COLLECTION DEVELOPMENT WITH SPECIAL REFERENCE TO USE OF LIBRARY RESOURCES: A CASE STUDY OF JADAVPUR UNIVERSITY LIBRARY SYSTEM

Thesis submitted to the Faculty of Arts of Jadavpur University in partial fulfillment of the requirements for the Degree of Doctor of Philosophy in Library and Information Science

by

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2023

<u>Certified that the Thesis entitled</u>

Collection Development with Special Reference to Use of Library Resources: A Case Study of Jadavpur University Library System submitted by me for the award of the Degree of Doctor of Philosophy in Arts at Jadavpur University is based upon my work carried out under the Supervision of **Prof. Udayan Bhattacharya**, Professor, Department of Library and Information Science, Jadavpur University.

And that neither this thesis nor any part of it has been submitted before for any degree or diploma anywhere/ elsewhere.

Countersigned by the   Candidate:

Supervior: Dated:

Dated:

Declaration

I hereby declare that the thesis entitled "**Collection Development with Special Reference to Use of Library Resources: A Case Study of Jadavpur University Library System"** is a bona-fide record of work done by me and no part of the thesis has been submitted for any other degree.

………………………………….

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Dedicated

To my beloved parents to whom my success is their success

Sri Dilip Kumar Basu and Smt. Debjani Basu

&

All my well-wishers

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Susmita Sarkar Basu

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List of Abbreviations

Abbreviations	Full Form
AIChE	American Institute of Chemical Engineers
AICTE	All India Council of Technical Education
ASIHSS	Assistance for Strengthening of Infrastructure for Humanities & Social Sciences
ASIST	Assistance for Strengthening of Infrastructure for Science and Technology
BKSO	Book Selection and Ordering
BOS	Board of Studies
CAS	Centre of Advanced Study
CDP	Collection Development Policy
CMPRC	Condensed Matter Physics Research Centre
DLC	Departmental Library Committee
DOI	Digital Object Identifier
DRS	Departmental Research Support
DSA	Department of Special Assistance
DST-FIST	Department of Science and Technology Fund for Improvement of Science and Technology
EC	Executive Council
GDA	General Development Assistance
GST	Goods and Services Tax
HEPSN	Higher Education for Persons with Special Needs
ICSSR	Indian Council of Social Science Research
ILL	Inter-Library Loan
ISLM	Interdisciplinary Studies, Law and Management
LNCS	Lecture Notes in Computer Science
LNP	Lecture Notes in Physics
MARC	Machine Readable Cataloguing
N.C.E.	National Council of Education
NAAC	National Assessment and Accreditation Council

Abbreviations	Full Form
NBHM	National Board for Higher Mathematics
OBC	Other Backward Classes
PDA	Patron Driven Acquisition
PO	Purchase Order
SACC	Science Advisory Committee of the Cabinet
SAP	Special Assistance Programme
SC	Scheduled Caste
ST	Scheduled Tribe
TEQIP	Technical Quality Improvement Programme
UDC	University College Dublin
UGC	University Grants Commission
UNCTAD	United Nations Conference on Trade and Development
UPE	University with Potential for Excellence
URL	Uniform Resource Locator

Chapter 1.

Introduction

CHAPTER 1: INTRODUCTION

1.1. Background of the Study:

Education is the most important prerequisite for achieving the social, economical and technological development of a nation. The success of every nation depends upon the educational level of the people of that nation. The educational level of any nation is conditioned upon the availability of resources and infrastructure that facilitates educational programs. Higher level educational programs which are described as the process of learning and teaching are one of the benchmarks to reflect the development of a nation. Universities are the highest academic institutions of a country that produce scientific and skilled manpower for the nation by imparting education through various academic programmes. These academic programs need informational support to perform their activities and libraries act as a knowledge centre for assisting these programs with their collection of resources and serving its patrons to satisfy their intellectual needs. Thus, libraries are considered the heart of any institution. The main objective of any university library is to support the teaching, learning and research activities of the parent institution. The objective of the university library is achieved through a systematic acquisition, organization of all forms of recorded and undocumented information in all fields pertinent to the goals of the university.

There are three major components in a library – users, staff and the collection. The collection is the component of the library that links the users with the staff. Thus, developing the collection is one of the most important and responsible activities in the library that can meet the objective of the parent institution. Collection development is a vital process in creating and building a library collection irrespective of the type of the library as the utilization of any library depends upon the quality of its collection. 'Collection Development' has been defined by American Library Association (1995) as "a term which encompasses a number of activities related to the development of the library collection, including the determination and coordination of selection policy, assessment of needs of users and potential users, collection use studies, collection evaluation, identification of collection needs, selection of materials, planning for resource sharing, collection maintenance, and weeding" (Gulnaz & Fatima, 2019).

The idea clears that collection development is a process of assessing the strength and weaknesses in a collection and then creating a plan to correct the weaknesses and maintain the strength. In

general words, collection development is described as the planned purchase of different types of resources in various formats to cater to the users' needs. The planning requires an intellectual skill developed in the form of 'policies' which helps to build library collection systematically with proper monitoring and evaluation. Collection development policies are formal written statements that act as proper guidelines for the development, management and assessment of resources, often varied from library to library. The elements of the collection development process are selection, acquisition, relegation and evaluation of the collection. Collection development is a multifaceted and complex process that involves a wide range of activities. But until and unless these are streamlined, no library can achieve success in meeting its defined objectives, as each of the operations are independent and the whole process acts as a backbone for providing effective library services. As a decision-making activity, the main task of collection development is to understand how much emphasis is to be given on each step of its elements and in their relationships.

In the earlier days, the collection of a university library refers to printed books, monographs, printed journals, thesis, dissertations, audio-visual materials, cartographic materials, etc. It depends on the type of the library and the users it serves to decide what types of materials are to be acquired in their collection and in which form. But from the last decade of the 20th-century Information and Communication Technology (ICT) makes a huge change in society. Users' needs are changing day by day; they are demanding new types of information every day. The concept of the university library has changed from the acquisition of documents to access to information. Nowadays, the exponential growth of literature, multiplicity of information sources in various formats, channels and languages, varying demand for current and more specific information, increased number of users, the opening of new fields of interest, scattering and seepage of information, high inflation rates, sharp devaluation of the currency, ever-increasing price of print, non-print and electronic information sources, financial squeeze, declining library funding, expensive commitment on serial subscriptions, etc are creating problems in developing the collection. Moreover, the importance of the fifth law of Library Science i.e., 'Library is a growing organism' is also applicable here: in every library, the storage area is limited for holding of the printed materials. Despite these storage problem, the print collection still plays a vital role in fulfilling the ever-growing and changing demand of the users. Thus, in the developed countries the university libraries are maintaining their resources both in print and electronic format and act as a hybrid library to serve the information needs of the users. In this scenario, a

planned approach is required to develop the collection that assumes significance in the light of the economic recession and financial limitations. Assessment of user needs and use studies are also another part to streamline the university collection to be in tune with the objectives of the library.

In this thesis, a study of collection development in the Jadavpur University Library System has been attempted along with the use of library resources by the faculty members of Jadavpur University. The study is taken in consideration to identify the policies, procedures and practices considered for collection development in the University Library System and to understand the nature and use of library resources by the faculty members of Jadavpur University.

It is hoped that the investigations and analysis of the existing practices and critical observations in a trans-disciplinary library system like the Jadavpur University Library System will help to provide recommendations and guidelines for future use in different university libraries.

1.2 Statement of the Problem:

"Collection Development with Special Reference to Use of Library Resources by Faculty Members of Jadavpur University Library System"

1.3 Objectives of the Study:

The main objective of the research is to identify the following aspects of collection development in Jadavpur University Library System and use of library resources by the faculty members of Jadavpur University:

- To identify the procedures followed for the development of the collection in Jadavpur University Library.

- To reveal the existing status of collection in Jadavpur University Library.

- To assess the level of dependency in the use of printed and e-resources among the faculty members of Jadavpur University.

- To identify different purposes to use the printed and e-resources by the faculty members.

- To identify the advantages and constraints in using printed and e-resources by the faculty members of Jadavpur University.

1.4 Scope and Coverage of the Study

Jadavpur University has libraries on two campuses one in Jadavpur and the other is in Salt Lake. The Central Library is situated in the Jadavpur campus along with a number of departmental libraries and libraries of schools and centres. There is another campus library in Salt Lake for the five engineering and technology departments and a separate library for the School of Mobile Computing and Communication. All the libraries of Jadavpur University are controlled and directed by the Central Library of Jadavpur University as it follows a centralized system. The study has focused mainly on the observations of the existing policies, procedures, and practices of collection development in the Jadavpur University Library System and the use of library resources by the faculty members of Jadavpur University.

1.5 Limitations of the Study

Collection development is a widespread global phenomenon that has become a major concern in different categories of libraries for both developed and developing countries. In the Indian context, the academic libraries' collection differs according to the form of the collection, level of education and educational background of the users. In this study the development of the collection is restricted within Jadavpur University Library System and the users are limited within the faculty members of Jadavpur University. The analysis of the collection is restricted from 2017-2022.

1.6 Formulation of Research Question

To investigate the research problems the following research questions have been formulated:

1. What are the procedures followed to develop the collection in Jadavpur University Library?
2. What is the existing status of collection in Jadavpur University Library?
3. What are the levels of dependency in using different library resources by the faculty member of Jadavpur University?
4. What are the different purposes of using printed resources and e-resources by the faculty members of Jadavpur University?
5. What are the advantages and constraints in using printed resources and e-resources by the faculty members of Jadavpur University?

1.7 Methodology

There are two components in this study – one is the development of the collection and the other is the use of library resources by the faculty members of Jadavpur University. The study has been conducted through the following steps:

1. Documentary Sources:

i) The primary sources were examined to understand the existing status of the collection. The primary records include Purchase cum Accesion Register of Printed Books and Purchase cum Accession Register of E-books.

ii) The secondary sources were consulted to understand the collection development practices and procedures. The secondary sources include:

- Annual Reports and other publications of National Council of Education, Bengal have been consulted to know the origin, history of Jadavpur University and inception of Jadavpur University Library.
- Annual Reports, Newsletters and other publications of Jadavpur University, Jadavpur University website and NAAC Self Study Reports.

2. Discussions with the Chief Librarian, Departmental Librarians and the staff members of BKSO section for understanding the practices and procedures followed for the development of the collection.

3. User Survey

A user survey has been conducted to understand the use of libraries resources by the faculty members of Jadavpur University. For this purpose sample size has been determined.

i) Sample Size:

To determine the population size for the survey, data for total number of faculty members in Jadavpur University were collected from Payroll Section of Jadavpur University. The total number of faculty member is 627 (except the faculty members in lien) where 159 are from Faculty of Arts, 148 are from Faculty of Science, 295 are from Faculty of Engineering and Technology and 25 are from Faculty of Interdisciplinary Studies, Law and Management. The total 627 faculty members are used as Population size for this study.

Slovin's formula has been used to calculate the Sample Size which is given below (Yang, Lin, & Hu, 2020):

$$n = N / (1+Ne^2)$$

Where, n = Sample size, N = Population size and e = Margin of error.

For this study, Population size = 627, e = 0.05 giving with the 95% confidence level.

$$\text{Sample size (n)} = 627/ (1+ (627)*(0.05)^2) = 244$$

Total sample size for this study 244 has been divided among the four faculties according to the ratio of the faculties in population size where 62 were from 13 departments of Faculty of Arts, 58 were from 7 departments of Faculty of Science, 115 were from 17 departments of Faculty of Engineering and Technology and 9 were from 21 schools of Faculty of Interdisciplinary Studies, Law and Management. The sample size for each department was calculated according to faculty strength of that department.

ii) Method of Data Collection

Keeping in view the objective of the study, a structured questionnaire was designed and distributed among the faculty members of Jadavpur University to collect primary data. The population for this study was the faculty members of Jadavpur University. The survey was conducted between February 15, 2023 to May 15, 2023 in offline mode by physically meeting the faculty members. The structured questionnaires were distributed among 62 faculties of thirteen departments of Faculty of Arts, 58 faculties of seven departments of Faculty of Science, 115 faculties of seventeen departments of Faculty of Engineering and Technology and 9 faculties from twenty-one departments of Faculty of Interdisciplinary Studies, Law and Management. Simple random sampling (lottery method) has been followed to distribute the questionnaires among the faculty members according to sample size determined for each department under each Faculty.

1.8 Style of References:

The format for citations both in-text and bibliographical references for print and non-print materials is strictly according to the prescriptions of the Publication Manual of the American Psychological Association (6th edition, 2001).

1.9 Outline of the Thesis:

The study and investigation, made for this research work have been intended to report in the following Chapters:

Chapter - 1: Introduces the role of Jadavpur University in the higher education system and the contributions of Jadavpur University Library in supporting academic activities and achieving excellence. Here the scope of the study is described, the objectives are specified, research questions are formulated, based on the problem and methodologies adopted are clearly stated. The reasons for the selection of study areas have been elaborated and the limitations regarding the scope of the research have also been mentioned.

Chapter – 2: Includes a comprehensive overview of existing literature on collection development parameters and use of library resources concerning the research problem of this study with special reference to academic libraries.

Chapter – 3: Describes the origin of Jadavpur University Library System, present practices to develop the library collection and identify the existing status of the collections in the library.

Chapter - 4: This is the main chapter of the study 'Data Analysis and Interpretation' where the user survey results have been demonstrated with all the parameters according to the objectives and interpreted with statistical tables and figures.

Chapter – 5: Outlines the summary of findings and conclusions that have emerged from the result of this research work. Suggestions and recommendations are made based on findings in conclusion.

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Chapter 2.

Review of Literature

CHAPTER 2: REVIEW OF LITERATURE

"If we could first know where we are and where we tending, we could better judge what to do and how to do."

Abraham Lincon

A literature review is a study of to identify, locate and analysis of completed articles, books, thesis, research reports on a specific problem in a research area. Busha and Harter (1980) expressed literature review is thus a comprehensive survey of literature in a specific field of study. It is the work to identify and synthesize the previous works published in the specific field of study, to recognize the gaps and to frame a topic to be studied. Thus, literature review is the prerequisite for planning and execution of a new research topic. Bruce (1994) identified six element of literature search comprises a list; a search; a survey; a vehicle for learning; a research facilitatorand a report. Literature search for this research work has been done by analyzing the works on different collection development parameters mostly related to academic libraries and use of library resources in different universities An overview of existing literature is furnished below.

2.1 Collection Development

Gregory (2004) in his book gave a comprehensive view of collection development featuring all the components of collection development process like need assessment, purpose and components of collection development policy, acquisition of resources in various formats, budget and fiscal management, evaluation or assessment and weeding, cooperative collection development, legal issues of building a collection and the impact of new technologies on collection development and management. Collection development emerged as the fundamental aspect of every library and information centre. Owing to the vast scope of collection development and management each component of collection development in itself is a process that collectively helps to accomplish the goal of effective collection building in libraries. Literature studied related to the components of collection development are enumerated as under:

- Collection Development and Collection Development Policy
- Funding

- Selection and Acquisition of Documents

- Collection Evaluation

- User Study and Use characteristics

- Weeding of Documents

- Impact of IT on Collection Development

- Collaborative Collection Development or Cooperative Collection Management

- Collection Development in Academic Libraries: International Scenario

- Collection Development in Academic Libraries: Indian Scenario

2.1.1 Collection Development Policy

Patel (2016) discussed the importance of collection development and described the steps of the collection development process to develop a qualitative collection in academic libraries. He also mentioned the advantages of a written collection development policy and concluded that library professionals need to take utmost care to frame policies in developing a balanced collection.

Feng (1979) described that the heart of the library lies in its collection that needs to be built continuously. He opined that budgetary constraints forced the need for a defined collection development policy but the ultimate goal should be the improvement of library service without reduction of library cost. According to him, a policy is based on the understanding of the needs of the community it serves and acts as a guidepost to define and limit the goals and objectives of the institution. Osburn (1979) described the fundamental qualities of policies applicable to all types of libraries and recommended a step-by-step process leading to the successful realization of policy planning. He emphasized the values of the process itself and suggested implications for collection development personnel and the library as an organization when a working policy is adapted. White and Crawford (1997) opined that collection development policy defined the scope of a library's existing collections, plans for the continuing development of resources, identified collection strength, and outlined the relationship between selection philosophy and the institution's goals. It is one of the first pieces of evidence in determining whether a library is engaged in good collection development practices. Olaojo and Akewukereke (2006) emphasized on the collection development policy as it is the pillar to achieve the goals of the library services. They described what a policy statement can do and recommended high proficiency in acquisition

processes for combating the professional challenges and improving the status of academic libraries.

Collection development policy informs everyone about the nature and scope of the collection and collection priorities. In this regard the collection development policy guidelines of IFLA (2001), guidelines of National Knowledge Commission (2007) and the collection development policy of Library of Congress have been studied.

Kumar (2012) analyzed the strengths and weaknesses of the university libraries of Kerala and highlights the lack of a Collection Development Policy in the university libraries of Kerala. Prakash and Patil (2013) in their study inferred that despite the bonanza literature available in the sphere of collection development and management, there is still a lack of relevant Collection Development Policy in the majority of Central University libraries in India. They suggested the need for a separate collection development policy for the general collection as well as specific, including e-resources and IT-enabled services which should be revised from time to time according to the need of the users and the situation of the respective libraries. A Collection Development In-Charge post should be created in the library to operate the whole collection development process. Das and Choudhury (2014) observed a lack of financial assistance and a lack of Collection Development Policy in the surveyed university libraries of Orrisa. Joshi, A. N., Konnur, P. V., & Shinde, M. G. (2012) explained the need for Collection Development Policy (CDP) in academic libraries and the university libraries of Karnataka surveyed and showed the presence of CDP in all the libraries under its survey. They also highlighted the issues involved in the collection development of e-resources and the need to incorporate e-resources in the CDP. Dash (2016) pointed out the ways and means to adopt a need-based collection development policy in her case study of collection development and management of Smt. Hansa Mehta Library (SHML), The M. S. University of Baroda for providing effective information services to its patrons. Nwosu & Udo-Anyanwu (2015) observed the absence of a written comprehensive collection development policy in the studied libraries which implies a dearth of systematic approaches in performing collection development functions. They suggested an introduction of formalized comprehensive Collection Development Policy in academic libraries which will specify the modus operandi of all facets of collection development functions. Frempong-Kore (2021) in the case study on Marantha University College and Ghana Christian University College revealed that though CDPs exist in these libraries there was a lack of policy

when it comes to acquisition. It was recommended to include guidelines for acquisition in the policy and review the existing policy regularly.

The present study very specifically deals with the policy aspects and dimensions of collection development and management from a librarian's point of view. Moreover, the All India Conference of IASLIC held at Ranchi in 1993 dealt with the functions of collection development and the needs of collection evaluation.

2.1.2 Funding

The allocation of budget is one of the important tasks in collection development policy. The budget must relate to proper collection development policy. It must be directive. A collection development policy makes it clear where to spend the money and where to not. In this context, collection development faces many challenges worldwide. Adekanmbi and Boadi (2008) identified the challenges – lack of training of librarians, inadequate staff for the libraries, lack of administrative support, unavailability and non-use of collection development policies and above all, finances are possibly the biggest among the challenges. Several research findings (Mapualnga, 2011; Chaputula and Boadi, 2010; Kanyengo, 2009; Kavulya, 2006) had concluded that inadequate budgetary allocations had negatively impacted collection development. The effects were evidenced by the sharp deterioration of the quality of the collection. Chaputula (2014) in his article mentioned an agreement written by Akporhonor (2005) with this assertion that every library is supported by three legs – a building, its collections and the staff. However, the tendons supporting these legs, and what ultimately binds them together, is money. Finance is the heart of any enterprise and if the library has to meet its objectives, money is a necessity. When funds are lacking, it is difficult to organize library services and the efficiency of services is bound to be adversely affected. Chaputula (2014) also concluded that inadequate funding had negatively impacted the purchase of books, subscription to print journals and electronic journals, bookbinding and repair and staff training etc. Tillack (2014) in his paper discussed the pressures, opportunities and costs facing research library acquisitions budgets in Australia and recommended consortia, open access and demand-driven acquisition model which requires close monitoring of patron usage to avoid accidentally over-extended acquisition budgets.

Several researchers (Chaputula and Baodi, 2010; Kanyungo, 2009; Kavulya, 2006; Akporhonor, 2005) had rightly pointed out, libraries, especially those that were affiliated to

government institutions were grossly underfunded as a result of limited government subvention to their parent institutions. This problem which had been there for some time had been aggravated by the recent global economic crisis (Chaputula 2011; Guarria and Wang, 2011; Nicholas et al., 2010) Consequently this had frustrated collection development practices in many libraries such that many libraries had been forced to scale down on monograph acquisitions and cancel huge numbers of journals. Chaputula (2014) in Malawi focused that besides government subvention, private university libraries also undertook several activities that earn them money to sustain against the financial constraints. Some of these activities were operational while others are deliberate income-generating initiatives. Some of these income generating activities that fall under the former were overdue fines, photocopying charges, lost books, replacement etc. while activities that fall under the latter include endowments, consultancies etc. In their study of Cape Penninsula University of Technology (CPUT), it was suggested that the involvement of a faculty in research, and its teaching commitment both need to be taken into account. The recognition of this must be able to be demonstrated by the way the money was allocated and CPUT achieved that by using the Four-Factor Weight Allocation formula.

2.1.3 Selection and Acquisition of Documents

Selection is the most basic collection development function that constitutes the core of the process. It is the decision-making part of collection development. Selection depends on the types of libraries and the types of users using them. According to Rutledge and Swindle (1987) selection means defining criteria and establishing priorities to build a well-balanced collection. The librarian must ensure that no race, nationality, profession, trade, religion, school of thought or local customer is overlooked during selection. But the quality of materials must depend on two basic standards of selection the purpose and need.

Evans and Saponaro (2005) rightly stated, "Selection tools, bibliographies, reviewing sources, etc., provide information, to some degree, an overview of the output of publishers and media producers….They are time-saving tools essentials to the efficient functioning of the library" (p. 82).

Nwosu & Udo-Anyanwu (2015) opined the creation of Collection Development Department to coordinate selection, acquisition, stock evaluation, weeding and interlibrary cooperation in their study of collection development function in five academic libraries in Imo State, Nigeria. They

also suggested increased participation of specialists in their disciplines for building a relevant collection through valid judgments and re-institution of book vote in their institutional budget for judicial selection and purchase. Ameen and Haider (2008) explored the book selection methods and procedures in university libraries of Pakistan. They observed an imbalance role of selectors on selection practice, non-availability of selection aid, lack of awareness regarding the availability of online resources for selection and suggested some feasible ways to improve the situation. Haycock (2004) explored the reference lists of dissertations on curriculum and instruction at the University of Minnesota and concluded that the citation analysis yielded data can help to guide selection decisions, retention and cancellation. Benny (2015); Kumbar and Hadagali (2005) explored the selection criteria, pricing issues and models for different e-resources and discussed the challenges faced by the library professionals in the changing environment. Kavulya (2004) elucidated that acquisition is the implementation of selection decisions- ordering, receipt and payment. These procedures must be guided by collection development policy. Sasikala, Nagaratnamani and Dhanraju (2015) examined the selection criteria and acquisition process in academic libraries in Andhra Pradesh to highlight the trends followed by these libraries and revealed that purchase followed by gift, and donations were the common methods of acquisition.

