THE AWARENESS TO CREATE THE DIGITAL RESOURCE LIBRARY BASED ON RESPONSIVE WEBSITE DESIGN

A MASTER THESIS

IN COMPUTER ENGINEERING

ATILIM UNIVERSITY

BY

Asma Elbaraasi

May 2017

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Approval of the Graduate School of Natural and Applied Sciences, Atılım University.

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I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

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ABSTRACT

THE AWARENESS TO CREATE THE DIGITAL RESOURCE LIBRARY BASED ON RESPONSIVE WEBSITE DESIGN

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M.S., COMPUTER ENGINEERING

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This research study analyzed the awareness of digital resource library based on the responsive web design. The background of the present study is signifying that digital resource library has been significant impact on the user experience and enhances the knowledge and opportunity to get more information from anytime and anywhere. The rapid development and growth in the online website the importance of responsive web design provides the significant impact on the user to get access on the digital library through several kinds of IT devices such as PCs, tablet, mobile and others. A quantitative research methodology was used by researcher to find out the research questions answers.

This present study research analysis projects lead several research advantages such as responsive web design, digital devices, user interface, display format, search features, storage, processing, flexibility, availability and reduce cost. While digital library system at Higher Institute of Education is moderately taking place in the academic system, development, library research and activities are most effective elements of education. The present digital library system also includes images, video, maps, audio, academic resources, documents, personal record and combination of other relevant material.

The study shows that RWD significantly address the challenges of in today's web development and effectiveness for the digital resources library in order to improve the user experience more effectively and efficiently.

Keywords: E-library, responsive web design, online resources, staff library management and higher institute of Computer

ÖZ

THE AWARENESS TO CREATE THE DIGITAL RESOURCE LIBRARY BASED ON RESPONSIVE WEBSITE DESIGN

Asma Elbaraasi

Bilgisayar Mühendisliği, Yüksek Lisans

Danışmanı: Doç. Dr. [Korhan L. Ertürk]

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Bu araştırma çalışması, duyarlı web tasarımına dayalı dijital kaynak kütüphanesinin farkında lığını analiz etmiştir. Bu çalışmanın arka planı, dijital kaynak kitaplığının kullanıcı deneyimi üzerinde önemli bir etkiye sahip olduğunu ve her zaman ve her yerden daha fazla bilgi edinmek için bilgi ve fırsatı arttırdığını gösteriyor. Çevrimiçi web sitesinde hızlı bir gelişme ve büyüme, duyarlı web tasarımının önemini kullanıcıya, PC'ler, tabletler, mobil cihazlar ve diğerleri gibi çeşitli BT cihazlarıyla dijital kütüphaneye erişme konusunda önemli bir etkiye sahiptir. Araştırmacı tarafından, araştırma soruları cevaplarını bulmak için nicel bir araştırma metodolojisi kullanılmıştır.

Bu araştırma araştırması analiz projeleri, duyarlı web tasarımı, dijital cihazlar, kullanıcı arabirimi, ekran formatı, arama özellikleri, depolama, işleme, esneklik, kullanılabilirlik ve maliyet azaltma gibi birçok araştırma avantajına öncülük etmektedir. Yüksek Öğretim Enstitüsündeki sayısal kütüphane sistemi akademik sistemde ılımlı bir şekilde yer alırken, geliştirme, kütüphane araştırması ve etkinlikleri eğitimin en etkili unsurlarıdır. Mevcut dijital kütüphane sistemi ayrıca görüntü, video, harita, ses, akademik kaynaklar, belgeler, kişisel kayıt ve diğer ilgili materyallerin birleşimini de içerir.

Çalışma, RWD' nin kullanıcı kaynaklarını daha etkin ve verimli bir şekilde geliştirmesi için günümüzün web geliştirme ve dijital kaynak kitaplığı için verdiği güçlükleri önemli ölçüde ele aldığını gösteriyor.

Anahtar Kelimeler: e-kütüphane, duyarlı web tasarımı, çevrimiçi kaynaklar, personel kütüphanesi yönetimi ve yüksek bilgisayar enstitüsü

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Chapter 1

Introduction

1.1 Introduction

This chapter is design to provide the vital information about the introduction of digital library system in the Libya. This chapter is also provide the information about research aim, research objectives, research question, problem statement, significance of research, research hypothesis and methodology of the thesis respectively.

1.1.1 Digital library

The means of digital library has been differently under the research societies and is changed over the period of time which showing the information system and the research of digital library. The e-library or digital library is one of the areas of education that has been significant change and growth. It is cheap and efficient way of changing student's expectation while having accessible internet device and speed global network and other things are part of significant change to get more data and information sharing. Since last several years, most of the universities are providing the online digital library services to students through web browsers on PC or desktop based standard display with quick increasing number of online available devices such as tablets and smartphone. The main purpose of digital library users to take data and information anytime and anywhere, and they can find easily and rapidly with their respective device they are using. A student can search for journal in online or digital library on PC (personal computer), tablet and smartphone during study, holiday, and work or anytime, read the journal and easily suggest the journal to colleague more effectively and efficiently [1].

The main purpose of the digital university library is to provide the programmers of academic in order to support the relevant data and information to respond to enhancing demand of information of the students.

1.1.2 Responsive Web Design

All of these activities are accessible from the online digital library by using several kinds of devices. Responsive Web Design is one of the systems which address the

challenges of new era of information system and online learning techniques through single website that responds users rapidly and change the learning environment based on orientation, platform and screen size efficiently. There are several developers and designers stated that web design is the platform to go beyond of e-learning and it is major need for future development of digital library. Many digital libraries have launched responsible web design or website with the main strategy to enhance the user ability to learn new things across the world of knowledge at any time with electronic devices (PC, tablet, smartphone or others) [2].

Responsive web design is an interactive and new way of web design. It is one of the systems that make user web page look efficient and effective on all electronic devices such as tablets, desktops and smartphones. It is practically effective and rapid approach of development must respond the behavior of users and environment constructed on orientation and platform [3].

Responsive web design is an essential approach, trends and an appropriate system for digital libraries and fulfills all the user's needs on all devices. It is also important to address fundamental ideas such as consistency, efficiency, visibility and usability in connection to build meaningful user experience [4].

1.1.3 Higher Institute of Computer Technology in Benghazi city

The higher institute of computer technology (HICT) in Benghazi city is government based one of the leading technical education system of higher institute. The HICT is most prominence on the networking, computer sciences, technical education, automated control and programming respectively.

There are several computer sciences based universities in the Benghazi city is providing the technical education such as Atilim University, The Higher Institute of Computer Technology, University of Benghazi, University of Tripol and others.

1.1.4 Digital library in Benghazi University

The UoB (University of Benghazi) was inaugurated in 1955. The university has several kinds of academic program such ad Arts and Sciences, management, computer science and others. The mission of the university is to enhance the society which leads the

economic development of country with preparing graduates, creating knowledge in human specialties, applied sciences and social sciences with excellence in academic profession that can create significant impact on society. The facility of digital library facilities has been provided by Benghazi University in respect of online availability of research papers, scientific papers, newspaper Benghazi University, scientific journals, university publications, news and others. There is significant number of online academic material available in connection to get more online information and data about their respective studies and education in their respective field of studies or requirements [5].

1.1.5 Digital library in universities of eastern cities in Libya

Digital library in the several universities of eastern cities in the Libya has been considerable transformation and special features of information and data introduced under the online or digital library service. Instead of significant of digital library designing, not only for retrieving or accessing data but also for the facility of electronic services, scarcely any special library were begun the design of online service of library [6].

There are several universities in the eastern cities of Libya has been provided the online library or e-academic services such as Higher Institute of Computer Technology, Sirte University, Al Zawiya University, Omar Al-Mukhtar University, Al Asmarya University and Misurata University respectively. However, there is lack of significant consistency of digital library services as compare to the world of education institution. The domestic level of digital library services provided by universities are needs to more concentrate on international based academic material along with user friendly access and efficient to use in all respect.

1.1.6 Significance of our new Digital library and advantages

The main purpose of our new digital library is to provide the data and respective information require for its users in the Libya. Similarly, all users will have the research libraries functions and new academic material and modern library services which proportionate with their requirement provided by us that are more efficient, available, and accessible and effectiveness in all respect from the way of Higher Institute of Computer Technology. Our digital library is based on to enhance the user experience in

achieving their primary goals linked to the term papers, academic material, journals, books, faculty support, collaborative academic research for study programs, resources and other material of academic scholars.

Digital Library (DL) gives Library Management System which is anything but difficult to utilize and satisfies all the prerequisite of a custodian. There are many components which helps bookkeeper to keep records of accessible books and also issued books. This product is accessible in both mode i.e. electronic or nearby host based. It provides best Library Management System of this planet.

Library administration framework empowers key data be found and conveyed anyplace, at whatever time through present day advanced gadgets. Freedom consolidates propelled usefulness easily of utilization. The fundamental goal of the Library Management framework is arranging and dealing with the library errands. Library is place where all sort of books are accessible. This is a web base application and just an enlisted client can get to the application. Library Management framework is created to computerize the undertaking of entering the records of new book and recovering the subtle elements of book accessible in the library. This framework contains rundown of the considerable number of books. Utilizing this framework client can issue book to the library part, keep up their records, and can checks what number of book are issued and what number of books are accessible in the library. This framework gives isolate interface and login to custodian, understudies and resources. Curator can adjust database. Utilizing the library administration framework, client can likewise keep up the late fine of library part who gives back the issued book after the due date.

1.1.7 Comparison and difference in our new digital library and other universities in Libya

Our new digital library is based on the user-friendly DRL system which can be most effectiveness with regards to availability of information, efficient to managing the library user’s accounts, book of inventory database, convenient, accessible, productive environment for staff members and users, better reliability and security system in the Libya.

The effectiveness and quality of our libraries of academic is also one of the reliable system and productive for staff members as well as space and facilities for Higher

Institute of Computer Technology in the Benghazi city. This digital library is significantly different than other available digital library in the Libya with regards to friendly user, staff management system, sufficient resources, efficient, SRS (software requirements specification), functional and non-functional to the user and significantly effectiveness for library staff members of HICT. The main difference of this digital library is maintenance of functions, inventory management, user friendly environment, easy to access and developed for making the management of the library efficiently.

There are several universities in the Libya have been provided the digital library services to the students or users. The level of digital library services still not in up to the market that can influence the large number of users with regards to user friendly, website design, less functions, less academic material, lack of communication with faculty members, less connection with other world education of academic material and others.

1.1.8 Responsiveness of technology

In this new era of the world, the use of technology in our lives is almost each and every aspect of our communication ways such as internet, mobile phones and social media. There have been many inventions of technological communication such as mobile phone, internet, social media and other related instruments which have been used in our business process and ultimately have linked with individual productivity to complete task in time. The information and communication technology such as internet, Skype, telephone and social media are one of the things that are being widely used in all respect of communication ways. It is essential to understand the important and critical role of information and communication technology, their aspects to redefine individual productivity and to investigate the individual performance linked with such kind of communicational activities [7].

Digital library has significantly inclined by the scientific accessibility and academic material program management system. Responsive web design (RWD) is significantly most efficient technology and approach which take account to address the challenges of library management system. The information and communication technology is most consistent part of RWD based websites to enhance the user experience, navigation,

reading, creativity, innovative and online accessible at any point and any time through smartphones, personal computers (PCs), PDAs, tablet and desktops respectively [4].

1.2 Research Topic

This research focuses on creating a new website for library system in higher institute education of computer technology in Libya .we rely solving the problem in that place because they using just the traditional library .

The aim of this research analysis is to build a simple and user-friendly website that would help students to access any library related information and quickly browse through the catalogs this responsive website design the users can access about platforms devices (ps desk top-tablet-mobile).

In this thesis we focuses to create a new application called which is called DRL SYSTEM and enter the PC-based working through the internet , allowing library users to search for books, seminars and library staff members to manage the book inventory and user data base. Considering this explanation following are the main research questions of this study:

-To what extent digital library helps to have more flexibility and convenient in the system?

-How to enhance the reliability, security and reduce the operational cost with digital library system?

-How responsive website design is efficient for library management and digital resource library?

-What is important of e-library study?

-How e-library in the higher institute of computer would be benefit?

1.3 Contribution of Research

This study is most important and essential to understand the key aspects of web based digital library learning management system. The interactive user interface online website attracts the large number of users, experience and knowledge to be taken into account. While working in an intense environment, it has been observed that library

staff and library users are distressed due to many human errors. Therefore, the present research aimed at designing a system that would enhance efficiency of the library staff, which would ultimately offer improved and better management and services without any hindrance.

The main objectives of this study are mentioned as following:

-To provide access to the system at any place (availability of information).

-To assist library staff in managing library users accounts and book inventory .

-To generate reports through application for administrative purposes.

-To offer flexibility and convenience to the users with better reliability and security.

-To enhance the productive environment for the library staff member.

1.4 Research hypothesis

Following are the main research hypothesis of this study:

- The system provides more flexibility and convenience to the library user.
- The system is better in terms of reliability and security of the library information.
- The system assists in reducing the cost of the library operations.
- The DRL SYSTEM is more efficient for library management.

1.5 Definition of terms

Library Management System (LMS): is a system that is used for the planning of library tasks including tracking items owned , orders made paid bills , borrowed books, and other related information.

Library Staff: The members of the library involved in the management of books, allowing library users to access the data , and manage the user database and inventory.

Library Users: Those individuals who visit the library for seeking information from different sources.

1.6 Methodology of the thesis

The research methodology of this thesis was based on the quantitative research method and data analysis. In this regards , researcher had collected the data and respective information through five-likert scale of questionnaire based on the respective research question in order to find out answers the main objectives and research problem . After the completion of the system, the data was collected using a survey that would ask questions related to the experience of the library users and library staff of Higher Institute of Computer Technology as well.

Furthermore , the research involves using a five likert scale of questionnaire , the data was analyzed through SPSS statistical analysis software , in connection to quantify the results and examine if the hypotheses has been accepted respectively.

Chapter 2

Literature review

2.1DRL digital resource library system

The DRL (digital resource library) is the most effective and premier database system for researching and finding the full or limited information about specific industry or knowledge or filed of working. It is also an organized form of traditional library in the form of digital access to the relevant information and data by any scope, size and solution arranged by individuals, institutions, industry, organizations, academic institutions and others. The digital academic information and content is stored in the form of digital database that can be accessed via computer networks or remotely. The digital resource library is form of information retrieval system [8].

In this given study, we analyze and attain the knowledge about the effectiveness of the digital resource library, their form of working, efficiency, database, link with responsive web design and scope of it. The main purpose of this study is to analyze the DRL system along with responsive web design in order to implement in the wide range of people access that will ensure the quality of academic or any other information. The implementation of digital library in the academic system has considerable transformation, features and database introduced under the online or digital library service. The significant of digital library are designing and retrieving or accessing data along with electronic services in connection to enhance the user experience with large number database and design of online service of library [9].

A digital resource library is different than traditional library in respect of user access online and focused on the digital database collection such as visual material, text, electronic media, and video and audit material as compare to manual library system (microform and print). It also includes database for storing, organizing and retrieving media and files controlled in the digital resource library system. It can differ immensely in respect of scope and size and can be preserved or control by affiliated with institutions, individuals, organizations or academic institution. The digital resource

system also includes online content that can be stored internally, cloud system, or retrieved distantly through networks. The digital resource library system is function of information rescue system [10].

The digital resource library (DRL) system has generally several different things changed over the period of time based on virtual library, electronic library, without wall of library. Digital resource library is most recent named used and term widely accepted by most of the institution, literature, online and others [11].

It is also designed and managed to collect data and information linked with services, where digital information is stored and reachable over a network. The DRL is also purpose to deliver, maintenance, preservation and production of significant level of digital quality of information and network functions for students, scholars and sharing of online resources [12].

2.1.1 History of library management system

A coordinated library framework (ILS), otherwise called a library administration framework (LMS), is an undertaking asset arranging framework for a library, used to track things claimed, orders made, charges paid, and benefactors who have obtained. An ILS as a rule contains a social database, programming to communicate with that database, and two graphical UIs (one for benefactors, one for staff). Most ILSes separate programming capacities into discrete projects called modules, each of them coordinated with a bound together interface. Preceding computerization, library assignments were performed physically and autonomously from each other. Selectors requested materials with requesting slips, cataloguers physically listed things and filed them with the card inventory framework (in which every bibliographic data was continued a solitary record card), fines were gathered by neighborhood bailiffs, and clients marked books out physically, showing their name on sign cards which were then kept at the flow work area. Early motorization came in 1936, when the University of Texas started utilizing a punch card framework to oversee library flow [13].

Library Management System is an application which alludes to library frameworks which are for the most part little or medium in size. It is utilized by curator to deal with the library utilizing a mechanized framework where he/she can record different

exchanges like issue of books, return of books, expansion of new books, and expansion of new understudies and so on. Books and understudy upkeep modules are additionally incorporated into this framework which would monitor the understudies utilizing the library and furthermore a point by point depiction about the books a library contains. With this electronic framework there will be no loss of book record or part record which by and large happens when a non-automated framework is utilized. What's more, report module is additionally incorporated into Library Management System [14].

2.1.2 Impact of library management

The fast execution of data innovation in all circles of life, including libraries and data focuses, has prompt to worries about the outlook change in these foundations. The positive changes and ensuing difficulties realized by the presentation and execution of AMLIB Integrated Library Management System (ILMS) on data administration rehearses in the scholastic library. Different angles considered were the inclusion staff and benefactors in usage of the framework, staff preparing and states of mind of staff towards the framework. Additionally clarified is the impact that the robotized framework was seen to have, both on staff and supporters, in their everyday exchanges. Comes about demonstrate that is the framework had an altogether more noteworthy effect on the general library operations and on the library's enhanced picture, accordingly charming it to its customers [15].

2.1.2.1 Negative impact

The choice to contract out dependably includes complex issues, yet maybe no other outsourced action moves as much conflict as accumulation improvement in light of the fact that numerous bookkeepers distinguish it as one of their center proficient parts. States of mind about outsourcing, regardless of whether positive or negative, frequently rely on upon discernments instead of hard information. Library administration regularly chooses to outsource in view of "the presence of financial economies", as opposed to quantifiable models of cost viability. There are evidently downsides to outsourcing recording, negative results for both the calling and the individual library [16].

Poor conditions can prompt to harm to hundreds or even a large number of things at one time, each of which may require costly individual repair. Conservators can regularly repair harm to books and records, yet this is infrequently a shoddy procedure and there

are numerous other negative results. Books and records that are being dealt with are not accessible for study, and paying little mind to the nature of the preservation work, something of the first is lost amid treatment. This can prompt to a less helpful or less significant thing [17].

PC proficiency aptitudes of experts in Nigerian University libraries inferred that the majority of the experts don't gangs abnormal state of PC ability and their utilization of PC and innovation is as yet developing. They suggested that library administration and pioneers ought to sort out and offer in-house PC preparing programs for curators and enough PCs ought to be given in such manner. Advanced library and data science instruction are creating nations. LIS programs in creating nations keep on suffering from absence of budgetary support by governments [18].

2.1.3 Digital Library in the world

The digital public library of America (DPLA) was inaugurated April 2013 with the aim to provide the all available information to the concerned users in the world without any fees. The DPLA is an effective strategy provides several kinds of data and information about several archives, study material, and all other relevant material for on going process [19].

The World Digital Library is includes access to maps, rare books, academic studies, cultural documents, photographs, manuscripts and other data from most of the countries in the world [20].

UNESCO and several academic institutions was established digital library in 2009. This digital library has several features and material around the world at free of cost. It includes the data and information about sciences, education, communication and culture [21].

2.2.1 Digital Resource Library (DRL) General description

The general definition of digital library is somehow different; even a present available dictionary may not provide clear definition. However, digital library may be different means for several institutions which depends on their views and points. It is also known as counterpart of traditional library system. Digital library are most generally control and maintain by institutions that includes resources and provides specialized integrity,

resolve academic issues and collection of information database, distribute and interpret works so that economically and readily available in all respect of user demand [22].

- DRL(Digital Resource Library) system that helps for searching, content creation and use;
- Digital collection, institutions and services; and
- Digital documents and repositories as part of cyber-infrastructure, e-learning, e-social sciences, e-sciences, e-research, data collection and open archives.

2.2.2 Specific requirements

Digital resource library are institutions that maintain the resources by specialized staff members in order to structure, select, interpret, intellectual access, able to persistence over time of digital data collection, preserve integrity and distribute so that they are economically accessible by user.

- **System support**

The system support components are dependable, supportable and affordable by existing staff. It includes software need to program the DL (digital library) system in respect of technical operations: operating system, database management, software digital library and other required software [23].

- **Open source**

The digital library can also function by “open source” method that are controlled, validated, tested, developed, budgeted and maintained to significant level for more precise preliminary needs and prospect projection [23].

- **Technical requirements**

Technical program are main component of digital library system including lab, library room at least 50 or more users, attached server room, networked linked computer systems, HD (high definition) internet connectivity speed and digitizing machine. Further, system controlled and maintained by several formats such as JPG images, JPEG, TIFF images, JP2 2000 images, Text, Video, Audio, multipage and single page,

streaming video or audio, URL (universal resource locator) for externally keep database, entrenched viewers and documents proposed for display and download (spreadsheet and data formats) [23].

2.2.3 Functional requirements

Digital library is maintained and controlled by IT (Information technology) or MIS (Management Information System) departments that tried to implement online system to cope digital resources that their faculty wants to use. The information communication technology (ICT) department has made a link to "Server file" on the university Intranet that includes access to large number of permitted academic online resources (eBook, journal, articles, videos, and audio) to several departments of the university. In this regards, digital resources management system is unsustainable and concern, particularly with respect to issue of copyright, materials of accessibility to the users, appropriate standards, delivery system and effective system of digital resource management [23]. The functioning and separate digital library system operated classified the foremost library would therefore include various advantages to the multiple users, and it must be able to sustenance the following objectives:

- Providing sustainable and robust online use for digital resources.
- Creating a significant level of quality of digital material from university collection to teaching, guidelines, scholarship, research, learning and academic resources by assisting students and scholars from the university, college, institution in the enactment of their work.
- Providing sustainable, managed and long term storage for digital resources.
- Promoting and facilitating the formation of digital content.
- Setting and developing standards
- Consultancy services and advice for projects such as digitization, resource creation, scanning and copyright.

