based on the data gathered, portability and flexibility are the main criteria for library users to use most frequently digital material and other electronic resources. The findings clearly indicate that, library users were more familiar with digital material

rather than printed because it is less time-consuming and much more convenient since they should not have gone actually to the library for searching material and retrieving information. From the observation we thus realized that physical boundaries of searching information, finding data and disseminate knowledge have been eliminated.

5. Discussion

This chapter discusses and connects the findings of the research to the research questions and the overall aim.

This study was designed to gather information about the perceptions of academic library users (the undergraduate, the postgraduate and PhD students), their preferences and their experiences of using digital material (i.e., how people manage and share information according to limits they might face) as well as the perspectives of people who actually manage digital material and electronic resources; the Librarians. They were asked to provide general information about and their personal views of their role and responsibilities. Responses were good, almost 55 persons interviewed for our research and their responses confirmed our objectives of the study.

5.1 New Technologies

Nowadays, the traditional libraries have adapted to the digital era. Academic libraries have evolved and make use of modern technologies. Moreover, libraries have replaced the libraries' traditional tools with digital tools. This means that librarians need to adapt to the digital environment. According to our results the best way to adapt to the digital era of libraries is firstly the education and secondly to practice alone as much as possible the usage of library's systems in order to get used to it. Practicing alone is very useful for librarians' adaptation but their education is a prerequisite in their smooth adjustment to the new systems of their job. According to our results libraries depend on technology and librarians won't be replaced in the future from technology.

Additionally, according to our results most of the librarians were positive and open to new technologies. Only some of the librarians expressed feelings such as stress or fear to new technologies in their workplace environment. But the ones who expressed stress feelings with new technologies said that they feel stress only in the beginning of the integration of new technologies in their job. According to Ennis technostress exists in workplace environments where employees address problems in adapting to the new technologies (2005, p.10). Many of the librarians focused on the importance and the necessity of their education in the usage of digital technologies. Education is very important for their adjustment in the changing workplace environment. Librarians need education and education is necessary for their adjustment to the new technologies. Being educated in their job makes the employees feel more confident as they gain knowledge on how to use digital material in their workplace environment. Librarians accepted that technology skills are part of the librarians' job. The more they educated the most knowledge they acquire and they are able to respond to the various daily challenges in the job. Respondents were mostly not satisfied with their set of technology skills and they expressed a unanimous intention of expertise programmes, training courses, practice, and cooperation with colleagues. This

supports the importance of continuous education of library staff. Thus it is crucial for libraries to provide educational seminars to librarians whenever are needed.

In addition, librarians have addressed various problems and weaknesses with the usage of libraries' digital technologies such as the information systems and the digital libraries. But during our communication with librarians we understood the importance of cooperation among librarians, computer scientists, technical support, information system or the digital library creators to address weaknesses and propose them further improvements of the systems. Librarians play a very important role in the improvement of a library's information system, or digital library. Librarians share to the systems' creators important information concerning problems and weaknesses that they and the library users have addressed during their usage. According to the literature "Librarians need technologists' systems, computing, network, and other technical expertise, while information technologists can learn much from the library's knowledge of users' needs." (Rapple, 1997, p.46).

5.1.1 Preservation

The results from how the digital material is verified users' future availability to its resources showed that digital material is prone to destruction and deterioration. However, there are precautions can be taken so to be avoided. Making preservation copies in formats that can function in various platforms (acquiring copyright permission) such as word, pdf, or/and jpeg and transferring to a standard storage media (i.e., a computer server) will help significantly the availability of digital material for future generations. The implication of these results in observation proved that storing digital material in a stable and controlled environment do ascertain user's information retrieving from these resources.

Responsibility for the preservation of digital material is an important issue for Librarians, as experts. A special problem faced is the obscurity of responsibility for preserving digital items (e.g., e-journals) and other electronic resources (e.g., licensing to databases). Digital material may have an amount of different stakeholders having its responsibility such as the creators, the publishers, the librarians, and the library users. This applies institutions and librarians to involve and follow a digital preservation policy to which permissions needed for digital content and its related software as well as for their copyright issues. Besides, a wide range of skills, competencies and knowledge are required from professional staff in order to meet institutional objectives.

5.1.2 Interaction

Librarians are willing to give advice to users about various issues such as how to use the library's services or the electronic resources of the library. Most of the librarians seemed to be pleasant with their daily communication with users. Library users also expressed high levels of awareness of the availability of retrieving information by one's own or are considered of asking help from other scholars instead of relying on help from librarians. Some library users told us that they feel bad to ask librarians for

help as they think they have much work to do and they will bother them. Furthermore there are library users who have in their mind that librarians are insufficient so as to cover their needs. Some others said that librarians are unfriendly.

In addition, librarians expressed their disappointment that many users do not know at all how to use the library in the right way. Librarians told us that some library users believe that they can use digital material on their own without asking librarians' help. Thus librarians need to do something so as to make users understand their value as librarians and not to hesitate to come closer and ask for their own good.