2.1.4 Collection Evaluation

Lancaster (1995) recommended three main approaches to the collection evaluation in a library which included, "1) Comparing parts of the collection against bibliographies of various types; 2) Comparing strengths of the collection in various subject areas with measures of community interests (e.g. student enrollment in courses); 3) Analyzing circulation records in an attempt to determine, from the amount of use, whether or not present collection development policies seem appropriate." Rao (1997) mentioned the traditional methods for evaluating collection but in the context of evaluating the IT-based resources mainly CD-ROM databases, those were inadequate. He opined that it required an entirely different mission to keep track of frequently used records and identify less frequently used records effectively in distributed text-based systems. He concluded that effective techniques were required to search and store the downloaded data and separate policies should be framed for the collection development of internet-based resources. Fombad and Mutula (2003) mentioned an array of methods for qualitative evaluation of a collection viz; "having it evaluated by a specialist in that field, the use of reading lists,

bibliographic checking, numeric counts, formulas and standards, interlibrary loan analysis, checking against the catalogue of other libraries, implementation of user surveys, analysis of machine-readable cataloguing data and the use of collection maps and Scat analysis". Andrews, Monday & Williams (2006, as cited in Crowley and Spencer, 2011) mentioned about the Joint Information Systems Committee (JISC) Academic Database Assessment Tool (ADAT) which is an online comparison tool to help libraries to make decisions during the selection process in libraries by comparing the coverage overlap in library e-collections. Ameen (2008) observed that the role of community analysis is important and thus formal and informal assessment of collection is necessary to understand the users' perspective and complete the cycle of collection development. Hyodynmaa, Kannisto and Nurminen (2010) described the case study of Tampere University Library's application of collection mapping technique which made it possible to map and evaluate the library's collection through this technique. Danielson (2012) identified that evaluation of use statistics and ILL statistics both were essential for a balanced assessment of collection development. Giri, Sen and Mahesh (2015) observed that there is no consistency in deciding on the number of copies for acquisition in academic libraries under study and introduced a method to determine the number of copies for acquisition.

2.1.5 User Study and Use Characteristics

University Libraries serve as the powerhouse for academic activities by carefully selecting, processing and storing relevant information to meet both academic and leisure demands of all members of the university community. Nisonger (1997) suggested that evaluation criteria were needed to determine the efficacy and cost-effectiveness to meet the patron information needs and assess the library satisfying the patron's needs by integrating the printed and electronic resources. Parmeswaran (1997) strongly emphasized that libraries should have some inbuilt mechanism for assessing user requirements and evaluating the collections. Fombad and Mutula (2003) stated that the effectiveness of any collection can be determined by observing how comprehensively and extensively the library satisfies the intellectual needs of its patrons. Haycock (2004) concluded in his work on citation analysis of dissertations that it can help to develop an indicator of collection use, as well as support collection development decisions and can be effectively used in liaison works. Power as reported by Olaojo and Akewukereke (2006) observed that "one of the most meaningful ways to judge the quality and effectiveness of a library's services is to measure how well it is meeting the needs of the users. If the user needs are mostly not met, then

the library acquisition policy needs to be re-appraised and modified. The policy must at all-time be scientifically managed if the library is to fulfill its mission." Adeniran (2011) emphasized that when he visited the university libraries he observed they serve two complementary purposes - support universities curricula and research activities of faculty as well as students. Lastres (2011) revealed that to assess the usage of e-resources utilized by patrons, "librarians can take control of usage metrics with the help of new tools such as Research Monitor, OneLog, and LookUp Precision." Kachaluba, Brady & Critten (2012) stressed on a patron-driven collection by exploring the understanding of faculty members and scholars of humanities of Florida State University on the use of print and electronic resources. Kasalu and Ojiambo (2012) added that it is also valuable to assess users' needs through analysis and user surveys. Prakash and Patil (2013) revealed that although Indian University libraries consider user needs for collection development however lack periodic assessment of user needs. Alade, Iyoro and Amusa (2014) focused to identify the library use characteristics and recommended the involvement of students in collection development activities in their survey in a Nigerian University. The study also suggested a proper balance of print and electronic resource acquisition for maximum exploitation by users and implementation of alert services like Current Awareness Service in library's acquisition, function and services that can increase the effectiveness of a library as an instrument of education. The Lingnan University Library conducted annual user satisfaction surveys since 1997, to assess their information needs (Library User Satisfaction Survey, 2016).

2.1.6 Weeding of Documents

Considering the problem of space, staff and funds in the library Dubicki (2008) suggested weeding as an effective way of keeping the collection vibrant, relevant and usable. It makes the remaining materials more visible and accessible. Weeding, although primarily driven by space shortage, among others it seeks to rid the library of outdated and irrelevant materials, duplicate copies etc. as discussed by Dubicki (2008). Prakash and Patil (2013) revealed that one-third of the central libraries surveyed by them practice weeding for less-used documents. With the growing collection of the library the stacking space is not proportionately expanded. So, it is necessary to weed out the collection following some standard weeding policy. Wanle and Wadekar (2014) in their case study of the Jayakar Library, Pune University mentioned the existing recommendations of weeding policy and discussed the CREW method of weeding and its six general criteria called MUSTIE. They also elaborated the pre-weeding and post-weeding

procedures and recommended a written withdrawn policy for all forms of collection. Patel (2016) discussed the importance of weeding policy as a component of collection development policy and suggested various ways of weeding in academic libraries.

Kumar (2012) highlighted the dearth of weeding policy in Kerela University libraries. Das and Chowdhury (2014) confirmed the lack of weeding policy in University libraries of Odisha and Nwosu and Udo-Anyanwu (2015) in Nigeria. On the contrary, Khanchandani and Hasan (2018) discussed the criteria used for weeding in the central library of IIT Delhi and highlighted the need and the constraints of weeding in the library. Johnston (2011) concluded New Zealand academic libraries were doing the right things when it comes to weeding, but they were constrained by factors such as time and policy issues.

Library materials deteriorate in a state either because they are heavily used or because they are lying idle on the shelves hence gathering dust and becoming mouldy. Chaputula (2014) recommended that weeding and preservation are some of the notable activities that are undertaken in libraries. In either case, these materials are removed from the shelves and moved to storage or disposed of through weeding or in the case of heavily used items taken to the bindery for repair or reformatting, hence preservation as recommended by Chaputula (2014).

2.1.7 Impact of IT on Collection Development

Collection development has become exponentially more complex due to the gradual emergence of new technologies and rapidly changing formats which offer both challenges and opportunities for both library professionals and library users. Now there are at least four choices to provide resources: a print subscription only, an electronic subscription only, both electronic and print subscription, or reliance on Interlibrary Loan or commercial document delivery instead of a subscription. The Library Trends spring issue of 2000 focused on the collection development and management in a rapidly emerging electronic environment in contrast to the traditional one. Aptagiri (1997) emphasized on the constraints of collection development- the cost of publication, space limitations, manpower limitations, information explosion, interdisciplinary nature of studies and demand for information, increasing rate of obsolescence, multiple forms of data availability, lack of adequate ways of retrieval of nascent information and examined internet as a worldwide source of information.

Seetharama (1997) discussed the impact of information technology on collection development and collection management and considered the key issues-ownership vs access, cooperative efforts and evaluation for reengineering collection development by exploiting information technology. He also mentioned the role of the librarians to maintain, nurture and optimize the resources of the libraries with the help of information technology by utilizing them as the 'tool of our trade'.

Bali (1997) explored the collection development program in National Institute of Science, Technology and Development Studies (NISTADS) and revealed that a suitable collection development plan was developed by resource sharing with other libraries and exploiting available information technology to combat the problems faced due to the exponential growth of information and price rise of books and journals.

Amudhavalli (1997) discussed the problems of collection development in traditional libraries and how it can be handled in IT environment. The problems faced by the library and information centres in procuring electronic publications were also pointed out.

Rao (1997) in his article opined on the evaluation of the collection in the electronic environment with the increasing use of CD-ROMs, online services, the impact of internet etc. He recommended some evaluative measures in the context of recent advances in IT.

Vignau (2006) discussed the collection development in the digital environment and mainly focused on the user-oriented concept in the development of digital collections. It is believed that developing digital collection is a logical consequence of inserting information technologies in organizations.

Kasalu and Ojiambo (2012) in their paper recommended different ways of applying ICTs in all the processes of the collection development to make the process more efficient and effective in meeting the needs of the users.

2.1.8 Collaborative Collection Development or Cooperative Collection Management

In the age of information it is the information itself, and management, that produces structural changes at economic, social and cultural levels. Alvi (1997) emphasized on the need of improving the quality of library services by implementing cooperative collection development policies suited to the current philosophy of multi-purpose resource sharing mechanism for the

access to information in the wake of the exponential growth of knowledge and diversified patron information needs. Blecic, Hollander & Lanier (1999) in their survey indicated that serial market forces, budgetary constraints and growth of electronic resources purchasing have resulted in a decline in the acquisition of print items, curtailed the approval plan use and suggested the need for cooperative collection development of print materials to overcome the problems. Survey results also revealed outsourcing cataloguing and shelf preparation of books for cost-effectiveness**.**

Fyffe (2002) traced new forms of creating, organizing and spreading information that have transformed twenty-first century libraries, which, in turn, have needed to search for innovative approaches to their mission, nature and practice through a new way of understanding. Montano (2014) revealed that library collection had great changes in its origin, composition, ownership, volume and diversity, different life cycle from paper to digital formats and evaluation process which affected the practices of collection management in three areas: change and expansion of existing activities of collection management, enlargement and modification of agents involved and basic mission of giving access to all information resources needed by actual or potential users. To overcome these issues "cooperation" is recommended as the main engine of collection management.

San Jose Montano (2014) referred to his doctoral thesis where he describes the most striking changes in library materials and collections. In case of origin, a large volume of the collection remained acquired material that had an external creation with different business models such as consortia purchasing, subscription licensing, print on demand, driven pattern acquisition etc. but the university libraries had begun to create, maintain and guard their economic and institutional capital in repositories (scientific production, learning objects and cooperative collection). Another biggest change in the collection was its diversity of resources – paper, electronic and digital object. There were new forms of access such as rental and perpetual access and therefore is no longer owned by the library. Libraries had augmented the size of their collection through the purchase of packages with a growth trend in the collection based on the demand and new types of resources (repositories, selected links etc.) Transformation of the paper-based resources to the digital collection through digitization and creation of institutional repositories and life cycle processes of the electronic resources management expanded (licenses, use, maintenance, review, storage etc.) and acquired a different concept. Due to the exponential growth of

knowledge in different formats, price rise of the library materials and diversified information needs of users the idea of co-operative or collaborative collection development emerged that will avoid overlapping in acquisitions, acquire more needed materials, proper utilization of funds improve upon the library services**.**

Although library cooperation has a long tradition in many of its activities, it was generally limited to the sharing of resources, purchasing or interlibrary sharing. Management cooperation is more recent and its great development came in the hands of the consortia. Virtual Library of Virginia was one of the first consortia established management programs in cooperation collection for consortia purchases to reduce costs and improve user satisfaction as reported by Martula et al. (2008) But libraries began to expand their co-operative activities to collection management, not limiting them, to only the purchase of the electronic collection. De Rosa et al. (2004) in their report of the Online Computer Library Centre Environment Scan: Pattern Recognition, 2003, traced that libraries are changing and that the key element of sustainability was cooperation, especially in activities such as the creation of repositories, collection of "whole cloth" preservation and storage. Wilson (2009) also shared the affirmation. Cooperation becomes an essential element in the collection management and the main engine of a great part of the collection management, making possible many of the libraries to achieve their objectives which individually would not be possible. Mandal and Panda (2005) elaborated on different dimensions of collection development with specific reference to Engineering College Libraries. They had analyzed data on library collection received from 17 major Engineering College Libraries of West Bengal and enumerated the activities of seven major library consortiums of the world engaged in sharing resources among Engineering College Libraries.

2.1.9 Collection Development in Academic Libraries: International Scenario

Kelvin and Oghenetega (2012) stressed on the contribution of automation for the better management of the collection development and acquisition process of the library. The observations in the study of collection development and acquisition in the academic institutions of Nigeria were lack of management commitment, lack of planning for automation and lack of technical skills to impede automation. It was recommended that obtaining information about library materials, maintaining records of materials ordered and claiming of orders –all works related to collection development and acquisition can be automated by analyzing the automation

needs of the librarians and planning the selection and implementation of the automation system to provide improved services to the patron.

Ramanan (2012) considered the collection development policy as an invisible vertebra of a library collection that can serve the users demand at best. In the case of the main library concerned in the study, the allocation for information resources had been fluctuating every year, thus strife arose among the faculties as to who should be given more budget priority. From undergraduates' point of view, the demanded titles do not have a sufficient number of copies to cater to them when examinations approach. Moreover, the physical space in the library was more challenged than ever as the collection grew every year, weeding was not practiced and the main library was adding electronic resources also. Hence, the research examined the need for and avenues to devise an effective collection development policy for the main library of the university, with the anticipation to move into cooperative collection development practice among other university libraries in Sri Lanka.

Chaputula (2014) studied the collection development practices in some private university libraries in Malawi and revealed that the university libraries were struggling to sustain their operations due to financial constraints and were recommended to generate funds by carrying out consultancies, writing research grant applications, partnership with charitable organizations and participating in local and regional consortia to develop the collection in a sustainable cost. Other constraints were poor network infrastructure, shortage of computers, lack of relevant IT skills, irregular weeding etc.

Tynan & McCamey (2014) studied the trial of patron-driven acquisition (PDA) as a collection development tool in University College Dublin in the Republic of Ireland. A total of 42% of UCD Library's book budget was allocated to the project, which included both electronic and print books. They analyzed which disciplines spent the most money, and how usage of PDA titles compared to non-PDA orders placed in the same period and assessed the impact of PDA on the library's workflow.

Nwosu & Udo-Anyanwu (2015) studied five academic libraries in Imo State, Nigeria and observed absence of comprehensive collection development policy, lack of coordinating unit for collection development activities, low participation of faculty in book selection, inadequate book votes and irregular weeding of stock were some of the problems faced by the libraries under

study. It was suggested to create a Collection Development Department to coordinate all collection development activities of selection, acquisition, stock evaluation, weeding and interlibrary cooperation and to frame a comprehensive Collection Development Policy to enhance the optimal performance of collection development activities in the academic libraries.

2.1.10 Collection Development in Academic Libraries: Indian Scenario

Mohanta (2007) in his thesis "Collection development in university libraries of Orissa" studied collection development programmes and policies in three major university libraries of Orissa and suggested that the users' survey should be conducted from time to time to identify the need of the users, preparation of Collection Development Policy Document, judiciously allocate existing budget and explore various ways for enhancement of the budget provisions, share resources through inter-library loan, cooperative acquisition, common membership, common referral activities and storage and evaluate the collection by obtaining users' opinion, circulation statistics, weeding, stock verification etc.

Basak (2010) critically analyzed the collection development policies and procedures in Calcutta University Library System and observed that the university follows certain procedures to develop the collection but there was no written collection development policy in the university. The author also proposed a model for a written collection development policy.

Khan and Khan (2010) conducted a study to measure the principles, policies and procedures of the collection development in the Maulana Azad Library of Aligarh Muslim University and the Central Library of the University of Delhi. They analyzed the library collection, budget, selection tools and procedure, e-journal subscription, library automation and resource sharing and revealed that a good collection development policy can ensure the necessary consistency to develop and manage the library collection and act as a planning tool for librarians but the policy must be reviewed and updated according to the environmental changes in the library.

Jena and Biswal (2012) assessed the acquisition policy and mode of procurement of reading materials in different university libraries in Orissa and revealed that the significance of the subject matter, accuracy of information and recency of work were the prime criteria for material selection but during the deficient budget, the library committee faced difficulty in decision making on procurement and authoritative decisions were followed. They also observed that there is no written acquisition policy in any of the university libraries.

Khan (2012) examined the user perceptions regarding the level of satisfaction with library collections, organization and facilities as well as traditional and IT-enabled services of central libraries of four universities of India and revealed that libraries involving respondents in collection development received a better assessment for effectively meeting the information needs of their users. Though the users response were not always satisfactory, library effectiveness in the four central universities was adequate based on levels of user satisfaction. In the case of newly centralized university libraries, users were dissatisfied with library collection thus financial and infrastructural support of the government was suggested.

Kumar (2012) studied four university libraries of Kerela to analyze the strength, weaknesses, opportunities and threats (SWOT analysis) and identified that lack of trained staff and less demand from the users for the existing resources and services were certain problems in the marketing of information products and services. Survey of the users to know their requirements and their expectation from the library and weeding out of the documents were suggested to overcome the threats.

Joshi, Konnur & Shinde (2012) conducted a study in six university libraries of Karnataka and observed that all the libraries were not purchasing e-resources and the study dealt with the amount of allocation and procurement of printed books. It was observed that there was no regular pattern in the allocation and judicious decision was taken depending upon the existing Collection Development Policy. It was suggested from the study that the purchase of e-resources was necessary for all the libraries. It was also recommended to have a written Collection Development Policy for all the libraries under study with the incorporation of the modus operandi of e-resources.

Gohel and Parmar (2013) studied the different types of collections of books maintained in eight university libraries in Gujarat and suggested 10 to 15% budget allocation from the university to the library to fulfill the demand of the users. They also suggested taking financial aid from the national and international organization; allocating funds judiciously for the purchase of books to reduce the financial constraints, considering requirements of the librarian for collection development capacity and monitoring effective utilization of the funds received for the library.

Prakash and Patil (2013) made a comparative analysis of collection development and management in the five central university libraries in India and suggested participation in

consortia, preparation of collection development policy and revision of it from time to time, creation of a specific post of Collection Development In-Charge in the library, users' participation in library committee and collection evaluation is necessary for collection development and information service generation.

Santra (2013) studied the existing status of the serial collection in Jadavpur University Central Library and analyzed the policies considered for the collection development and use of serials in the library. The constraints were revealed and recommendations were made to overcome them.

Sasikala, Nagaratnamani and Dhanraju (2014) examined the trends in collection development activities in academic libraries of Andhra Pradesh and the analysis revealed that although some of the libraries are adopting innovative means for collection development, however, majority of libraries are still following traditional collection development practices involving conventional ways.

Das (2015) conducted a study on the present status of e-resources and measured the policies and procedures governing the collection development of Jadavpur University Central Library and Burdwan University Central Library, India. It was revealed that two university libraries do not have any collection development policy for e-resources and suggested that 10% to 15% of the total budget must be allocated for the library by the university, the budget allocation must be judicious on current financial availability to adjust the shortage of money, financial aids should be used effectively and requirement of librarians for the collection development capacity should be considered.

Singh and Mahajan (2015) in their study on the two universities of the region of Punjab, India investigated the need of the users from library collections of print and electronic resources, their level of satisfaction and the users' awareness about library collection development policy and procedures. It was revealed from the study that the users were not aware of library collection development policy and procedures. Thus, it was recommended that libraries should take initiative on the participation of the users in collection development, seek users' feedback and set up a Collection Evaluation Committee to evaluate the collection.

Garate (2017) studied the quantitative growth in collection, analyzed the library budget and use statistics of the library collection of Mumbai University Library but concluded that the quantitative growth in the collection does not show any consistency during the study.

Kumar, Kumar & Pandey (2017) analyzed the collection development procedures or methods of the libraries of Kumaun University, Nainital and revealed that the libraries were using certain traditional collection building processes but there was a lack of user study, circulation study, ILL statistics study, in house use study and lack of concrete procedure to follow patron-driven acquisition with proper participation of all stakeholders of the library in the selection process. To overcome these lacunas in the process certain improvements in the existing system were suggested with an emphasis on the written Collection Development Policy.

Reddy & Chandraiah (2017) highlighted the collection development of the library of Dravidian University and observed that university libraries need to allocate more funds to acquire more e-resources and need to provide more infrastructure facilities to the users to utilize more library resources. They also suggested introducing the e-circulation system to avoid delay and maintain use statistics.

Gohain, Sarma & Saikia (2019) examined the year-wise growth and amount utilized for print books and periodicals collections in Central Library, Tezpur University and observed that there was very negligible growth of print books and periodicals collections in the library. They suggested the allocation of more funds to develop the print collection, selection of books for the library through a book selection committee and special attention should be paid to identify the most used title and should procure more copies if possible in addition to e-resources.

2.2 Use of Library Resources

The following literature reviewed the earlier studies regarding this research work and it validates the strength of investigation to boost the scientific study. To review the related literarures are thematically divided**.**

2.2.1Purpose and Use of E-resources

Sivaprasad (2009) conducted a study with samples of 80 teachers od Degree college in Guntur District, Andhra Pradesh. The study revealed that college teachers use electronic information resources for the purpose of their classroom teaching and research work, teachers use Internet as an electronic information resource. Majority of the teachers opined that access to current information is only through electronic resources.

Mishra (2010) stated that vast amount of information can be explored through the application of ICT. The study revealed that most of the respondents use the e-resources to update knowledge whereas others use them to support academic research work like preparing notes, to write an article or book.

Satpathy (2010) identified that the faculty members of C. V. Raman College of Engineering , Bhubaneswar are aware about the availability of various e-resources in their library which include e-books, e-journals, e-database, e-thesis/dissertations and e-news magazines. The purpose of using these resources is fot study and teaching, for presenting seminar, conference, workshops and for writing papers.

Thanuskodi (2011) attempted to study the frequency of using e-resources, types of e-resources used, methos of searching, problems faced to access and levels of satisfaction of using e-resources at Dr. T. P. M. Library Madurai Kamaraj University. The study revealed that all the respondents are aware of various types of e –resources and M.Phil students were maximum in searching the e-resources. Maximim PG students faced problems in using e-resources. The study recommended the improvement in the access facilities with high internet speed and subscription to more e-resources at Dr T.P.M. Library, Madurai Kamaraj University.

Navalur, Balasubramani and Kumar (2012) examined the existence of various E-resources, awareness about Eresources, preference to E-resources, Assess Points of E-resources problems faced while accessing the Eresources and purpose of E-resources usage in Bharatidhasan University by teachers, students and research scholars in Bharathidasan university. The results revealed that teachers are doing well increating awareness in using e-resources but students and research scholars are facing problems due to limitd termils. Users are expecting print copies of e-resources and are requiring more orientation programmes to use it.

Kumar (2012) compared the use pattern of electronic resources among the science and arts faculty members . The study revelaed that the faculties of Arts and Science use the electronic resources for current information. The Science faculties also use for its wide range whereas the Arts faculties use the resources for easier access to information.

Kavitha (2013) conducted a survey on teaching faculties of Degree College in Cuddatore District. The study examined the types o fe-resources used, sources of using the resources, frequency of use, purpose and problems faced during the use. The study revealed that most of the

respondents use the e-resources to keep up-to date on subject interest. They forund too much retrieval and access to computers are problems and are willing to get training on using the e-resources.

Maharana , Sethi and Behara (2010) conducted a survey to identify the necessity and usage of internet and e-resources among the students of masters course in Business Administration in Sambalpur University. The study resulted that most of the respondents are aware of the applications of internet and have long experience in using the e-resouces.

Akhtar Hussain (2013) critically analyzes the use of electronic information resources and services among the teachers and students of Sir Chhotu Ram Institute of Engineering and Technology, Meerut (UP) India. Among the 120 users the questionnaires were distributed and 100 respondents (40 teachers and 60 students) returned filled in questionnaire. This study extensively deals with the issue of electronic information resources usage from multiple perspectives including the library users' awareness of information, purposes of visit, linking patterns, type of e-resouces, uses of popular search engines, user satisfaction within information services, etc.