2.2.3.1 User Interface

The user interface designing for digital resource libraries that are major challenge; it need information and knowledge with regards to their tasks, users, context of use and feasible technical [9]. Designers and developers require providing way to develop

information system and structure, functionalities to browse and search information and method to work with database information for multimedia players and readers. Several guidelines applicable to digital libraries user design interface are ISO 9241-151, WCAG (Web content accessibility guidelines), HHS (Health and Human Services) by American department, MCWQP (Minerva Cultural Website Quality Principles) and instructions by Elsevier User Centered Design Group. The pattern language is data set of common user interface system which includes various types of application, mobile application and online website [24].

2.2.3.2 Library user account management system

The library user account management system is intended around the pattern of line up request for users. The queued requests are controlled and maintained in distinct spooling areas or each server. The library user account management system also includes tools for administrator to assess both processed and pending request [23].

The UAMS establish request address, modifying, suspending, closing and issuing user account. It linked to user rights with main purpose of user account management procedures. It also based on the approval procedures outlining the system or data holder allowing the access rights. These methods must relate for all users, counting internal and external users and administrators for emergency and normal cases. Obligations and rights comparative to access to initiative information and system must be contractually decided for all kinds of users. UAMS also achieve consistent management review of all related privileges and accounts [25].

2.2.3.3 Data entry

Technical staff members employed to manage, controls, and update database digital library system. A database management system (DBMS) is used to stored and controlled information and relevant academic documents and storage of application and record [26].

A data entry staff employed to manage the database of digital library, update information and data, paper documents, data record, optical scanner, composing and handle the queries of users of digital library [16].

2.2.3.4 Design constraints

The main design constrains are significant number of financial and non-financial resources required, purchase of online library academic material are not personalized for specific society of apprentices. Scholars and students may face issues in quality of material, resolution, page size, downloading speed, low server speed, server busy, guidelines, skill and support information, lack of internet access, lack of skills to operate, lack of stability of online site, copyrights law and restrictions, permission required, network capabilities, material selection to counterpart with topics search, reading and age level of students [9].

2.2.2 System interaction

The system interactions of digital library system are interact users through user interface, web design, activities, academic material, resources, good structured, usability system, examine, scenarios, structures, user community needs of digital libraries [9].

2.2 What we learn Digital Library

With the appearance of web-available advanced libraries and remote confirmation (e.g. Athens secret key), clients' physical collaboration with the library could totally change. Advanced libraries (DLs) can possibly change parts of the instruction procedure, with remote access to particular data in an organization that is effortlessly redesigned and expedient seeking and get to offices. Be that as it may, the undetectable nearness of these assets, their poor ease of use and client bolster has had their effect less sensational. A key component in the fruitful outline and execution of advanced libraries has, previously, been distinguished as their social setting. The social settings of hierarchical frameworks can impact affect the group association in coming about innovation frameworks. The part of the custodian and the changing effect of DLs over all the scholarly controls albeit urgent have not been completely inquired about [27].

General this venture of our own is being produced to help the understudies and in addition staff of library to keep up the library in the most ideal way that is available and furthermore lessen the human endeavors. With this modernized framework there will be no loss of book record or part record which for the most part happens when a non-electronic [28].

The Library Management System will be PC-base with a web, permitting library clients to look for books, courses and library staff individuals to deal with the book stock and client database. The application will give the accompanying capacities: The application will be get to by means of a web on a PC at wherever. Library staff will have the capacity to oversee library client accounts including evacuate, change, and include. Library staff will have the capacity to deal with the book stock database including evacuate, change, and include. The application will produce reports for managerial purposes. The application will give look work on books in view of ISBN, subject, title, or writer. Authoritative interfaces will help Library Staff in building/keeping up accumulations and controlling access to them. As a result of the multifaceted nature of the information demonstrate, Library Staff should have the capacity to alter numerous records all the while and make interfaces between them. Library Staff will populate the stores with both metadata records and media content. They should fundamentally have the capacity to produce and alter metadata and substance in records and make references between the records [22].

Access to individual data ought to be limited to the client or suitable library staff and fit in with the appropriate state laws tending to the privacy of library records and in addition other relevant nearby, state, and government law. What's more, state and government laws may give guardians, gatekeepers, and instructors access to the library records of minors [8].

Anybody who visits the library with the purpose of exploiting is resources to satisfy his information need. The underlined word "visits" as used in the 21st century, include remote access to the library portal or website. The term "user" to include all those who avail themselves of the services offered by a library. The term encompasses various terms such as patrons, clients, information users, information seekers, consumers, readers, etc. these terms can be used interchangeably, because they all apply to those seeking the services of a library. Access to technology coupled with relevant ICT skill is required to put the 21st century library to good use. Like the library, users have also evolved as have the ingredients for defining who a library user is. In the traditional library setting, library users are easily identifiable because they appear in the library physically most of the times. A physically-challenged user is seen. Child and adult users

are identified. In online environment, it is not easy to identify these things. However, people are identifiable by their ICT skills irrespective of their age or physical challenges. Traditionally, library users have been classified into groups. General readers are subject readers, special readers, and non-reading users. Similarly grouped are specialists, students, disadvantaged majority, and the indisposed. In addition, users are children, pupils, students, adults, professionals, researchers, policy-makers, artisans, hearing and visually handicapped, and physically handicapped [29].

Digital libraries are a product of digital information aimed at satisfying users' information needs, through collections of documents to which value added services are provided. To ensure the correct functioning of digital libraries and the services they provide it is essential to adequately include an understanding of the needs of users and their behavior in the design and creation processes [30].

2.3 Awareness of Responsive web design along with e-library or digital resource library

The awareness of responsive web design is significant importance in the form of technology and solution for online database system. The main purpose of the responsive web design is to be more user friendly, creativity, innovation, online easily access, navigation, more elegance and effective user experience with several kinds of technological devices such as smartphones, personal computers (PCs), PDAs, tablet and desktops respectively.

2.3.1 Responsive design advantages

The responsive design is development and web design method which builds a system or site that reacts to the size of individual display monitor. It is also optimize user's browsing experience by attracting malleable, web page responsive; device optimized which is retrieving it. It is also provides the significant things towards browsing with mobile and represent responsive design the greenest way to access users across multiple devices and whole user involvement [31].

There are major benefit of responsive design are enhance the users accounts through smart mobile phones and tablets or anywhere, improve sales growth, consolidate

reporting and analytics, improve visibility in search system, save cost and time management, increase the user experience during offline browsing effectively and efficiently [24].

2.3.2 Responsive design for e-library

The responsive design for e-library is presently being structured and programmed into the new system of content management system. It is approach to online design purpose to allow webpage desktop to be noticed or viewed with respect to screen size or web browser one is seeing with [32]. It is helpful method to engage significant number of users and visitors with the capability to learn and determine the content from any device such as mobile phone, tablets, PCs, laptop or another medium. With full capacity of responsive web design create the content that based on the images streaming machine, discovery facility and mobile functions usage [9].

2.4 Awareness of digital library in the Libyan Universities

The academic system has been changed widely in the world with the changing market needs and requirements. The new technology has been improved day by day which leads to more access of information online. In this regards, digital resource library is providing the way to access large number of frequent information database with regards to academic, industry, organization or any individual information at any time. The implementation of digital library system in the Libyan Universities will have significant impact on the performance of the students during studies and to access large number of database based on academic studies. All of these will create the positive impact on the students to get more information easily and rapidly without any delay.

2.4.1 Digital library in Benghazi University and Higher Institute of Computer Technology

The facility of digital library facilities has been provided by Benghazi University in respect of online availability of research papers, scientific papers, newspaper Benghazi University, scientific journals, university publications, news and others. There is significant number of online academic material available in connection to get more online information and data about their respective studies and education in their respective field of studies or requirements. The higher institute of computer technology

(HICT) in Benghazi city is government based one of the leading technical education system of higher institute. The HICT is most prominence on the networking, computer sciences, technical education, automated control and programming respectively [5].

Chapter 3
Methodology

3.1 Introduction

This chapter discussed about the methodology that was used by the researcher in the given research study analysis of digital resource library. In this given chapter, researcher have provided the information to the reader about research design, research method, approach, research instruments, data collection method, population / sample of study and ethical consideration.

3.2 Research design

The research method is the choice of the techniques in connection to analyze the subject topic or research analysis is qualitative or quantitative. The research design provides the information about meta-analytic, descriptive, explorative, experimental and others [33]. The research design is also provides the analysis method of how researcher will collect the answers of research questions [34].

In this given study analysis, a descriptive research design method was used to collect the primary data from concerned respondents. Quantitative research method design was utilized by researcher in account to attain the actual population that provides the model in the given study. The data of digital resource library was collected from several universities.

3.2.1 Steps to follow for the end product design

In this given study, design a digital resource library based on the flexible and modern interfaces for the users, research analyzed several online libraries in the domestic universities and library institutions. After that I have made comparison among the several design and strategies they were used. The analysis of online websites and secondary research is significant in which researcher aware with the several kinds of digital resource library design. I added new strategies in my library resource web design such as slides, pictures, modern framework, journals, articles, books, style, new academic material, images and enhance events.

I have also used the strategy of “responsive web design” method that is more reliable and essential to attain the maximum responses in the new modern era of the world. Therefore, I have added new digital library sources and functions that can be access through mobile, personal computer, PDAs and any other digital / technical devices. The technical methods are Asp.net, html5, SQL server Microsoft, visual studio, JQuery, JavaScript, Ajaxcontrol Tool, Visual basic and Adobe Photoshop.

There question about current study that need was answered in the further study are:

- What is the important of e-library study?
- How e-library in the higher institute of computer would be benefit?

3.2.3 System requirements and design

Primary study:

- Collection of primary data and main documents
- Analysis of primary system.
- Evaluation and solution of main technical and non-technical problems of digital resource library and website.

Evaluation of primary system:

- Represent the general operations that provide the digital resource library system and perimeters.
- Strategy of flow in logical way.
- Converting the operations to arrangement and solution of the relations among the system method.

System needs

- Characteristics of system
- Purpose of system
- Field of system
- Software and hardware requirements of the system

The design

The main aim of the design is to provide the detail characteristics design of the information and data during the course of analysis phase.

- Dynamic design

Formation of main system operations or UML diagrams:

State Diagram

Component Diagram

Diagram Sequence

Deployment Diagram

- Method of design of database chart

In this given phase, database analysis needs were performed in rational way and executed through user design chart.

In this stage, an analysis of the databases' requirements was performed in a form of logical stages.

3.3 Research approach and instruments

It is assumed to be an essential part of the study that must need to be appropriate in order to analyze the study. There are generally two approaches such as qualitative and quantitative [35].

In this given study, research was used the quantitative research approach in order to collect the primary information from the main population. The main research instrument of this study is questionnaire. This study is more effective for analysis of digital resource library to collect the opinion of main population.

3.3.1 Product Perspective

The digital resource library system is based on the librarian, manager and user of the considered system. The current system is based on the self-contained. It is possible to exchange information with several systems with interface of external whenever needed. Following is diagram of the system.

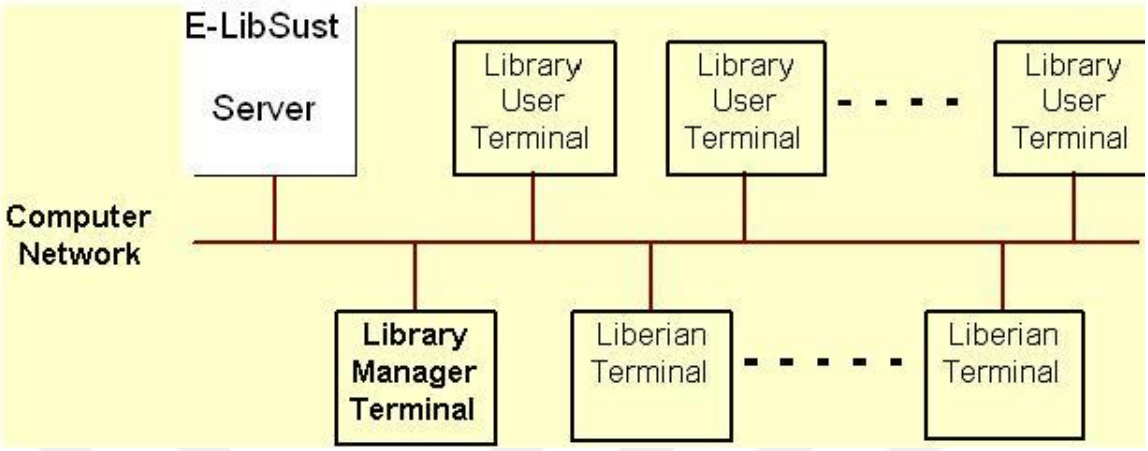


Figure 1: diagram of the system

3.3.1.1 User Characteristics

Following are the three major user of the DRL system:

- Library Manager
- Librarian
- Library User

Following table provides the information about characteristics of users that would be affect the functions of the product software.

3.3.1.2 System Interaction

The above mentioned figure of system interaction is showing several characters and functions they can use or perform such as student, library staff, faculty, administrator and publisher.

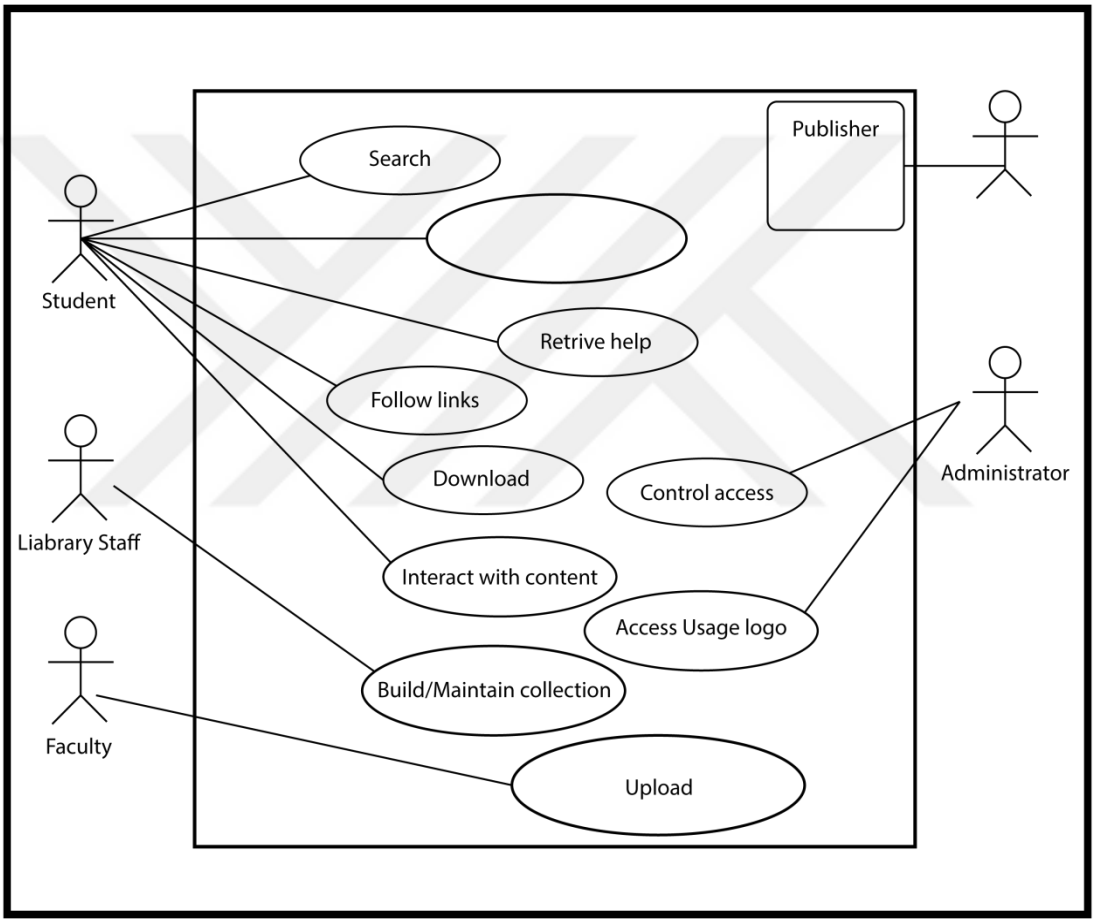


Figure 2: System interaction

3.3.1.3 Interaction of DRL system

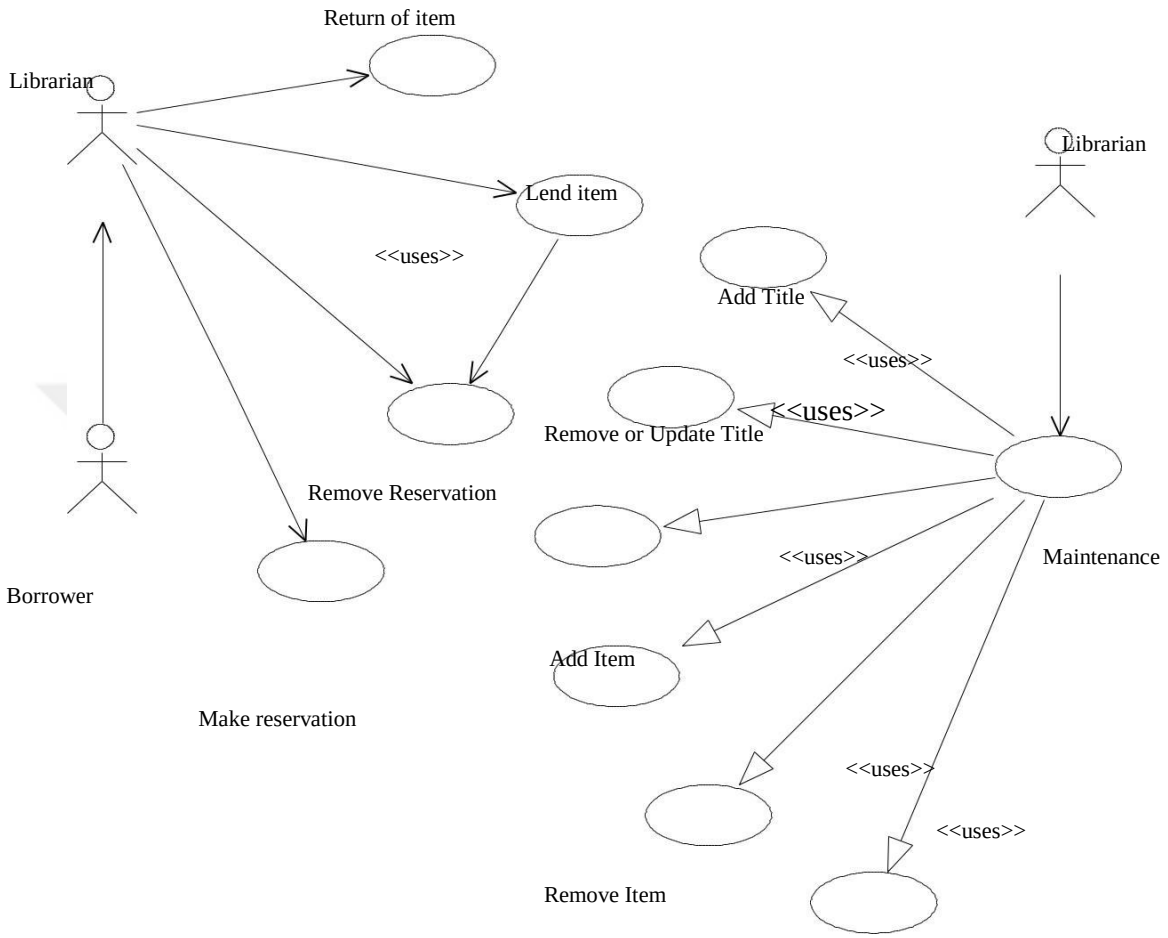


Figure 3: Interaction of DRL system

3.3.1.4 Overview of Database Interaction

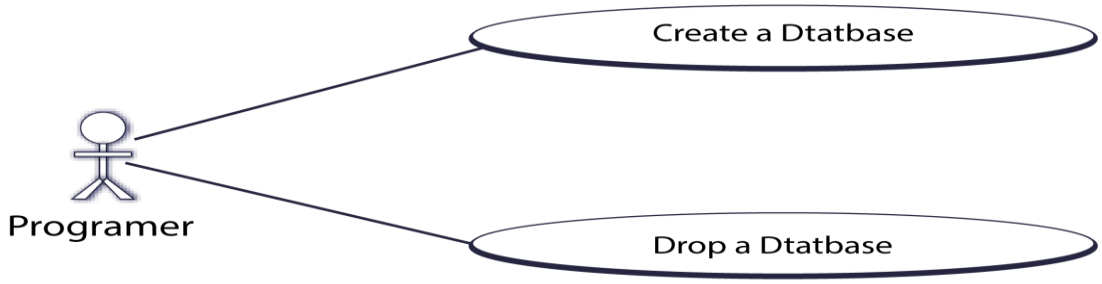


Figure 4: Database interaction

Figure 5: Database interaction

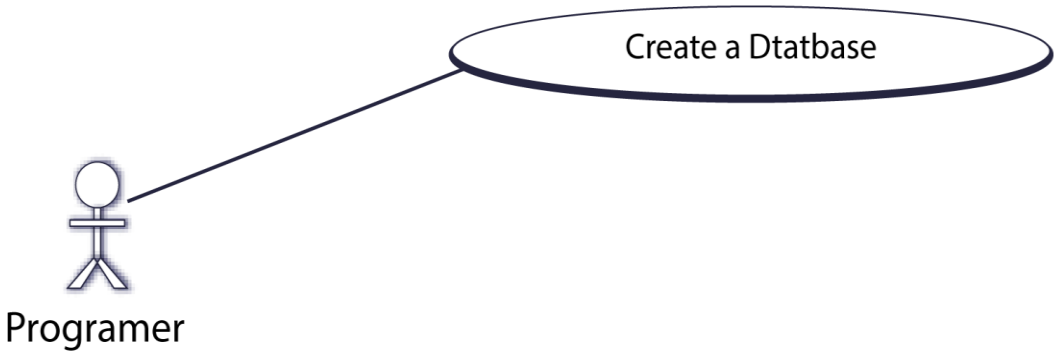


Figure 6: Database interaction

3.3.1.5 Perform Search

Figure 7: Retrieve help

- There is need that users should be able to find a work content by using (composer, title, heading, key, and name, subject), names performer installation, container attitudes (format, type, editor, publisher and title).
- The staff member of library should be able to find and update of record and dates.
- SMS link should be provided with free of facility such as records, metadata and data model stored.
- The search / find options must also names and titles to support matching where diacritic ignored.
- The users should receive comment about the search in the shape of outcome which includes entries matching or data to more assist the query.