Librarians are the ones who will teach users on how to use the library effectively. Professors can also contribute to library users' education by requesting seminars from the librarians. Apart from the seminars, professors can stimulate users in using digital material by assigning work tasks and proposing them go to the library search material in various proposed databases. Thus by stimulating users going to the library and use the material users practice what they have learnt in the seminars. In this way library users come close to the library environment broadly. The seminars provided in libraries might be limited in time. Specifically in TEI of Athens library the seminars are limited in time. This means that librarians have not enough time to teach users on library issues. Moreover if the seminars could be implemented higher frequency and last longer, users could learn deeper about library's material. The seminars that last longer deepen in library issues and librarians have more time to teach users on how to search, find, evaluate and make decisions concerning the information (Julien and Genuis, 2011,p.104).

Findings from our study showed that both libraries provide seminars to library users but they do not provide an information literacy department. It would be very beneficial for the users if the librarians would provide information literacy courses. According to Bell and Shank providing seminars and information literacy courses facilitates library users acquire the adequate knowledge for the successful library usage. (2004, p.374). Librarians stated that if the library staff was more, librarians could provide more seminars that last longer.

Thus for greater success in users education there is a need of professors and librarians cooperation. Moreover, there is a need of more staff in academic libraries so as to be able cover users' needs and provide them adequate services. Library seminars are very important for users as they can be taught on library's resources and learn how to use them in the right way.

Librarians from both libraries apart from face to face communication they communicate with users through the internet to provide them various services. One of the most essential function of libraries is the "Ask a Librarian" choice in which the librarian makes a one-to-one conversation with the library user asking questions on the topic of interest to get their information needs and answer them by providing appropriate resources in order to fulfill these information needs. An organized

reference desk such as “Ask a librarian” would be very useful for users for instance to ask various questions for their work tasks, be guided to the right direction on their assignment.

Participants in our study use their e-mail as a reference desk but they do not provide an organized reference desk such as “Ask a librarian”. Nowadays, many libraries provide reference services by using electronic means of communication. Moreover, librarians stated that facebook should be used only as a marketing tool and not as a reference desk. Facebook can be used as a Newsletter; inform library users for events, seminars, new library material, library’s open hours, and so on.

If digital library doesn’t meet the library users’ expectations in terms of time and quality of material, trust will be lost and it is likely not to view it again. Technological progress has presented a renewed role for librarians in digital era. Librarians now provide another role; that of a “trusted” service based upon their decisions, evaluating information to be implemented in the digital library collection, understanding of users’ needs, how they use information, and if digital system serves their needs effectively. Librarians should perform with existing practices, while still finding new ways to ensure users’ access to information. Librarians do not only create a guide for their users but they are also the guide.

5.2 Digital Material

5.2.1 Usage

Librarians told us that they have observed users having a preference on printed material. This contradicts with the literature where Tam and Robertson states that users prefer using electronic material rather than printed material (2002, p.370). Moreover, according to our results from library users we ascertained that users also like using digital material because they can have access from anytime at anyplace but they think it is really tiring to read from the computer. Thus, many users print the digital material so as to be easier for reading. Moreover, many users prefer using printed material when they visit the library.

From the data evidence, it is also supported that digital resources have not replaced the physical ones since they still remain important in academia and also highly valued and widely used. This finding is confirmed by many other studies report that most people prefer printing out electronic documents for reading (McKnight, 1997; Liu & Stork, 2000; King & Montgomery,2002; Cherry & Duff,2002).

From the data collected and analyzed, it was found that information resources such as libraries; traditional and digital, online databases, and official web pages are of critical importance for university scholars and they were satisfied with the functionality of digital material.

When asked what types of digital information source usually consult, undergraduate students turn first to the World Wide Web (e.g., Google) for their information needs

with no concern about its reliability. This finding is also confirmed by Graham and Metaxas (2003) report about their preference to search the Internet first. Unlike postgraduate students who first consult the library online information resources. This finding is related to Librarians' statements as well as from observation findings made by the researchers of this study. On the ground of completing the final essay, undergraduate students start searching more scientific material (e.g., e-journals). In particular, they asked for a wider journal context in the words of their academic domain.

On the other hand, master and PhD students are heavy users of digital library resources as they recognize the basic benefit of a digital library is the delivery of knowledge immediately to their users without the wide range of unorganized information of the web. And, as Clifford Lynch (1997) has agreed "...the Net is not a digital library" (p.52).

The postgraduates expressed a wide range of awareness towards E-resources. Examples of e-resources used are, digital collections (e.g., journal articles or e-journals), databases such as JSTOR, EBSCO etc. and portals that provide links to blogs and/or websites.

The implication of this data is that digital information resources are used mostly for academic and research purposes in educational institutions. It also proves that the undergraduate students (between the ages of 19 and 23) prefer using Internet more than the postgraduates (from 25 ages onwards) who prefer using digital library resources. This could be because the former are likely to be more technologically literate and familiar with web and search engines whereas the later are more aware of digital library services and knowledgeable about other e-resources such as archives, subject portals, and databases related to Hughes (2004) that "everyone can search, browse and compare materials in useful and creative ways" (p.10).

5.2.2 Copyright

Copyright is always going concern as copyright issues are characterized as the grey area in Bibliographic Searching. This is related to Kastlelec (2012) that there are complex issues when examining the copyright of digital items. Surprisingly, in our study little work has been done by Professors on how users identify the information resources they need.