Mostafa (2013) hightlighted the existence of various e-resources and services in some selected private university library in Dhaka, Bangladesh. The study investigated the different types of electronic resources used by students, the purpose, the frequency of use and the problems faced in using e-resources. The results revealed that majority of the students use e-resources in research purpose, education purpose and for communication purpose and rest of the respondents used e-resources for entertainment purpose.

Murugesan (2013) investigated faculty's awareness and usage of online academic databases in order to determine the benefits they associate with electronic resources and the challenges they encounter in accessing electronic resources. The study established clearly that faculty members depend highly on online electronic resources not only for the purposes of research, but also to support their teaching. However, patronage of the library's online academic databases was very low. This was largely because faculty members were either not aware of the existence of these databases or were not aware the library had subscription to these databases. More awareness among faculties and students are required.

Malarvizhi and Sarangapani (2016) evaluated the usage of electronic information resources by the faculty members of Karunya University, Coimbatore..A well structured questionnaire was

distributed among faculty members to collect the necessary data. The study revealed that usage of E-Resources are high among faculty and research scholars. But ,if the downloading process should be increased inorder to complete their work at the earliest to save the time.

2.2.2 Print vs Electronic Resources

Premchand (2011) describe the challenges and examine the impact of the transition from print to electronic resources at a medium- sized academic library at a multi- campus Caribbean University, The University of the West Indies (UWI), with particular reference to the St Augustine campus. Libraries had successfully built a "hybrid" collection of print and electronic resources despite challenges with information and communications technology (ICT) infrastructure, balancing costs, licensing model and strategies for selection, acquisition and management of electronic resources. The paper provides some key steps for transiting the collection form print to electronics.

Knight (2013) tried to analyze the preference of students and faculty of Northern Caribbean University on their preference of print over electronic resources. More than half of the respondents prefer to use print books and journals for research purposes. 42% of them admitted that when they access electronic resources they are interested in, they print out the relevant pages that they need. 57% said the library should continue to provide electronic resources as they are helpful.

Doraswamy (2012) investigated the information use pattern of library services and facilities by the faculty members of Siddhartha Educational Institutions spread across Vijayawada.The response rate was 71.09%. The results revealed preference among senior faculty towards utilization of borrowing facility, reference service and internet search, whereas junior faculty were found showing low interest. Overall, the faculty members were found dependent upon on borrowed materials with greater focus on current awareness service, selective dissemination of information service and inter library loan service as opposed to other services.

Jeong (2012) assessed the usability of electronic books and paper books with objective measures, including user comprehension, eye fatigue, and perception. The study revealed that compared to e-books, paperbooks appear to enable better reading comprehension. Regarding eye fatigue, students had significantly greater eye fatigue after reading e-books than after reading p-books. Students were satisfied with the e-book, but they preferred paper books.

Elavazhagan and Udayakumar (2013) attempts to examine the exposure and measure the extent use of e-resources by the faculty members and research scholars of BITS, Pilani - Hyderabad Campus. A questionnaire based survey was conducted and the study revealed the e-resources are time saving, easy to use and handle, more informative, preferred, flexible and effective. This study concludes with few suggestions, such as subscription to more eresources, practical training on selected e-Resources etc

Mallikarjuna and Doraswamy (2013) comprehensively conducted a study on the information use pattern among the faculty members in pharmaceutical sciences, working in various institutions affiliated to the Acharya Nagarjuna University, the Andhra University and the Kakatiya University in Andhra PradeshThe response rate was 78%. The study showed that the faculty members of the pharmacy department were inclined towards reprographic and borrowing facilities compared with other services. The pharmacy faculty members usually seek and collect information for preparing question papers and other exam related work. And, library catalogues were forwarded for research oriented information rather than bibliographical sources. Interestingly, faculty strongly agreed to use books for teaching preparation than for research. Among others, periodicals abstracting and indexing periodicals and thesis/ dissertations were preferred for carrying out research.

Parmar, Patel and Parmar (2021) conducted a survey in three university libraries in Ahmedabad to understand the use of print and electronic resources. The study revealed that the students are aware on both the resources and their preferences for both are excellent. The majority of the students prefer electronic resources.

Observations

From the above discussions on literatures on the development of collection in academic libraries with special reference to university libraries various components of collection development have been studied and it was revealed that judicious distribution of funds among all formats of resources, users participation in the selection to satisfy their needs, collection evaluation by analyzing use statistics, users survey and feedback are the major areas which can help in developing an effective and qualitative collection. Most of the literature suggested that the recommendations in different areas of collection development can be practically implemented in a library if proper planning tools can be prepared and a written collection development policy can serve as the best tool in this regard.

For optimum utilisation of e-resources the studies focused and recommended that library should equip with intensive training on information searching skills to increase the utilisation of the subscribed e-resources. Furthermore, it is strongly recommended that the library should market its subscribed e-resources to attract more users.

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Chapter 3.

Jadavpur University and its Library System

CHAPTER 3: JADAVPUR UNIVERSITY AND ITS LIBRARY SYSTEM

3.1 History and origin of Jadavpur University

The impact of Western civilization, the de-nationalizing effects of Western education, biasness on English as a medium of instruction, lack of proper employment opportunities and neglecting moral and/or religious education were the reasons which induced some of the brilliant minds of Bengal to conceive the idea of national education and national consciousness under national control. The attempt of Lord Curzon's Government through the Indian Universities Act of 1904 to restrict higher education by increasing its standards and rigid Government control over the whole University education system also offended the growing national sentiment and it was bitterly opposed by Surendranath Banerjee in Bengal and Pherozshah Mehta in Bombay. Lastly, the anti-partition agitation in Bengal in 1905, the boycott of Government educational institutions by a large number of students and the repressive measures taken by the Government against the nationalist-minded students made inevitable the establishment of a new and parallel educational system under national control. (Mukherjee, 1992, p.22)

It was perhaps due to the national inspiration and the difficult circumstances of existence the National Council of Education, Bengal was established and recognized. The College of Engineering and Technology established before the independence under National Council of Education, Bengal was the only one to survive after a long and bitter struggle and remained independent to continue to work out its own programme. The Jadavpur University Bill was introduced in the West Bengal State Legislature in September 1955. The Bill was passed by the Legislative Council on 7th October 1955. On receiving the Governor's assent on 12th November the Bill became the Jadavpur University Act, 1955 (West Bengal Act XXXIII of 1955): Section 12 of the Act was amended by West Bengal Ordinance No. 1 of 1956 and by the Legislative in February 1956. (The National Council of Education, Bengal (1906-1966), 1968, p. 27-28)

On 24th December 1955, the College of Engineering and Technology was established as Jadavpur University. Dr. Bidhan Chandra Roy, President of the National Council of Education, Bengal, became the first President of the University for four years with effect from 4th December 1955 (The position of the President at the University is analogous to that of the Chancellor at other Indian Universities). Dr. Triguna Sen was appointed to exercise the powers and perform the duties of the Rector on and from 24th December 1955 (The position of the Rector in the

University is analogous to that of Vice-Chancellors in other Indian Universities). The first Registrar was Sri Prabir Chandra Basu Mallik. The Government of West Bengal, particularly the Chief Minister Dr. Bidhan Chandra Roy, the President of the Council and the first President of the University did not wish to supersede the National Council of Education as the Jadavpur University and Jadavpur Vidyapith were the fruits of the struggle of the Council. A place of honour was given to the Council in the Act. The Council has continued its activities with the hope of achieving greater fruit from the nation. (The National Council of Education, Bengal (1906-1966), 1968, p. 28)

Later Jadavpur University Act, 1981 (West Bengal Act XXIV of 1981) was published on 8th September 1981 in The Calcutta Gazette Extraordinary Notification and Jadavpur University (Amendment) Act, 2000 (West Bengal Act XVI of 2000) was published on 25th July 2000 in The Calcutta Gazette Extraordinary Notification. Jadavpur University adopted its Common Seal and Coat of Arms a lamp, with three flames, set within the petals of a full-grown lotus. It was designed by the great artist Nandalal Bose. The lamp represents knowledge, and the three flames represent intellectual training, the cultivation of emotions and imagination, and spiritual development. The petals of lotus on the periphery represent the fine arts and culture.

As laid down in Section 12 (1) of the Act, the maintenance and management of the College of Engineering and Technology and the Jadavpur Polytechnic (subject to confirmation by the Government of West Bengal) was transferred from the National Council of Education, Bengal to the University. As laid down in Section 12(a), the following assets of the National Council of Education, Bengal; the land of an approximate area of 10 bighas on Prince Anwar Shah Road and the leasehold land of an approximate area of 172 bighas on Raja Subodh Mallik Road in Jadavpur, Calcutta-32 with all buildings thereon with all furniture, fittings, equipment, plant and machinery, tools and accessories, books, journals and manuscripts and other appurtenances except for two bighas of vacant land abutting on Raja Subodh Mallik Road which will remain for the erection of buildings thereon for the use and purpose of the National Council of Education, Bengal stood transferred to the University. These assets were valued at Rs. 73,82,964 .00 approximately. The Government securities and shares of the total approximate value of Rs. 5.53 lakhs and balance of approximately Rs. 56 lakhs standing in bank accounts subject to the liabilities of approximately Rs. 6.44 lakhs in the bank. also became the property of Jadavpur University. Thus with all the movable and immovable property of National Council of

Education, Bengal and to depart quality education to the students and provide an excellent working environment for the faculties for teaching and research, Jadavpur University started its journey towards excellence. The University was inaugurated on 18th March 1956 by Dr. Sarvepalli Radhakrishnan, Vice-President of the Indian Union. The inauguration ceremony was a part of the celebration of the Golden Jubilee of the National Council of Education, Bengal, from which the University originated. (Jadavpur University, 1958, p.2-3)

The University decided to confer the degrees of Master of Science in Engineering & Applied Geology, Bachelor in Mechanical Engineering, Bachelor of Electrical Engineering and Bachelor of Chemical Engineering on the students who had passed the Final Examinations, conducted by the National Council of Education, Bengal, in 1955. The University also decided to institute the following courses of study in the Faculties of Arts and Science from the Session 1956-57.

- Faculty of Arts - Three years Honours courses leading to the Bachelor of Arts degrees in the subjects - Sanskrit, Bengali, English, Comparative Literature, Philosophy, Economics, History and International Affairs.
- Faculty of Science - Three years Honours courses leading to the Bachelor of Science degrees in the subjects - Physics, Chemistry, Mathematics and Geological Sciences. Two years post-graduate courses leading to the Master of Science degrees in the subjects - Mathematics and Geological Sciences. (Jadavpur University, 1958, p. 9-10)

Jadavpur University, from its starting days, distinguished itself by introducing a trans-disciplinary programme of teaching and research. At present, the University has two campuses of 60 acres at Jadavpur and the newer 21.3 acres campus at Salt Lake near Chingrighata respectively. The Jadavpur University has experienced its excellence over several years by imparting quality education in Humanities, Science and Engineering and Technology. The University has now developed four structured faculties under which the departments, schools and centres flourished. The four faculties are:

3.1.1 Faculty of Arts

This faculty consists of 13 departments and is all situated on the main campus at Jadavpur. The departments are:

- Bengali

- Comparative Literature

- Economics

- Education

- English

- Film Studies

- History

- International Relations

- Library and Information Science

- Philosophy

- Physical Education

- Sanskrit

- Sociology

3.1.2 Faculty of Engineering and Technology

The faculty consists of 17 departments situated in the Main Campus and Salt Lake Campus. The following 12 departments are situated on the Main Campus:

- Adult and Continuing Education & Extension

- Architecture

- Chemical Engineering

- Civil Engineering

- Computer Science & Engineering

- Electrical Engineering

- Electronics and Telecommunication Engineering

- Food Technology & Bio-Chemical Engineering

- Mechanical Engineering

- Metallurgical & Material Engineering

- Pharmaceutical Technology

- Production Engineering

The 5 departments are situated in the Salt Lake Campus are:

- Construction Engineering
- Information Technology
- Instrumentation and Electronics Engineering
- Power Engineering
- Printing Engineering

3.1.3 Faculty of Science

The 7 departments under Faculty of Science are:

- Chemistry
- Geography
- Geological Science
- Instrumentation Science
- Life Science & Bio-technology
- Mathematics
- Physics

3.1.4 Faculty Council of Interdisciplinary Studies, Law & Management (ISLM)

The Faculty of ISLM developed several schools and centres. The schools are as follows:

- School of Advanced Studies in Industrial Pollution Control Engineering
- School of Automotive Engineering
- School of Bio-Science and Engineering
- School of Cognitive Science
- School of Cultural Texts and Records
- School of Education Technology
- School of Energy Studies
- School of Environmental Radiation and Archaeological Sciences
- School of Environmental Studies
- School of Illumination Science, Engineering and Design

- School of International Relations and Strategic Studies

- School of Laser Science and Engineering

- School of Language and Linguistics

- School of Material Science and Technology

- School of Media Communication and Culture

- School of Mobile Computing and Communication

- School of Natural Product Studies

- School of Nuclear Studies and Application

- School of Oceanographic Studies

- School of Water Resource Engineering

- School of Women's Studies

The Centres are as follows:

- Bio Equivalence Centre

- Centre for African Literatures and Cultures

- Centre for Ambedkar Studies

- Centre for Canadian Studies

- Computer-Aided Design (CAD)

- Centre for Psychological Counselling and Self-Development

- Centre for Distributed Computing

- European Studies

- Centre for Experiments in Social & Behavioural Sciences

- Human Settlement Planning

- Knowledge Based Systems

- Marxian Studies

- Mathematical Biology and Ecology

- Centre for Medicinal Food and Applied Nutrition

- Microprocessor Applications for Training, Education and Research

- Plasma Studies

- Centre for Quality Construction

- Quality Management System

- Refugee Studies

- Centre for Rural & Cryogenic Technology

- Aurobindo Study Centre

- Centre for Studies and Rehabilitation of Differently Abled Persons

- Surface Science

- Centre for Theatre Studies

- Centre for the Study of Religion and Society

- Centre for Translation of Indian Literatures

- Centre for Victorian Studies

- Indology

- Condensed Matter Physics Research Centre

- Embedded System in Instrumentation

- Hariprasanna Biswas Centre for India-China Cultural Studies

- IC Design and Fabrication Centre

- IMPACT Centre

- Centre for Latin American Studies

- Language Studies

- Nuclear and Particle Physics Research Centre

- Centre for Tagore Studies

- Relativity and Cosmology Research Centre

- Sir C V Raman Centre for Physics and Music

- Swami Vivekananda Centre for Technical Manpower Development

- Transportation Studies

- V. Ravi Chandran Centre for Pharmaceutical Sciences

- Welding Technology Centre

- Yoga Centre

- Centre for History and Philosophy of Science & Technology

- Centre for Disaster Preparedness and Management

3.2 Jadavpur University Library System

The University originated from National Council of Education, Bengal with all it movable and immovable properties. As a result the University library started functioning with the collection of National Council of Education, Bengal library. Here are some information about the development of the collection in N.C.E, Bengal.

3.2.1 National Council of Education, Bengal Library: some glimpses

With the establishment of National Council of Education (N.C.E.) and Bengal National College in 1906, the library started functioning. Since the opening of the college (under N.C.E.) in August, 1906 measures were taken to establish a library and the committee could make it possible, to begin with, the aid of the donation of Rs. 5000 given by the President. Sri Aurobindo Ghosh enriched the collection by donating his precious collection of 673 books to various departments of study. Within five months the committee was able to place together in the college library as many as 2500 volumes and the estimated value of the books in the library on the 31st December, 1906 was about Rs. 10,000.00 (approx). Babu Jnanadakanta Chakravarty was the first Librarian who was appointed to expand the library. (The National Council of Education, Bengal, 1908a)

During the year under review, the Committee received donations from a large number of gentlemen and renowned personalities. Thus the collection reached a good number which was 4000 on the 31st December 1907 and rose to 6034 volumes on the 31st December 1908. The estimated value of the books was Rs. 20,000. The librarian had made further progress in arranging and cataloguing the volumes. The Committee took the initiative to appeal to all Indian authors and publishers to present their books and publications to the library to enrich their collection. (The National Council of Education, Bengal, 1908b)

On the 31st December 1910, the number of volumes in the library of the Council was 6420 and the estimated value was Rs. 11,260.00. Some of those books were loan books. As a result of the amalgamation, the books of the Bengal Technical Institute library were added to this library. A fully equipped library was essential for the research work of the Professors and the Committee appealed for raising funds and took the opportunity to appeal to all Indian authors and publishers to help them to enrich the library. (The National Council of Education, Bengal, 1909-1910).

Day by day the volumes increased and offered a good collection of books to its users. In the year 1927 certain valuable books on higher mathematics worth Rs. 250.00 and some philosophical treatises worth Rs. 200.00 were purchased, purely for research purposes. Besides these, text and reference books for the Engineering and other Departments of the Bengal Technical Institute were purchased at Rs. 3000.00. Provision has also been made for cultural exercise and books worth Rs. 1000.00 procured for the purpose. Books of general interest of the estimated price of Rs. 300.00 were presented by Mr. W. M. Ray, a member of the Council. On the 31st December 1927, the Library reached 9000 volumes of the estimated amount of Rs. 20,000.00. Attached to the Library Hall was a well-equipped reading room for the students to consult reference books and current literature. Teaching staff members were facilitated to make free use of books on the library shelves. About 500 books were in circulation among teachers and in the Electrical Department. Provisions were also there to access reference books and periodicals for advanced students. (The National Council of Education, Bengal, 1927).

On the 31st December 1928, the number of volumes in the library came up to 9200 at an estimated value of Rs. 21,000.00. A Catalogue with card indices was under preparation. A reading room was already introduced to facilitate the students and teaching staff. The Committee appointed a Sub-Committee for the re-organization of the Library and extension of the reading room for accommodating more students for study. (The National Council of Education, Bengal, 1928).

On the 31st December 1929, the number of volumes in the library increased to 9300 with an estimated value of Rs. 24,775.00. The Catalogue with card indices was nearly completed. Babu Nalinakshya Bhattacharjya who had been in charge of the library for 4 years and had worked diligently to bring the library in order, passed away in February 1929 and Babu Manindra Chandra Roy, M.A. was appointed as Librarian in charge in his place. (The National Council of Education, Bengal, 1929)

Some notable additions were made to the library in the year 1930 under report, viz: Bhandarkar's edition of the Mahabharata and the edition of the Mahabharata in Bengali script edited by Pandit Haridas Sidhantabagish. On the 31st December 1930, the library collection reached 9370 volumes and the estimated value was Rs. 26,074.00. The Catalogue with card indices had been completed for all the books on Science, Arts and Engineering. (The National Council of Education, Bengal, 1930).

Another noted contribution in the year 1931 was that Srijut W. M. Roy presented to the library History of Europe by Allison from the beginning of the French Revolution 1789 to 1852 completed in 22 volumes. The collection reached 9515 volumes as on 31st December 1931 and the estimated value was Rs. 27,000.56. The facilities of the library increased day by day. (The National Council of Education, Bengal, 1931).

3.2.2 Origin and development of Jadavpur University Library

Jadavpur University Central Library started with the Library of the College of Engineering and Technology managed by National Council of Education, Bengal. The National Council of Education, Bengal transferred all its movable and immovable properties to Jadavpur University. Thus Jadavpur University Central Library initially started with the holdings of the College of Engineering and Technology library with 14,502 volumes of books and 5170 numbers of bound periodicals in 1955-56. The volume of books increased to 18,077 and the bound periodicals increased to 5,498 in 1956-1957. Sri Niranjan Mitra was the first Librarian and the In-Charge of the University Library from 1950 to 17th June 1958. He introduced the Universal Decimal Classification (UDC) system in the library to classify and arrange the documents. On 18th June, 1958 Sri Ajit Kumar Mukhopadhyay joined as the University Chief Librarian (The Chief Librarian post was created at that time). In the year 1957-58, the total staff of the library was nine consisting of three professional staff, three clerical staff, two student assistants and one duftry. In 1958-59 the total staff increased to sixteen, among them there was one Chief Librarian, one Librarian, one Assistant Librarian, seven Library Assistants, four Cataloguer and two student assistants (part-time). In 1957-58 the library collection increased from 18,077 to 32,923 and bound periodicals increased from 5,498 to 5,848. In 1957, with the initiative of the University Rector Dr. Triguna Sen, Chief Librarian Sri Ajit Kumar Mukhopadhyay and other faculty members, the University library was able to enrich its collections with various rare personal collections of books and periodicals. During 24th December 1955 to 31st March 1958, the University received a book grant of Rs. 80,000 from University Grants Commission. (Jadavpur University, 1958, p.13, 69; Jadavpur University, 2006, p.22; Jadavpur University, 2016a, p.8)

From 1958 to 2020 the Chief Librarians of Jadavpur University were Sri Ajit Kumar Mukhopadhyay, Dr. Aditya Kumar Ohdedar, Dr. Ajoy Ranjan Chakraborty, Srimati Krishna Dutta, Sri Ramakrishna Saha, Dr. Binod Behari Das, Sri Manilal Murmu (Officiating) and Dr.

Shrabana Ghosh (Presently Officiating). Dr. Dipak Kumar Das (presently retired), Associate Librarian, Senior Scale) served the University library for a long time with efficiency.

At present Jadavpur University Library System consists of Central Library, Salt Lake Campus Library, Departmental Libraries and Libraries under Schools and Centres.

3.2.3 Jadavpur University Library

3.2.3.1 Central Library: a brief profile

During December 1955 to March 1958, a lot of major decisions were taken for the development of the infrastructure of the University. One of the decisions was to build a separate building for the Central Library. In 1956 a plan was prepared for a library building with a floor area of 30,000 sq. ft. A grant of Rs. 600000.00 was received jointly from University Grants Commission and the State Government. A three-storied building was planned for the Central Library. An Annex building construction started in 1999 and for the one-storied building, University Grant Commission granted its first installment of Rs. 10,00,000.00. The University Central Library is presently housed in a three-storied building with shelf space and a working space of 36,000 sq. ft (approx). It is being extended by new construction of Annex Building of 5,500 sq. ft. on each floor i.e. total of 22,000 sq. ft. (Jadavpur University, 2008)

The Central Library has various sections for the smooth functioning of the library administration and to provide efficient library services. The functional efficiency of these sections has made the Central Library stand as a pillar to support the total library system of the University. Presently in the Old Building, ground floor the different sections are (1) Check-in Counter, (2) Membership Registration Section, (3) Circulation Section and Main Stack, (4) Book Despatch Section, (5) General Reading Room Section, (6) Bound Volume Section (mezzanine floor). At the entrance there is an RFID gate, inside the gate, there are OPAC search centres and Card Catalogue Cabinets. On the first floor there are (7) Book Selection and Ordering (BKSO) Section, (8) Serials Section, (9) Old and Rare Collection Section (mezzanine floor), (10) Reprography and Document Delivery Section, (11) Computer Laboratory Unit (under CLDL) (12) Office of the Chief Librarian, (13) Chamber of the Chief Librarian and (14) Book and Journals Binding Section. On the second floor, there are (15) Cataloguing Section, (16) Reference Section and (17) Book Labelling Section respectively. In the Annex Building, there are (1) Bound Volume Journals Section on the ground floor; (2) Centre for Digital Library and Documentation with

Learning Resource Centre and (3) Seminar cum Reading Room on the first floor; (4) Bound Volume Journals in the second floor and the third floor (5) Thesis and Digital Archive Section are housed. The Central Library provides eight reading rooms, five carrels and one alcove for Bound Volumes of Journals with a total sitting arrangement for 800 readers at a time.