3.3.1.6 Perform Retrieve Help

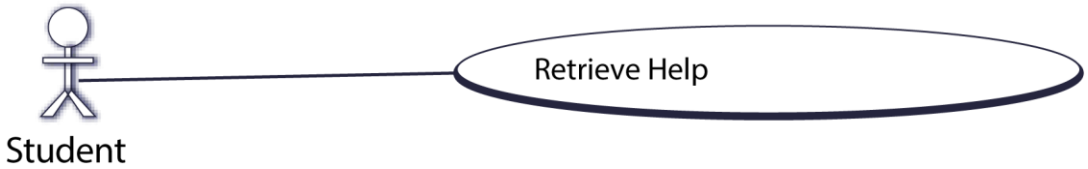


Figure 8: Retrieve help

- The user should be able to repossess and manage the interface.

3.3.1.6 Provide Web-based Access

The mentor will be managing the system in association with square to deliver admission to subject material / resource and stored content with the DML and the user / viewer should be unbreakable from the online browser.

3.3.1.7 Perform Follow Links

Figure 9: Follow links

3.3.1.8 Perform Download

Figure 10: Download options

- The option of download of e-book should be available.

3.3.1.9 Perform Build and Maintain Collections

Figure 11: Build and Maintain

Library staff member must also settle the sources with both content of media and metadata records. They are also system be able to modify and generate metadata and records in content and build references among the records.

- Library staff should be able to delete / create / edit information records.
- They must also upload update or new including old content.
- They must also delete / edit / create bindings, structural declarations and comrade them with content of records.

Figure 12: Control access

Moreover, in the administrative the data represented interface may be stored in several databases such as the record has edited and must be saved into the main server. The librarian must clearly designate information that must be saved.

3.3.1.10 Perform Control Access

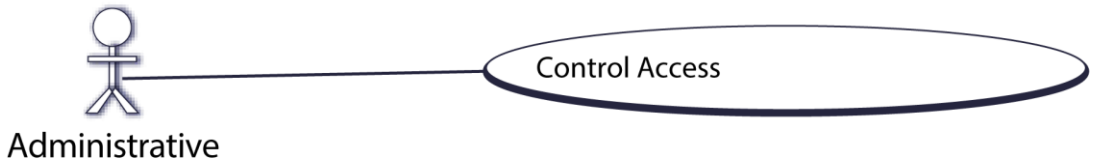


Figure 13: Administrative control access

- The users administrative should be able to delete / edit / crate groups.
- The authorization to update / delete / add / view / play media content should be manageable based on properties or location associated with the users / groups.
- All set of descriptive records metadata must be within the system of readable by all users.
- The authorization to update / delete / add / view / play media content should be manageable based on properties or location associated with the users / groups.
- Mechanism for updating membership group information e.g., enrollment course should be in place to mentors.

3.3.1 Quantitative research method

A quantitative research method was design to show study analysis about primary data collection from concerned respondents through designed questionnaire. Quantitative research method is more effective; enhance quality of evaluation, reliable and valuable for primary data collection shows main advantage of research [35].

3.4 Population and sampling method

Population is the respondents from which the primary data was collected [36]. In the current study analysis, several universities and library institutions was approached to collect the primary data. The main population of this given study analysis are library users and study in several universities and library institutions.

3.4.1 Sample size

The sample size from the given population is very important to analyze the research study. The sample size of this study was 73 from which primary data collected.

3.5 Data collection method

The data was collected once the system has been designed, interface developed, and database added. Soon after the completion of the system, the data would be collected using a survey that would ask questions related to the experience of the library users and staff. This data was collected after a month use of the system.

3.5.1 Primary data collection

The primary data collection is to collect the current data and information from various original sources. It can be collected through physical or online that based on the survey design questions or liker scale of questionnaire. The primary data are most important sources such as online survey, interview, telephonic conversation, questionnaire and others [37].

The primary data was collected from several universities library users and staff members in order to answers the research questions.

3.5.2 Secondary data collection

The secondary source of data collection are also essential for study data analysis from the point of view of past journals, academic sources, articles, books, reliable websites, industry magazines and others [38].

In this given study, secondary data was collected from several past academic studies of journals, articles, industry magazine, library users past experiences and reliable online sources.

3.6 Data analysis

Since, the research involves using a questionnaire, the data would be analyzed through statistical analysis software, in order to quantify the results and examine if the hypotheses has been accepted. The questions that would be asked by the researcher in terms of the questionnaire were based on understanding if the system has been more efficient. The efficiency of the system would be analyzed on the provision of reliability, security, flexibility, and convenience and has been successful in reducing the cost.

3.6.1 Cronbach's Alpha

According to Olagbemi (2011), that it is important to have questionnaire reliability, therefore, Cronbach's Alpha has provided the information about reliability of the survey questionnaire. If the level of Cronbach's Alpha score is 0.7 or more that signifies the survey questionnaire is reliable and will provide the effective data and information of questions answers about research analysis. As per the following table of reliability statistical test, that Cronbach's Alpha is 0.771 and reliable for present study research analysis.

Table 1: Reliability test (Cronbach's Alpha)

Reliability Statistics

Cronbach's Alpha	N of Items
.771	23

3.7 Execution and testing

As after the creation of required software for the digital resource library are completed, the process of execution will be implementing. In this phase, the current system is used to converting all the designs into the technical way of computer system that used functions according to the needs during analysis stage.

3.7.1 Evaluation and maintenance of the new system

Necessary software and all kinds of important information including database were design to support the user experience, maintenance and evaluation of new system, administration decision, adjustments, flexible, system interface, subscription, library management system premises and all other relevant information.

3.7.2 Explaining the system interfaces

The necessary information about explaining the interface of the E-library system is important to students in order to get login ID and password on the website. The main login ID will be allowed through proper channel by entering the email ID and password.

The appendix-2 is showing the main interface and other operational system of E-library system.

- Main interface of E-library system
- Admin login system
- Dashboard
- Control Panel
- User control
- News control

- Links control
- Category control
- Slides control
- Books control
- Login E-library system as user
- My account
- FAQ (frequently asked question)
- Contact and other office address and contract information.
- The website link, social media platform and map of the university.
- The new books and academic material are also display in the main interface.

3.8 Ethical consideration

The ethical considers is important and provide the attention to the reader in the formal way to utilize the evidence based and privacy of the primary respondents. This problem is more evident to take the responses of respondents to utilize and reveal information database [39]. To manage the main issues, the responses of the respondents were well-informed and research objective to ethically perform the analysis [40].

In this regards, I made all kinds of ethical considerations in order to effectively manage the research data and information in order to complete the current subject topic of digital resource library effectively and efficiently.

Chapter 4

Data analysis and discussion

4.1 Introduction

This chapter is design to understand the main research analysis from the point of view of primary resources that enable the reader to understand more effectively about digital resource library and responsive web design. Following discussing provides the further analysis of digital resource library system.

4.2 Demographic statistics

Following table describe the statistical data analysis about primary respondents from which the data was collected. There were total 77 primary respondents from which the data was collected.

Table 2: Primary gender wise statistics

Gender wise statistics			
	Frequency	**Percent**	**Cumulative Percent**
Male	47	61%	61%
Female	30	39%	100%
Total	77	100%	

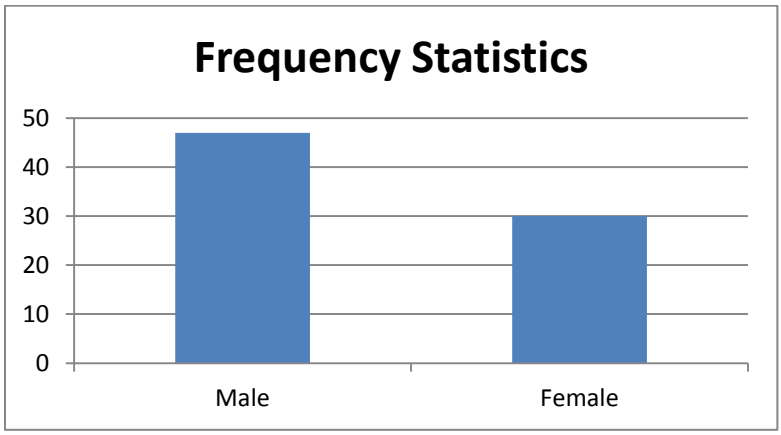


Figure 14: Primary data frequency

4.3 Descriptive Statistics analysis

This section provides the descriptive statistical analysis that includes the data analysis and discussion about primary responsive. In this connection, descriptive statistical analysis includes number of respondents, maximum, minimum, mean and standard deviation.

4.3.1 DRL flexibility and convenience

Descriptive statistics analysis of DRL flexibility and convenience are showing in the following table. The statistical analysis is showing that most of the respondents were agreed with the statements. On average, most of the responses are sloping to positive side as mention in the table.

Table 3: DRL flexibility and convenience

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The digital library provides virtual system that enables more flexibility and conveniently access to collection of data and information.	77	1.00	5.00	3.4935	1.14275
Digital library provide satisfaction to the user.	77	1.00	5.00	3.5844	.97806
Responsive web design look and feel of online content that want user.	77	1.00	5.00	3.5325	1.03345
Digital library is flexible and helpful to complete the task.	77	1.00	5.00	3.4286	.97911

According to the appendix-2 of digital library interface, in which the interface 1,6,7,8,9 and 11 respectively providing the information about how the digital library helpful for users / students and staff members to manage the academic and other information resources with more flexibility and convenience way than ordinary manual library system.

First question: Is The Library provides virtual system thet enables more flexibility and conveniently access to collection od data and information?

The first statement statistical data is about flexibility and convenient and virtual system of DRL. Most of the primary responses are agreed with the current statement as less than quarter as extremely disagree and close the quarter as disagree and close the ten as neutral but the half of them was agree and close ten as extremely agree which indicating that DRL library provides virtual system enable the user with more flexible and conveniently access to data and information.

According that More details in Appendix 3 Table 4.

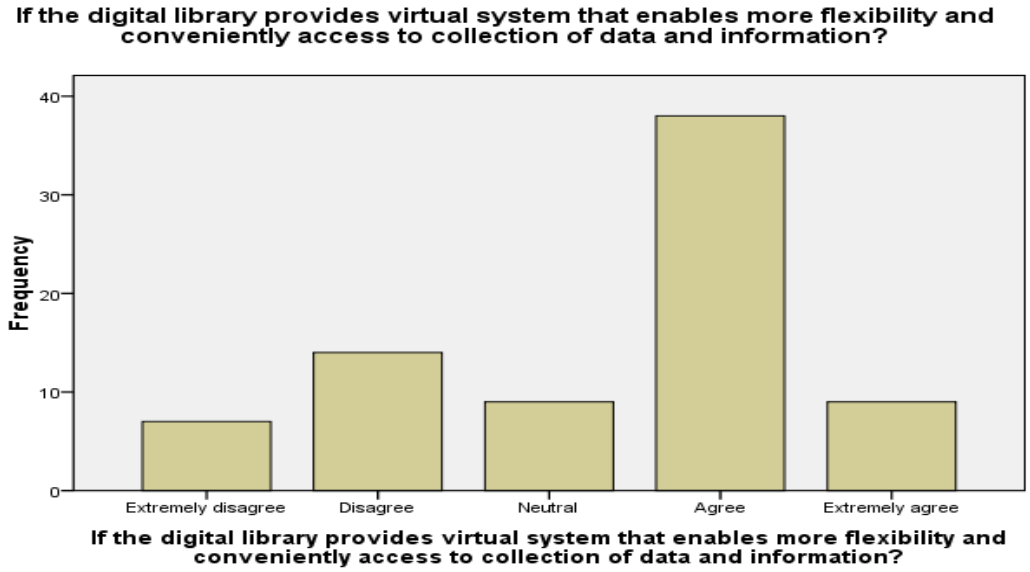


Figure 15: Digital library and flexibility

Second question: Is the digital library provide satisfaction to the user?

The second statement statistical data is about flexibility, convenient and user satisfaction. Most of the primary responses are agreed with the current statement as less than four was extremely disagree and close ten was disagree but more than quarter was neutral and half of them was agree and close ten was extremely agree which indicating that DRL enhance the user experience and satisfaction effectively.

According that More details in Appendix 3 Table 5.

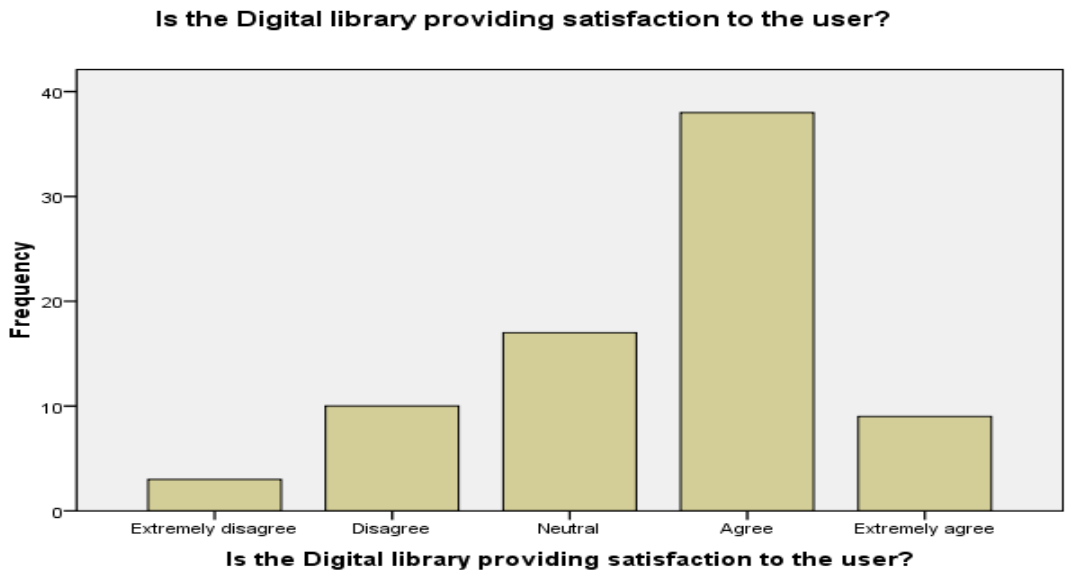


Figure 16: DRL and satisfaction to the user

Third question: Is the responsive design look and feel of online content that want user?

The third statement statistical data is about flexibility, convenient and responsive web design. Most of the primary responses are agreed with the current statement as less five was extremely disagree and less than quarter was disagree also close the quarter was neutral but the half of them was agree and less than quarter was extremely agree which indicating that digital library includes the features of responsive web design with elegant look and easy feel to use online content.

According that More details in Appendix 3 Table 6.

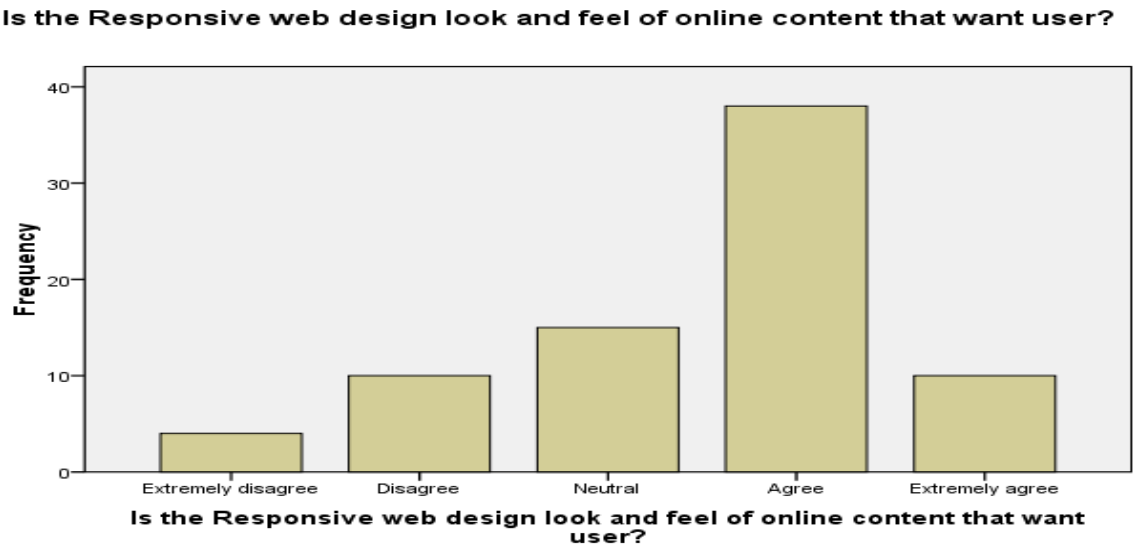


Figure 17: RWD and online content

Fourth question: If the digital library id flexible and helpful to complete the task?

The fourth statement statistical data is about flexibility, convenient and flexible and helpful to complete the task. Most of the primary responses are agreed with the current statement as less than three was extremely disagree and less than quarter was disagree but the quarter of them was neutral and close the half of them was agree and close the ten was extremely agree which indicating that digital library is flexible and helpful to complete the user task.

According that More details in Appendix 3 Table 7.

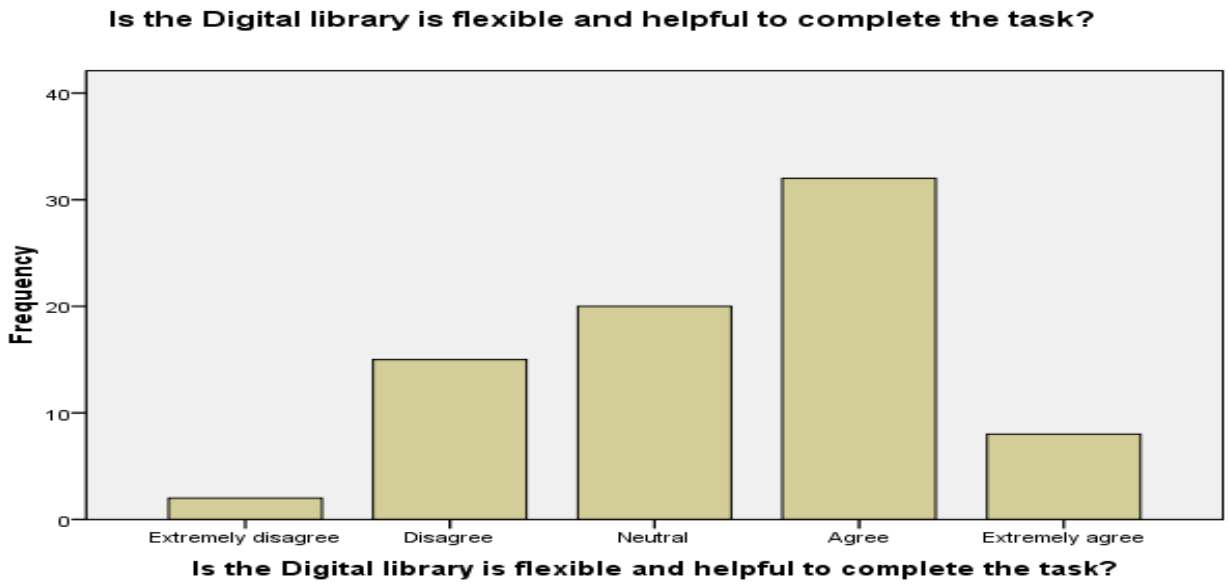


Figure 18: DRL and helpful to complete the task

4.3.2 Digital Resource Library (DRL) system

Descriptive statistics analysis of DRL system is showing in the following table. The statistical analysis is showing that most of the respondents were agreed with the statements. On average, most of the responses are sloping to positive side as mention in the table.

Table 8: Digital resource library (descriptive statistics)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Digital library text easy to read.	77	1.00	5.00	3.4416	.93883
The graphics and images are helpful to read information.	77	1.00	5.00	3.5065	.94065
The data and information on the site organized.	77	1.00	5.00	3.6104	1.07796
Digital library consistent with language, terminology and format effectively.	77	1.00	5.00	3.5584	1.12967

According to the appendix-2 of digital library interface, in which the interface 1 to and 15 respectively providing the information about how well the digital library provides the all users access with wide range of information, language, terminology and efficient to manage the tasks.

Fifth question: Is the text of digital library easy to read?

The fifth statement statistical data is about DRL and easy to read text. Most of the primary responses are agreed with the current statement as just one was extremely disagree and close the quarter of them was disagree and the quarter of the was neutral but close the half of them was agree and close the ten was extremely agree which indicating that digital resource library is reliable to read text easily.

According that More details in Appendix 3 Table 11.