5.3 Economic Issues

Results of this study also revealed that respondents were mostly not satisfied when kind of digital information cannot be accessed because of subscription fees and they expressed great dissatisfaction with libraries technological equipment. This is very bad, daunting and affects directly the library users as they cannot have free access to the online resources and many of the computers are broken down. Findings from observation confirmed this, as most of computers in both academic libraries are not operational due to deficient budget. In addition, Digital Libraries introduce new

economic realities in University libraries. Digital records, either born digital or digitized, require continuous maintenance. The cost of such migration is expensive and there is no assurance that there continue existed the necessary funds to do this in the future. This is supported by the findings of Sanett (2013) that the cost of new software needed to implement is high against to Stewart (2012) found that digital storage itself is inexpensive, but the cost of project management is not. Financial budgeting is more and more important as new technology is brought into the library's workspace, forcing inevitable relationships, but no matter what library professionals want to do, or what are the user's needs, money is the source of all decisions according to Kastellec (2012).

5.4 Time

At the most basic level, we found out that the majority of library users complied of using digital material because of its convenience. Digital material is easy searching and can be accessed anytime from anywhere surpassing temporal and physical barriers. This finding is confirmed from Conway (2010) that users require direct and open access to documents wherever they are and related to Marchionini (2003) that said "as IT becomes more pervasive, the boundaries between physical and cyber spaces and between public and private spaces grow less distinct and more permeable." [electronic resource, Available at: http://www.sis.pitt.edu/dlwkshop/paper_marchionini.html].

5.5 Conclusion

Summary-Discussion of Findings

The Interaction between Librarians and Digital Technologies

The results for how digital material affects librarians' roles and duties were answered using librarians responses towards the extent of digital technologies and material provided at the library and how they are being affected in their daily duties. Results showed the new role and the various responsibilities librarians that have in new information era.

Results from data collected proved that librarians are generally open and positive to new digital technologies. This, according to participants' responses, a librarian can be flexible; tolerant of frequent changes in technology development and eager to learn, apply and share new skills with their peers. However, some of the respondents expressed fear with the availability of new digital technologies. Findings from the observations made by the researchers showed that this stress arose from the lack of knowledge. Respondents portrayed a unanimous need of competent education upon digital technologies since this will have implications for libraries in higher education institutions and for library users between the correct use of digital material and the use of library e-resources for research.

In general, librarians' consensus view is "learning by doing". A librarian can be active to angle for their personal professional development through education, training, and practice. Observations proved that librarians in academic libraries are professionals with competencies since they provide a great range of skills, knowledge, and expertise (e.g., IT skills, copyright issues, and metadata).

Results from data collected proved that librarians have addressed various problems and weaknesses with the functionality of some of digital technologies and digital material. However, according to them, were mostly satisfied concerning their cooperation with computer scientists and digital professionals for addressing those weaknesses and proposing improvements.

The Interaction between Library Users and Digital Technologies

From the data collected and analyzed, it was found that library users generally like using digital material because of its convenience in searching since they have access at anytime from anyplace. Respondents were satisfied with functional conditions of the digital material as they were grateful for browsing multiple sources simultaneously, the ability to search text, currency of electronic materials, and without timeline borders for 24/7 access; quick and wide.

When library users asked about what type of information resources they usually use, the undergraduate students told that they tend to use the World Wide Web focusing on Google for completing their information needs, at the same time, the postgraduates turn first to the library e-resources. This is in line with the fact that the postgraduates are more experienced and appreciators of reliable information sources. This finding was confirmed by the observations made by the researchers of this study.

Results of this study revealed that library users expressed a great level of awareness with copyright issues, since over half of all the respondents in this study make use of a Reference System such as the Harvard system.

Respondents expressed with complete agreement a great dissatisfaction with the functionality of some library information resources (e.g., scientific e-journals) which are under lock and key and with the absence of some library tools (e.g., computers). This happens owing to lack of adequate supply from university for taking out subscriptions to digital databases and deficient budgets in total.

This sample is consistent with observations made by the researchers after many computers were broken down in both academic libraries; in Panteion University Library, 2 out of 6 computers are working whereas in TEI Library, only the halves of the computers are really operational. More specifically, in some cases, library users have brought their own laptops for making their research. This proves that it is impossible for users to navigate E-resources provided at academic digital libraries since they are not available for use. In addition, results of this study revealed that if

participants should pay for using an e-journal, they would prefer searching for printed material in traditional libraries.

However, users were mostly satisfied with the use of the WIFI and the internet connectivity through their individual laptops. The poor conditions of these facilities have serious consequences on the effectiveness of the library.

The Interaction between Librarians and Library Users

From the data collected, interaction between librarians and library users was analyzed concerning their daily communication.

On the one hand, librarians were in general satisfied with their daily communication with users. Librarians advice and educate users on how to use the library (i.e. electronic databases). Furthermore apart from face-to-face communication with users, librarians communicate through e-mail or facebook. E-mail is used for deeper questions such as for Interlibrary Loan, information about articles or books, for book delays, renewals of books, help for a database. According to the librarians facebook should exist in libraries but it should be used as a marketing tool for the library but not for asking deeper questions.

On the other hand according to library users' responses, they preferred face-to-face contact with librarians because of its directness. Findings from the interviews, focus groups and observations made by the researchers of this study showed that more than a half of library users do not move close to librarians and prefer searching for digital material on their own rather than asking a librarian for help. The majority of users ask librarians only for printed material. Factors that may have affected those answers by them include unfamiliarity and inconvenience to a face-to-face contact with librarians. Another explanation is that respondents feel more knowledgeable about digital technologies and think that they can cover their needs on their own without asking help from librarians concerning digital material. A large number of users get in touch with librarians through e-mails; mainly for library resources (i.e., book loans). Users would prefer contact via Facebook but only for being informed about open hours, seminars, educational conferences etc.