The Centre for Digital Library and Documentation was established in November 2003 in the first floor of the new Annex Building of Central Library under the Potential for Excellence Program-I of UGC. The Digital Library has a Learning Resource Centre (LRC) with 60 Nos. of terminals, 4 Nos. of servers and one reading room for users. The digital resources are made available to the users through the Library Portal. The Digital Library Data Management Software D-space has been installed. All the facilities of Digital Library are available on the Salt Lake Campus Library which is linked with the Central Library. There are two servers for managing the Digital Library connectivity & 16 terminals for Learning Resource Centre for students.

Clear and prominent display of floor plan; adequate signboards; fire alarm; access to differently-abled users makes the mode of access to the collection easier. There is a display of floor plans and adequate signboards for each floor. A fire alarm system has been installed in the Learning Resource Centre under Centre for Digital Library and Documentation. Several fire extinguishers (ABC type) have been installed on each floor of the Central Library.

The Special Education and HEPSN cell maintain the special collections of Braille books and talking books. (Jadavpur University, 2016a. p.8-9, 12; Jadavpur University, 2013, p.99).

3.2.3.2 Salt Lake Campus Library

On 20th December 1989, a new dimension was added to the existence of Jadavpur University. Sri Jyoti Basu, the then Hon'ble Chief Minister, West Bengal, inaugurated the Second Campus of the University at Salt Lake City on that day. The new campus, with an area of twenty acres of land and hope of further addition of three-and-a-half acres soon, began its journey with four new disciplines viz. Construction Technology, Instrumentation Engineering, Power Plant Engineering and Printing Engineering each with an initial intake of 30 students offering 4-year degree courses in engineering under the Faculty of Engineering and Technology. (Jadavpur University, 1989, p.11)

The library of the Salt Lake Campus started in the session 1989-1990. Within a year, the library was fully organized with 5000 books accessioned. The entire four departments share the library, no separate departmental libraries were there. The library was used by more than a hundred students and the faculty of three departments viz. Power Plant Engineering, Construction and Instrumentation Engineering. (Jadavpur University, 1990. p. 40)

Presently, the Salt Lake Campus has five departments viz. Construction Engineering, Information Technology, Instrumentation and Electronics Engineering, Power Engineering and Printing Engineering; one School of Mobile Computing and Communication and one Centre (Nuclear Engineering) under Faculty of Engineering and Technology. There is also a University Grant Commission-Human Resource Development Centre (UGC-HRDC) previously known as Academic Staff College. There is one campus library consisting of five departments. No separate departmental libraries are there but UGC-HRDC and School of Mobile Computing and Communication have separate libraries. A Learning Resource Centre has also been set up at Salt Lake Campus Library with 10 nodes.

3.2.3.3 Departmental Libraries

Jadavpur University has 13 departmental libraries under the Faculty of Arts, 7 departmental libraries under the Faculty of Science and 12 departmental libraries under Faculty of Engineering and Technology. To impart education and research in various nano-subjects Centres and interdisciplinary Schools have been set up associated with various departments. All the works related to book purchase, accessioning, cataloguing, classification, data entry are done centrally from the Central Library.

3.2.3.4 Libraries under School and Centres

Jadavpur University Main Campus has five School libraries and Salt Lake Campus has one School library. No separate libraries are there under Centre for Studies. (Jadavpur University, 2016b, p30).

3.2.4 Jadavpur University Library Services

The libraries of this University cater various services to the students, faculty, research scholars, officers and users from other educational institutions. The main services are Issue Return Service, Reading Room Service, Printed and Online Journal Service, Old and Rare Collection

Service, Card Catalogue - OPAC and Web OPAC Service, Reference Service, Digital Library and Documentation Service, Reprographic Service, Inter-Library Loan Service, Current Awareness Service (CAS) and Selective Dissemination of Information (SDI) Service, Jadavpur University Digital Library Service beyond Campus (restricted to Faculty members, Officers and Research Scholars of Jadavpur University) etc. Jadavpur University library follows certain rules according to the category of users regarding borrowing facilities both from the Central Library and Departmental Library. Table 3.1 shows the details of the borrowing facility provided by the Jadavpur University Library to different types of users.

Table 3.1: Borrowing facility to different types of users

Sl. No.	Category of Users	Number of titles to be borrowed			
		Central Library	Departmental Library	Central and Departmental Library	Total
1.	Under Graduate Students	2	2	-	4
2.	Post Graduate Students	3	2	-	5
3.	Ex-Students/ Ex-employee	3	-	-	3
4.	University Teachers	5	10	-	15
5.	Research Scholars	-	-	5	5
6.	University Officers	10	-	-	10
7.	Non-Teaching Staff	2	1	-	3
8.	Part-time Teachers	3	-	-	3
9.	Professor Emeritus	5	-	-	5
10.	Non-Jadavpur University	2	-	-	2

3.2.5 Administration of Jadavpur University Library System

3.2.5.1 Organizational Structure of Jadavpur University Library

Jadavpur University follows a hierarchical structure of library professional for the smooth functioning of the library. Table 3.2 shows the organizational structure of the Jadavpur University Library. The structure is made as per the information updated on 31.03.2015.

Table 3.2: Organizational Structure of Jadavpur University Library

Sl. No	Designation	Strength of Sanctioned Post	Status
1.	Chief Librarian	1	Academic (UGC), (Tier-I)
2.	Librarian	2	Academic (UGC), (Tier-II)
3.	Associate Librarian	1	Academic (UGC), (Tier-III)
4.	Information Scientist	1	Officer (Tier-III)
5.	Superintendent Library Services	9	Non-Teaching Library Professional
6.	Assistant Librarian Grade – I	28	Non-Teaching Library Professional
7.	Assistant Librarian Grade – II	27	Non-Teaching Library Professional

(Jadavpur University, 2016b, p. 29).

3.2.5.2 The Library Committee

The library system follows the conventional method of assigning the responsibility for acquiring the right information on the Library Sub-Committee. The University manages the whole library system through a statutory body in the name of the University Library Sub-Committee with full power and functions for framing and amending library rules from time to time for the development of the library system of Jadavpur University. The University's Central Library Sub-Committee consists of the following members:

a) Vice-Chancellor, Chairman;

b) Deans of the Faculty Councils;

c) Registrar;

d) All Heads of Departments;

e) Chief Librarian as the Secretary;

f) one expert in the field of Library Science nominated by the University's Executive Council (EC);

g) two members nominated by the EC;

h) two representatives of non-teaching staff nominated by EC;

i) three students nominated by the EC. (Jadavpur University, 2013, p. 98).

There is an E-resource Procurement Committee formed in University Library Committee to advice on the total process of e-resource procurement and recommend it to the University Library Committee for approval.

The Departments also has constituted Departmental Library Committee (DLC) as directed by the Executive Council in the Circular vide Ref. No. REC/N/3612/99 dated 10.07.1999 with full execution power and functions, development of Departmental or Seminar Library under the Library Rules of the University. The Departmental Library Committee consists of the following members:

a) Head of the Department - Chairman

b) Departmental Librarian - Convenor

c) Four teachers of the department concerned, nominated by the Board of Studies (BOS), including the Chairperson of the Teacher Student Committee.

d) Four students of whom two should be from UG classes, and one each from the PG (Day) and PG (Evening) students. Departments that have no evening section will be only one representative from the PG section.

e) One representative of the Research Fellows/Associates of the department and

f) The Chief Librarian is a permanent invitee.

As per the circular, the Departmental Committee shall meet at least four times a year.

Salt Lake Campus Library has a provision of Library Sub-Committee with execution power and functions, the development of Campus Library under the Library Rules of the University. (Jadavpur University, 2016b, p. 31).

Objectives of the University Library Committee

i. To render advisory decisions regarding different library policies & terms.

ii. To recommend general methods for allotment of funds purchasing library materials and their processing;

iii. To help the Chief Librarian to take decisions concerning the management of libraries and development of the libraries;

iv. To approve the selection procedure;

v. To approve the procurement procedure.

It is the responsibility of the Chief Librarian as a convener to keep track of all records of the meetings.

3.2.6 Allocation of Funds

Budget functions as a planning tool to achieve institutional objectives. It varies depending on the types of libraries and the requirement of the types of users. Jenkins and Morley (1996) mentioned six factors that are generally to be considered necessary for allowing budget procedures:

- Size of the community served
- Importance of departmental libraries with respect to different subjects
- Publishing output
- Price
- Breadth of subjects
- Importance of subjects to university

In addition to these factors, the advent of ICT has also affected the budget of the higher education institutes like universities and their library collection. Thus, budget allocation plays an important role to balance both the media – traditional and electronic, so that the university can get the benefit of utilizing the fund in the right way.

The Jadavpur University Library System, like other university libraries in India, usually maintains a conventional method of the budget system. Though there is a general principle for different kinds of libraries, this university library system follows the central distribution of budgets, so that uniformity between quality and priority can be maintained. The basic areas are to be taken into consideration for fund allocation:

- Academic courses and introduction of new courses
- Total number and size of the departments
- Price of resources in each subject
- Efficacy in the utilization of funds in the previous financial year

In Jadavpur University Library System the library fund is allocated for the Central Library and the departmental libraries and the libraries of schools and centres separately. Allocation of funds in a balanced way reflects the finer judgment of the Finance Department of the University. The University Chief Librarian continuously observes the need of the users and with the help of the University Library Sub-Committee demonstrates the higher authority, the economic support

required to develop a well-balanced user-oriented collection. The University Chief Librarian as the Secretary of the University Library Sub-Committee convenes a meeting where the Departmental Heads propose their requirements regarding books and journals for their respective departments and the Chief librarian proposes the requirement of books and journals for the Central Library. Generally, there is an approximate 5% to 10% annual increase in budget but not always strictly followed. The budget is prepared after the meeting with the Head of the Departments to know their requirement and based on the previous year's performance in utilizing the fund allocated. The funds for books and the funds for journals and e-resources are separately allocated.

If the funding agency mentions the allocation details it is acted accordingly. But in case the fund is allocated by the University, the requirement of the Central Library and departmental libraries along with administrative procedures help in the preparation of the budget and allocation of the funds. The fund is allocated for the library by the Finance Department and it is passed by the Executive Council (E.C.) of the Jadavpur University. Then the letter is circulated from the office of the Finance Officer mentioning the department and the amount allocated for the department. Even adjustment of budget allocation is sometimes observed where more fund for purchasing resources in one department is allotted in comparison to other departments as per requirement.

In case of an unspent amount in any fund, there is no increase of the budget under the unspent head in the next year and reallocation of the unspent head, where possible, is done in the next year. Suggestions from the respective departments are incorporated. Reallocation and re-appropriation of funds are decided by the Finance Department and passed by the Executive Council (E.C.) of the University.

3.2.7 Sources of Fund

Jadavpur University Library receives different kinds of funds for procuring books and journals in the library. Generally, funds from various Central Government and State Government funding agencies are allocated for books and funds from University Budget are allocated for periodicals and journals, e-books and e-resources. Funds are also received from various projects for books. The following are the major funds received by Jadavpur University Library:

3.2.7.1 UGC Fund

University Grant Commission (UGC), the Regulatory authority of the Indian Higher Education System had provided financial assistance through the different heads to ensure the equity and access of higher education to deserving institutions. UGC provides various funds for the library.

a) General Development Assistance (GDA) through 5 Year Plan

b) Special Assistance Programme (SAP)

    The SAP scheme is implemented in three levels –

        i. Centre of Advanced Study (CAS) initially started in 1963.

        ii. Department of Special Assistance (DSA) started in 1972.

        iii. Departmental Research Support (DRS) started in 1977.

c) Assistance for Strengthening of Infrastructure for Science and Technology (ASIST) Programme

d) Assistance for Strengthening of Infrastructure for Humanities & Social Sciences (ASIHSS)

e) University with Potentials for Excellence (UPE)

f) Major and Minor Research Project

g) Coaching scheme for SC/ST/OBC (Non-Creamy Layer) and Minorities for Colleges

h) UGC Grants for PG Diploma in Yoga Therapy

3.2.7.2 Funds from other departments of Government of India

Other than UGC a lot of fund also came from different departments or organizations of Government of India. They are as follows:

a) The National Board for Higher Mathematics (NBHM) Scheme

b) Department of Science and Technology Fund for Improvement of Science and Technology (DST-FIST)

c) All India Council of Technical Education (AICTE)

d) Indian Council of Social Science Research (ICSSR) Project

e) Technical Quality Improvement Programme (TEQIP)

3.2.7.3 West Bengal Government Grant

It usually comes once at a time in an installment. The Central Library and Departmental Libraries of Jadavpur University take the responsibility of releasing and acquiring documents according to their allotment.

3.2.3.4 Other Grants

There are huge projects running in various departments of Jadavpur University. Part of some project grants are utilized for procurement of books in the university library. Some of them are as follows:

a) American Institute of Chemical Engineers (AIChE) Grant
b) United Nations Conference on Trade and Development (UNCTAD) Gant
c) Condensed Matter Physics Research Centre (CMPRC) for Department of Physics
d) Ratan Tata Trust for Media Lab for Department of Film Studies
e) Food Irradiation Project for Department of Food Technology & Bio-Chemical Engineering

3.2.3.5 Endowments

There are endowment funds received from various departments of Jadavpur University which are at many times utilized for book purchase. Some of them are as follows:

a) Ujjayini Memorial Award for Department of Economics
b) Arun Biswas and Ashok Ghosh Memorial Fund for Department of English

3.2.8 Book Selection Policy

Selection is a decision-making process implementing collection development goals. Nowadays selection policy is greatly influenced by issues like financial crisis, price rise, information explosion due to the emergence of various interdisciplinary subjects, access to new types of materials and application of new technology for the access of the materials. Thus, the main concern during the selection process is the fulfillment of the objectives of the institution and the user needs that can fit within the budget.

University libraries have a huge collection of resources on a wide range of subjects and serve a variety of users. Dr. S. R. Ranganathan (1989) suggested "in a university or research library, book selection should be done from time to time in consultation with the members of the faculty,

or the research body, so as to put on the shelves the books needed in the anticipated change in the research activities in good time before the changes take place." Book selection must follow the anticipating change in the research activities for the potential users. (Ranganathan, 1989, p. 49).

Selection is the core area in the entire process of collection development. It is the decision-making part of collection development. Selection depends on the types of libraries and the types of users using the collection. Selection means defining criteria and establishing priorities to build a well-balanced collection. But the quality of materials must depend on two basic standards of selection the purpose and need.

Jadavpur University Library System plays an important role in disseminating qualitative service by providing required resources to the users. In Jadavpur University, the Central Library and the Departmental libraries equally play an important role to follow a selection policy keeping balance with the library budget. Jadavpur University Library maintains a traditional procedure following the basic selection principles running from the past to present for the overall selection of the library materials keeping a balance with the library budget, though not a standardized policy. During the selection process some questions related to authority, types of materials and participation arise. To clear the problems Jadavpur University Library System follows the conventional method of assigning the responsibility to the University Library Committee. The conventional and regular process is followed by the University Chief Librarian along with his staff engaged for the selection of books for Central Library and Salt Lake Campus Library, usually reviewing some areas which are of utmost importance to be considered even by the other university libraries - selection tools like book reviews, subject literature, publishers' announcements, advertisements etc. and faculty requests in the form of the recommendation of their priority lists. Students requisition are taken in resister by some of the departments burt not strictly maintained by all. Then the final list of requisitions is prepared for Central Library and Campus Library. The Central Library follows the procedures mentioned below for the selection of books and journals of Central facilities:

- Demand slips/registers in the Circulation Section and Reading Room are analyzed before purchasing new books for the Central Library.
- 'Remarks' column in Centre for Digital Library and Documentation Section is analyzed on regular monthly basis by Project Assistants, and is reported accordingly to the appropriate person in-charge.

- 'Remarks' column in the Reference Section is studied at regular intervals by the Section-in-Charge and reported to the Librarian/Chief Librarian. Suggestions regarding reference books, reference tools and measures for betterment of services based on feedback from users and analysis are also made by the Section-in-charge. (Jadavpur University, 2013, p. 103).

After the departmental allocation of the funds the faculty members of respective departments prepare a list of requisition of books. All Heads of the Departments prepare the list of requisite books for departmental procurement and with the recommendation of the Departmental Library Committee the list is finalized. If the books are not available in the local market, then online purchase may be made with the suggestion of Chief Librarian. The primary motto is to select the right document for study and research. Thus, these recommended lists are primarily based on curricular need and the faculty members as subject experts are considered as the right persons for selection. (Jadavpur University, 2016c).

The Chief Librarian and his staff related with the execution of this process are greatly responsible for selecting materials especially for Central Library and monitoring departmental libraries and Salt Lake Campus Library by keeping balance with the budget.

3.2.9 Procurement of Books

After receiving the allocated fund and selection of documents the next step is the procurement of books and journals. The books for the Central Library, Campus Library and Departmental Libraries are ordered to the enlisted vendors of Jadavpur University along with the list of selected books. Jadavpur University has some enlisted vendors for the procurement of books, e-books, journals and periodical, e-journals, e-databases and books and journal binding. The enlistment of the vendor is done by applying prescribed format (one for each category) available from Central Library Office or can be downloadable from Jadavpur University website. The enlistment fee for new vendor is Rs. 10,000.00 (which is a refundable security deposit) and the application fee for new or existing vendor is Rs. 500.00 (which is non-refundable). The registration of the bonafide and authorized vendors is valid for three years and they must possess an office or support centre in Kolkata.

3.2.9.1 Procurement of Printed Books

The Jadavpur University Library System procures books in the following steps:

- Requisitions are prepared by Central Library, Campus Library and Departmental Libraries on the basis of selection.
- Books are ordered to enlisted vendors according to the requisition.
- Books, challans and bills are received by Central Library for Central Library's purchase. Departmental Libraries sent the requisition along with books, challans and bills to the Central Library for processing. Campus Library receives their books, challans and bills in Salt lake Campus and processes the books there.
- Central Library processes bills of books purchased on funds allocated for Central facilities and books purchased under funds of Departmental Libraries by putting accession numbers in the Accession Register, in the books and on the bills. The books of Central Library and Departmental Libraries are processed by accessioning, cataloguing, classifying and entering bibliographic data in software in their respective sections in Central Library by following centralized processing. Then the books are dispatched to the respective departments within provisions of their fund allotment.
- The bills are released from the Central Library along with challans to Accounts Section for payment.

At present, Jadavpur University Library Rules (Amendment) 2015 are followed for the procurement of books and journals:

- All books and journals and other documents etc., are procured on recommendation of the Head of the Department of each concerned department or recommendation of the Directors/Coordinators in case of Schools, Centers and Projects.
- In the case of books and journals of central facilities, all procurement in this matter should be done on the recommendation of the Chief Librarian keeping in mind the demand of users.
- All books and journals and other documents should be accessioned centrally at Central Library and Salt Lake Campus Library as well as processed and passed the bills within the provision of the allotted fund through Central Library and Salt Lake Campus respectively.
- Department/Seminar Library to be fixed for the preservation of permanent lent books and other documents received from Central Library for circulation and use.

- Whenever a programme involves a particular department, the concerned departmental library will be entrusted with the job of procurement of documents (filling up the requisition slips, checking the books, challans and bills, etc.) and send it along with the book(s) to Central Library for accessioning and final processing.

3.2.9.2 Procurement of E-books

a) **E-resource Commitee Meeting**

Jadavpur university library has a separate E-resource Committee under the purview of University Library Committee. This committee deals with the procurement issues of e-books and e-journals.

b) **Allocation of Funds to Faculties/Library/Schools**

- It was decided in E-Resource Committee meeting that funds will be allocated among various departments, schools and centres based on previous year utilization. Funds remaining will be kept under Central Library Fund.
- It has also advised in the meeting that utilization of the fund on a reasonable/justified basis.

c) **Requisition Mail to HOD's/Director's for their recommendations**

- Requisition format is send in Excel Format to the Departments/Schools libraries mentioning current allocation of Fund. The format is prepared with the columns required information.
- Time Allowed for recommendations will 20-25 working days.
- It would be suggested to send back the filled requisition file as reply mail to BKSO or to Chief Librarian's mail. They can also send hard copy through formal peon books entry.
- Request to sufficient numbers of titles maintaining priority order preference and also considering the budget ceiling of the respective Department/School/Library. It was requested to check the duplicate titles within the list before sending to Central Library.

d) **Direct interaction with the Vendors or Publishers**

- Publishers can work directly or authorize the enlisted vendors of Jadavpur University Library for E-Books procurement with specific power to execute on behalf of them.

Central Library will frame out a format of generic Authorization Letter which is shared among the Publishers to authorize their Vendors.

- Authorization Letter should be typed in Publishers own letterhead with Seal & signed by designated person.

- Publishers & Vendors Contact Address & Contact Person should be clearly indicated in Authorization Letter and same should be followed throughout the whole procurement.

- Authorization Letter should reach us in Hard Copy at Chief Librarian Office or BKSO Section with complete in all respect before issuance of Purchase Order (PO).

- Before issuing PO, all the Publishers/Distributors/Vendors are requested to clear their issues, problems and pending documents with previous years E-Books procurements. They must replace the duplicate titles of previous year's procurement (if any).

- All the Publishers are requested to send the Stock list till previous year in given format.

- They are also requested to send their current E-Books Catalogue with Price in Excel Format to Chief Librarian or BKSO in their mail.

- Publishers are requested to update our New IP Addresses to their server for smooth accessing of resources.

- Publishers or Vendors are requested to submit a declaration for "**No Duplication of Titles**" at the time of price confirmation of requested titles. Duplication in whatsoever manner considering totality of E-book content with title, edition, ISBN/E-ISBN, Format etc. Identical title with same Author(s) & edition hosted in different platforms of the Publishers are also termed & consider as Duplicate titles. Variations in ISBN's of the same and identical titles are also come under the purview of duplication. Same book with different electronic format will considered as mentioned above.

- Ever after if any title so procured and found duplicate with previous years titles or duplicate within the list of PO, should be immediately brought into notice to Chief Librarian or BKSO Section and either get deleted or replace with suitable replacements.

- Procurement of the titles should be the latest edition/last available edition of its print version. Under no circumstances multiple edition of same title in the same year will not be procured. If found so, that should be replace with new one.

- MARC is mandatory from 2022-2023 procurement. Publishers are also requested to send full MARC records of stock.

e) Receiving of Requisitions from respective Departments/Schools

- Original Requisition received from respective Departments/Schools/Library should be kept in separate file and a copy is made for processing the same.
- Date of Receiving of final requisition from respective Department/Schools/Library in a Excel file are noted.

f) Processing of requisitions

- Checking the duplicate titles within the list/Requisitions.
- The Net title price is considered after charging discount and adding GST into it.
- Checking the total price with the allocated fund.
- Each title in requisition should thoroughly checked in JU Library Portal, Master List & Publishers Catalogue/Website with respect to Proper or Exact title with Subtitle, Author(s), Current Edition, E-ISBN, Imprint, List Price, Format.
- Fixing an average foreign currency price for Conversion Rate.
- High Price titles may consider for review with respective departmental HOD's.
- Checking the respective hosting platform of the Publishers.
- Checking the URL (if given)
- Making separate Excel file for each Publisher with Faculty, Dept. Name, Title, Author(s), Edition, Year, E-ISBN, Price, Discount, GST, Net Price (INR).
- Creating a Master Excel file like previous years combining all the publishers & departments.

g) Price Confirmation from respective Publishers

- Negotiate Publishers/Vendors for Discount Rate. Discount rate should not be less than 15% of the List price as per GO of Govt. of WB. It should start with minimum 20% on List Price until & unless there was very minimum title in List (less than 5).
- Request for Price proof to the Publishers
- Allowing 3-5 working days for confirming prices, raise queries for duplication/unavailability of titles.
- Replacement of Duplicate/Unavailable titles need confirmation from Publishers.