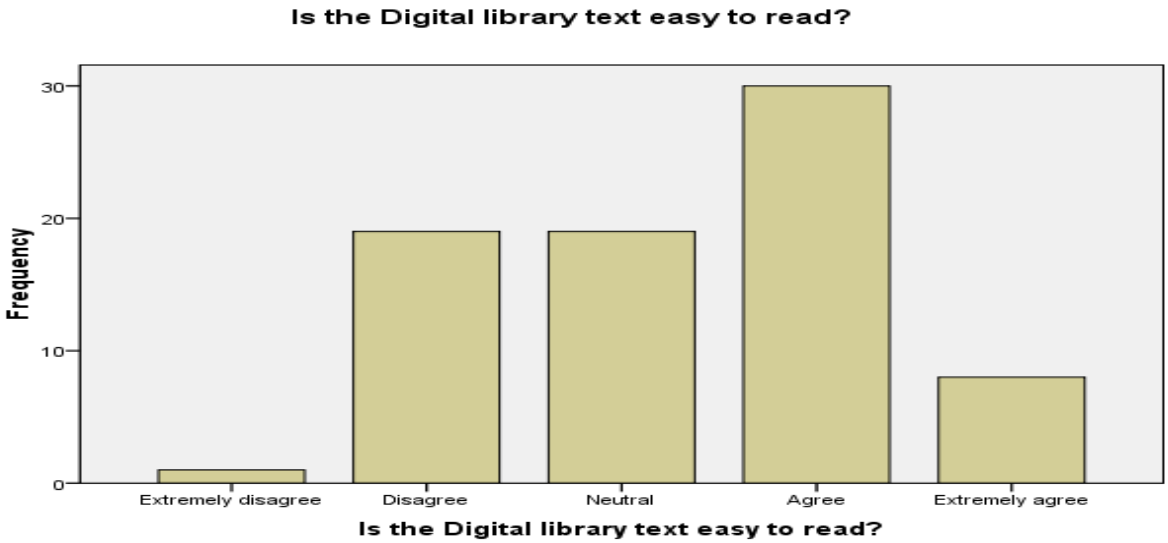


Figure 19: DRL and easy to read text

Sixth question: Are the graphics and images helpful to read information?

The sixth statement statistical data is about DRL system and images and graphics. Most of the primary responses are agreed with the current statement as less than three was extremely disagree and less than quarter was disagree but the quarter of them was neutral and close of half of them was agree and close the ten was extremely agree which indicating that digital resource library is reliable for user having images and graphics to read the text / information.

According that More details in Appendix 3 Table 12.

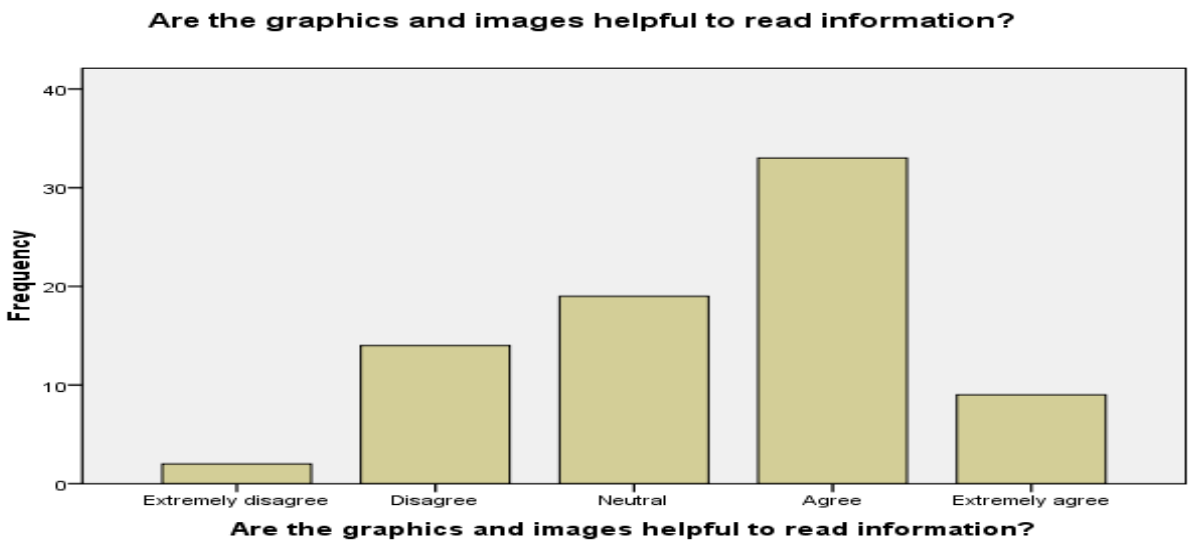


Figure 20: DRL and images and graphics

Seventh question: Is the data and information on the site organized?

The seventh statement statistical data is about DRL system and website organized. Most of the primary responses are agreed with the current statement as less than seven was extremely disagree and less than quarter was disagree and close than fifteen was neutral but more than quarter was agree also close than quarter was extremely agree which indicating that digital resource library's data and information should be well organized.

According that More details in Appendix 3 Table 13.

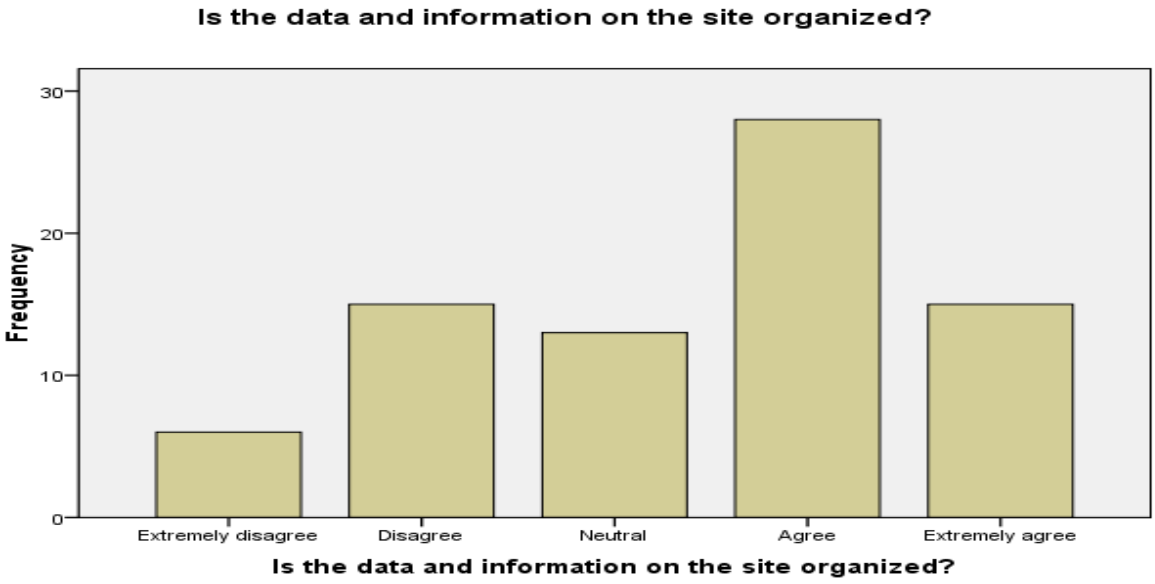


Figure 21: DRL and site organized

Eighth question: Is the digital library consistent with language,terminology and format effectively?

The eighth statement statistical data is about DRL system and language, terminology and format. Most of the primary responses are agreed with the current statement as less than five was extremely disagree and less than quarter was disagree but the quarter of them was neutral and close than half of them was agree and close than quarter was extremely agree which indicating that digital resource library is consistent with language, terminology and format effectively.

According that More details in Appendix 3 Table 14.

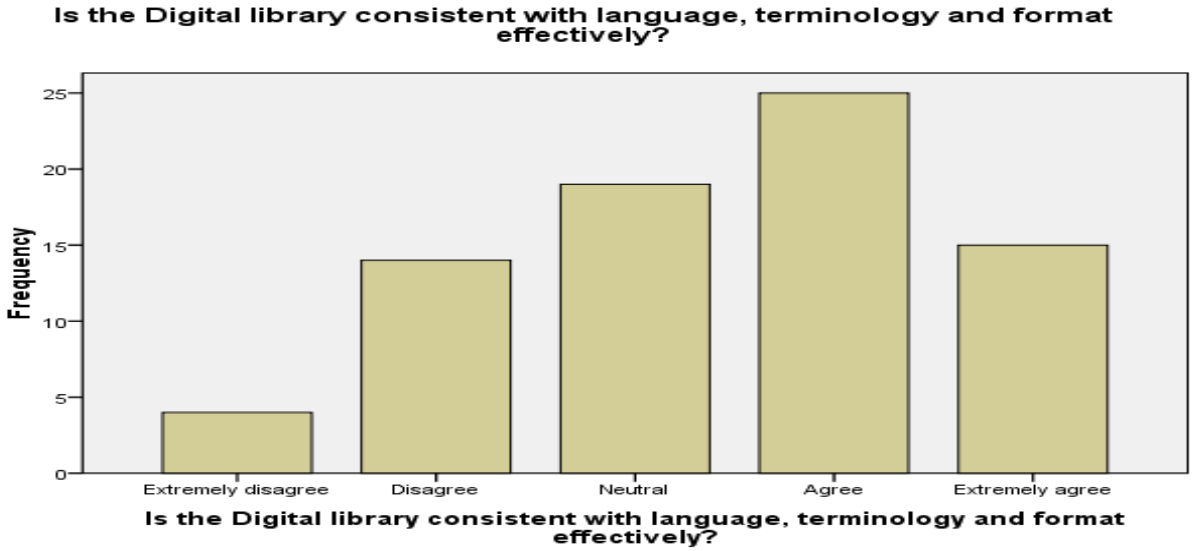


Figure 22: DRL and terminology, language and format

4.3.3 DRL reliability and security

Descriptive statistics analysis of DRL reliable and efficient way of data security is showing in the following table. The statistical analysis is showing that most of the respondents were agreed with the statements. On average, most of the responses are sloping to positive side as mention in the table.

Table 7: DRL reliability and security

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Digital Resource library system is reliable to complete task without any problems of technical.	77	1.00	5.00	4.0649	.97788
DRL improve the security and data management.	77	1.00	5.00	4.1299	1.04316
DRL library includes reliable security management system.	77	1.00	5.00	4.0130	1.05747
DRL sufficient to structure and access to documents, maps or any information.	77	1.00	5.00	3.8052	1.31828

According to the appendix-2 of digital library interface, in which the interface 1 and 14 respectively providing the information about how the main interface of the e-library works as well as student or user access to the new books and academic material that are also displaying in the main interface.

Ninth question: Is the digital resource library system is reliable to complete task without any problems of technical?

The ninth statement statistical data is about reliability, security and manage the task without any technical problems. Most of the primary responses are agreed with the current statement as less than three was extremely disagree and less than ten was disagree also close than seven was neutral but close the half of them was agree and more than the quarter was extremely agree which indicating that digital resource library is reliable to complete the user task without any technical issues.

According that More details in Appendix 3 Table 15.

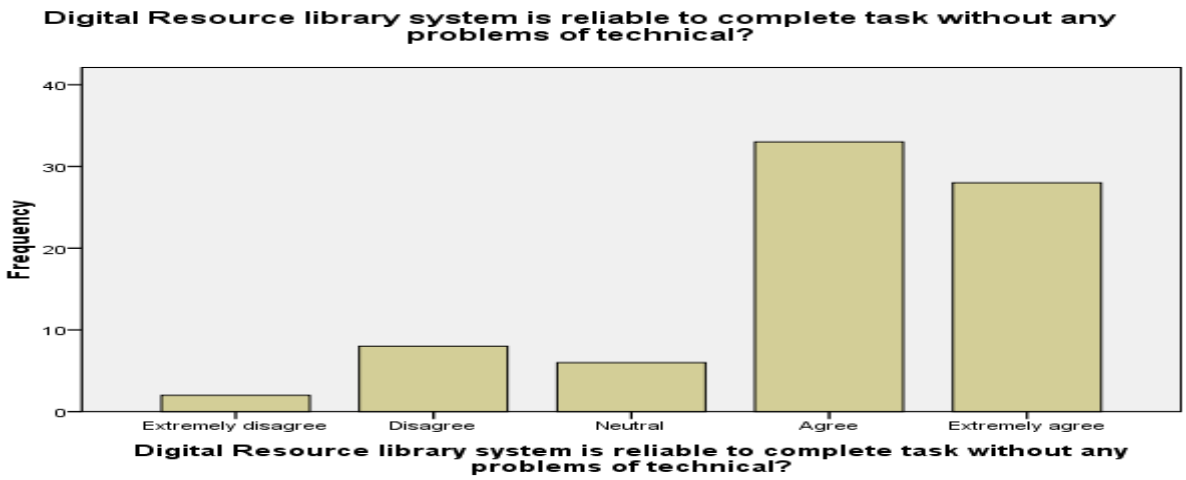


Figure 23: DRL and lack of major technical issues

Tenth question: Is the DRL improving the security and data management?

The tenth statement statistical data is about reliability, security and improve the security data management. Most of the primary responses are agreed with the current statement as less than three was extremely disagree and close than seven was disagree also close than ten was neutral but more than quarter was agree and close than half of them was extremely agree which indicating that digital resource library is improve the security data management effectively.

According that More details in Appendix 3 Table 16

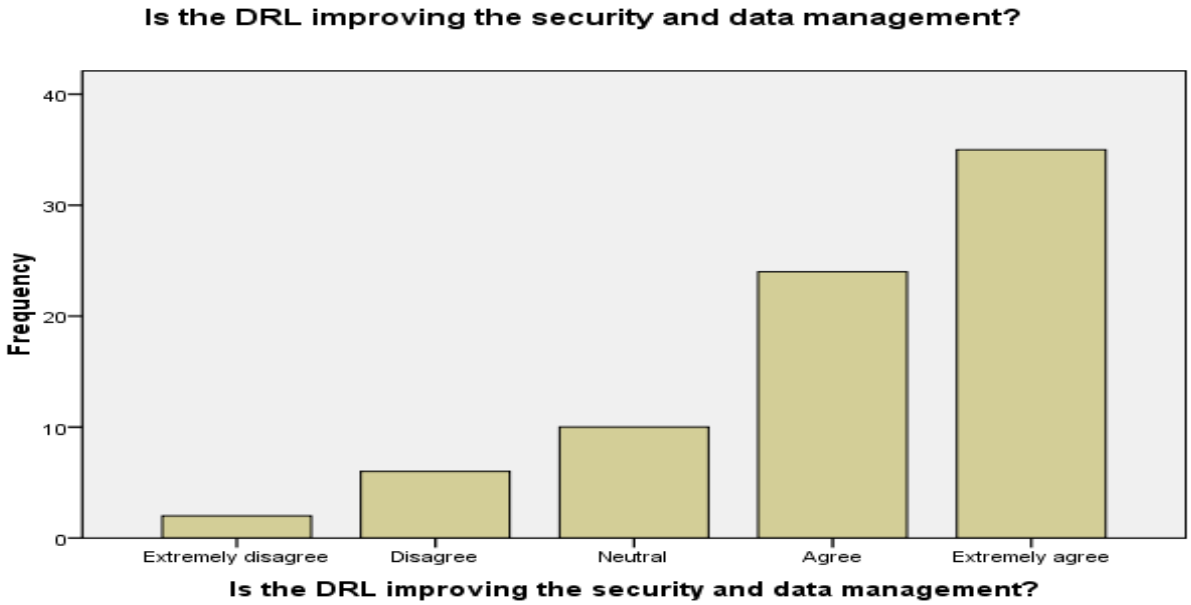


Figure 24: DRL and security data management

Eleventh question: Is the DRL library includes reliable security management system?

The eleventh statement statistical data is about reliability security management system. Most of the primary responses are agreed with the current statement as just one was extremely disagree and close than eight was disagree also more than ten was neutral but more than quarter was agree and close than half of them was extremely agree which indicating that digital resource library is includes the reliable security management system to enhance the user experience.

According that More details in Appendix 3 Table 17.

Figure 25: DRL and reliable

Twelfth question: Is the DRL sufficient to structure and access to document,maps or any information?

The twelfth statement statistical data is about reliability and security sufficient to structure and access the documents. Most of the primary responses are agreed with the current statement as less than ten was extremely disagree and close than ten was disagree also close than ten was neutral but more than quarter was agree and close than half of them was extremely agree which indicating that digital resource library is sufficient to structure and access to information, documents, map and other resources.

According that More details in Appendix 3 Table 18.

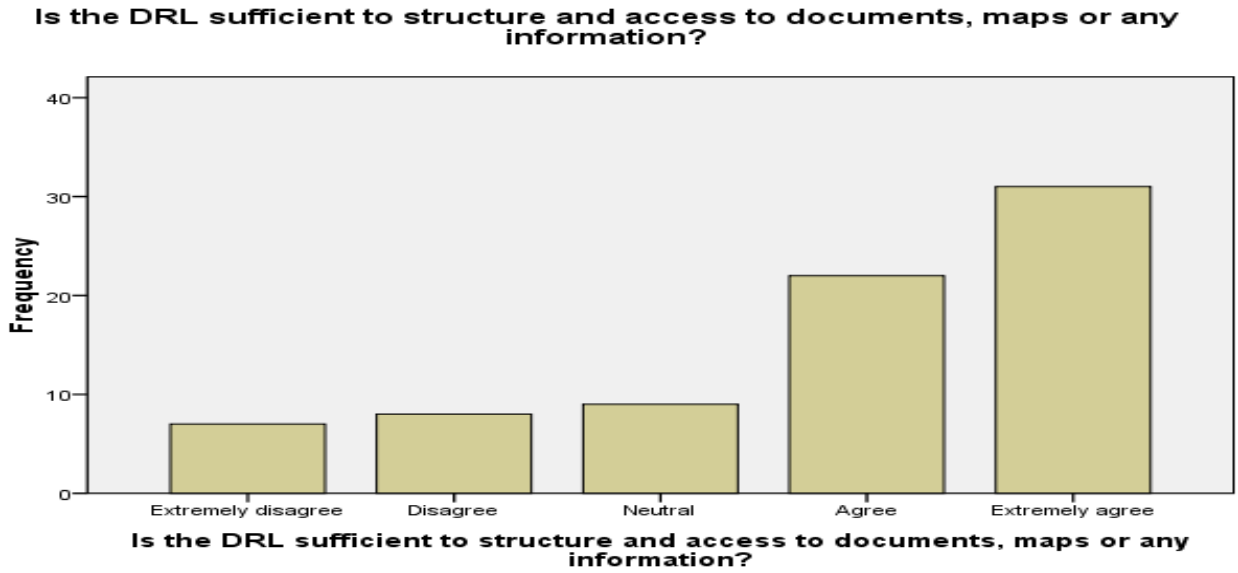


Figure 26: DRL and access to documents, maps, information

4.3.4 DRL reduce operational cost

Descriptive statistics analysis of DRL and reduce the operational cost is showing in the following table. The statistical analysis is showing that most of the respondents were agreed with the statements. On average, most of the responses are sloping to positive side as mention in the table.

Table 8: DRL reduce operational cost (descriptive statistics)

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The system reduces the cost than traditional library system.	77	1.00	5.00	3.7922	1.10427
DRL perform fast to enhance the user experience.	77	1.00	5.00	3.6494	1.09744
DRL searching, revision and browsing tool / features effective to complete the task.	77	1.00	5.00	3.7662	1.02465
It is easy to upload and download documents in limited time.	77	1.00	5.00	3.8701	.95077

According to the appendix-2 of digital library interface, in which the interface 8 and 15 respectively providing the information about academic resource books control, latest material, journals, articles, browsing tool and download relevant material efficiently at reduce cost and time.

Thirteenth question: Is the DRL reduces the cost than traditional library system?

The thirteenth statement statistical data about reduce the operational cost and traditional library management system. Most of the primary responses are agreed with the current statement as less than three was extremely disagree and close than ten was disagree also close than fifteen was neutral but more than quarter was agree and more than quarter was extremely agree which indicating that digital resource library is effective strategy to reduce or manage the operational cost as compare to traditional library system.

According that More details in Appendix 3 Table 19.

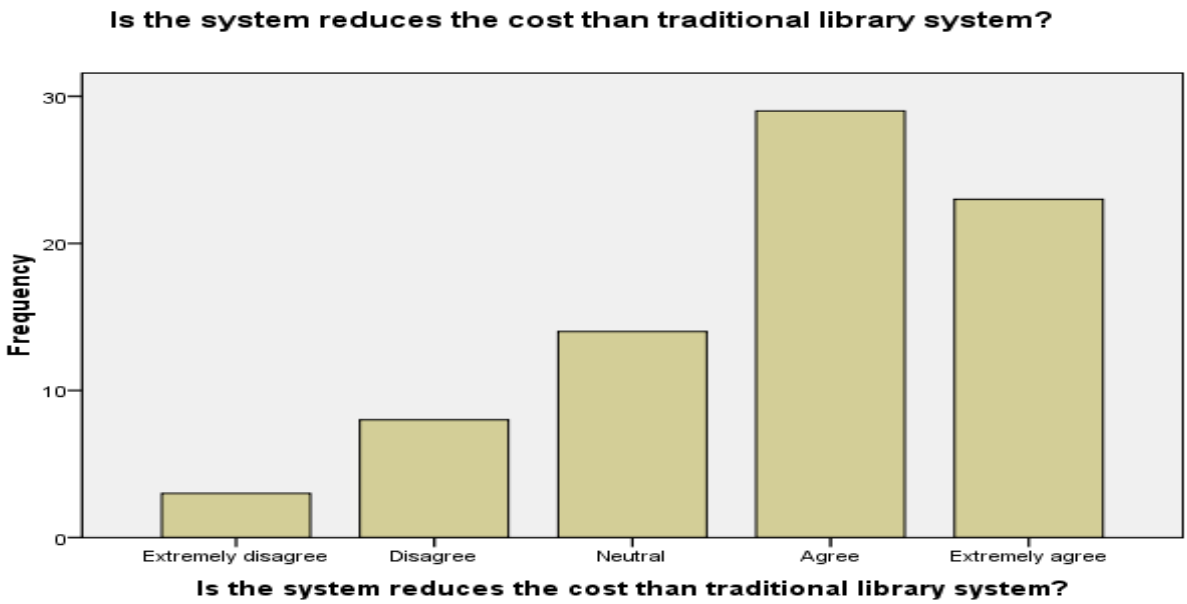


Figure 27: DRL system reduce the cost

Fourteenth question: Is the DRL perform fast to enhance the user experience?