6. Conclusion

The last chapter presents the conclusion and the contribution of this research as well as our personal reflections.

Nowadays, there is a growing quantity of digital information as several sectors creating digital material. As the Internet becomes part of our lives, people navigate online sources (i.e., e-resources) for seeking information. New ICT technologies have also changed the current situation of libraries and the attitude of their users. Given that the information users need is available on the Internet, they have new demands and great expectations anymore.

In response, libraries have created digital library projects and take action in digitization to redefine their role in changing information environment. Digitization can offer many opportunities to academic libraries to provide more effective services and practices to their users; supporting learning, encourage open access to knowledge, assist in teaching and being a guideline in research to the new generation of library users.

Digital libraries are components of traditional libraries and service such as their extension. Traditional libraries put emphasis on users' needs as well as digital libraries do. A crucial part is at first, to examine users' behaviors, analyze their needs, take into account their preferences and finally, take right decisions of information resources supported research rather than attempting replace the printed with the digital material.

There are many reasons for creating digital libraries in universities; the most important is the free and open access to information within academic community. Academic digital libraries are to provide access to scholarly information and making students' ideas more achievable.

Based on the findings of the study, it was concluded that the users of academic libraries were generally satisfied with the functionality of digital material and facilities of digital libraries. The digital library collection is used by a various audience such as higher and secondary education students; researchers; academics; professionals; and urban residents, with different research interests. Within the academic community, digital libraries have their unique advantages and characteristics as compared with traditional libraries:

- i. *There are no physical boundaries;* users can search and gain access from a variety of locations, usually from home or workplace whereas students preferred their own place such as a social place (i.e., a coffee shop). So, visiting a digital library takes less time than going to a traditional.

- ii. *There is time availability;* users can gain access twenty four hours a day, seven days a week. Users prefer using digital library when they need to study all night.
- iii. *There is multiple access;* more than one user can gain distant, quick and broad access at the same time. In addition, digital material can be manipulated in various ways; it can be downloaded, it can be shared, it can be printed or it can be exchanged.
- iv. *There is a user-friendly software with an extensive search capability;* users are able to search the digital collection using any term they want (e.g., title, name, subject, key-word, etc.) as well as there are links to additional digital information.

However, the new generations of library users (i.e., undergraduate students) do not pay attention to digital library services as long as they can find freely information on the web. Most users consider libraries as places for finding books rather than finding digital items. There are many categories of library users; some of them cannot even use the existent library services, either physical or digital. Demand for digital items in academia is only high among master/PhD researchers and constantly increasing.

The study noted that few library users ask librarians for help except for printed locating items. Users of academic libraries prefer turning first to the Web for their information needs as anyone can access the Google database without charge but with narrow good information. Finding information is difficult because of confusion and lost in searching, and the quality of information might be unreliable. Indeed, professional assistance is needed and it is Librarians' responsibility to guide users of making correct use of the library resources. The interpersonal communication between the library user and the librarians is very complex. Our research suggests librarians to be available and willing to provide reference assistance to users through a variety of approaches. Email was found to be popular among academic users.

User's needs are continuous. As a consequence, academic libraries should tend to understand the need of every user in order to be met with library services. In our study, librarians have worked hard learning user's special needs so as to create a digital collection reflecting their interaction. In particular, at first, they delineated different user groups identifying their needs, and then, they made sure the usability of digital library; the digital library system was ought to be user-friendly and accessible from everyone; even the disabled, not only by tech experts.

Technology has integrated in academic libraries and it is part of librarians' job. Academic librarians should adapt to the new technologies and develop their technology skills so as to serve users in the best way. Providing the adequate education to librarians in new technologies is a very good solution in order to develop their skills with success and get rid of possible stress that the new technologies might create to them. Many libraries preserve digital material and are responsible for its preservation. But librarians many times face problems and weaknesses with the usage

of technologies or the preservation because of serious economic problems. This means the libraries of Universities do not have the adequate budgets to recruit new staff, buy new equipment, subscribe in e-resources, as a result, quality of the provided services being affected in an ugly way. Moreover, education is crucial for users. If users are educated properly, they acquire important knowledge so as to learn how make use of the library in a right way. For the purpose of users' education being achieved, Librarians should educate them and Professors should motivate them on using the library. The roles of Libraries and Librarians define the user's interaction with them and with knowledge in general. The digital library must be usable and used not only by the end users (i.e., students, researchers, readers) but also by the real users (i.e., librarians, engineers, and library administrators).

Finally, one of the most significant findings of this study is the consensus opinion of participants that physical interaction with physical library and books was preferred. In total, digital libraries are not physical spots; so, they cannot be interactive places for socialization among people as traditional libraries are. Concerning user's feelings about traditional library, most of them stated library as a quiet place which facilitates study; a contemplative environment for doing research; and, a comfortable location which could be transformed to an inviting location. Consequently, the general feeling of a library is about an inspiring place for people to work, think, collaborate, and an awesome meeting place.

6.1 Contributions of the Research and Future Research

Both the analysis and the discussion of empirical findings recommend to important contributions. At first, it contributes to how digital material is used by library users and for what purposes. Next, it contributes to a better knowledge of digital facilities and limitations both for library users and professionals. Finally, it contributes to an in-depth understanding of how library users interact with librarians in the new digital information era.