- After receiving confirmation from publishers for available titles, the final confirmation mail to respective Publishers/Agent/Distributors for procurement is send by the Chief Librarian.
- All Publishers are requested to duly acknowledge the confirmation mail.

h) Issuing of Purchase Orders (PO)

- Vendors Authorization letters must reach to Chief Librarian/BKSO Section before issuing Purchase Order (PO)
- PO will be issued to Publishers/Vendors after careful consideration of terms & conditions pertaining to E-Books procurement. Any updating in PO, terms and conditions must be approved from Chief Librarian and other competent authority.
- PO must carry a list of titles with list price & discount.
- PO must be signed, sealed & forwarded by Superintendent of Library Services and Chief Librarian.
- A photocopy of PO after get it signed by officials and handed over to Publishers/Vendors.
- A copy of PO is kept for record and future correspondence.

i) Receiving & Processing of Invoices

- A **Top Sheet** will be attached in every invoice received at BKSO section. Details of processing will be recorded in top sheets.
- Incomplete invoices will consider with respect to calculations, missing in documents attached, PO T&C, non-receiving of MARC file and Metadata file in proper format.
- After receiving the invoices, BKSO section will send an acknowledgement mail to respective Publishers/Vendors to ACTIVATE the title links.
- SS will issue the Requisition No. with Date for each invoice received for processing.
- The Net total amount is checked whether correct in all respect or not.
- The authenticity of remittance proof, Price proof, SBI TT Selling rate as Conversion Rate (Which-ever is lower) is ensured.
- Payment acknowledgement from Publishers must be attached and check that all the details, like No. of titles, Amount of remittance, Access activation date, IP Ranges of JU are given as per PO & Invoices.

- Ensuring that Metadata File is correct in all respect or not. Incomplete Metadata File will send back to the Publishers/Vendors to rectify.
- MARC files must reach on same day with Invoices. The details on MARC Reader is checked.
- Accessioning all titles in E-Books Accession Register with other Invoice details.
- After successful processing & verification of documents, a set of all invoice documents are kept as Office Copy (O/C) for record. Original set is sent to Chief Librarian's Office through Peon Book. A record of dispatch of invoice must be entered in Register as well as in a Excel File.
j) Uploading of titles in Library Portal
k) Procurement mail to Departments HOD's/Directors & Different Groups
l) User Orientation Program
m) Reporting of E-Books procurement to E-Resource Procurement Committee
n) Final Closing of Procurement with Resolution (if any).

3.2.9.3 Challenges in Procurement of E-books

Unlike other university libraries, Jadavpur University Library also faces significant challenges related to the selection, licensing, acquisition, and management of e-book. The challenges faced in the procurement of e-books are as follows:

- Only half the print books acquired by academic libraries are available as e-books.
- Many academic e-books are released three to eighteen months after the corresponding print editions.
- E-book distributors have strong economic and legal incentives to limit access to information—in particular, to lease information rather than transferring ownership.
- Many licenses require repeated payments for access to content that do not change over time.
- E-book publishers have taken advantage of the changing digital environment to weaken the legal framework that has traditionally favored libraries and their patrons.
- License terms vary considerably, and the lack of standardization is a significant impediment to cost-effective e-book management.

- The multiplicity of e-book file formats poses serious difficulties for both crossplatform compatibility and long-term access.

- Although librarians have expressed a strong preference for title-by-title selection, roughly half of all academic library e-book titles are acquired through package deals.

- Most licenses for e-book packages (collections) give librarians no control over the titles included in the package. Vendors are free to add or remove titles during the term of the agreement, often without notifying the subscribing institution.

- Most e-book packages include a substantial number of titles that are not relevant to the needs of the subscribing library, including backlist titles that would not generate much revenue if offered individually.

- When acquired individually, academic e-books cost substantially more than print editions.

- For scholarly titles, the cost of producing and providing access to an e-book is usually no lower than the cost of producing and distributing a printed volume.

- The preservation of e-books is especially difficult because it requires the long-term maintenance of several distinct elements: texts, file formats, software, operating systems, and hardware.

- Sustainable access to e-books is hindered by impermanent physical media, proprietary file formats and software, and restrictive license provisions.

3.2.10 Accessioning

The Jadavpur University Central Library initially started with the holdings of the College of Engineering and Technology library with 14,502 volumes of books and 5170 numbers of bound periodicals. This data was revealed from the annual report of Jadavpur University. The study of the Accession Registers also reveal that the library started with the resources of The National Council of Education, Bengal as the first register containing accession numbers 1 to 6001 was labelled as National Council of Education, Bengal accessioned within the time span from 1947 to 1961. The accession numbers 1 to 21225 were mostly gifted items. From the accession register containing accession numbers 21226 to 26200 dated within December 1956 to October 1957 some books were purchased and some were presented of gifted. In the remarks section of the accession registers of purchased books name of the departments were written. Probably they

were purchased for those departments or the books with those accession numbers were send to the respective departments mentioned in remarks.

In the initial years of the Jadavpur University Library System the accession register of books and purchase register of books were individually maintained. The accession and processing work of the books were done centrally in the Central Library of Jadavpur University. But the study of the accession registers revealed that from the end of the year 1976 and starting of the year 1977 the Central Library, Jadavpur University started accessioning the books purchased by different departments, schools and centres in the separate Purchase cum Accession Registers dedicated to the individual departments, schools and centres. From this period Purchase register was converted to Purchase cum Accession Register for individual departments, schools and centres. Accession numbers were mentioned by coding the name of the department, schools or centres first with its initial alphabets then the accession numbers. For example, accession number 1 of the book of Bengali department was accessioned as B1. In case, if the two departments have the same first alphabet it is separated adding a second alphabet from the department name to maintain the uniqueness. For example for Department of Pharmacy the code PH is used but in case of Department of Philosophy the code is PY before the accession number and for the department of Physical Education the code is PN.

3.2.11 Library Automation

The library is partially automated with Libsys 7 library management software. The acquisition section maintains the works manually. The cataloguing and classification is done manually, shelf list is maintained and bibliographic data is entered in Libsys 7 and OPAC is accessed by the users. Circulation section maintains issue return manually and later the records are entered in software but not consistently and regularly. Serial control is partially computerized. No modules of library management software are fully automated in Jadavpur University Library.

3.2.12 Resource Sharing

The library provides temporary card facilities to external users. Inter-library loan (ILL) facility is one of the parameters of the collection evaluation process. Jadavpur University provides an Inter-Library Loan facility to its internal users and external users on request. But the records of this facility is not consistently documented or maintained.

Jadavpur University was a member of e-Shodhsindhu Consortia which was formed with the merger of three consortia, namely UGC-INFONET Digital Library Consortium, NLIST and INDEST-AICTE Consortium in December 2015. Previously the University Library was a member of these individual consortiums. Jadavpur University is also a member of DELNET.

3.2.13 Weeding

Weeding is also part of the collection development process. Harrod's Librarians Glosarry (1987) defines collection development "The process of planning a stock acquisition programme not simply to cater for immediate needs but to build a coherent and reliable collection over a number of years to meet the objectives of the services" But with the explosion of knowledge documents there are millions of publications, new areas of knowledge have emerged and some earlier thoughts have been outdated and many works lose their value. Another change has been viewed in the library with the development of the internet and application of information and communication technology where the library has been converted to a hybrid library consisting of print as well as e-resources. Thus, university libraries having a huge collection of print and e-resources are facing the problem of space to accumulate new documents to make the collection vibrant, relevant and useful. Space is not only the reason for deciding about weeding. Some documents may worn out due to continuous usage, some documents get older thus may become brittle and unusable. These conditions require the need for weeding. A clear and well-planned weeding out policy free from bias and approved by a committee appointed either for this purpose or the committee for the library affairs can overcome the hurdles. Report of the Library Committee (1965) of the University Grants Commission, Library Committee (1965) chaired by Dr. S. R. Ranganathan described the need for weeding out as: "Many works lose their value within one generation, say in twenty-five years. By that time, their thought-content of same may even turn out to be wrong. In a service library, no useful purpose is served by retaining such pedestrian books and providing shelf space for them after they have become obsolete. The proper course is to weed out periodically. They should give place to current variations of them."

Jadavpur University does not have a written collection development policy nor do they have any separate weeding policy. But during studying the accession registers some accession numbers were withdrawn from the accession numbers according to ECR No. 26 17/ 23.06.1995. From the draft minutes of the first meeting of the Library Committee constituted for the period of four years from 1994 in terms of the Statute 64(1) of the First Statutes under the JU Act 1981 held in

the Committee Room No. 1 on 22.09.1994 at 3 p.m. it was observed that "the proposal for withdrawal of 994 titles, borrowed by the students from the period of 1970 to 1986, who have left the University without returning these books was considered. The Committee also considered the proposal of the Secretary (the then Chief Librarian R. K. Saha) for weeding out 142 worn-out books and periodicals, submitted on the table, which are not usable at all. After careful consideration, the Committee recommends to the Executive Council to withdraw the titles from the records of the library. The committee also recommends to the EC to form a Standing Committee with the following members. The task of the said Standing Committee is to examine the various documents which are ought to be withdrawn from the records. The Secretary shall place the recommendation to the Library Committee for further recommendation. The members of the Standing Committee are:

1. Prof. Bimal Chandra Ghosh – Department of History

2. Prof. Samir Saha – Department of Mechanical Engineering

3. Prof. Swapan Kumar Majumdar – Department of Comparative Literature

4. Prof. H. P. Roy – Department of Physics

5. Sri Arun Kumar Ray – Central Library

6. Chief Librarian – Convener (R. K. Saha)

Thus it is observed that Jadavpur University takes certain decisions needed for the collection following some conventional procedures with the help of the Library Sub-Committee of the University. Though the traditional idea of weeding at regular intervals is needed in Jadavpur University as it holds a collection of a wide range of interdisciplinary subjects, the major reason for reluctance behind accepting the traditional idea of weeding is the potential value of book for the research scholars - as nobody knows when a worn-out or even an obsolete material may become important to a user. Here the third law of Dr. S.R. Ranganathan - "every book its reader" is very much applicable. Jadavpur University Library System thus follows the idea of back storage both in Central and Departmental Libraries as the library system supports research it does not weed it completely keeping in mind the future demand of the users.

3.3 A Brief Account of Jadavpur University Library Collection: 2017-2022

3.3.1 Year-wise Growth of Printed Books

Table 3.3 and Figure 3.1 shows the year-wise growth of printed books in different faculties and central library. The table reflects that other than 2019-2020 in all other years highest number of printed books were purchased in Faculty of Arts. The highest number of printed books purchased in 2019-2020 were in Faculty of Engineering and Technology. The figure reflects a decreasing trend in purchase of printed books along with time.

Table 3.3: Year-wise Growth of Printed Books

Faculty	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Arts	2655	1745	2318	512	570
Science	1605	349	978	0	0
Engineering and Technology	1895	163	2679	4	5
ISLM	467	122	443	49	0
Remedial Coaching	334	0	0	0	0
Central Library (Library General)	1987	141	249	1	0
Salt Lake Campus (Library General)	946	0	0	0	0
Braille Books	0	0	275	0	0
Total	9889	2520	6942	566	575
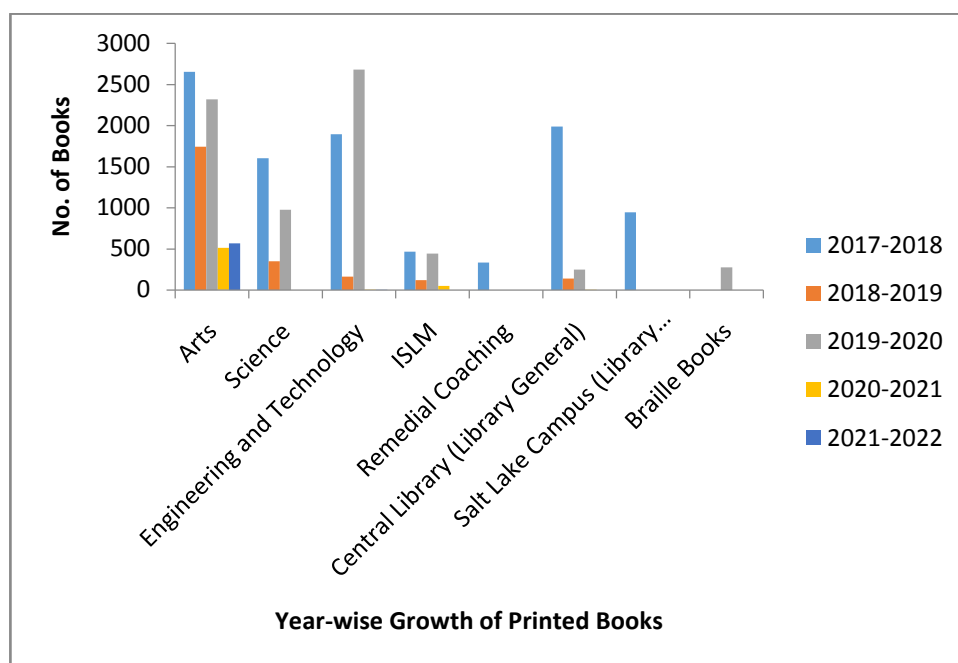
Figure 3.1: Year-wise Growth of Printed Books

3.3.2 Year-wise Expenditure of Printed Books

Table 3.3 shows the year-wise expenditure for purchasing of printed books in different faculties and central library. The table reflects that in all years ranging from 2017-2018 to 2021-2022 the highest expenditure is shown in Faculty of Arts.

Table 3.4: Year-wise Expenditure of Printed Books

Faculty	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Arts	3352691.5	2093193	2859334	1059361	199754
Science	1932400.47	519657	1567917	0	0
Engineering and Technology	1881785	268436	1943410	52500	6029
ISLM	1105497	288958	600858	39892.54	0
Remedial Coaching	100323	0	0	0	0
Central Library (Library General)	1744456	55409	98487	560	0
Salt Lake Campus (Library General)	499251	0	0	0	0
Braille Books	0	0	29309	0	0
Total	10616403.97	3225653	7099315	1152313.54	205783

3.3.3 Year-wise Growth and Expenditure of E- Books

Table 3.5 reflects year-wise growth and expenditure of E- Books. The table shows the highest number of books were purchased in 2017-2018 and the highest expenditute in on 2018-2019.

Table 3.5: Year-wise Growth and Expenditure of E- Books

Year-wise Growth and Expenditure of E-books			
Year	Budget Head & Estimate (Rs.)	Expenditure (Rs)	No. of Books
2017-18	19000000	17865340	2062
2018-19	19000000	17981136.12	1734
2019-20	15000000	7738540	691
2020-21	15000000	12523235.88	1506
2021-22	20000000	13430240	1153

3.3.4 Year-wise Growth of Journals

Table 3.6 shows year-wise growth of journals in Jadavpur University Library. The table reflects an increasing trend in procurement of online journals and databases. A decreading trend is shown in the procurentment of printed journals.

Table 3.6: Year-wise Growth of Journals

Mode of Subscription	2017-18	2018-19	2019-20	2020-21	2021-22
Database	16	19	16	21	20
Online Journal	5365	7188	8476	9615	10364
Print+Online Journal	93	58	55	38	7
Print Journals (News Papers +Magazines	318	313	279	282	199
Total	5792	7578	8826	9956	10590

3.3.5 Year-wise Expenditure of Journals

Table 3.7 shows year-wise expenditure for purchase of journals in Jadavpur University Library. The table reflects an increasing trend in expenditure for purchase of online journals and databases. A decreasing trend is shown in the expenditure for purchase of printed journals.

Table 3.7: Year-wise Expenditure of Journals

Mode of Subscription	2017-18	2018-19	2019-20	2020-21	2021-22
Database	4341778	9204961	8145984	12167963	10721674
Online Journal	38712461	64934079	78168847	79579601	82710073
Print+Online Journal	3676948	2125896	2031559	1249188	122331
Print Journals (News Papers +Magazines	3803040	2520007	2635418	1052827	119139
Total	50534227	78784943	90981808	94049579	93673217

3.4 Conclusion

Jadavpur University procures a variety of resources both in printed form and in electronic form. From the study of procurement of printed and electronic resources it is observes that the printed resources purchase are decreasing day by day whereas electronic resource procurement are increasing day by day.

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Chapter 4.

Data Analysis and Interpretation

CHAPTER 4: DATA ANALYSIS AND INTERPRETATION

4.1 User Survey- Introduction

In the education system, an academic library is the center of all academic activities. It has been described as the "heart" of the learning community, providing a place for students and teachers to conduct their research and update their knowledge. A university library or any other library attached to a higher education system exists to support the goals of its parent organization. Since university libraries are an integral part of the higher education system, they have to provide support services for the formal educational programs as well as for research. It is important for any library professional working in an academic or any other library to know the real needs of the user community to develop diverse strategies to obtain effective results. One of the main tools that can be used to evaluate and assess the library collection and services is the user survey which also helps to develop future collection. The faculty members of Jadavpur University are the main contributors in the development of the collection by recommending the resources for purchase. Thus the user survey was conducted among the faculty members of Jadavpur University to assess Jadavpur University Library user needs and the impact of the library resources and services on the users.

4.2 Methodology

To determine the population size for the survey, data for total number of faculty members in Jadavpur University were collected from Payroll Section of Jadavpur University. The total number of faculty member is 627 (except the faculty members in lien where 159 are from Faculty of Arts, 148 are from Faculty of Science, 295 are from Faculty of Engineering and Technology and 25 are from Faculty of Interdisciplinary Studies, Law and Management. The total 627 faculty members are used as Population size for this study.

Slovin's formula has been used to calculate the Sample Size which is given below (Yang, Lin, & Hu, 2020):

$$n = N / (1 + Ne^2)$$

Where, n = Sample size, N = Population size and e = Margin of error.

For this study, Population size = 627, e = 0.05 giving with the 95% confidence level.

$$\text{Sample size (n)} = 627 / (1 + (627)*(0.05)^2) = 244$$

Keeping in view the objective of the study, a structured questionnaire was designed and distributed among the faculty members of Jadavpur University to collect primary data. The population for this study was the faculty members of Jadavpur University. The survey was conducted between February 15, 2023 to May 15, 2023 in offline mode by physically meeting the faculty members. Total sample size for this study 244 has been divided among the four faculties according to the ratio of the faculties in population size where 62 were from 13 departments of Faculty of Arts, 58 were from 7 departments of Faculty of Science, 115 were from 17 departments of Faculty of Engineering and Technology and 9 were from 21 schools of Faculty of Interdisciplinary Studies, Law and Management. The sample size for each department was calculated according to faculty strength of that department. Finally the questionnaires were distributed among the departments following simple random sampling (lottery method) according to the sample size of each department under each Faculty.

244 questionnaires were distributed among the four faculties of Jadavpur University. But after several reminders in both physical mode or through mail only 185 respondents of the targeted population responded. Thus according to Slovin's formula 95% confidence level could not be achieved and the study has to be conducted with 185 respondents which is close to 94% confidence level. The questionnaire responded has many blank data that has been filled up calculating the average response of that particular question to avoid data loss.

4.3 Analysis of Survey Results

4.3.1 Personal Information

This section deals with the personal information about the categories of respondents in different faculties of Jadavpur University.

4.3.1.1 Number of Respondents

To collect relevant data total 244 questionnaires were distributed among 62 Faculty Members of Arts, 58 Faculty Members of Science, 115 Faculty Members of Engineering and Technology and 9 Faculty Members of Interdisciplinary Studies, Law and Management. Total 185 respondents of the targeted population responded to the questionnaire. Out of 185 respondents, 15 Assistant Professors, 10 Associate Professors and 16 Professors responded from Faculty of Arts. 10 Assistant Professors, 7 Associate Professors and 25 Professors responded from Faculty of

Science and 29 Assistant Professors, 20 Associate Professors and 47 Professors responded from Faculty of Engineering and Technology. Only 2 Assistant Professors, 2 Associate Professors and 2 Professors responded from Faculty of Interdisciplinary Studies, Law and Management. The number of respondents from the Faculty of Interdisciplinary Studies, Law and Management is very few thus their responses were not included under this analysis. The faculty-wise total respondents are reflected through Table 4.1.

Table 4.1: Number of Respondents

Faculty	Assistant Professor	Associate Professor	Professor	Total
Faculty of Arts	15	10	16	41
Faculty of Science	10	7	25	42
Faculty of Engineering and Technology	29	20	47	96
Faculty of ISLM	2	2	2	6
Total	56	39	90	185

4.3.1.2 Gender-wise Respondents

Table 4.2 reflects gender-wise break up of respondents from different faculties. It is evident from the table that the majority of the respondents are male compared to female respondents. Out of 179 respondents 140 are male and 39 are female. No respondents are found from the third gender community. The table also reflects that out of 41 respondents of Faculty of Arts, 10 Assistant Professors, 6 Associate Professors and 11 Professors are male. Out of 42 respondents of Faculty of Science, 8 Assistant Professors, 5 Associate Professors and 24 Professors are male. Out of 96 respondents of Faculty of Engineering and Technology, 23 Assistant Professors, 16 Associate Professors and 37 Professors are male.

Table 4.2: Gender-wise Respondents

Gender	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
Male	10	6	11	8	5	24	23	16	37	140
Female	5	4	5	2	2	1	6	4	10	39
Others	0	0	0	0	0	0	0	0	0	0
	15	10	16	10	7	25	29	20	47	179

AP = Assistant Professor, ASP = Associate Professor and P = Professor.

4.3.1.3 Age-wise Respondents

Table 4.3 reflects age-wise distribution of respondents from different faculties. It is evident from the table that most of the Assistant Professors of all the three faculties are from the age group of 31-40 years, Associate Professors are from 41-50 years and Professors are from 51-60 years. Out of total 179 respondents only one respondent is below 30 years and 19 respondents are above 60 years.

Table 4.3: Age-wise Distribution of Respondents

Age Group	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
Below 30 years	1	0	0	0	0	0	0	0	0	1
31 - 40 years	8	1	0	6	3	0	17	2	0	37
41 - 50 years	4	6	6	4	4	5	10	16	17	72
51 - 60 years	1	2	7	0	0	14	1	1	24	50
Above 60 years	1	1	3	0	0	6	1	1	6	19
Total	15	10	16	10	7	25	29	20	47	179

AP = Assistant Professor, ASP = Associate Professor and P = Professor.

4.3.2 Use of Printed Resources

This section deals with different parameters of use of printed resources among the Assistant Professors, Associate Professors and Professors in Faculty of Arts, Faculty of Science and Faculty of Engineering.

4.3.2.1 Frequency of use of Printed Resources

Table 4.4 depicts the frequency of use of printed resources by the respondents. It is evident from the table that most respondents (74 respondents) have the habit of using printed resources daily followed by 55 respondents who have the habit of using printed resources 2-3 times a week. 2 respondents of Faculty of Engineering and Technology never used the printed resources in the library. Faculty members of Arts and Engineering and Technology use the printed resources mostly in daily basis whereas the faculty members of Science use the printed resources mostly 2-3 times a week.

Table 4.4: Frequency of use of Printed Resources

Frequency	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
Daily	9	10	8	2	1	9	13	8	14	74
2-3 times a week	6	0	3	5	3	9	7	5	17	55
Once in a week	0	0	2	3	1	3	7	4	9	29
Once in a month	0	0	3	0	2	4	2	2	6	19
Never	0	0	0	0	0	0	0	1	1	2
Total	15	10	16	10	7	25	29	20	47	179

AP = Assistant Professor, ASP = Associate Professor and P = Professor

4.3.2.2 Sources to update about new Printed Resources

Table 4.5 depicts the sources from where the faculty members know about the printed resources. It is evident from the table that all categories of the faculty members except Associate Professors of Faculty of Science mostly update them about printed resources by browsing or search internet or online bookstores followed by the citations listed in report, journals or conference papers. Associate Professors of the Faculty of Science informed that they mostly know or update about printed resources from Publisher's catalogue or e-mail alerts send by publishers or distributors followed by both by browsing or search internet or online bookstores and by the citations listed in report, journals or conference papers. Librarian of the departmental library as the source to know about new print resources is few compared to all responds.