The fourteenth statement statistical data about reduce the operational cost and fast efficient system. Most of the primary responses are agreed with the current statement as less than four was extremely disagree and close than ten was disagree also close than fifteen was neutral but close than half of them was agree and close than quarter was extremely agree which indicating that digital resource library is effective strategy to increase the user experience with fast action speed.

According that More details in Appendix 3 Table 20.

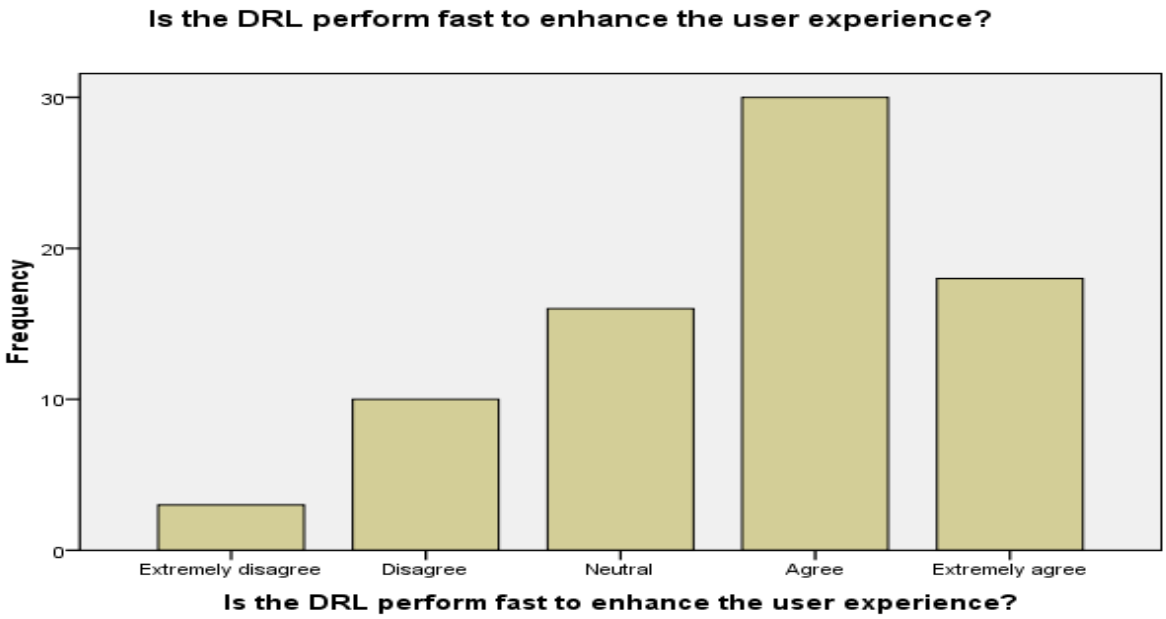


Figure 28: DRL and performance increase for more user experience

Fifteenth question: Is the DRL searching and browsing tool/features effective to complete the task?

The fifteenth statement statistical data about reduce the operational cost and searching, revision and browsing. Most of the primary responses are agreed with the current statement as less than four was extremely disagree and close than six was disagree also close than quarter was neutral but close than half of them was agree and quarter of them was extremely agree which indicating that digital resource library is sufficient for user to get search, revision, browsing tool / feature to manage their tasks.

According that More details in Appendix 3 Table 21.

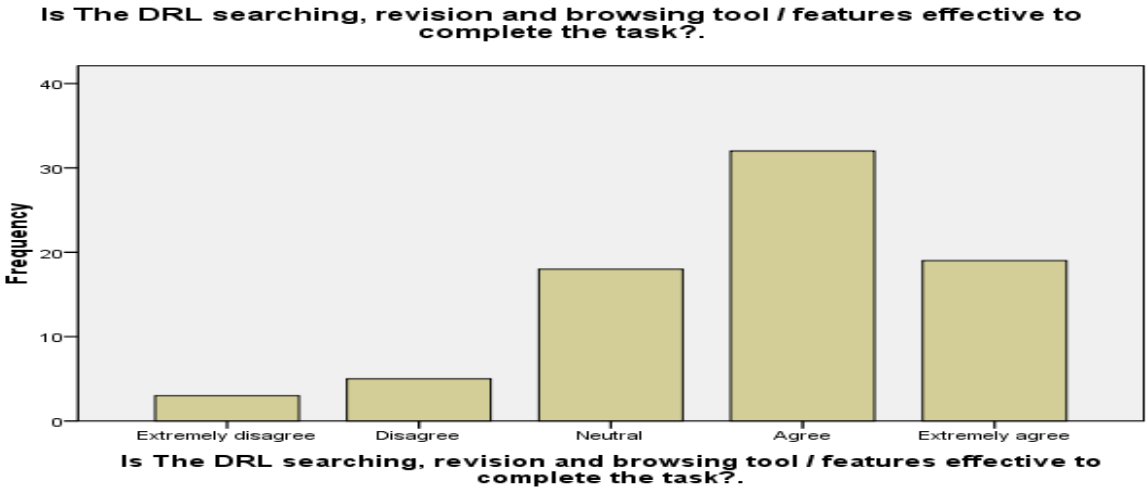


Figure 29: DRL and searching, revision, browsing tool

Sixteenth question: Is The DRL easy to upload and download document in limited time?

The sixteenth statement statistical data about reduce the operational cost and easy to upload and download documents / files. Most of the primary responses are agreed with the current statement as less than four was extremely disagree and disagree also close than quarter was neutral but more than half of them was agree and close quarter of them was extremely agree which indicating that digital resource library is easy to upload and download documents in limited time period.

According that More details in Appendix 3 Table 22.

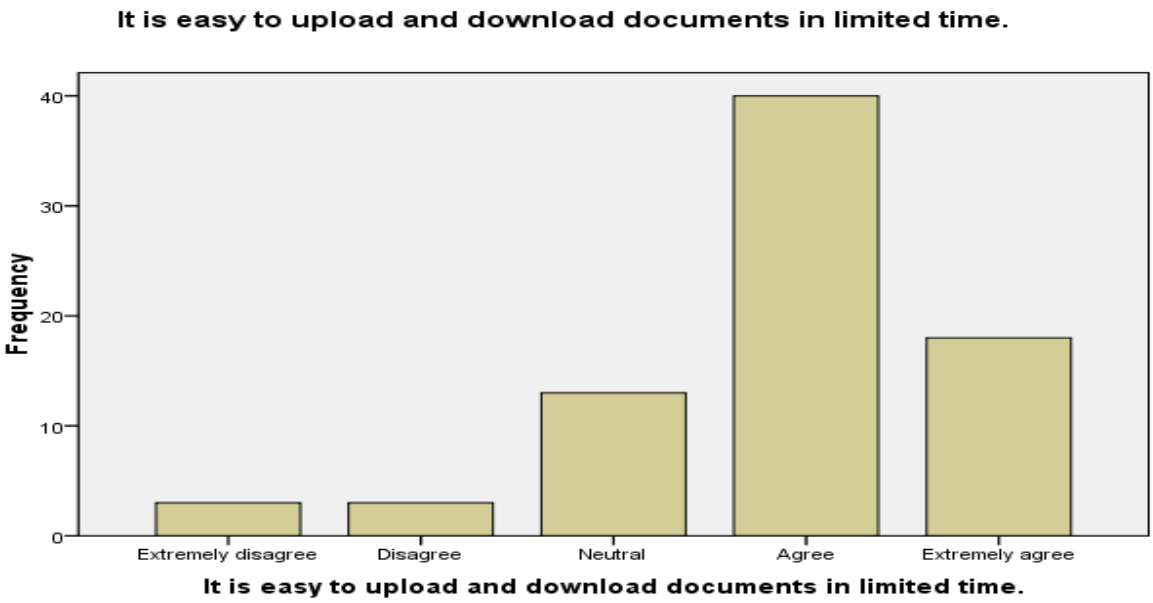


Figure 30: DRL and upload / download documents

4.3.5 Responsive Web Design (RWD)

Descriptive statistics analysis of responsive web design (RWD) is showing in the following table. The statistical analysis is showing that most of the respondents were agreed with the statements. On average, most of the responses are sloping to positive side as mention in the table.

Table 9: Responsive web design (RWD) descriptive statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
It is more manageable than traditional desktop site.	77	1.00	5.00	3.9221	.92858
It save, time and cost.	77	1.00	5.00	3.6883	1.07923
It is effective to stay competitive.	77	1.00	5.00	3.7792	.94065
It would be handling with any kind of digital device (PCs, Tablet, Mobile, etc.)	77	1.00	5.00	3.5195	.94047

According to the appendix-2 of digital library interface, in which the interface 4,5,6,7,8,9,10,11,12,13,14 and 15 respectively providing the information about how the present e-library works in respect of news control, links, category, slides, books, library user system, main user account, manageable, FAQ, contact information, links to social media, maps platform, new books / academic material and other relevant resources.

Seventeenth question: Is it more management then traditional library?

The seventeenth statement statistical data is about responsive web design and DRL system. Most of the primary responses are agreed with the current statement as less than three was extremely disagree and less than four was disagree also close than quarter was neutral but close than half of

them was agree and more than quarter of them was extremely agree which indicating that responsive web design is more effectively manageable the user tasks and library staff as compare to desktop sites.

According that More details in Appendix 3 Table 23.

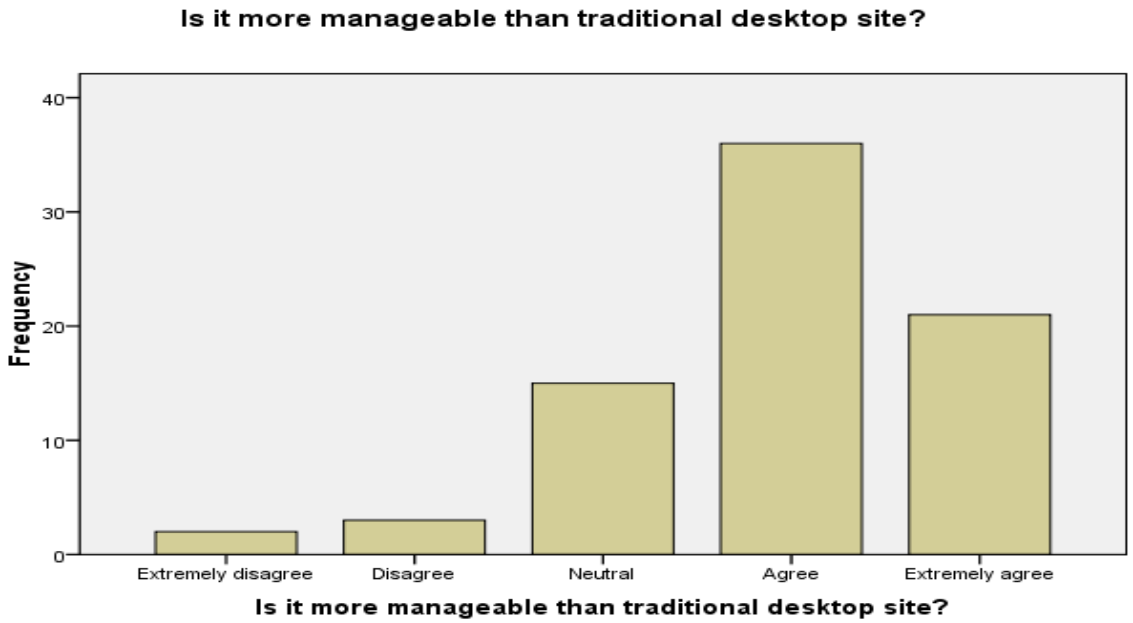


Figure 31: RWD and desktop site

Eighteenth question: Is it save time and cost?

The eighteenth statement statistical data is about responsive web design and time, cost management. Most of the primary responses are agreed with the current statement as less than four was extremely disagree and less than ten was disagree also close than quarter was neutral but close than half of them was agree and close than quarter of them was extremely agree which indicating that responsive web design is also reliable to save time and cost management than traditional library system.

According that More details in Appendix 3 Table 24.

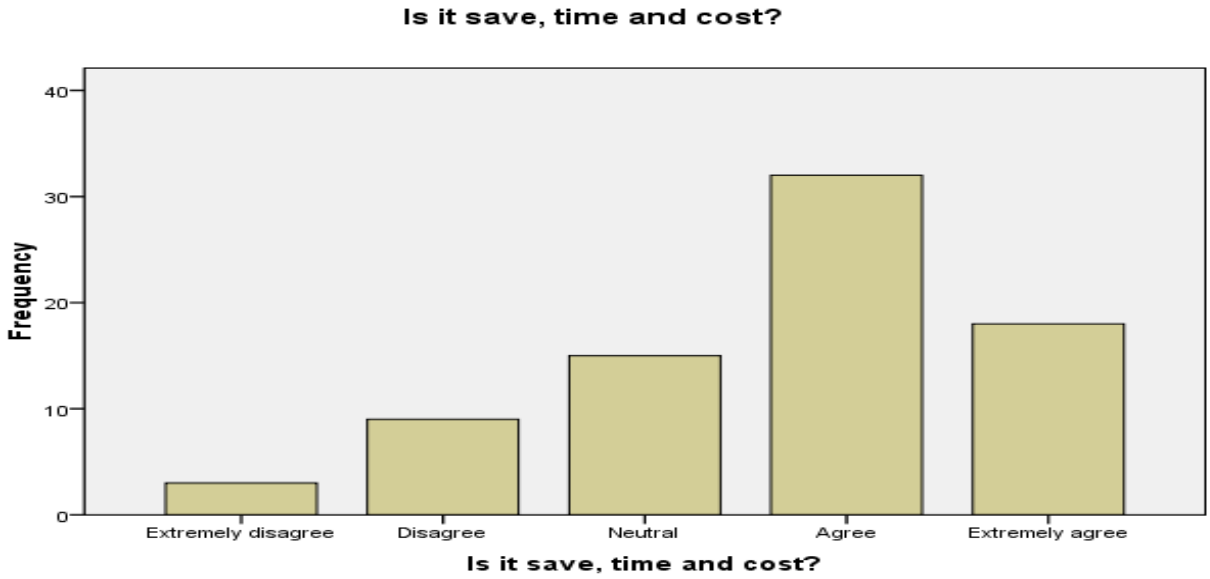


Figure 32: RWD save, time and cost

Nineteenth question: Is it effective to stay competitive ?

The nineteenth statement statistical data is about responsive web design and competitive. Most of the primary responses are agreed with the current statement as just one was extremely disagree and less than ten was disagree also close than quarter was neutral but close than half of them was agree and close than quarter of them was extremely agree which indicating that responsive web design is effective way to stay competitive in the digital library market.

According that More details in Appendix 3 Table 25.

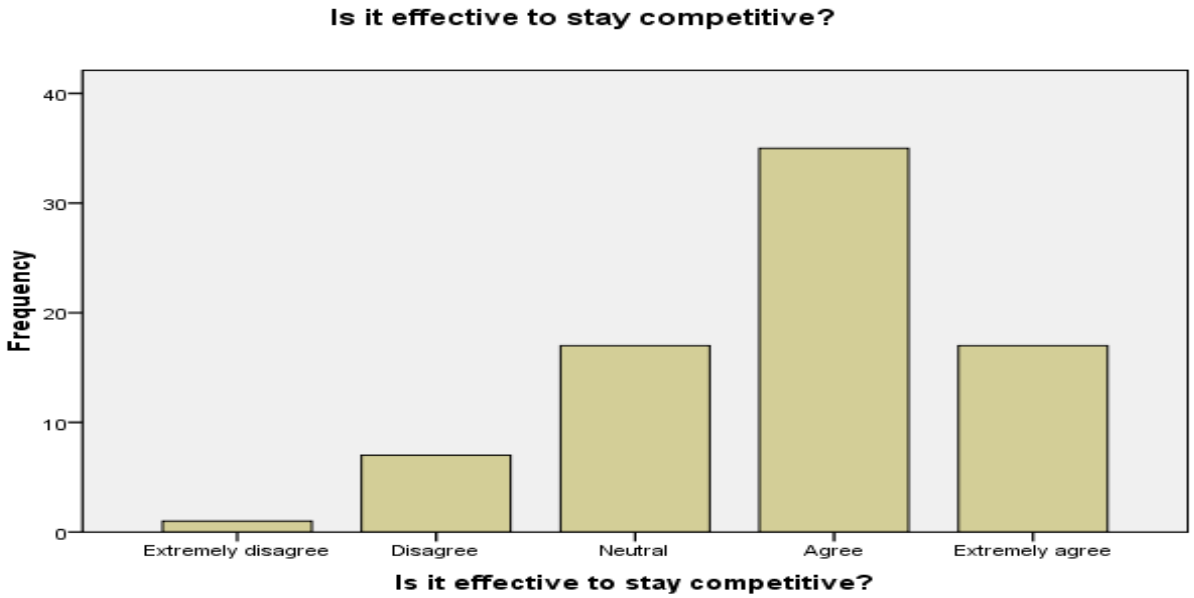


Figure 33: RWD and competitive

Twentieth question: Would be handling with any kind of digital device (Pcs,tablet,mobile)?

The twentieth statement statistical data is about responsive web design and manageable with technology. Most of the primary responses are agreed with the current statement as just one was extremely disagree and less than twelve was disagree also more than quarter was neutral but close than half of them was agree and close than ten was extremely agree which indicating that responsive web design is manageable with technology / digital devices such as PCs, tablet, smart mobile phones and others.

According that More details in Appendix 3 Table 26.

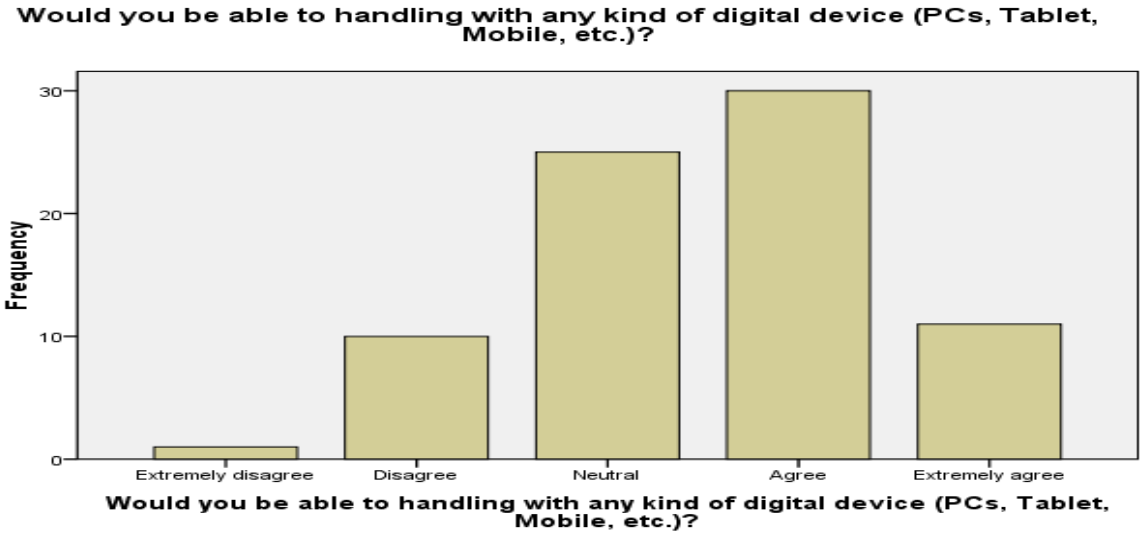


Figure 34: RWD and digital devices

4.3.6 Importance of E-library at Higher Institute of Computer

Descriptive statistics analysis of importance of e-library system at the higher institute of computer is showing in the following table. The statistical analysis is showing that most of the respondents were agreed with the statements. On average, most of the responses are sloping to positive side as mention in the table.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
E-library system will enhance the quality of learning resource at Higher Institute of Computer.	77	1.00	5.00	3.4286	1.14051
E-library is important to get equipped with new academic material.	77	1.00	5.00	3.5325	1.14230
Students and staff members can share the new knowledge easily through E-library system at Higher Institute of Computer.	77	1.00	5.00	3.3896	1.02798

According to the appendix-2 of digital library interface, in which the interface 1, 3, 12, 13 and 15 respectively providing the information about how the digital library system increase the quality of learning experience, equipped with new resource material, user / student and staff liaison that can analyze through main interface, user control system, contact and other information about Higher Institute of Computer, news, links, location / map and latest books.

Twenty first: Is the e-library important to get equipped with new academic material?

The twenty first statement statistical data is about importance of e-library system and get equipped with academic material. Most of the primary responses are agreed with the current statement as less than five was extremely disagree and less than eleven was disagree also quarter of them was neutral but more than quarter of them was agree and close than quarter was extremely agree which showing that e-library system is important for higher institute of computer is important to get equipped with new academic material at any time.

According that More details in Appendix 3 Table 27.