As it is witnessed in the discussion of the empirical findings, technological advancement and the use of ICT systems has changed how academic libraries provide services to their users. In order to provide efficient and effective digital context to them, it should be taken into account their special needs, library's resources, services' improvement and university's operational requirements. Besides, the outcome of the results of this thesis contributes to a broader understanding of the current situation of digital libraries in academia; according to the complex technological, social, legal, and economic context which describes the boundaries that digital libraries face and how this could be improved.

Finally, yet importantly, the value of librarians is superior. Computers can only manipulate numbers whereas people are who connect them to real meaning. Librarians and Information professionals are progressing into the 21st century and play the same essential role in society that have always played; turning simple data into knowledge. Consequently, on creating effective digital libraries there is the need

of a digital librarian who cares about people and provides them with effective digital context and open access to information.

In this study we examined the concept of digital technologies and their usage by the library users. More research is needed in Greece in order to provide overall knowledge about the role of digital librarian and new challenges that should deal with in new information era. Additionally, the barriers that participants mentioned would be surpassed. Moreover the fact that this research examines the social interaction in the digital libraries, it forces library users' integration in digital libraries to be investigated.

6.2 Reflections

Conducting this research provided us, with an academic and research experience as we should have to prepare, conduct and complete a research project. We developed organizational skills in collecting and interpreting qualitative data to produce substantial conclusions as well as critical skills in selecting information to be included in the study.

When planning the research, we had considered conducting first the interviews to come in first contact with participants, then the focus groups discussions to get a deeper understanding of their preferences while at the same time observing participants actions and behaviors to get an in-depth knowledge of our research objective. During the observations, we had the chance to service on different roles; we went to libraries as researchers, as librarians, and as library users. Both of us are professional librarians and we have worked in academic libraries. However, we were familiar with the library environment, we realized that each time we had different perceptions of the library as a place by being an outsider or an insider observer; as a result we have taken a more spherical view of the library.

With no doubt, the most important experience conducting this qualitative research was the asking from library users and fellow librarians to express their personal views, perceptions, and preferences; it was really impressive to us. What made us an impression during interviews was the fact that it was like a confession instead of an interview. The first few warm-up interview questions were enough for them to start talking about their preferences openly and honestly. Participants were quite relaxed and trustful while expressing themselves, making us feel the same comfortable.

Of course, as it happens with any project, conducting this research involved numerous challenges. Considering the research subject, we could not even imagine its depth and the great amount of information we had to deal with. Therefore, the most challenging part of this study was to collect qualitative data. In particular, it was how to seek for potential participants and how to persuade them taking part in our investigation. Given that their free time was limited and most of them could be bored spending it by discussing their opinions and preferences according to digital resources. However, the subject was really interesting to librarians and other researchers.

We also found very challenging how to organize the whole procedure of research (i.e., individual semi-structured interviews, focus groups discussions, and participant

observations) as well as the data and details gathered; it was a very anxious section. Even more anxious, it was the “data analysis” part of how would manage, analyze and summarize those qualitative data in order to produce results and come to a conclusion which would be easy and completely understandable for the readers.

Despite the above challenges, conducting this thesis was an unforgettable experience for both of us. In sum, we believe that this thesis assisted in improving our academic and professional skills that will be very important for our future career.

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Appendix 1

**Linnaeus University, Sweden.
Department of Informatics.
Master Program in Information Systems**

Informed Consent (In English)

Thesis title: “Digital Libraries: the impact of digital material in academic libraries”

Researchers: *Sofia Adamou (e-mail:sa222zk@lnu.student.se)*
Lamprini Ntoka (e-mail:ln222iv@student.lnu.se)

Research purpose

The aim of this research is to explore how librarians and library users are affected by the digital material in academic libraries. Our study will focus on the concept of digitization; its process, its purposes, its challenges and the present condition of digitization projects in academic libraries.

Introduction

You are kindly invited to a master thesis research titled “*Digital Libraries: the impact of digital material in academic libraries*”. Please take whatever time you need to discuss the study with your colleagues, students and friends, or anyone else you wish to. The decision to join, or not to join, is dependent on you. In this research, we are investigating Panteion University Library’s and Central Library’s of TEI of Athens users’ and librarians’ views about digitization projects and how are affected from that.

Description of research project

Two focus groups discussions will be conducted, one with library’s users and another with Library’s staff. The focus groups discussions will lead to findings in how librarians and users feel, need, manage the digitized material, their satisfactions and/or dissatisfactions as well as their expectations about the future of Digital Library’s services. Besides, the participants will participate in individual interviews.

What is involved in the research?

The participation in this research includes two sections and two parts.

1st section – Panteion University Library

- 1st part: (a) Focus group Discussion with Librarians
- (b) Focus group Discussion with Users
- 2nd part: Individual interviews

2nd section – Central Library of TEI of Athens

- 1st part: (a) Focus group Discussion with Librarians
- (b) Focus group Discussion with Users
- 2nd part: individual interviews

If you decide to participate in the 1st part, you will be asked to participate in a Focus group Discussion where you will take part in small conversations among your colleagues-fellows and the researchers. If you decide to participate in the 2nd part, you will be asked individually to answer a questionnaire. Both parts would include answers based on your personal experience of using digitized material in university libraries.