Table 4.5: Sources to know about updated/new Printed Resources

Printed Resources	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
From the reference given by my librarian	2	3	3	1	1	3	6	4	7	30
By browsing or search internet/online bookstores	15	9	14	9	2	22	22	16	35	144
By recommendations from subject experts	1	6	5	0	1	5	10	6	15	49
Announcements in journals	3	5	3	3	1	5	6	4	9	39
Publisher catalogues/E-mail alerts from publishers, distributors, etc	4	7	5	3	3	9	8	1	19	59
Cited in report/ journals/conference papers	6	7	9	4	2	11	15	9	30	93
Through communication with friends/colleagues	3	6	6	1	0	7	12	4	18	57
Total	34	43	45	21	10	62	79	44	133	471

AP = Assistant Professor, ASP = Associate Professor and P = Professor
(Multiple responses thus total numbers of responses are more than total respondents)

4.3.2.3 Location of access to Printed Resources

Table 4.6 depicts the location from where the faculty members access the printed resources. It is evident from the table that the faculty members use the printed resources mostly from the departmental library. The second choice is personal purchase for accessing printed resources.

Table 4.6: Location of access to Printed Resources

Location to access printed resources	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
From Central Library	5	3	3	3	2	7	6	6	13	48
From Departmental Library	12	8	14	8	5	22	16	12	30	127
From other libraries of which you are a member	4	4	4	0	0	0	3	1	4	20
Personal Purchase	8	8	8	5	2	14	18	8	18	89
From Colleagues/Friends	4	5	5	0	0	6	15	3	9	47
Others	0	0	0	0	1	1	1	1	3	7
Total	33	28	34	16	10	50	59	31	77	338

AP = Assistant Professor, ASP = Associate Professor and P = Professor.
(Multiple responses thus total numbers of responses are more than total respondents)

4.3.2.4 Types of Printed Resources used

This section deals with the use of different types of printed resources by the Assistant Professors, Associate Professors and Professors in Faculty of Arts, Faculty of Science and Faculty of Engineering.

Figure 4.1 reveals the frequency of use of different printed resources by Assistant Professors in Faculty of Arts. It is evident from the figure that most respondents visited the library either most frequently or frequently for Books, Current Issue Journals, Newspapers and Reference Sources. They visited the library occasionally for other types of printed resources namely Bound Volume Journals, Ph.D. Thesis, M.Phil. Dissertations, Conference/Seminar Proceedings, Manuscripts, Rare Books and Special Collection. Most of the respondents never used or very rarely used the Standards, Patents and Specifications.

Figure 4.1: Use of different Printed Resources by Assistant Professors in Faculty of Arts

Figure 4.2 reveals the frequency of use of different printed resources by Associate Professors in Faculty of Arts. The figure describes that most respondents visited the library either most frequently or frequently for Books, Current Issue Journals, Newspapers and Reference Sources. They visited the library occasionally for other types of printed resources namely Bound Volume Journals, Ph.D. Thesis, M.Phil. Dissertations, Conference/Seminar Proceedings, Manuscripts, Rare Books and Special Collection. Most of the respondents never used or very rarely used the Standards, Patents and Specifications.
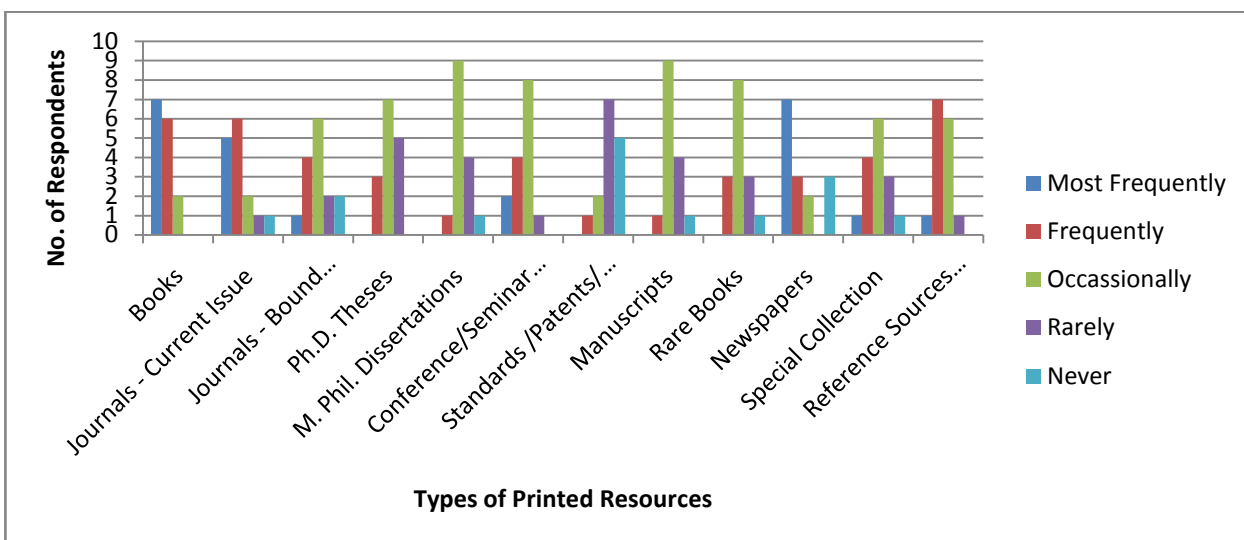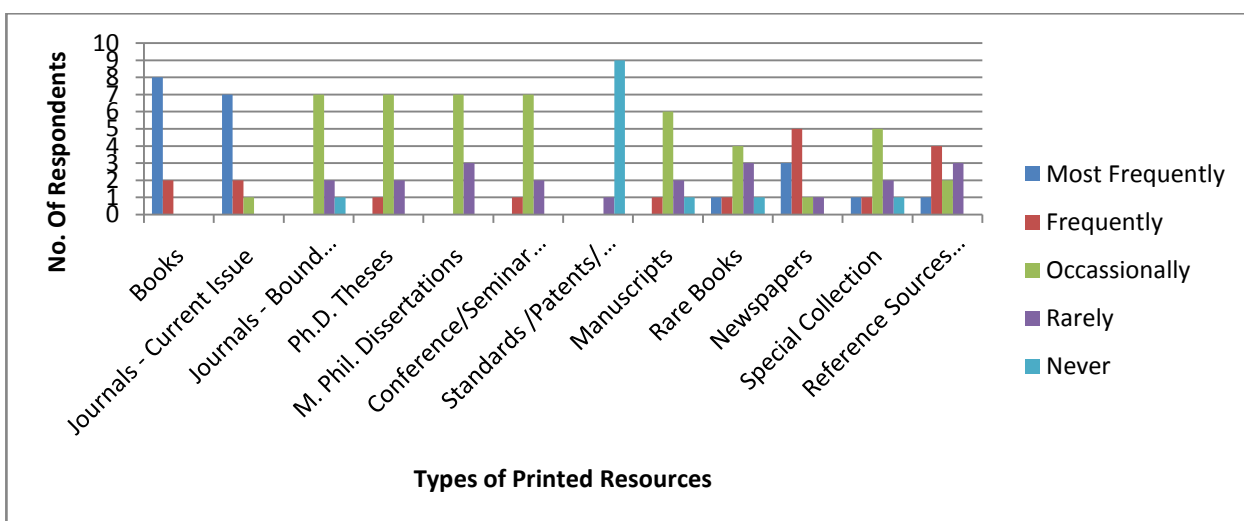

Figure 4.2: Use of different Printed Resources by Associate Professors in Faculty of Arts

Figure 4.3 shows the frequency of use of different printed resources by Professors in Faculty of Arts. The figure depicts that most respondents visited the library either most frequently or frequently for Books and Reference Sources. The Current Issue Journals are used most frequently, frequently or occasionally. They visited the library occasionally for other types of printed resources namely Bound Volume Journals, Ph.D. Thesis, M.Phil. Dissertations, Conference/Seminar Proceedings, Manuscripts, Rare Books, Newspapers and Special Collection. Most of the respondents never used or very rarely used the Standards, Patents and Specifications.
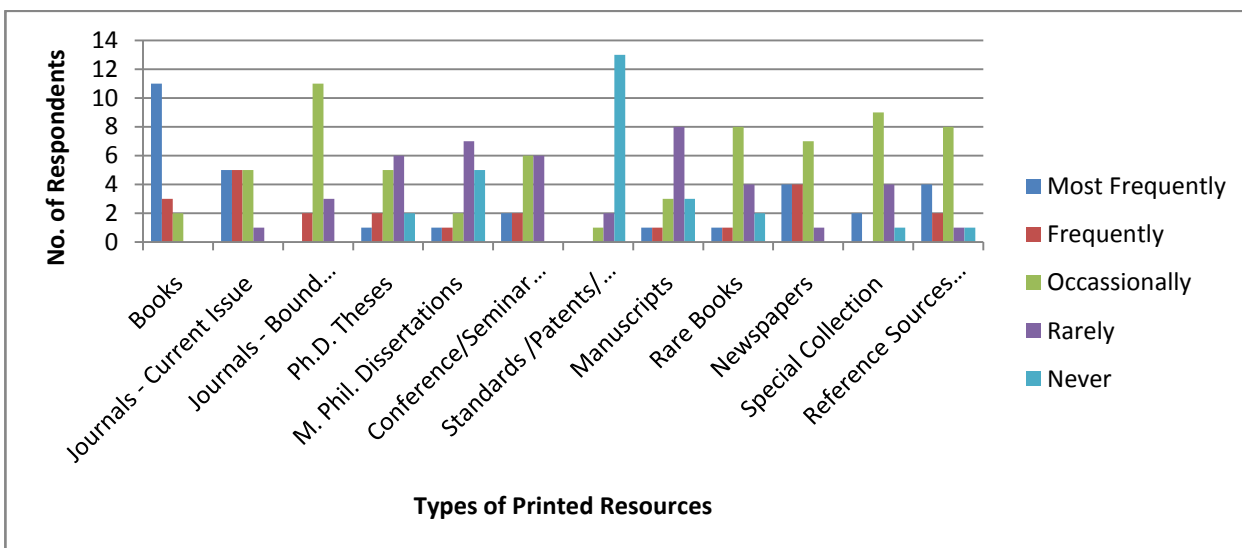
Figure 4.3: Use of different Printed Resources by Professors in Faculty of Arts

Figure 4.1, 4.2 and 4.3 reveals that the Assistant Professors, Associate Professors and Professors of Faculty of Arts most frequently used Books and Current Journals in the printed form. No variety is observed in their use of printed resources. Standards, Patents and Specifications are the least used printed documents among the Assistant Professors, Associate Professors and Professors of Faculty of Arts which clearly determines that there is not much significance of Standards, Patents and Specifications among the Faculty of Arts. The frequent use of Books and Current Journals among the printed resources shows the acceptance of printed resources as the basic source of study among the Faculty of Arts.

Figure 4.4 reveals the frequency of use of different printed resources by Assistant Professors in Faculty of Science. It is evident from the figure that most of the respondents visited the library most frequently for Books, Current Issue Journals, and Manuscripts. They visited the library occasionally for Conference/Seminar Proceedings and Reference Sources whereas they rarely use Bound Volumes Journals, Ph.D. Theses and Standard/Patents/Specifications. Most of the

respondents never used M.Phil. Dissertations, Rare Books, Newspapers and Special Collection of the library.

Figure 4.4: Use of different Printed Resources by Assistant Professors in Faculty of Science

Figure 4.5 shows the frequency of use of different printed resources by Associate Professors in Faculty of Science. The figure depicts that most of the respondents preferred to use Books most frequently. They visited the library occasionally for Reference Sources. They rarely consulted Bound Volume Journals, Ph.D. Theses, Conference/Seminar Proceedings and Rare Books. Most of the respondents never used M.Phil. Dissertations, Standards, Patents and Specifications and Newspapers in print format.
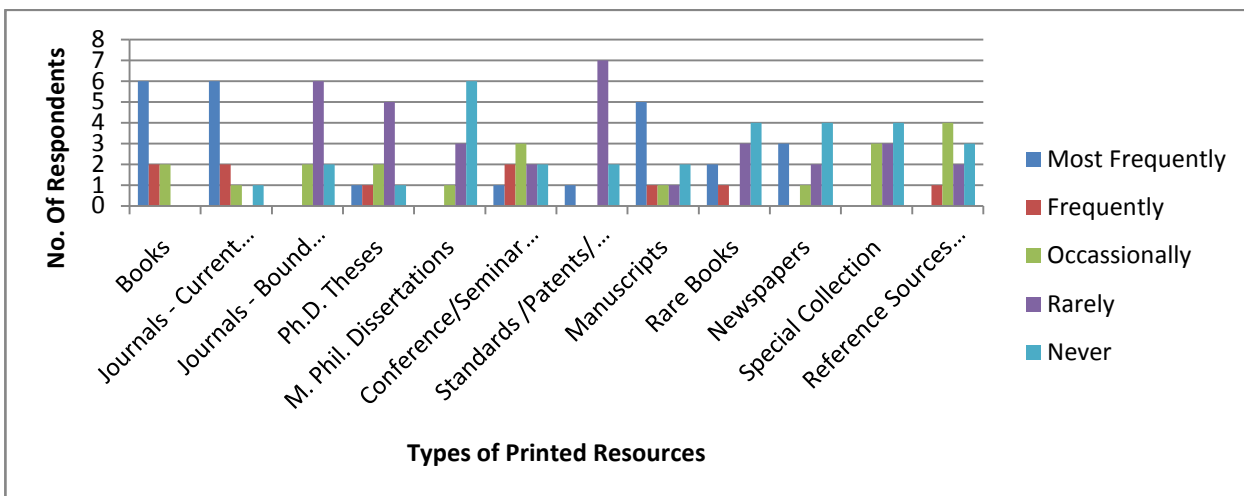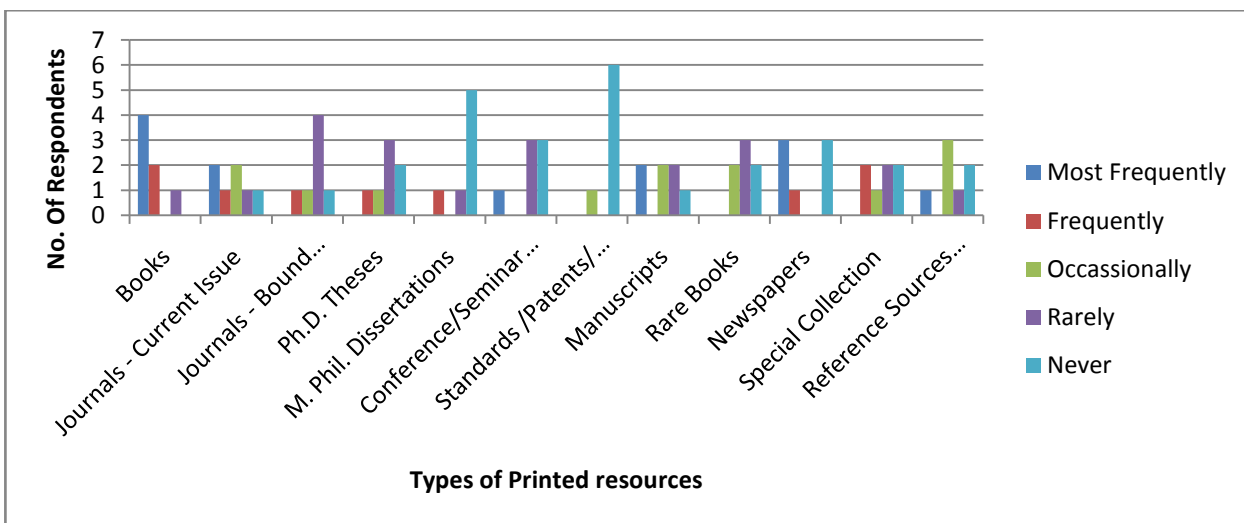

Figure 4.5: Use of different Printed Resources by Associate Professors in Faculty of Science

Figure 4.6 shows the frequency of use of different printed resources by Professors in Faculty of Science. The figure shows that most respondents visited the library most frequently or frequently for Books, Current Issue Journals and Newspapers. They visited the library occasionally for other types of printed resources namely Bound Volume Journals, Ph.D. Thesis, Conference/Seminar Proceedings, Manuscripts and Reference Sources. Most of the respondents rarely used Standard/Patents/Specifications, Rare Books and Special Collection but never used M.Phil. Dissertations.
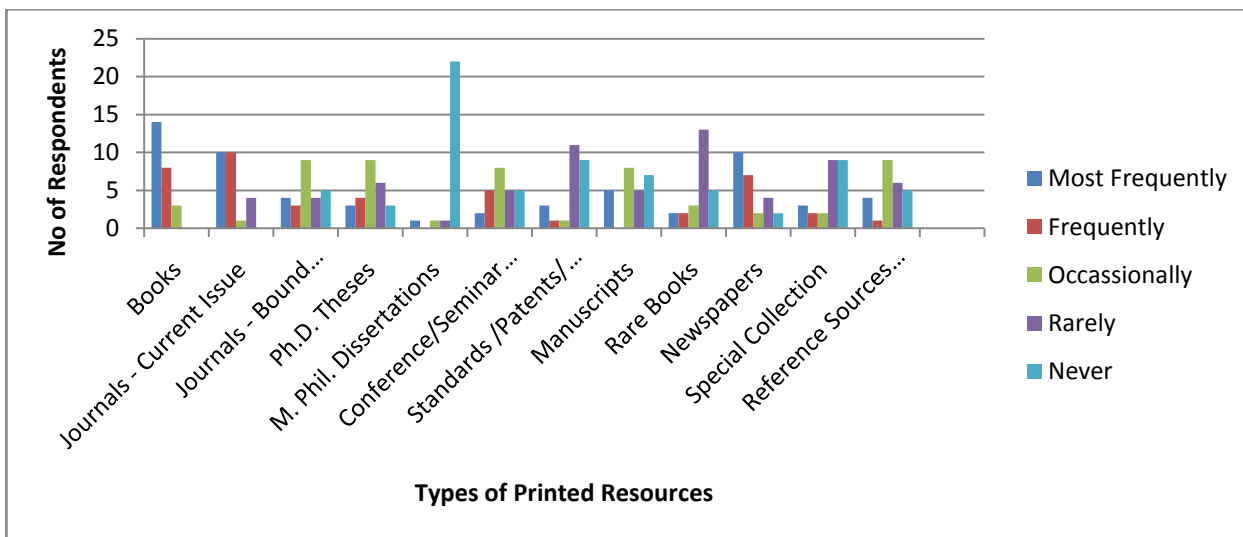
Figure 4.6: Use of different Printed Resources by Professors in Faculty of Science

Figure 4.4, 4.5 and 4.6 reveals that the Assistant Professors, Associate Professors and Professors of Faculty of Science most frequently used Books and Current Issue Journals among the printed resources. Bound Volume Journals, Ph.D. Thesis and Conference/Seminar Proceedings are occasionally or rarely used printed resources among the Assistant Professors, Associate Professors and Professors of Faculty of Science. It is observed that M.Phil. Dissertations are the least used printed documents among all categories of respondents in Faculty of Science.

Figure 4.7 reveals the frequency of use of different printed resources by Assistant Professors in Faculty of Engineering and Technology. It is evident from the figure that most of the respondents visited the library most frequently or frequently for Books, Current Issue Journals, whereas Newspapers are used frequently or occasionally by equal respondents. The library was occasionally visited for Ph.D. Theses, Conference/Seminar Proceedings and Reference Sources. Most of the respondents rarely used Rare Books but never used Standard/Patents/Specifications, Manuscripts, Special Collection and Reference Sources. The highest frequency of Bound Volume Journals are occasionally or rarely by equal number of respondents. In case of M.Phil. Dissertations highest frequency of use was rarely or never by equal number of respondents.