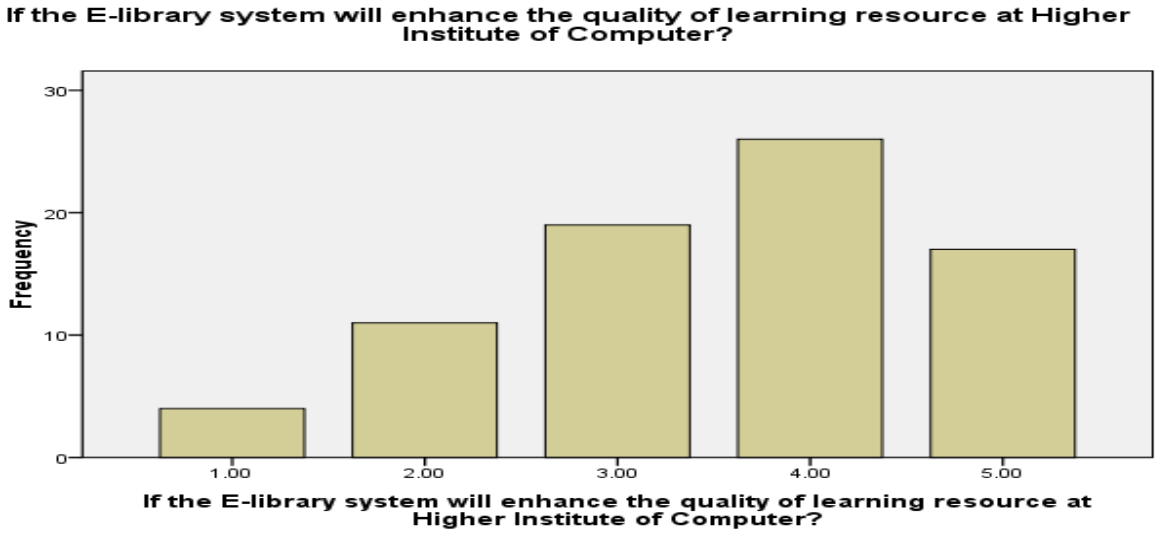


Figure 35: E-library and Importance

Twenty second: will e-library system enhance the quality of learning resource at Higher institute of computer?

The twenty second statement statistical data is about e-library system to improve learning quality at Higher Institute of Computer. Most of the primary responses are agreed with the current statement as less than five was extremely disagree and less than fifteen was disagree also close than quarter of them was neutral but more than quarter of them was agree and close than quarter was extremely agree which showing that e-library system improve the quality of education and learning environment at Higher Institute of Computer.

According that More details in Appendix 3 Table 28.

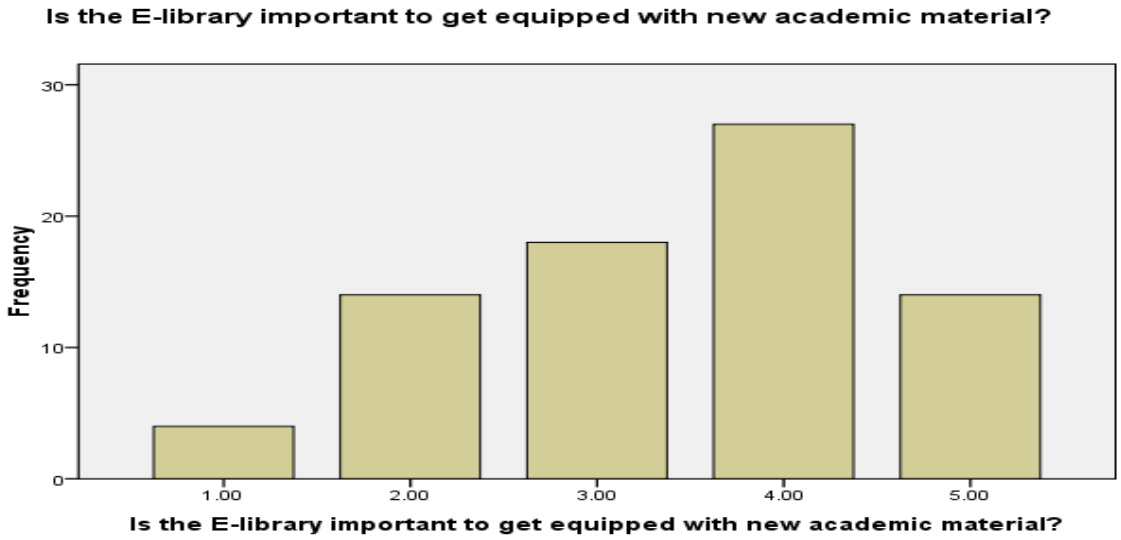


Figure 36: E-library and quality of learning at Higher Institute of Computer

Twenty third: Can the student and staff members share the new knowledge easily through e-library system at Higher Institute of Computer?

The twenty third statement statistical data is about e-library system and sharing of knowledge at Higher Institute of Computer. Most of the primary responses are agreed with the current statement as less than three was extremely disagree and less than fifteen was disagree also more than quarter of them was neutral but more than quarter of them was agree than quarter was extremely agree which showing that e-library system students and staff members can share the new knowledge easily at any time through e-library system at Higher Institute of Computer.

According that More details in Appendix 3 Table 29

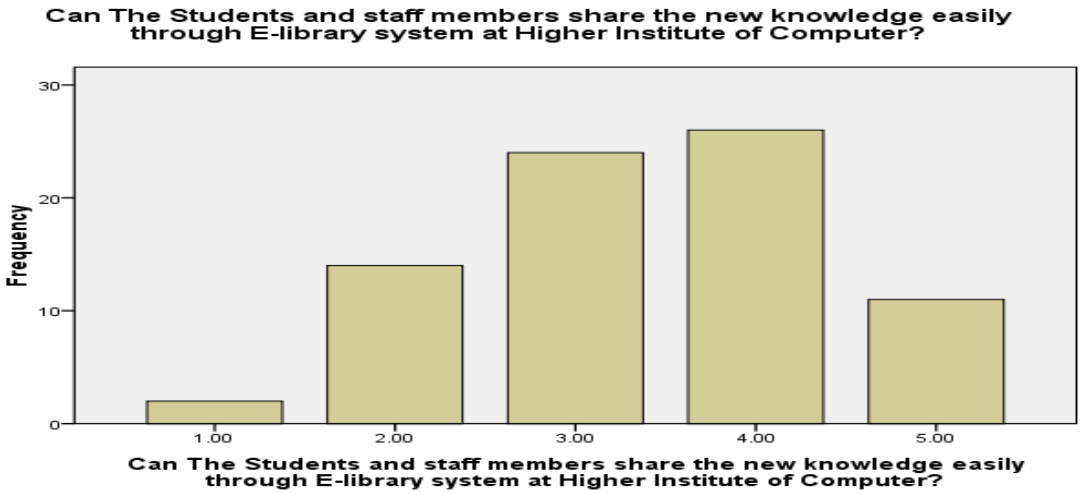


Figure 37: E-library system and new knowledge for students and staff at Higher Institute of Computer

4.4 Qualitative Research Analysis

This section of the research analysis is discussion about qualitative data analysis from the point of view of digital library users and staff members in connection to enhance the primary data analysis more effectively and efficiently.

Research question to E-library users

- **How is your overall experience of the library after the installation of the system?**

The above question was asked about the overall experience of the user with regards to e-library system. Most of the respondents are stated that e-library system is more effective tool of visual and experience with important features of library system. It is helpful to guide, assist, search, helps, maintain large number of academic resources, instruct, and navigate to find lots of information and data from the given resources.

Most of the user are also stated that the digital library system includes several kinds of features which illustrate and viewpoints with large range of academic work and presented in well and good manner.

- **Does the system provides more flexibility and convenience to you compared to before?**

This question was based on the flexibility and convenience of the digital library system as compare to traditional / manual library system. Most of the primary results are indicating that digital library system provides the flexibility for staff members and students, more access to academic material, knowledge sharing, collaboration, coordination, motivation, opportunities, activities, resources data collection.

The analysis is also signifying that it based on the face-to-face course data collection, material, online access to notes, forums, discussion and supports the user friendly environment. It is more effective than traditional library system because it anticipated with complementary gateway of development and growth.

- **Is the system better in terms of reliability and security of the library information?**

This question was about digital library system reliability and security for data collection and information sharing communication. Most of the results are indicating that digital library system is more reliable way to secure the data and information in the form of database management system under the proper guiding and rules of processes. It is more reliable way to save the data in the computer server with password, security check and other special software with security backup.

- **Is the DRL SYSTEM more efficient for library management?**

Most of the users are satisfied with the DRL (digital resource library) system and indicating that it is more effective and efficient way to search and collect the required information from anywhere, anytime without any trouble.

- **Does it save your time compared to before?**

Yes, most of the respondents are indicating that DRL has been significant impact in the learning and understanding of materials and resources. All of these are helpful to save time and cost more efficiently than traditional library system.

- **Can it be accessed from anywhere?**

Yes, most of the respondents were agreed that the main benefit of the digital resource library system is to access from anywhere or location of the country or the world. It is more effective and efficient way of communication and collection of data / information and easily manageable for staff members.

- **Does the system assists in reducing the cost of the library operations?**

Yes, most of the results are indicating that digital resource library system is helpful and efficient way to reduce the operational cost in a reasonable way. It provides the management strength and control over the recurring expenditures which leads to more advantage than traditional library system.

- **Does it save your time compared to before?**

Yes, most of the results are indicating that it save time of the staff members because they can upload the documents in the e-library system and user can download or open it online at any time. They provides them login / user ID and password to get access multiple material which can be difficult to handle the material manually.

Chapter 5

Conclusion and Future Work

5.1 Conclusion

The current study is about the digital resource library based on the responsive website design effectiveness. The finding of the study is indicating that e-library service and resource are satisfactory and readily available for their user and outcome to be more use in future. There is significant level of important has been required in order to improve the satisfaction of the user's needs, wants, pursuit the goals of academic resources. The e-library resources are not only provides the balances and adequate level of resources, but also includes the access the multiple levels of resources.

In the present steadily changing data environment, libraries are experiencing both open doors and difficulties. Data innovation has presented many changes in the way data is recognized, secured, prepared and dispersed to library demographic. Moreover, data innovation has made a feeling of earnestness among library clients and custodians themselves. Administration libraries and data focuses are seeing new outlook changes.

These movements include transition of data sources and frameworks from paper to electronic media, Complexity in data needs of profoundly requesting customer base and Increase in the cost and nature of data. The data innovation has impacted every one of the parts of a library framework: data sources, administrations, HR and clients.

It is all the more so if there should arise an occurrence of administration libraries where the accentuation is more on the money of data. The business situated, contextual analysis strategies and hands-on techniques for bestowing administration instruction require administration libraries to be ever receptive to the changing data needs of their customer base.

The study analysis is indicating those providing effective e-library services and other academic resources in the university; the staff member must allocate the responsibilities and manage the work as per requirement of the users.

The responsive website design includes the technology and access with several kinds of technical devices such as mobile, PCs, tablets and others. These devices are helpful and fastest growing factor of online digital library access and enhance the user experience along with cited kinds of devices and importance in the future adoptability.

The online library is structured on the several ways of services that needs to coordinate. The library is maintained into several sections such as technical services, reader services, development collection, digital library and management information system, serial collection and bindery section. The digital library system includes the management information system based on the maintenance and administration system. The e-library design is to digitize with time collection of information [1].

The digital library have significant amount of accessibility and influenced features of academic material / resources and scientific information for users. It includes the library to the user to effectively manage its requirements and provides opportunities to get information anytime and anywhere. With this respect, quick change in the educational system and internet devices accessible through tablets, smartphones, personal computer and other digital devices which leads to attain web-based resources in an efficient way.

The technology devices diversity allow the user with new features, challenges and design to understand and use the digital library which deliver services and content to their users. The RWD (responsive web design) is most effective way that provides the access against such challenges by designing website that automatically adapts to the device. The responsive web design is more possible way for web development in respect of digital library to meet the challenges and control manage the academic system through technical devices such as smart phone, tablet, personal computer and others.

In this given study, the research also finds that combination of digital library and responsive web design has occurred as significant trend for organizing mobile and eco-friendly websites. Most of the digital libraries are already shifted on responsive website design.

There are several kinds of advantages of responsive web design in respect of digital libraries is to enhance the user experienced, navigation improved among a varied range of devices. This

strategy addresses several kinds of challenges in the new era of the world, that are pleasant and user experience functional for the user of digital library.

The research intends to develop Software Requirements Specification for the DRL (Digital Resource library). The research conveys information about the application's requirements, both functional and non-functional, to the reader and its effectiveness for the library staff. The system is being developed for making the management of the library easy.

The digital resource library is also includes database for storing, organizing and retrieving media and files controlled in the digital resource library system. It can differ immensely in respect of scope and size and can be preserved or control by affiliated with institutions, individuals, organizations or academic institution.

Librarianship, as an administration calling managing the complexities of instructive and innovative headway, diminishing spending plans and scaling down, is at hazard for initiating work burnout. Some unpleasant work conditions, for example, low pay, expanded workloads, bureaucratic dormancy and expanded employment rivalry, are shared by all helping callings. Others, notwithstanding, are one of a kind to the library.

Oversight, librarianship generalizations, administrative workloads for expert positions and an absence of contribution to gathering advancement and other library-related strategies are only a couple of the protestations postured by librarians. Librarians, for the most part very instructed with substantial workloads and extreme duties, are especially at hazard for diligent, unmanageable working environment push.

The responsive web design is one of the effective approaches that address the issues of users by designing website which responds the environment and behavior based on the platform, orientation and screen size. The purpose of this present system is to provide navigation and easier reading form to build more consistent experience of user.

The combination of several important sources has been provided the basic understanding and knowledge to design the responsive web design for future development growth through digital system. The digital library system has different system than traditional library management

system. It includes the key aspects of usability and delivering web content and better interfaces to get more effectiveness for user experience.

The RWD can be accessed through digital devices such as smart mobile, tablets and personal computer which are fastest and rapid growth factor of online market access. The analysis indicating that digital devices are important elements of digital library system which leads more academic data and information control by staff members during the course of uploading, maintain, controlling and managing the system more effectively and efficiently than ordinary library system. The RWD is providing the optimum level of user experience and wide range of devices to get the required information by the user.

The RWD and digital resources of libraries offers viable exhortation from specialists who gather and deal with the regularly computerized conceived assets turning into an inexorably critical element of twenty-first century librarianship. In this altered volume, working bookkeepers share their ability, tending to inquiries of authorizing, subsidizing, and get to.

The benefactors additionally inspect inventive activities and frameworks, for example, the joining of assets that are close to home computerized collaborator accessible into a library's electronic accumulation and the advancement of all-computerized libraries. Tending to the difficulties of and boundaries to the conservation and dispersal of electronic data, Managing Digital Resources in Libraries gives an abridgment of working learning tending to the previously mentioned focal issues.

Every section finishes up with references, including important Websites. In addition, the book is completely ordered and numerous sections close with references and valuable things. The evaluation of digital libraries has benefited from an effort to establish theoretical frameworks. The model that is proposed is based on techniques centered on the user.

The focus is on defining the structure of the analysis, establishing evaluation levels and criteria, and verifying these through an evaluation process, carried out by a group of end users. The user activity identified, and which was the subject of the study, is the process of creating, enriching and configuring a collection for a digital library.

Therefore, we can say that digital resource library has been significant effect on the user experience to get more academic resources and other material. In which responsive web design provides the user independence to access multiple academic resources more effectively and efficiently from several of digital devices.

5.2 Recommendations

The following are the main recommendations of this present study based on the research analysis:

- The library admin must influence the users by providing them regular updates library material, made information available and wants for its users.
- Library staff must coordinate with users and arranged the library material.
- The university must provide the training and development resources to staff member in order to increase the level of service efficiency.
- The university must also provide the access and awareness to library users.
- The digital resource library must also include the foreign and attractive journals, research material, books and all kinds of materials which enhance the user experience and learning environment.

5.3 Future Work

It is important to also analyze several other aspects to improve the user knowledge and experience towards high level of usage of digital library in the university or education system in the country. It is also important to discuss in the future study about digital library system and maintain of inventory or stock level, quick updates, videos and audio academic material sharing, old and new academic material sharing by both students and staff members, new quality of features of website design, training and development resources for staff members and e-learning management system with based on the digital library system.

References

1. **Nkamnebe, E. C.; Udem, O.; Nkamnebe**, C. B." *Evaluation of the use of university library resources and services by the students of Paul university*", Awka, Anambra state, Nigeria. [S.l.]. 2014.

2. **Gbadamosi, B. O**. " *Emerging Challenges to Effective Library Automation and An E-Library: The Case of Emmanuel Alayande College of Education*", Oyo, Nigeria. [S.l.]. 2012.

3. **Adewole, A. et al**." *Effectiveness of Library Service and Resources in an African University*". Information and Knowledge Management www.iiste.org, v. 5, n. 3, p. 54-59, 2015.

4. **Sandnes, S. T**. " *Responsive Web Design for Digital Libraries*". [S.l.]. 2014.

5. WWW.UOB.EDU.LY. Electronic issues, 2017. Disponivel em: <http://www.uob.edu.ly/pages/page/38>. Acesso em: 21 January 2017.

6. **Elaiess, R**. "*Designing and Evaluating an Integrated Digital Library System for the National Oil Corporation in Libya*". World Digital Libraries - An international journal, v. 5, n. 1, p. 51-73, 2012.

7. **Pekkanen, K**. " *The impact of communication technologies on individual worker's productivity*". Finland. 2012.

8. **AmericanlibraryAssosication**. " *Library Privacy Guidelines for Library Management Systems*". American Library Assosication. [S.l.]. 2016.

9. **Gbadamosi, B. O**. " *Emerging Challenges to Effective Library Automation and An E-Library: The Case of Emmanuel Alayande College of Education* "**,** Oyo, Nigeria. [S.l.]. 2012.

10. **Krueger, J**. " *Cases on Electronic Records and Resource Management Implementation in Diverse Envrionments* ". University of North Texas Libraries. [S.l.]. 2014.

11. **Emanuel, J**. " *The 21st Century Mobile Library: Refining the Concept of the Anywhere*"**,** Anytime Library within the Global Context. University of Illinois at Urbana Champaign.

[S.l.]. 2009.

12. **Etd**. " *The ETD2009 Conference is organized by the Networked Digital Library* ". the University of Pittsburgh. [S.l.]. 2009.

13. Barbuti, N. et al. " **An Integrated Management System for Multimedia Digital Library**". Procedia Computer Science, v. 38, p. 128-132, 2014.

14. **Kumar, P. et al**." *Library Management System* ". Cochin University of Science & Technology. [S.l.]. 2014.

15. **Nyamboga, C. M.; Ongus, R. W.; Njuguna, A. K. ''** *Impact of the Amlib Integrated Library Management System on Information Management Practices at Egerton University Library*'', Njoro Campus, Kenya. SRELS Journal of Information Management, v. 50, n. 4, 2013.

16. **Martin, R. S. et al.** " *The Impact of Outsourcing and Privatization On Library Services and Management*". Texas Woman's University. [S.l.]. 2000.

17. **Henderson, J**. " *Managing the library and archive environment*''. Cardiff University. [S.l.]. 2013.

18. **Khan, S. A.; Bhatti**, R. " *A Review of Problems and Challenges of Library Professionals in Developing Countries including Pakistan*''. University of Nebraska-Lincoln. [S.l.]. 2012.

19. **Darnton, R**. " *The National Digital Public Library Is Launched!*" The New York Review of Books. [S.l.]. 2013.

20. **Wdl.Org**. World Digital Library, 2017. ISSN https://www.wdl.org/en/. Acesso em: 19 February 2017.

21. **Abid, A**." *The World Digital Library and Universal Access to Knowledge*". UNESCO. [S.l.]. 2005.

22. **Brueggemann, G. J. R. et al**." *Integrated Advanced Information Management Systems: A Twenty-Year History at the University of Cincinnation*". Journal of the Medical Library Association, v. 92, n. 2, 2004.

23. **Disc**. " *Features desired in a common digital library system*". Common Digital Library System. [S.l.]. 2011.

24. **Brecht, R**. " *User Interface Patterns for Digital Libraries*" . University of Technology Ilmenau. Germany. 2010.

25. **Sarkar, P.**; Mukhopadhyay, P. " *Designing an integrated processing and retrieval system*". The university of Burdwan. [S.l.]. 2011.

26. **Dorji, L**." *A Proposal to set up a Digital Library at Sherubtse College*". Royal University of Bhutan. [S.l.]. 2015.

27. **Adams, A.; Blandford**, **A**." *Digital libraries in academia: challenges and changes* ". Middlesex University. UK. 2002.

28. **Syed, C. B**. " *Parents of Invention: The Development of Library Automation Systems in the Late 20th Century* ". [S.l.]. 2011.

29. **Anyira, I. E**. " *The Anatomy of Library Users in the 21st Century* ". Western Delta University Library. Oghara Delta State. 2011.

30. **Tramullas, J.; Casabon, A. I. S.; Picazo, P. G.** " *An Evaluation based on the Digital Library user: An Experience with Greenstone Software*". Procedia - Social and Behavioral Sciences, v. 73, p. 167-174, 2012.

31. **Gbadamosi, B. O**. " *Emerging Challenges to Effective Library Automation and An E-Library: The Case of Emmanuel Alayande College of Education*", Oyo, Nigeria. [S.l.]. 2012.

32. **Spasser, M**. " *Managing Digital Resources in Libraries*". Journal of Medical Library Association, v. 94, n. 1, p. 92-93, 2006.

33. **Shaoming , Z.; Huifen ,**." *International Marketing and Emerging Markets: An Introduction to the AIM*" Volume 21. International Marketing, v. 21, 2011.

34. **Gill, J.; Johnson, P**. " *Research Methods for Managers*". [S.l.]: SAGE, 2002.

35. **Saunders, N. K.; Thornhill, ; Lewis, P.** " *Research Methods for Business Students* ". 5th. ed. Rotolito: Pearson Education Limited, 2009.

36. **Pervez, G.** " *Research Methods In Business Studies: A Practical Guide*" , 3rd ed. US. [S.l.]: Pearson Education, 2005.

37. **Benmerikhi, M.** " *What is the difference between a research strategy and research methodology?*" [S.l.]. 2014.

38. **Soiferman, L. K**. " *Compare and Contrast Inductive and Deductive Research Approaches*". [S.l.]. 2010.

39. **Malhotra, N. K**. " *Marketing Research: An Applied Orientation*", Fifth Edition. India: Pearson Education, 2007.