Benefits to taking part in the research

As researchers, we will be greatly assisted from your participation as it is expected to gain knowledge about Library's users' and staff's views about digitization projects in academic Libraries. Nevertheless, we cannot guarantee that you will personally be practically benefitted from participating in this research. However, you may take a considerable advantage of experiencing a state-of-the-art resource discovery tool and also contribute to provide better services.

Risks and discomfort

The participation in this research does not include any predictable risks or discomforts. The Focus groups discussions and interviews materials will be used for the master thesis' purposes and they might be announced or published at relevant sources. We will respect your approval to participate and we will not share your personal information to third. Your decision not to participate will also be accepted without ramifications, either now, or in the future.

Participants' rights

Your participation in this research is completely voluntary and you may choose to withdraw at any time or refuse to answer to any question you do wish.

Access to information data

The collected information data and the original transcripts will be limited to the researcher, the supervisor and the examiner of this master thesis.

Contacts for questions

If you, by any reason, have questions about the research in general or about your role in it, please feel free to contact with us.

Confidentiality

I understand all the above information and I agree with the statements above.

Yes

No

I understand that my participation in this research is volunteer and I have the right to withdraw any time if I want without having to provide any explanation.

Yes

No

By signing this document, I consent to participate in the research and you can use the data and information that I will share with you in your master thesis.

Rights and Signatures

I _____ consent to participate in the research conducted by *Sofia Adamou* and *Lamprini Ntoka*. I have understood the nature of this research and my signature below indicates my consent.

Signature (*Participant*)

Date

Signature (*Researcher*)

Date

**Linnaeus University, Sweden.
Department of Informatics.
Master Program in Information Systems**

Informed Consent (In Greek) Ενημερωτικό Δελτίο

Τίτλος έρευνας: «Ψηφιακές Βιβλιοθήκες: η επίδραση του ψηφιακού υλικού στις ακαδημαϊκές βιβλιοθήκες»

Ερευνητές: Σοφία Αδάμου (e-mail:sa222zk@lnu.student.se)
Λαμπρινή Ντόκα (e-mail:ln222iv@student.lnu.se)

Σκοπός της έρευνας

Σκοπός της έρευνας είναι να εξετάσει πως το ψηφιακό υλικό επηρεάζει τις βιβλιοθήκες, τους βιβλιοθηκονόμους και τους χρήστες των βιβλιοθηκών γενικότερα.

Εισαγωγή

Σας προσκαλούμε σε μια έρευνα για τη μεταπτυχιακή εργασία με τίτλο: «Ψηφιακές Βιβλιοθήκες: η επίδραση του ψηφιακού υλικού στις ακαδημαϊκές βιβλιοθήκες». Καλείστε, πριν αποφασίσετε να τη συμμετοχή σας στην έρευνα να συζητήσετε το θέμα με τους συναδέλφους, φοιτητές και φίλους σας, ή οποιονδήποτε άλλον θα θέλατε. Η απόφαση για τη συμμετοχή ή τη μη συμμετοχή σας εξαρτάται αποκλειστικά από εσάς. Στην έρευνα αυτή, μελετάμε την επιρροή της τεχνολογίας της Ψηφιοποίησης στις ακαδημαϊκές βιβλιοθήκες του ΤΕΙ Αθήνας και του Παντείου Πανεπιστημίου Αθηνών, την επικρατούσα κατάσταση στο συγκεκριμένο πρόγραμμα καθώς και την επίδραση του στους Επιστήμονες Βιβλιοθηκονόμους και στους χρήστες αντίστοιχα.

Περιγραφή του ερευνητικού έργου

Θα πραγματοποιηθούν δύο ομαδικές συζητήσεις. Η μία θα αφορά τους χρήστες των βιβλιοθηκών και η άλλη τους επαγγελματίες Βιβλιοθηκονόμους. Τα ευρήματα θα οδηγήσουν σε συμπεράσματα για το πως οι επαγγελματίες Βιβλιοθηκονόμοι και οι χρήστες της Βιβλιοθήκης αναγνωρίζουν και διαχειρίζονται το ψηφιοποιημένο-ηλεκτρονικό υλικό, την ικανοποίηση ή/και την δυσαρέσκεια τους, καθώς και τις προσδοκίες τους για τις ψηφιακές υπηρεσίες της βιβλιοθήκης. Επιπλέον, οι συμμετέχοντες θα λάβουν μέρος σε ατομικές συνεντεύξεις.

Τι περιλαμβάνει η παρούσα έρευνα

Η συμμετοχή στην έρευνα περιλαμβάνει δύο μέρη και δύο κομμάτια:

1^ο μέρος – Βιβλιοθήκη Παντείου Πανεπιστημίου Αθηνών

- 1^ο κομμάτι: (α) Ομαδική Συζήτηση, Βιβλιοθηκονόμοι.