Figure 4.7: Use of different Printed Resources by Assistant Professors in Faculty of Engineering and Technology

Figure 4.8 shows the frequency of use of different printed resources by Associate Professors in Faculty of Engineering and Technology. The figure depicts that Books are the most frequently used printed resource by the respondents. The highest respondents visited the library occasionally for Bound Volume Journals, Conference/Seminar Proceedings, Newspapers and Reference Sources. In case of Current Volume Journals equal number of respondents used it most frequently, frequently and occasionally. They rarely consulted Ph.D. Theses, M.Phil. Dissertations, Standard/Patents/Specifications, Rare Books and Special Collection. Most of the respondents never used Manuscripts among the printed resources.
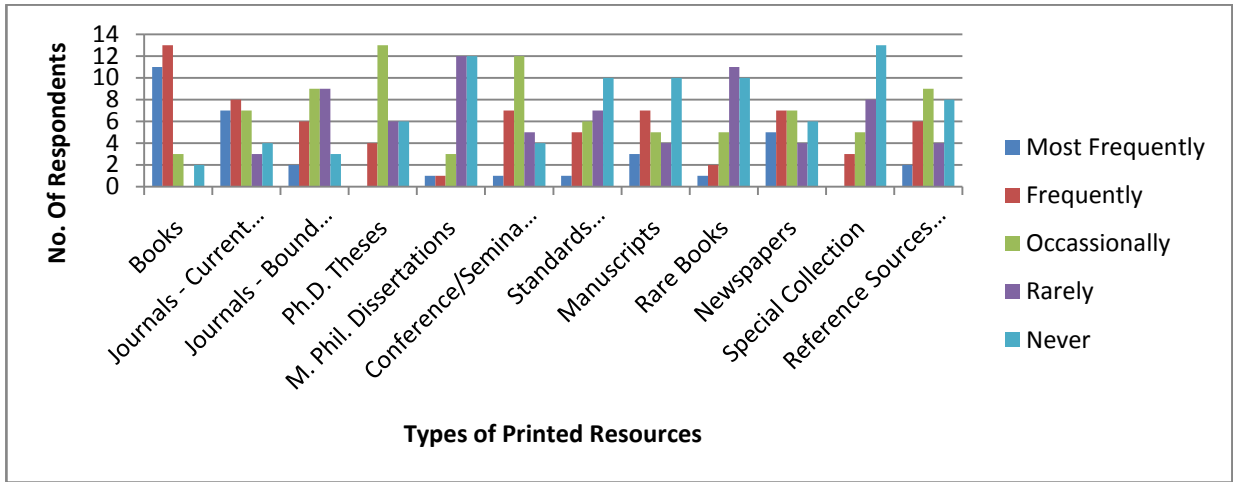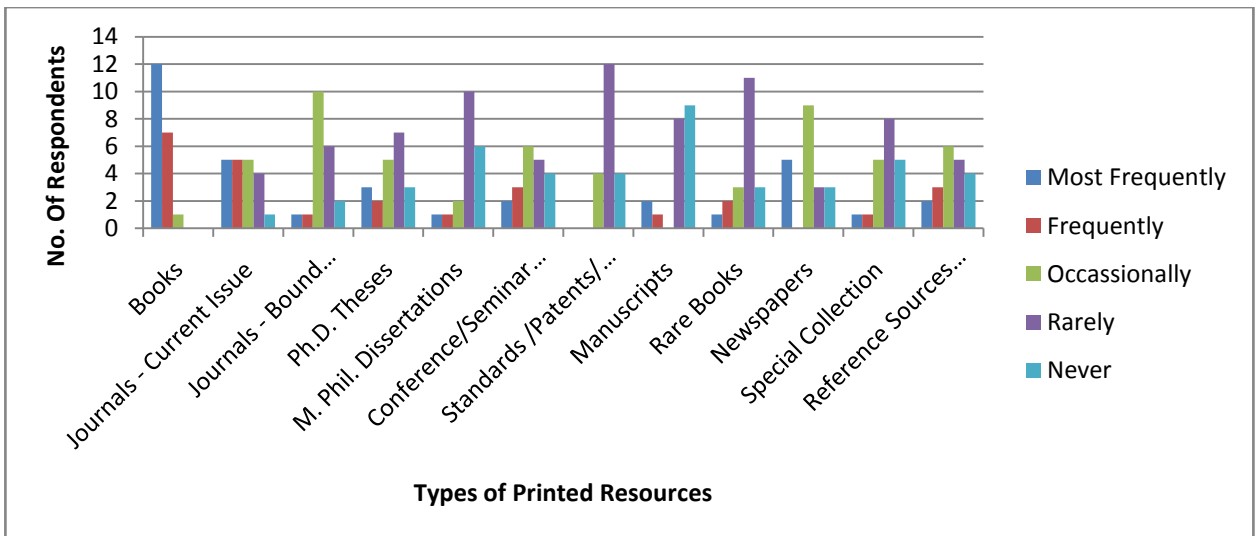

Figure 4.8: Use of different Printed Resources by Associate Professors in Faculty of Engineering and Technology

Figure 4.9 reveals the frequency of use of different printed resources by Professors in Faculty of Engineering and Technology. The figure shows that Books and Current Issue Journals are the most frequently used printed resource by highest number of respondents. The highest number of respondents visited the library occasionally for Bound Volume Journals, Ph.D. Thesis, Conference/Seminar Proceedings, Manuscripts, Newspapers and Reference Sources. Most of the respondents rarely consulted Standard/Patents/Specifications, Rare Books and Special Collection. M.Phil. Dissertations are the printed resources that are rarely or never used by equal number of respondents.
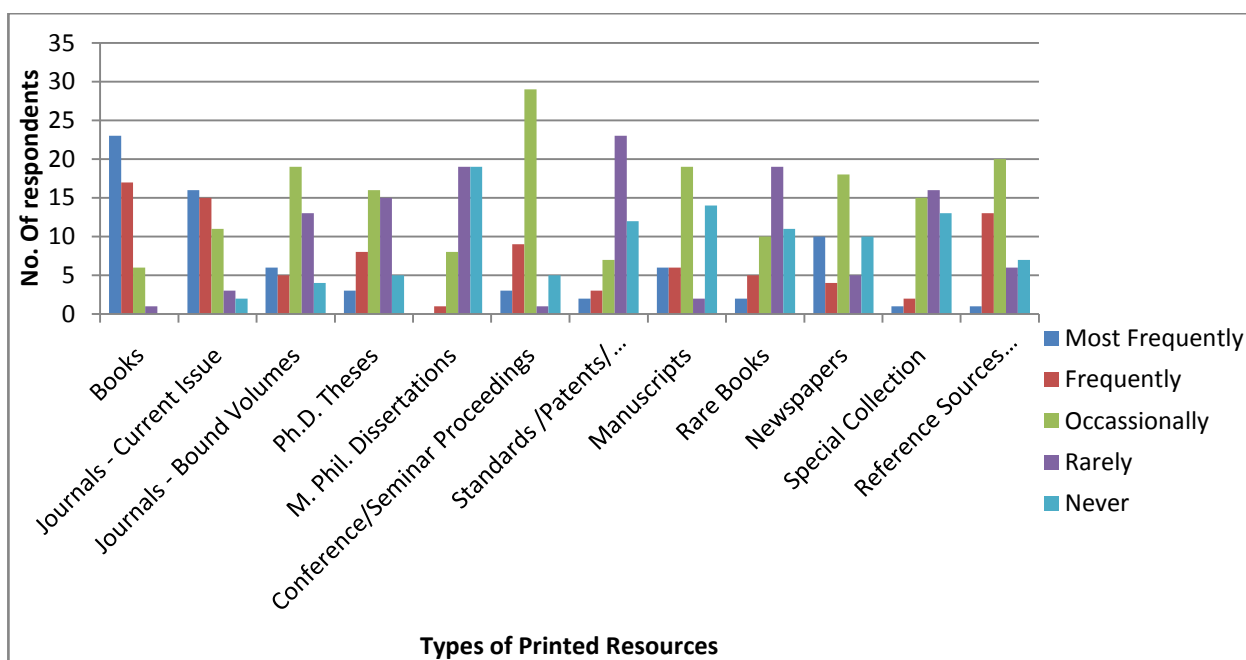
Figure 4.9: Use of different Printed Resources by Professors in Faculty of Engineering and Technology

Figure 4.7, 4.8 and 4.9 reveals that the Assistant Professors, Associate Professors and Professors of Faculty of Engineering and Technology the highest number of respondents used Books and Current Issue Journals most frequently or frequently. But M.Phil. Dissertation is the least used printed resources by all categories of respondents in Faculty of Engineering and Technology. there is no significant difference is identified in the use pattern of the printed resources by the Assistant Professors, Associate Professors and Professors of Faculty of Engineering and Technology

4.3.2.5 Purpose of using Printed Resources

This section illustrates the purpose of using printed resources by Assistant Professors, Associate Professors and Professors in Faculty of Arts, Faculty of Science and Faculty of Engineering and Technology.

Figure 4.10 depicts the purpose of using Printed Resources by Assistant Professors in Faculty of Arts. The figure illustrates that highest numbers of respondents strongly agree that the printed resources are used to know current development, for research purpose, for writing research papers, for guiding researchers and for teaching/lecture purpose. The frequency agree is used for general information, for reading articles, for seminar/conference/workshop and for designing curriculum by maximum respondents. Most of the respondents remain neutral for scientific news, for statistical information and for new standard/patents related news as the purpose of using printed resources.

Figure 4.10: Purpose of using Printed Resources by Assistant Professors in Faculty of Arts

Figure 4.11 reveals the purpose of using Printed Resources by Associate Professors in Faculty of Arts. The figure shows that most of the respondents strongly agree that the printed resources are used for to know current development, for research purpose, for writing research paper, for guiding researchers, for reading articles for teaching lectures and designing curriculum. The respondents agree that the printed resources are used for general information, for seminar/conference/workshop, for scientific news, for statistical information and for new standard/patent related news.

Figure 4.11: Purpose of using Printed Resources by Associate Professors in Faculty of Arts

Figure 4.12 shows the purpose of using Printed Resources by Professors in Faculty of Arts. The figure describes that most of the respondents strongly agree that the printed resources are used for research purpose, for writing research paper, for guiding researchers and for teaching lectures. The respondents agree that the printed resources are used to know current information, for general information, for seminar/conference/workshop and for statistical information. Most of the respondents remained neutral for scientific news, for new standard/patent related news and for designing curriculum as the purpose of using printed resources.
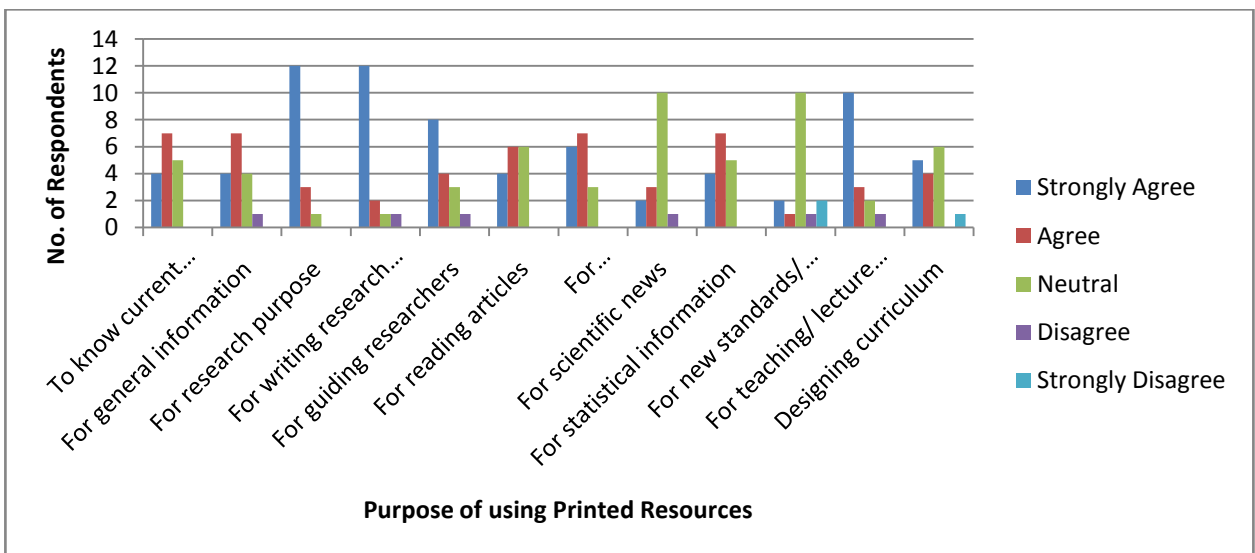
Figure 4.12: Purpose of using Printed Resources by Professors in Faculty of Arts

Figure 4.10, 4.11 and 4.12 reveals that the common purpose of using printed resources among the Assistant Professors, Associate Professors and Professors in Faculty of Arts are research purpose, for writing research paper, for guiding researchers and for teaching / lecture. The results determine that the printed resources have a great significance in teaching-learning process and research among the faculty members of Arts.

Figure 4.13 depicts the purpose of using Printed Resources by Assistant Professors in Faculty of Science. The figure illustrates that highest numbers of respondents strongly agree that the printed resources are used for research purpose and for teaching/lecture purpose. The respondents agree that the printed resources are used for general information, for writing research paper, for reading articles, for statistical information and for designing curriculum. Maximum respondents remained neutral where the purpose of using printed resources is for new standards/patents related information. However, equal respondents strongly agree or agree where the purposes of using printed resources are to know current development, for guiding researchers and for scientific news.
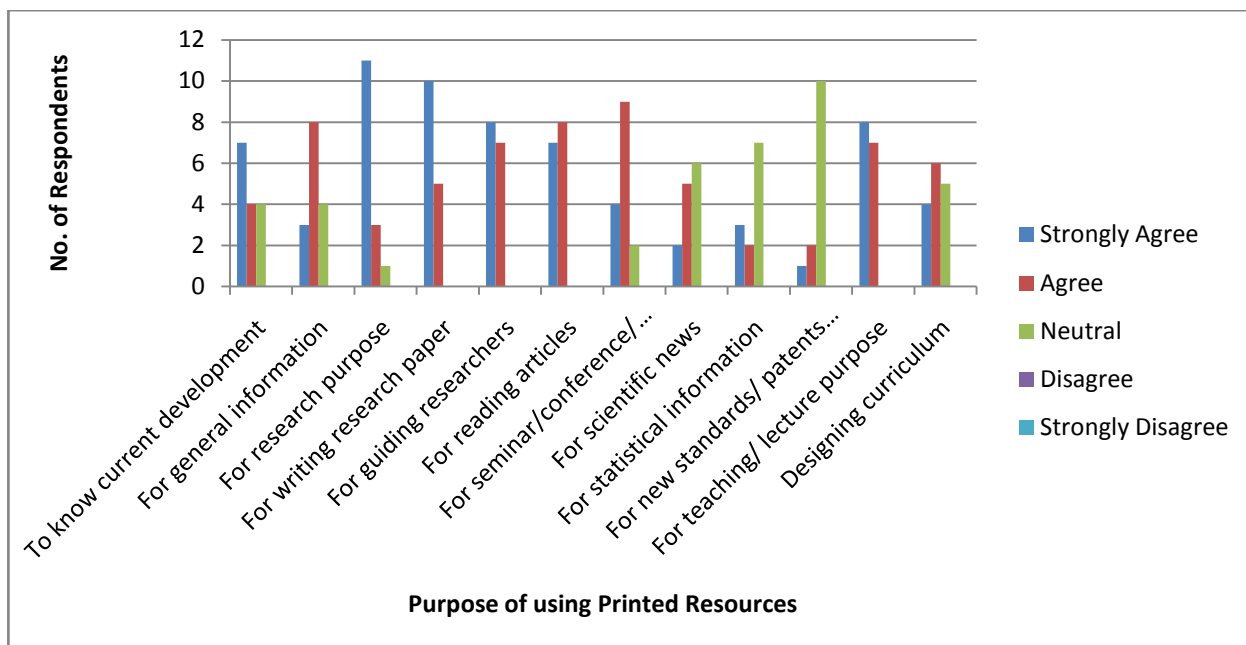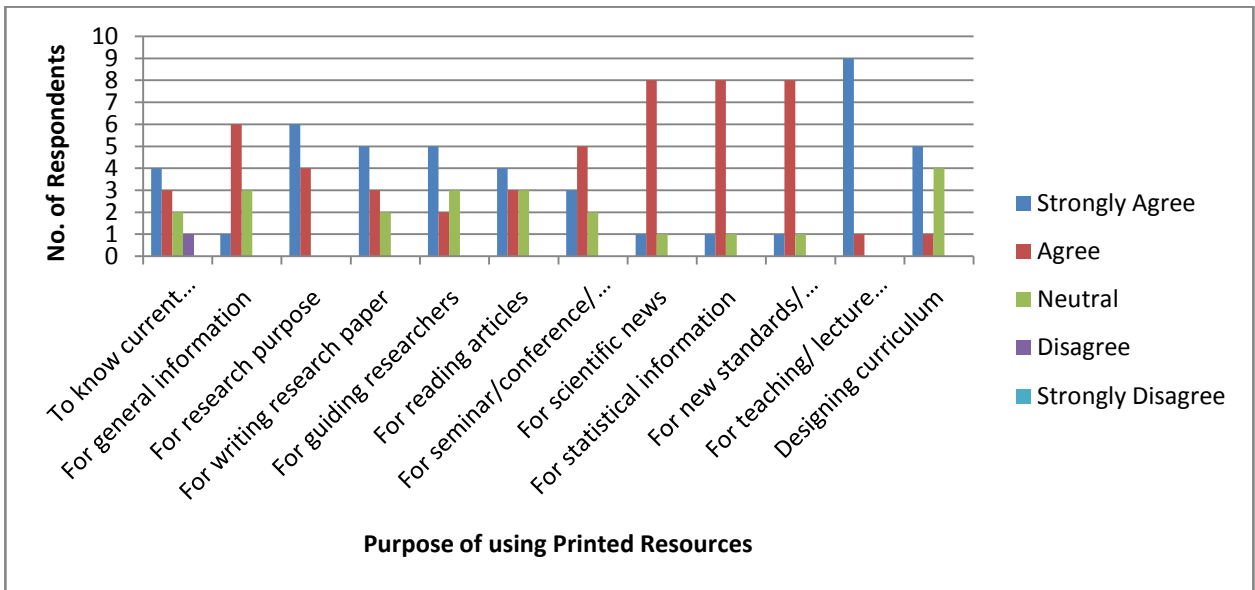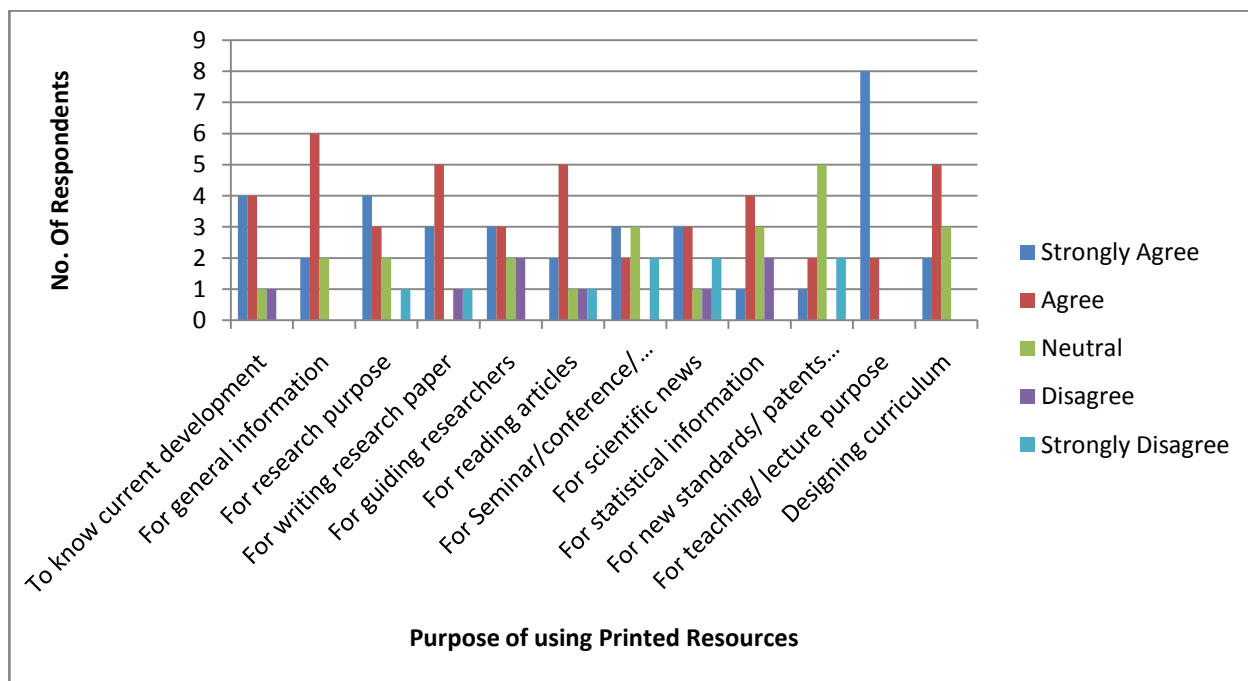

Figure 4.13: Purpose of using Printed Resources by Assistant Professors in Faculty of Science

Figure 4.14 depicts the purpose of using Printed Resources by Associate Professors in Faculty of Science. The figure shows that most of the respondents strongly agree that the printed resources are used to know current developments, for research purpose, for reading articles and for

teaching/lecture purpose. Most of the respondents agree that the printed resources are used for general information, for scientific news and for designing curriculum. Most of the respondents remain neutral for writing research paper, for guiding researchers, for statistical information and for new standard/patent related news as the purposes of using printed resources.
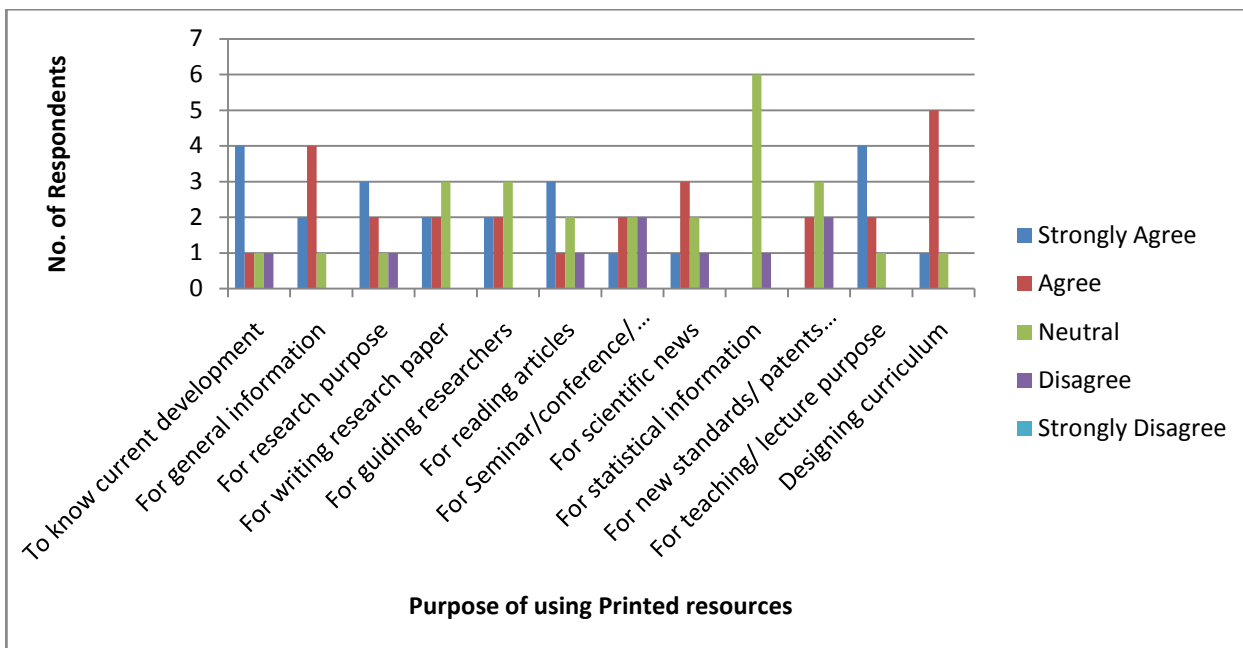
Figure 4.14: Purpose of using Printed Resources by Associate Professors in Faculty of Science

Figure 4.15 shows the purpose of using Printed Resources by Professors in Faculty of Science. The figure reveals that most of the respondents strongly agree that the printed resources are used to know current developments, for writing research papers, for guiding researchers and for teaching/lecture purpose. The maximum numbers of respondents agree that the purposes of using printed resources are for general information, for seminar/conference/workshop and for designing curriculum. Most of the respondents remain neutral for writing research paper, for reading articles, for scientific news, for statistical information and for new standard/patent related news.
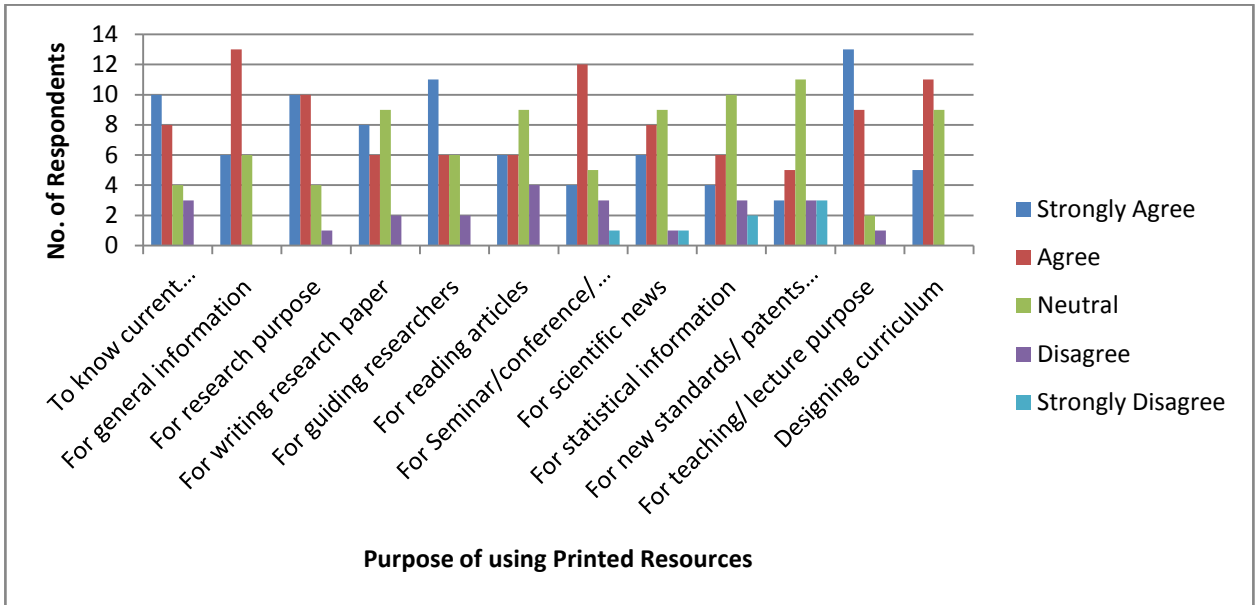
Figure 4.15: Purpose of using Printed Resources by Professors in Faculty of Science

Figure 4.13, 4.14 and 4.15 reflects that the Assistant Professors, Associate Professors and Professors in Faculty of Science strongly agree in common that the printed resources are used to know current developments, for research purpose and for teaching/lecture purpose. This determines that printed resources are necessary for preparation in teaching or lecture and for research.