40. **Campbell, A.; Smith, S. G.** " *An Ethical Approach to Practitioner Research: Dealing with Issues and Dilemmas in Action Research*", First Edition. [S.l.]: Routledge, 2007.

41. **Knamadi, S.** " *Impact of Information Technology Innovations on Resources and Services of Management Institute Libraries in Mumbai: A Librarians' Approach*". Electronic Journal of Academic and Special Librarianship, v. 8, n. 1, 2007.

Appendix 1: Survey Questionnaire

Gender: _____

5-LIKERT QUESTIONNAIRE

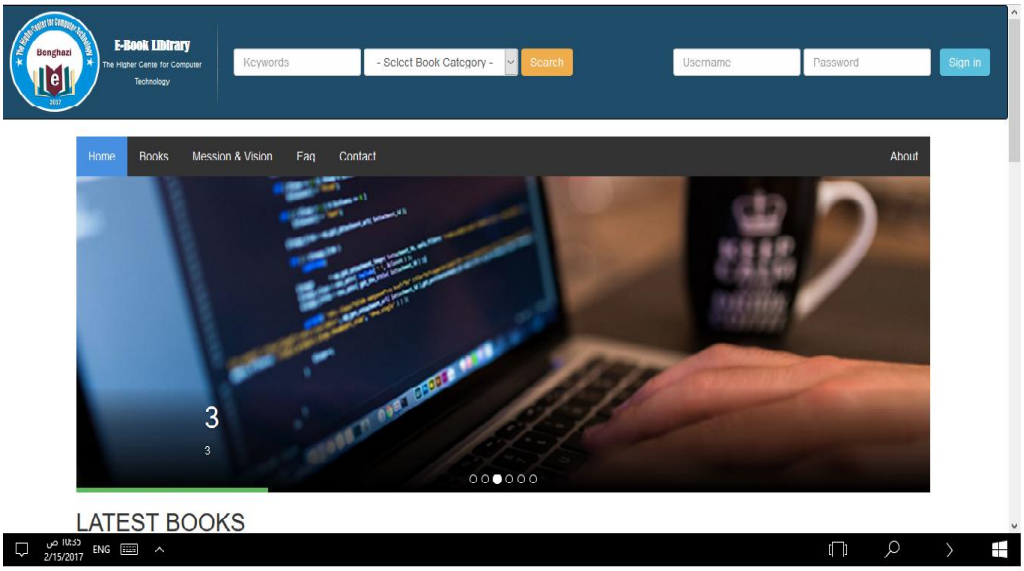
The Awareness to create the Digital Resource library based on Responsive Website Design

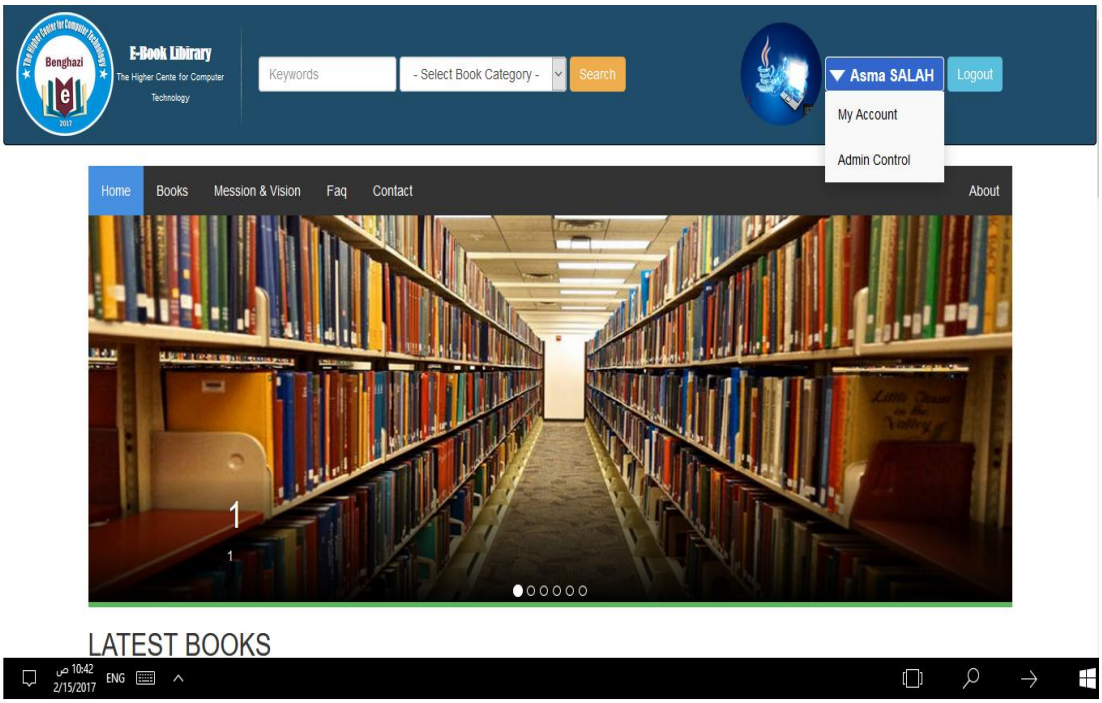
Questions	Extremely Disagree	Disagree	Neutral	Agree	Extremely Agree
	1	2	3	4	5
If the digital library provides virtual system that enables more flexibility and conveniently access to collection of data and information?					
Is the Digital library providing satisfaction to the user?					
Is the Responsive web design look and feel of online content that want user?					
Is the Digital library is flexible and helpful to complete the task?					
Is the Digital library text easy to read?					
Are the graphics and images helpful to read information?					
Is the data and information on the site organized?					
Is the Digital library consistent with language, terminology and format effectively?					
Digital Resource library system is reliable to complete task without any problems of technical?					
Is the DRL improving the security and data management?					
Is the DRL library includes reliable s1ecurity management system?					

Is the DRL sufficient to structure and access to documents, maps or any information?					
Is the system reduces the cost than traditional library system?					
Is the DRL perform fast to enhance the user experience?					
Is The DRL searching, revision and browsing tool / features effective to complete the task?.					
Is it easy to upload and download documents in limited time?					
Is it more manageable than traditional desktop site?					
Is it save, time and cost?					
Is it effective to stay competitive?					
Would you be able to handling with any kind of digital device (PCs, Tablet, Mobile, etc.)?					
If the E-library system will enhance the quality of learning resource at Higher Institute of Computer?					
Is the E-library important to get equipped with new academic material?					
Can The Students and staff members share the new knowledge easily through E-library system at Higher Institute of Computer?					

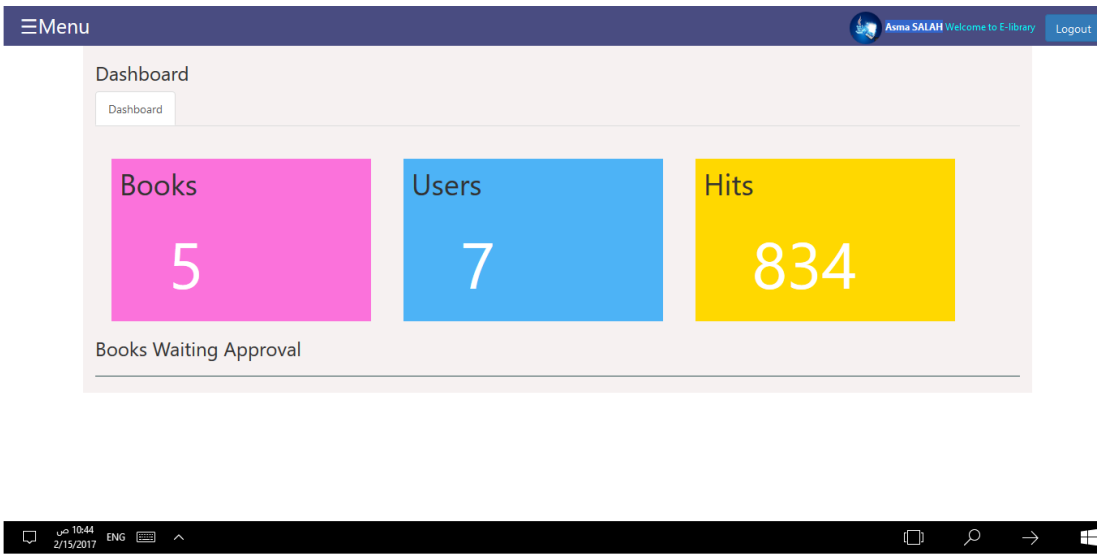
Appendix 2: E-library interface and main operational overview