(β) Ομαδική Συζήτηση, Χρήστες Βιβλιοθήκης

- 2^ο κομμάτι: Ατομικές Συνεντεύξεις

2^ο μέρος – Κεντρική Βιβλιοθήκη ΤΕΙ Αθήνας

- 1^ο κομμάτι: (α) Ομαδική Συζήτηση, Βιβλιοθηκονόμοι.
(β) Ομαδική Συζήτηση, Χρήστες Βιβλιοθήκης
- 2^ο κομμάτι: Ατομικές Συνεντεύξεις

Αν αποφασίσετε να συμμετάσχετε στο πρώτο κομμάτι, θα σας ζητηθεί να συμμετάσχετε σε μια δημόσια ομαδική συζήτηση μεταξύ των συναδέλφων σας, των συμφοιτητών σας και των ερευνητών. Αν αποφασίσετε να συμμετάσχετε στο δεύτερο κομμάτι, θα σας ζητηθεί να συμμετάσχετε σε ατομικές συνεντεύξεις βασισμένες σε ημι-δομημένες ερωτήσεις. Και τα δύο κομμάτια θα περιλαμβάνουν απαντήσεις βασισμένες στην προσωπική πείρα της χρήσης ψηφιοποιημένου-ηλεκτρονικού υλικού από τους Βιβλιοθηκονόμους και τους χρήστες των ακαδημαϊκών βιβλιοθηκών.

Οφέλη από τη συμμετοχή σας

Οι ερευνητές θα βοηθηθούν σε μεγάλο βαθμό από τη συμμετοχή σας, καθώς αναμένεται να αποκτηθούν γνώσεις σχετικά με τις απόψεις και τις επιθυμίες των Βιβλιοθηκονόμων και των χρηστών της Βιβλιοθήκης για τις υπηρεσίες της Ψηφιακής Βιβλιοθήκης. Παρ'όλα αυτά, δεν μπορεί να εγγυηθεί ότι εσείς προσωπικά θα επωφεληθείτε ουσιαστικά από τη συμμετοχή σε αυτή την έρευνα. Ωστόσο, μπορείτε να αποκτήσετε ένα σημαντικό πλεονέκτημα που βιώνει κάποιος από την αναζήτηση πληροφορίας και παράλληλα να συμβάλετε στη διαδικασία βελτίωσης των υπηρεσιών της Ψηφιακής Βιβλιοθήκης.

Κίνδυνοι

Η συμμετοχή σας σε αυτήν την έρευνα δεν περιλαμβάνει προβλέψιμους κινδύνους. Τα αποτελέσματα των Ομαδικών Συζητήσεων και των συνεντεύξεων θα χρησιμοποιηθούν για τους σκοπούς της μεταπτυχιακής εργασίας και ίσως να ανακοινωθούν ή/και δημοσιευτούν σε σχετικές πληροφοριακές πηγές. Ως ερευνητές θα σεβαστούμε τη συμμετοχή σας και δεν θα κοινοποιήσουμε τα προσωπικά σας στοιχεία σε τρίτους. Η απόφασή σας να μην συμμετάσχετε θα γίνει επίσης σεβαστή χωρίς επιπτώσεις, ούτε τώρα, ούτε στο μέλλον.

Δικαιώματα συμμετοχής

Η συμμετοχή σας σε αυτή την έρευνα είναι απολύτως εθελοντική και μπορείτε να επιλέξετε να αποσυρθείτε ανά πάσα στιγμή ή να αρνηθείτε να απαντήσετε σε οποιαδήποτε ερώτηση που θέλετε.

Πρόσβαση δεδομένων

Τα δεδομένα και οι πληροφορίες που θα συλλεχθούν περιορίζονται για τους ερευνητές, την επιβλέπουσα καθηγήτρια και τον εξεταστή αυτής της μεταπτυχιακής εργασίας.

Στοιχεία επικοινωνίας για ερωτήσεις ή προβλήματα

Εάν για οποιονδήποτε λόγο, έχετε ερωτήσεις για την έρευνα ή για τον ρόλο σας σ' αυτή, μην διστάσετε να επικοινωνήσετε μαζί μας .

Συγκατάθεση

Κατανοώ όλες τις παραπάνω πληροφορίες και συμφωνώ με τις παραπάνω δηλώσεις.

Ναι **Όχι**

Κατανοώ ότι η συμμετοχή μου στην έρευνα είναι εθελοντική και έχω το δικαίωμα να αποσυρθώ όποτε θέλω δίχως να δώσω περαιτέρω εξηγήσεις.

Ναι **Όχι**

Υπογραφές

Ο/Η _____ συμφωνώ να συμμετάσχω στην έρευνα που πραγματοποιείται από τις *Αδάμον Σοφία* και *Ντόκα Λαμπρινή*. Έχω κατανοήσει τη φύση της έρευνας και η υπογραφή μου δηλώνει τη συγκατάθεσή μου.

Υπογραφή
(*Συμμετέχων*)

Ημερομηνία _____

Υπογραφή
(*Ερευνητής*)

Ημερομηνία _____

Appendix 2

Questionnaires

Individual interview

Questionnaire for Librarians

1. Could you please introduce yourself?
2. Could you please tell us a few things about your work?
3. What are the digital skills that you have adopted due to the technological change in libraries?
4. Do you think you have the adequate knowledge and skills in using a digital library?
5. How would you characterize your adjustment to the technological changes (i.e. feelings, fear, excitement)?
6. Are there significant differences between digital and traditional librarian? Do they have different roles in their working environment?
7. What kind of digital services do you provide in the library that you work?
8. Are academic libraries used as meeting places for some people? What kind of people do you usually meet in the library? (i.e. students, professors)
9. Do you address problems concerning the preservation of digital material? What kind of problems do you face (i.e. practical, ethical, moral)?
10. How academic libraries can preserve the digital material?
11. Can be assured that digital material will be available for future usage?
12. Do you think the economic crisis in universities affects the availability to digital resources?
13. Will Information Professionals continue to be necessary or will the librarian become a luxury that university could not afford as a result, replaced by a computer?