Main interface of E-library system interface no 1

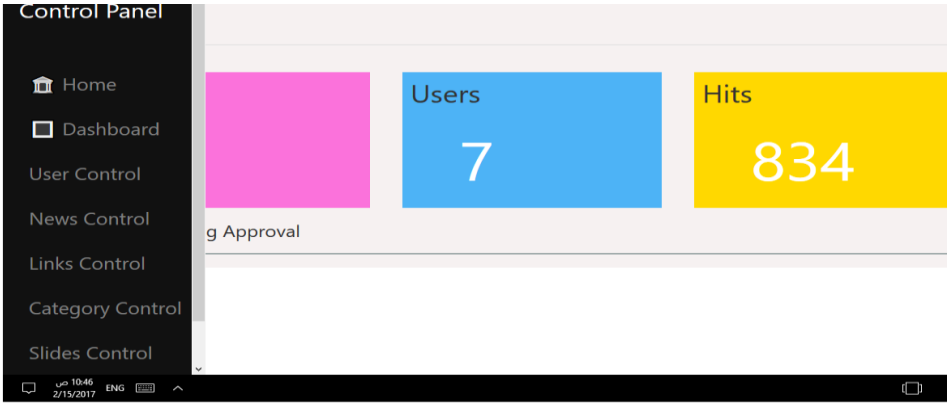




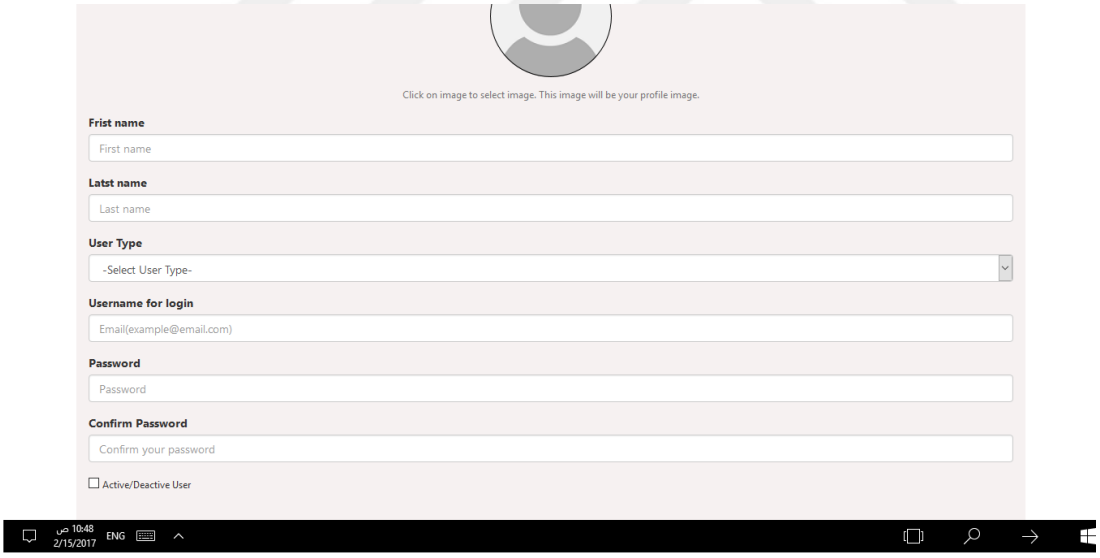
Dashboard: interface no 2



Control Panel : interface no 2

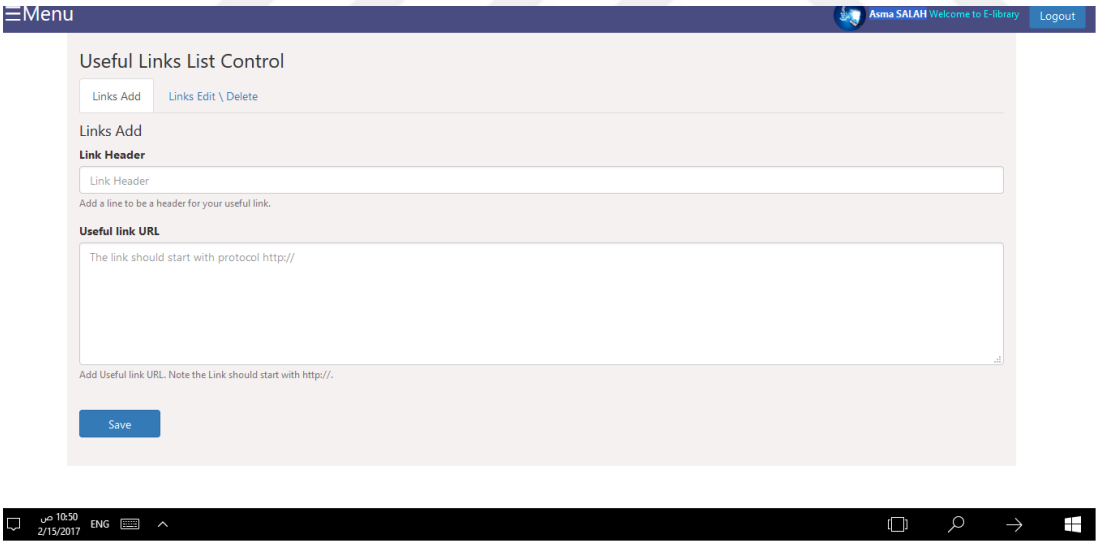


User control: interface no 3

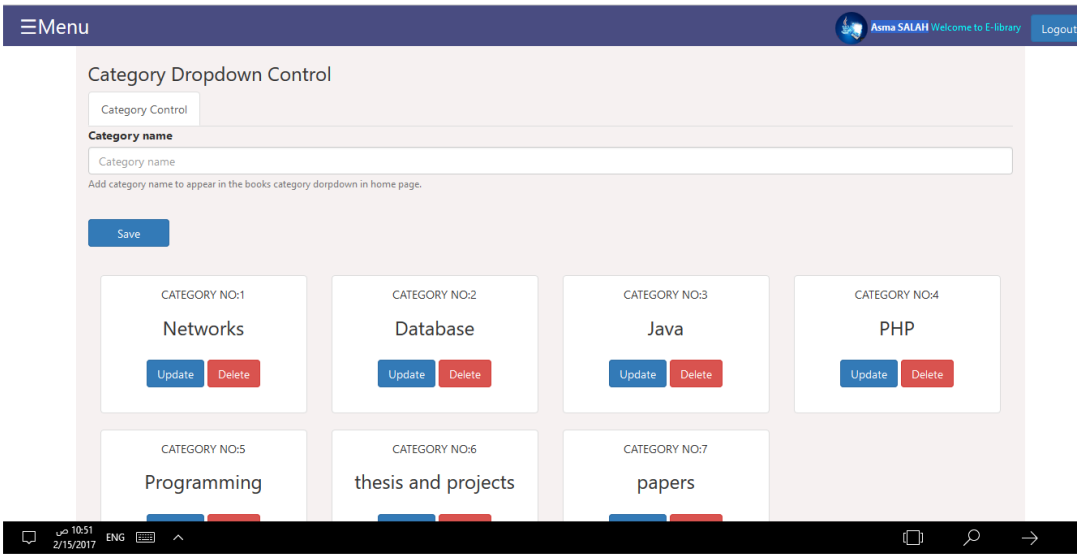


News control :- interface no 4

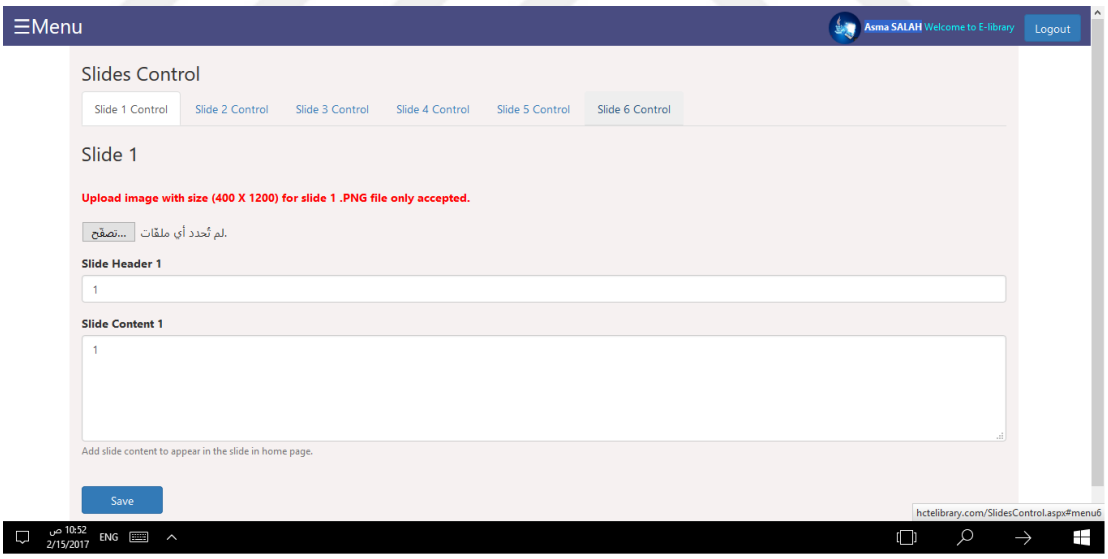
Links control : interface no 5



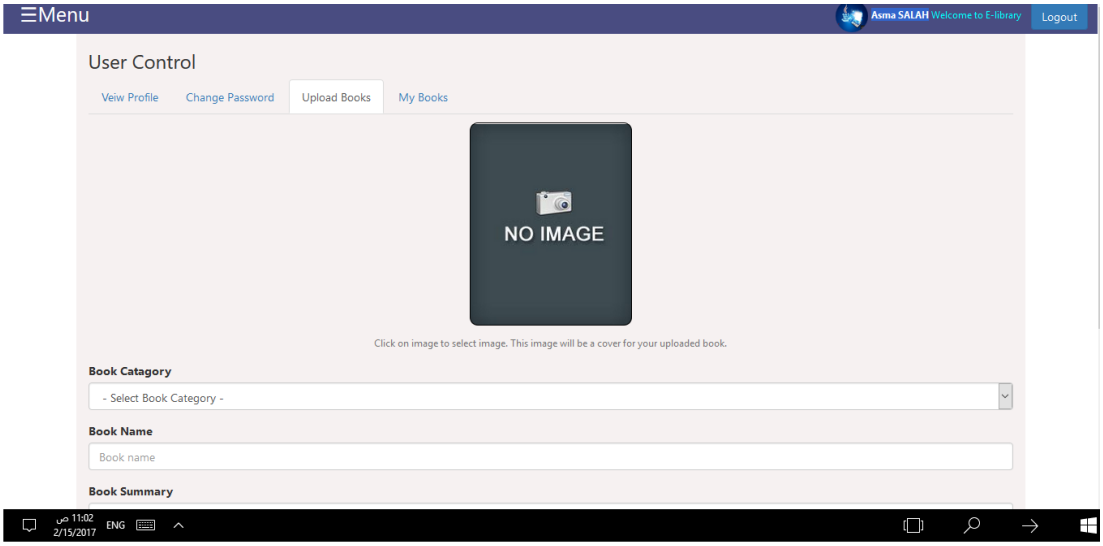
Category control : interface no 6



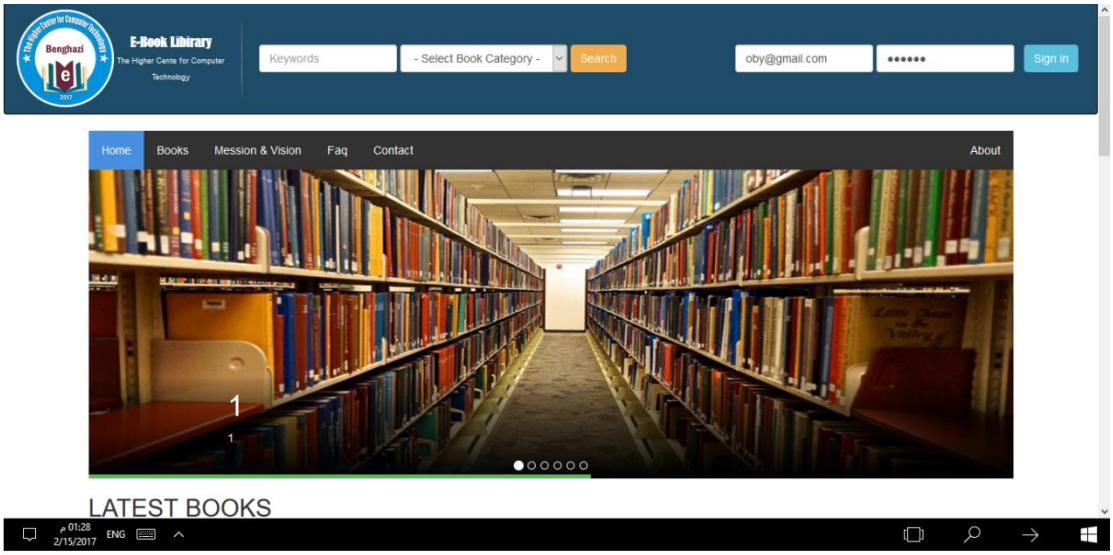
Slides control : interface no 7

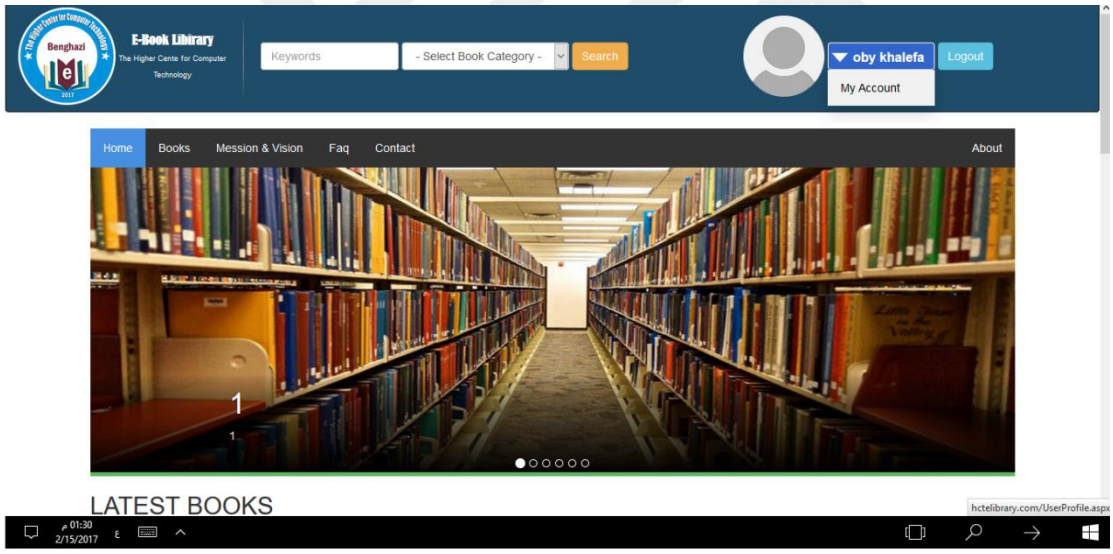


Books control :- interface no 8



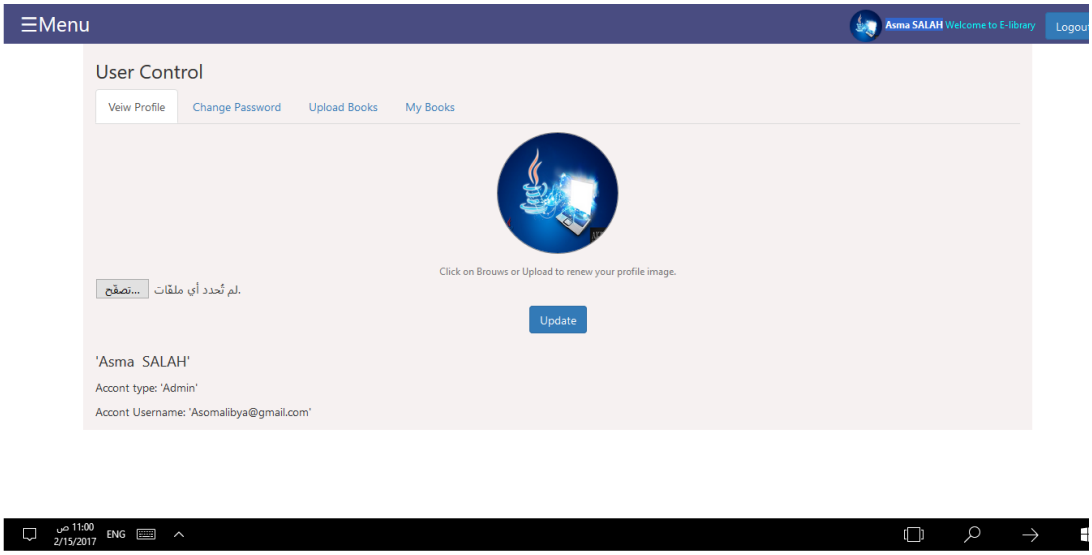
Login E-library system as user


E-Book Library
The Higher Cente for Computer Technology
Keywords
- Select Book Category -
Search
oby@gmail.com
Sign in
Home
Books
Mession & Vision
Faq
Contact
About
LATEST BOOKS

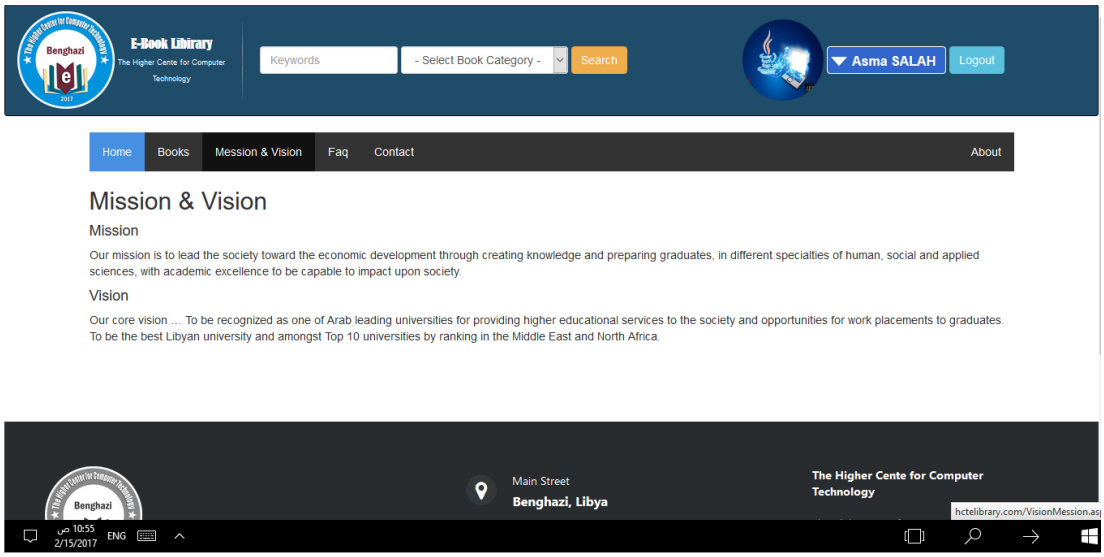

E-Book Library
The Higher Cente for Computer Technology
Keywords
- Select Book Category -
Search
oby khalefa
Logout
My Account
Home
Books
Mession & Vision
Faq
Contact
About
LATEST BOOKS

My account :

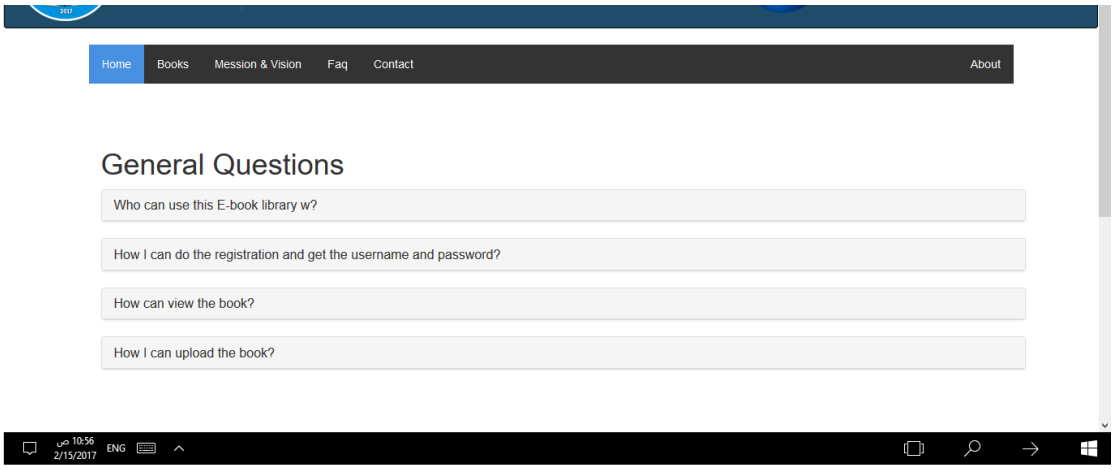
interface no 9



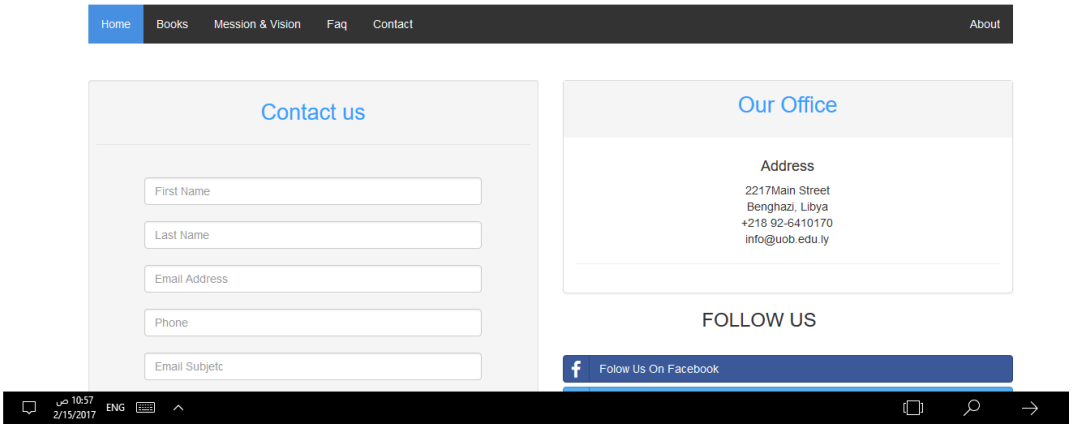
interface no 10



FAQ (frequently asked question) interface no 11

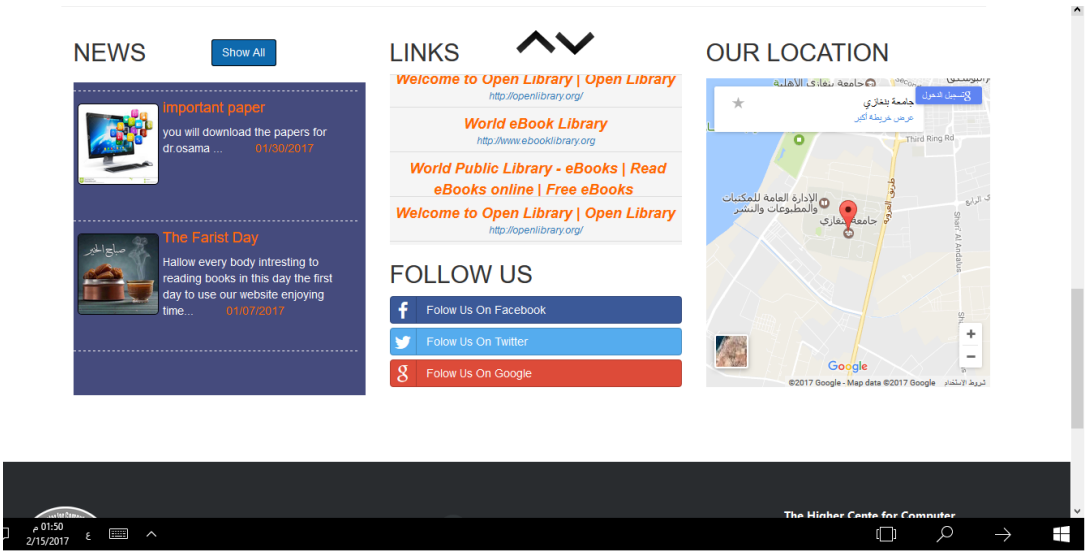


Contact and other office address and contract information. interface no 12



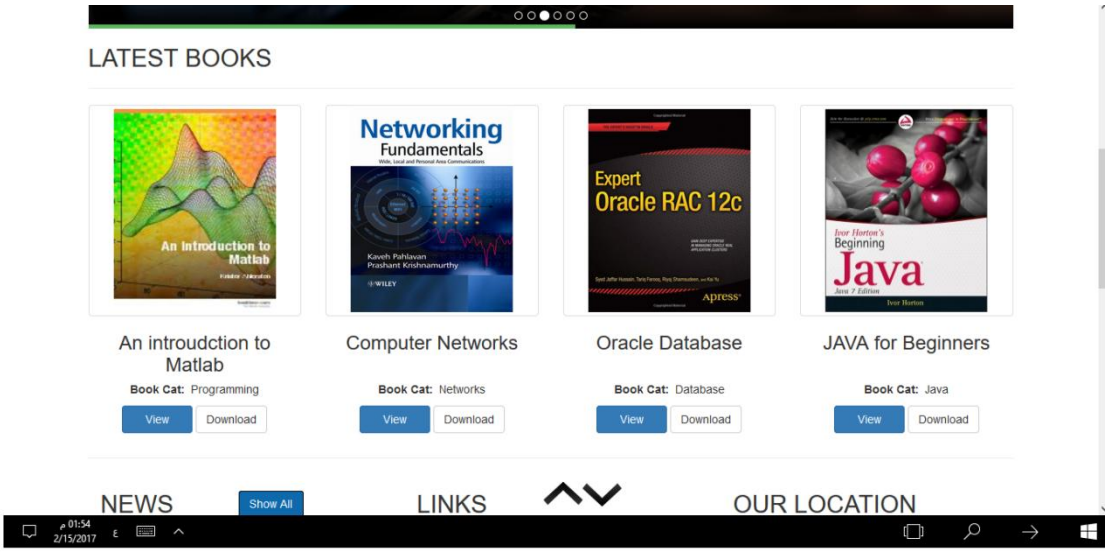
The website link, social media platform and map of the university

interface no13



The new books and academic material are also display in the main interface.

interface no 14



Appendix 3 List Of Results Table

Q1:Is the digital library provides virtual system that enables more flexibility and conveniently access to collection of data and information?

Table 4:DRL to access data and information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	7	9.1	9.1	9.1
	Disagree	14	18.2	18.2	27.3
	Neutral	9	11.7	11.7	39.0
	Agree	38	49.4	49.4	88.3
	Extremely agree	9	11.7	11.7	100.0
	Total	77	100.0	100.0	

Q2:Digital library provide satisfaction to the user?

Table5:DRL and satisfaction to the user

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	3	3.9	3.9	3.9
	Disagree	10	13.0	13.0	16.9
	Neutral	17	22.1	22.1	39.0
	Agree	38	49.4	49.4	88.3
	Extremely agree	9	11.7	11.7	100.0
	Total	77	100.0	100.0	

Q3:Responsive web design look and feel of online content that want user

Table 6:RWD and online content

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	4	5.2	5.2	5.2
	Disagree	10	13.0	13.0	18.2
	Neutral	15	19.5	19.5	37.7
	Agree	38	49.4	49.4	87.0
	Extremely agree	10	13.0	13.0	100.0
	Total	77	100.0	100.0	

Q4:If the Digital library is flexible and helpful to complete the task?

Table 10: DRL and helpful to complete the task

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	2	2.6	2.6	2.6
	Disagree	15	19.5	19.5	22.1
	Neutral	20	26.0	26.0	48.1
	Agree	32	41.6	41.6	89.6
	Extremely agree	8	10.4	10.4	100.0
	Total	77	100.0	100.0	

Q5: Is The Digital library text easy to read?

Table 11: DRL and easy to read text

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	1	1.3	1.3	1.3
	Disagree	19	24.7	24.7	26.0
	Neutral	19	24.7	24.7	50.6
	Agree	30	39.0	39.0	89.6
	Extremely agree	8	10.4	10.4	100.0
	Total	77	100.0	100.0	

Q6:Are The graphics and images helpful to read information?

Table 12: DRL and images and graphics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	2	2.6	2.6	2.6
	Disagree	14	18.2	18.2	20.8
	Neutral	19	24.7	24.7	45.5
	Agree	33	42.9	42.9	88.3
	Extremely agree	9	11.7	11.7	100.0
	Total	77	100.0	100.0	

Q7 :Is the data and information on the site organized?

Table 13: DRL and site organized

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	6	7.8	7.8	7.8
	Disagree	15	19.5	19.5	27.3
	Neutral	13	16.9	16.9	44.2
	Agree	28	36.4	36.4	80.5
	Extremely agree	15	19.5	19.5	100.0
	Total	77	100.0	100.0	

Q8: **Is the Digital library consistent with language, terminology and format effectively?**

Table 14: DRL and terminology, language and format

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	4	5.2	5.2	5.2
	Disagree	14	18.2	18.2	23.4
	Neutral	19	24.7	24.7	48.1
	Agree	25	32.5	32.5	80.5
	Extremely agree	15	19.5	19.5	100.0
	Total	77	100.0	100.0	

Q9: **Digital Resource library system is reliable to complete task without any problems of technical?**

Table 15: DRL and lack of major technical issues

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	2	2.6	2.6	2.6
	Disagree	8	10.4	10.4	13.0
	Neutral	6	7.8	7.8	20.8
	Agree	33	42.9	42.9	63.6
	Extremely agree	28	36.4	36.4	100.0
	Total	77	100.0	100.0	

Q10: **Is the DRL improving the security and data management?**

Table 16; DRL and security data management

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	2	2.6	2.6	2.6
	Disagree	6	7.8	7.8	10.4
	Neutral	10	13.0	13.0	23.4
	Agree	24	31.2	31.2	54.5
	Extremely agree	35	45.5	45.5	100.0
	Total	77	100.0	100.0	

Q11: **Is the DRL library includes reliable s1ecurity management system?**

Table 17: DRL and reliable

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	1	1.3	1.3	1.3
	Disagree	7	9.1	9.1	10.4
	Neutral	12	15.6	15.6	26.0
	Agree	26	33.8	33.8	59.7
	Extremely agree	31	40.3	40.3	100.0
	Total	77	100.0	100.0	

Q12: **Is The DRL sufficient to structure and access to documents, maps or any information?**

Table 18: DRL and access to documents, maps, information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	7	9.1	9.1	9.1
	Disagree	8	10.4	10.4	19.5
	Neutral	9	11.7	11.7	31.2
	Agree	22	28.6	28.6	59.7
	Extremely agree	31	40.3	40.3	100.0
	Total	77	100.0	100.0	

Q13: **Is the system reduces the cost than traditional library system?**

Table 19: DRL system reduce the cost

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	3	3.9	3.9	3.9
	Disagree	8	10.4	10.4	14.3
	Neutral	14	18.2	18.2	32.5
	Agree	29	37.7	37.7	70.1
	Extremely agree	23	29.9	29.9	100.0
	Total	77	100.0	100.0	

Q14: **Is the DRL perform fast to enhance the user experience?**

Table 20: DRL and performance increase for more user experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	3	3.9	3.9	3.9
	Disagree	10	13.0	13.0	16.9
	Neutral	16	20.8	20.8	37.7
	Agree	30	39.0	39.0	76.6
	Extremely agree	18	23.4	23.4	100.0
	Total	77	100.0	100.0	

Q15:Is the DRL searching and browsing tool/features effective to complete the task?

Table 21DRL and searching revision, browsing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	3	3.9	3.9	3.9
	Disagree	5	6.5	6.5	10.4
	Neutral	18	23.4	23.4	33.8
	Agree	32	41.6	41.6	75.3
	Extremely agree	19	24.7	24.7	100.0
	Total	77	100.0	100.0	

Q16: **Is it easy to upload and download documents in limited time?**

Table 11: DRL and upload / download documents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	3	3.9	3.9	3.9
	Disagree	3	3.9	3.9	7.8
	Neutral	13	16.9	16.9	24.7
	Agree	40	51.9	51.9	76.6
	Extremely agree	18	23.4	23.4	100.0
	Total	77	100.0	100.0	

Q17: **Is it more manageable than traditional desktop site?**

Table 12: RWD and desktop site

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	2	2.6	2.6	2.6
	Disagree	3	3.9	3.9	6.5
	Neutral	15	19.5	19.5	26.0
	Agree	36	46.8	46.8	72.7
	Extremely agree	21	27.3	27.3	100.0
	Total	77	100.0	100.0	

Q18:Is it save time and cost?

Table 24: RWD save ,time and cost

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	3	3.9	3.9	3.9
	Disagree	9	11.7	11.7	15.6
	Neutral	15	19.5	19.5	35.1
	Agree	32	41.6	41.6	76.6
	Extremely agree	18	23.4	23.4	100.0
	Total	77	100.0	100.0	

Q19: Is it effective to stay competitive?

Table 25: RWD and competitive

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	1	1.3	1.3	1.3
	Disagree	7	9.1	9.1	10.4
	Neutral	17	22.1	22.1	32.5
	Agree	35	45.5	45.5	77.9
	Extremely agree	17	22.1	22.1	100.0
	Total	77	100.0	100.0	

Q20:Is it would be handling with any kind of digital device(Pcs,Tablet,Mobile,etc)

Table 26:RWD and digital devices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Extremely disagree	1	1.3	1.3	1.3
	Disagree	10	13.0	13.0	14.3
	Neutral	25	32.5	32.5	46.8
	Agree	30	39.0	39.0	85.7
	Extremely agree	11	14.3	14.3	100.0
	Total	77	100.0	100.0	

Q21:Is it E-library important to get equipped with new academic material?

Table 27:E-library and importance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	4	5.2	5.2	5.2
	2.00	11	14.3	14.3	19.5
	3.00	19	24.7	24.7	44.2
	4.00	26	33.8	33.8	77.9
	5.00	17	22.1	22.1	100.0
	Total	77	100.0	100.0	

Q22: Will E-library system enhance the quality of learning resource at Higher Institute of Computer?

Table 28 : E-library and quality of learning a Higher Institute of Computer

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	4	5.2	5.2	5.2
	2.00	14	18.2	18.2	23.4
	3.00	18	23.4	23.4	46.8
	4.00	27	35.1	35.1	81.8
	5.00	14	18.2	18.2	100.0
	Total	77	100.0	100.0	

Q23:Can the student and staff members share the new knowledge easily through E-library system at Higher Institute of Computer?

Table 29:E-library system and new knowledge for students and staff at Higher Institute of Computer.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	2	2.6	2.6	2.6
	2.00	14	18.2	18.2	20.8
	3.00	24	31.2	31.2	51.9
	4.00	26	33.8	33.8	85.7
	5.00	11	14.3	14.3	100.0
	Total	77	100.0	100.0	