Questionnaire for Library Users

1. Could you please introduce yourself?
2. Could you please tell us a few things about your studies?
3. Do you know how to use a digital library in the right way?
4. Why or why not you prefer using a digital library from the physical library or from other places (i.e. house, café)?
5. How the use of digital library has benefited you?
6. How efficient is the use of digital library in terms of time?
7. Do you have further expectations concerning the digital library? What kind of expectation do you have?
8. Do you think the economic crisis in universities affects the availability to digital resources? How this affects you?

Focus Groups

Questionnaire for Librarians

1. Describe to us in what way the use of digital material has affected the way you work (i.e. the way you provide services to users, the way you educate users, the way you give advice to users)?
2. Have you ever faced problems with the use of the digital library? Have you asked for solutions or propose improvements to a digital library?
3. How the use of digital material has changed the way you communicate or interact with users?
4. What are the attitudes of the library users when they use digital material? Do they ask for your help? What kind of help do they ask?
5. Do you communicate with library users through electronic means? What electronic means do you use to communicate with users? For what reason do you communicate through electronic means (i.e. provide services, provide instructions, answer questions, strengthen relationships)?
6. Do you think the access to the digital material can make even more risky the breach of copyright permission? Why?

Questionnaire for Library Users

1. Do you use digital libraries? Why?
2. Why or why not you ask librarians for help concerning a digital library? Have you ever asked for distance assistance from a librarian?
3. Why or why not you think asking librarians for help is fruitful for you?
4. Do you prefer using a digital library on your own or with the librarian's help? Why?
5. Do librarians contribute to the improvement of your skills concerning digital material? In what way (i.e.do they educate you) ?
6. Do you think you have the adequate skills to retrieve the right material on your own?
7. Do you use electronic means to communicate with librarians? For what reasons do you usually communicate through electronic means (i.e. asking a question, request for services) ?
8. Are you informed about your rights and obligations concerning the usage of digital material (i.e.copyright, plagiarism)? Do you comply with the obligations?

Appendix 3

Example of Coding

Positive	New Technologies and Librarians: Feelings	
Open		
Receptive		
Enthused		
Happy		
No fear		
Fear only in the beginning		
Unsafe only in the beginning		
Stressed only in the beginning		
Adjustment Necessary		
Have the skills	New Technologies and Librarians: Skills	New Technologies Issues
Do not have the skills		
Skills are part of librarian's job		
Seminars are helpful to acquire skills		
Need for Education	New Technologies and Librarians: Education	
Open		
Positive		
Attend seminars		
Acquire skills		
Safer	New Technologies and Librarians: Weaknesses	
Digital library/ Institutional repository		
Information system		
Digitized material		
Server		
Dissatisfied		
Communicate for solutions/improvements		

Appendix 4

Declarations



Linnæus University
Sweden

Declaration – Submission of the Thesis

This form should be included in the thesis. Before you sign please see <http://refero.lnu.se/english/what-is-plagiarism/> where you found information about plagiarism and check also the Harvard System of referencing <http://libweb.anglia.ac.uk/referencing/harvard.htm>

Name	
Sofia	Adamou
Course	Course Code
Degree Project in Informatics at Master level	51K50E

Did you write the thesis alone or in cooperation with someone? Tick one of the boxes

<input type="checkbox"/>	I am the sole author of the thesis.
<input checked="" type="checkbox"/>	The thesis is co-authored with other students, and together we are responsible for the entire project.
<input type="checkbox"/>	The project report is co-authored with other students, and I am responsible for part of it. The parts I am responsible for are specified in the project report.

I declare that in my/our thesis, I

- 1: did not re-use my previous work without referring to it
- 2: did not use others work without referring to their work (e.g. course literature, scientific publications, other types of articles, web sites or lecture material)
- 3: use the references and quotes in a proper way
- 4: included all references and resources in a reference list

I am aware that **not** citing and using references in a correct way may be considered as plagiarism

Signature	Date
	22-5-2017



Declaration – Submission of the Thesis

This form should be included in the thesis. Before you sign please see <http://refero.lnu.se/english/what-is-plagiarism/> where you found information about plagiarism and check also the Harvard System of referencing <http://libweb.anglia.ac.uk/referencing/harvard.htm>

Name	
Lamprini	Ntoka
Course	Course Code
Degree project in Informatics at Master level	S1K50E

Did you write the thesis alone or in cooperation with someone? Tick one of the boxes

<input type="checkbox"/>	I am the sole author of the thesis.
<input checked="" type="checkbox"/>	The thesis is co-authored with other students, and together we are responsible for the entire project.
<input type="checkbox"/>	The project report is co-authored with other students, and I am responsible for part of it. The parts I am responsible for are specified in the project report.

I declare that in my/our thesis, I

- 1: did not re-use my previous work without referring to it
- 2: did not use others work without referring to their work (e.g. course literature, scientific publications, other types of articles, web sites or lecture material)
- 3: use the references and quotes in a proper way
- 4: included all references and resources in a reference list

I am aware that **not** citing and using references in a correct way may be considered as plagarianism

Signature	Date
Nicola Lamprini	22/05/2017

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