Figure 4.16: Purpose of using Printed Resources by Assistant Professors in Faculty of Engineering and Technology

Figure 4.16 reveals the purpose of using Printed Resources by Assistant Professor in Faculty of Engineering and Technology. The figure shows that maximum number of respondents strongly agrees that the printed resources are used to know current developments. The highest number of respondents agrees that the purpose of using printed resources is for teaching/lecture purpose followed by other purposes like for general information, for research purpose, for writing research paper, for guiding researchers, for reading articles, for seminar/conference/workshop. Most of the respondents remain neutral for scientific news, for statistical information, for new standard, patent related information and for designing curriculum.

Figure 4.17 shows the purpose of using Printed Resources by Associate Professors in Faculty of Engineering and Technology. The figure describes that most of the respondents strongly agree that the printed resources are used to know current developments, for general information, for research purpose, for writing research paper, for guiding researchers and for teaching/lecture purpose. Among all the purposes research purpose has the highest priority. The respondents agree on the purposes of using printed resources are for seminar/conference/workshop, for statistical information and for new standard/patents/workshops. Most of the respondents remain neutral for reading articles, for scientific news and for designing curriculum.
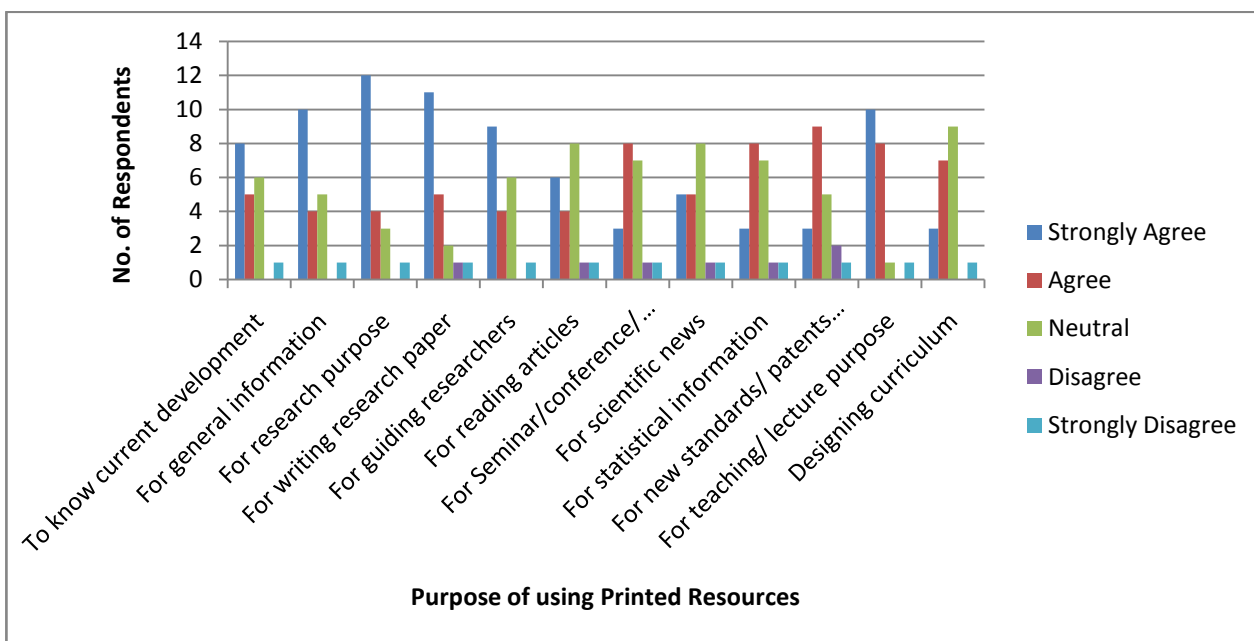
Figure 4.17: Purpose of using Printed Resources by Associate Professors in Faculty of Engineering and Technology

Figure 4.18 shows the purpose of using Printed Resources by Associate Professors in Faculty of Engineering and Technology. The figure describes that most of the respondents strongly agree that the printed resources are used to know current development and for teaching/lecture purpose. The maximum respondents agree on the purposes using printed resources are for general information, for research purpose, for writing research paper, for guiding researchers, for reading articles, for seminar/conference/workshop, for scientific news, for statistical information, for new standards/patents, specifications and for designing curriculum.
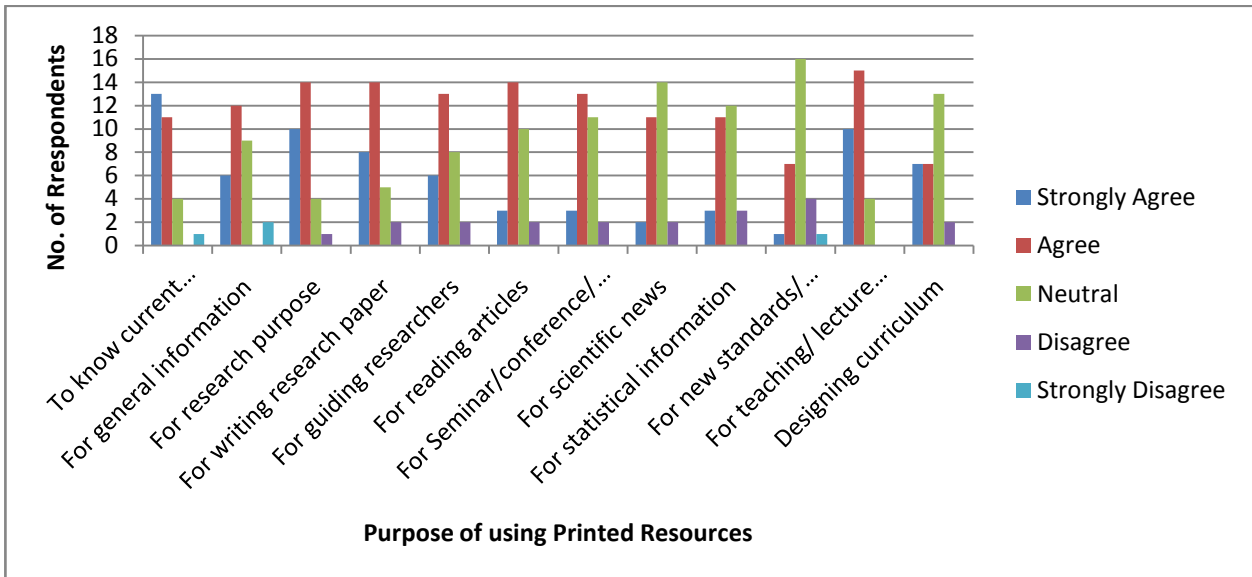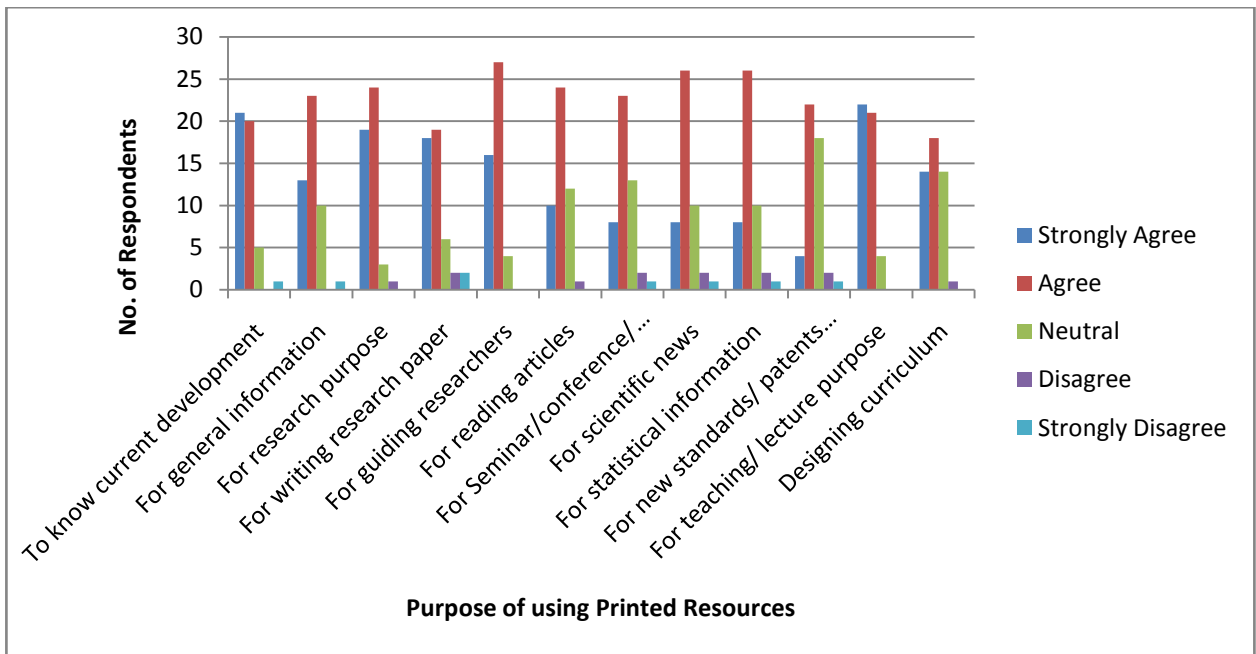

Figure 4.18: Purpose of using Printed Resources by Professors in Faculty of
Engineering and Technology

Figure 4.16, 4.17 and 4.18 shows that the purpose of using printed resources varies among the faculty members of Engineering and Technology. The Assistant Professors strongly agree to know current developments, the Associate Professor prefers to know current developments, all the research related purposes and teaching/lecture purpose whereas the Professors need the printed resources to know current developments and for teaching/lecture purpose. Though there is a variation on the choice of purpose among the faculty members of Engineering and Technology but their common choice of purpose is to know the current developments.

4.3.2.6 Activities after finding Printed Resources

In this section the figures illustrate the activities after finding the printed resources among the Assistant Professors, Associate Professors and Professors of Faculty of Arts, Science and Engineering and Technology. The activities include only read and return, photocopy the required portion, photocopy the entire document, scan and save it and purchase it if necessary.

Figure 4.19 shows the activities after finding Printed Resources by Assistant Professors in Faculty of Arts. The figure depicts that scan and save is the most frequently used activity among the respondents. The highest frequently used activity is to photocopy only the required portion among the respondents. In case of the frequency rarely, most of the respondents photocopy the entire document.

Figure 4.19: Activities after finding Printed Resources by Assistant Professors in Faculty of Arts

Figure 4.20 shows the activities after finding Printed Resources by Associate Professors in Faculty of Arts. It is evident from the figure that most frequently used activity is to photocopy only the required portion by maximum respondents. The equal number of respondents is frequently active either to photocopy only the required portion, scan and save it or purchase it if necessary. Maximum respondents occasionally read and return or scan and save the printed resources after finding it. Most of the respondents rarely or never photocopy the entire document.

Figure 4.20: Activities after finding Printed Resources by Associate Professors in Faculty of Arts

Figure 4.21 shows the activities after finding Printed Resources by Associate Professors in Faculty of Arts. The figure depicts that the most frequently used activity is to photocopy only the required portion by maximum respondents. A good number of respondents most frequently photocopy the entire document. Most of the respondents frequently read and return the printed resources. Maximum respondents occasionally purchase it if necessary.
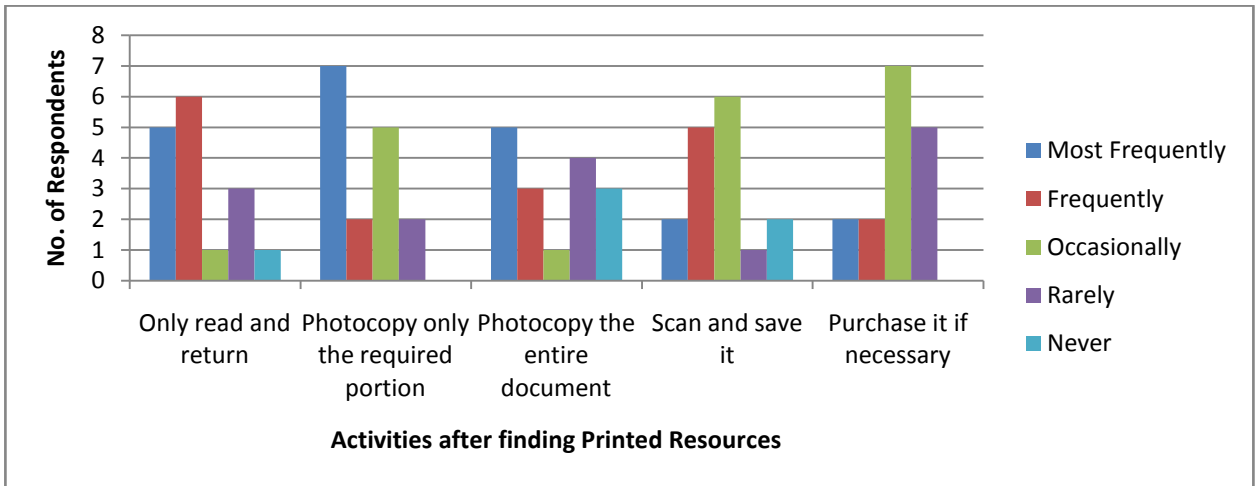
Figure 4.21: Activities after finding Printed Resources by Professors in Faculty of Arts

Figure 4.19, 4.20 and 4.21 shows that most of the Assistant Professors in Faculty of Arts rarely photocopy the entire document whereas Associate Professors and Professors in Faculty of Arts most frequently photocopy only the required portion.

Figure 4.22 shows the activities after finding Printed Resources by Assistant Professors in Faculty of Science. The figure depicts that the most frequently used activity is scan and save the document. The equal number of respondents either frequently, occasionally or rarely read or returns the document. Maximum respondents occasionally photocopy the entire document but rarely purchase it if necessary.
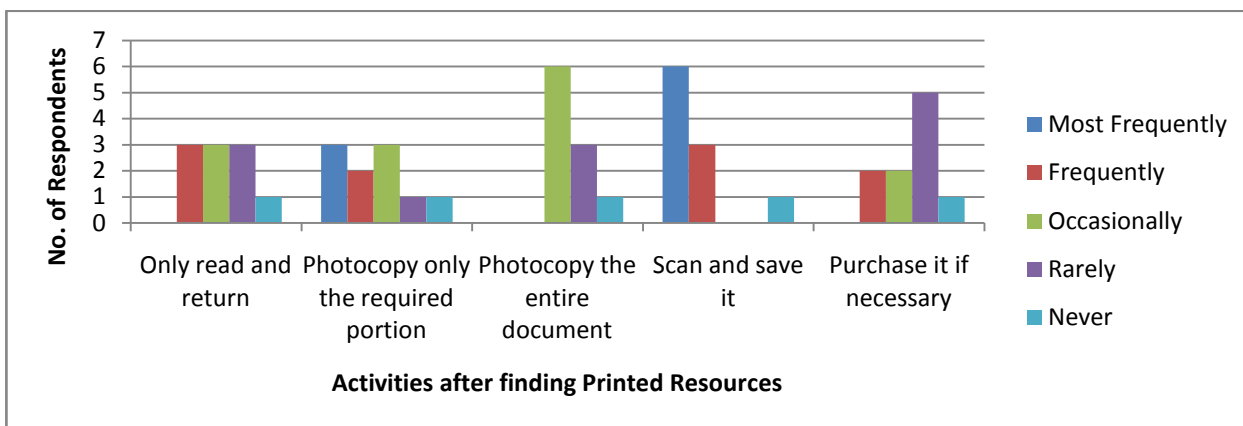
Figure 4.22: Activities after finding Printed Resources by Assistant Professors in Faculty of Science

Figure 4.23 shows the activities after finding Printed Resources by Associate Professors in Faculty of Science. The figure describes that the equal number of respondents most frequently either read and return the documents or photocopy only the required portion. A good number of respondents frequently photocopy the entire document. It is evident from the figure that the maximum numbers of respondents rarely scan and save the document and occasionally purchase it if necessary.
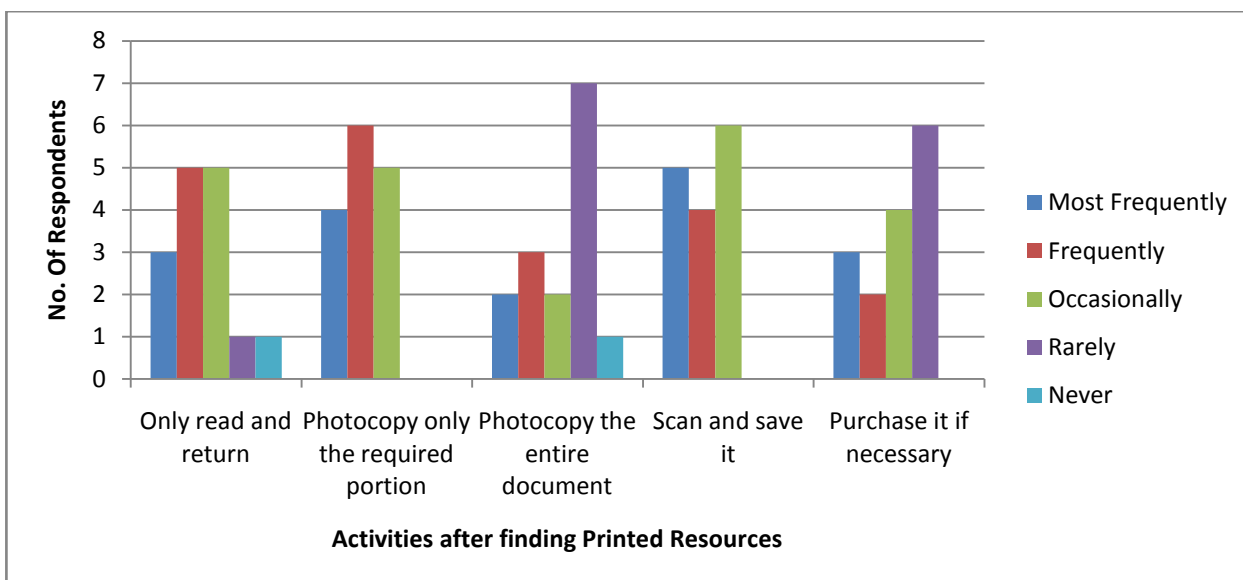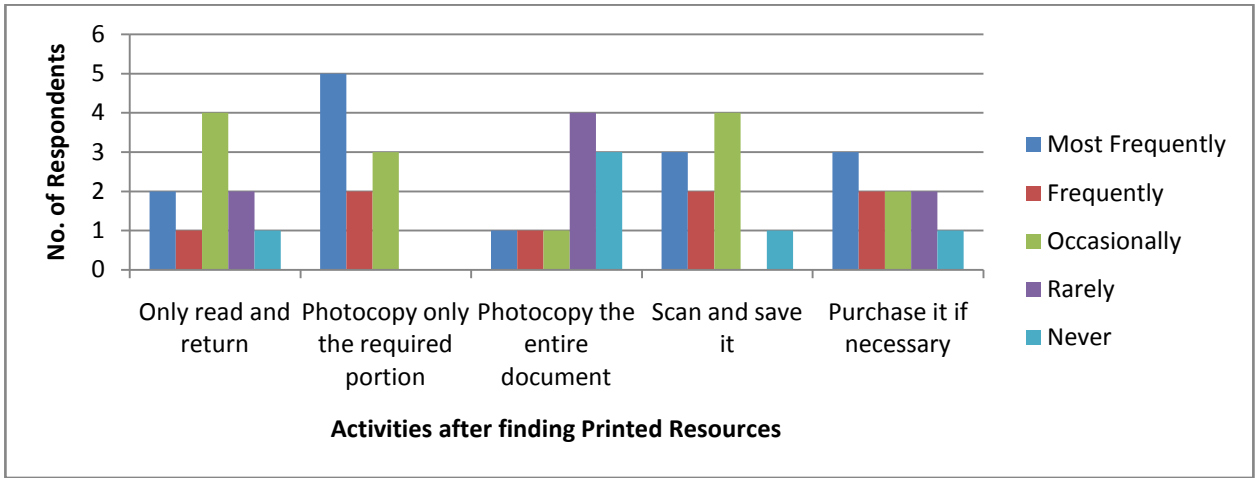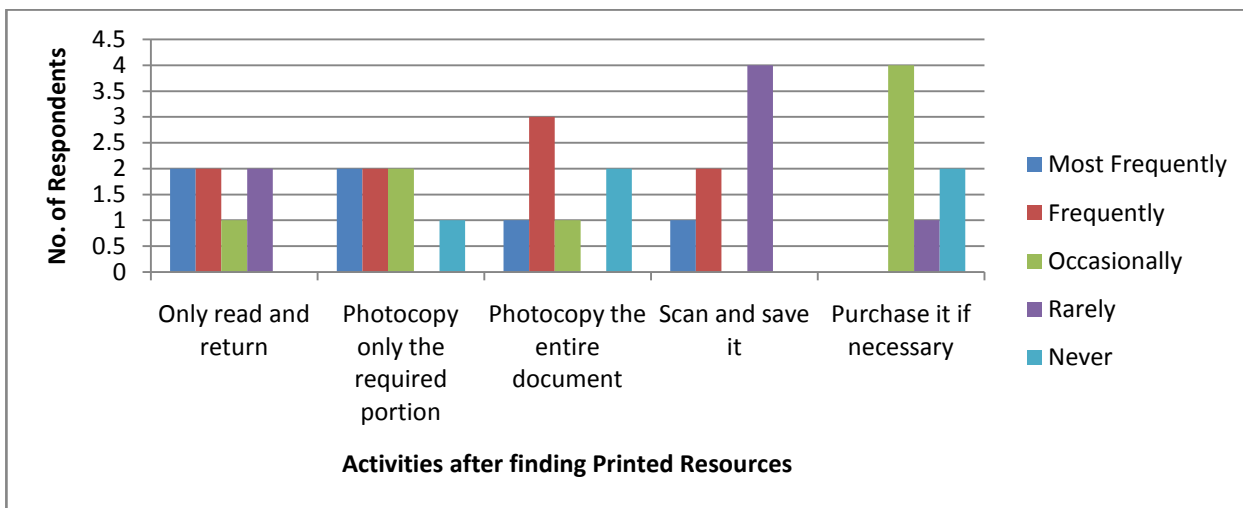

Figure 4.23: Activities after finding Printed Resources by Associate Professors in Faculty of Science

Figure 4.24 shows the activities after finding Printed Resources by Professors in Faculty of Science. The figure depicts maximum respondents frequently photocopy only the required portion. The maximum respondents occasionally purchase it if necessary but rarely photocopy the entire document. Most of the respondents scan and save it frequently.
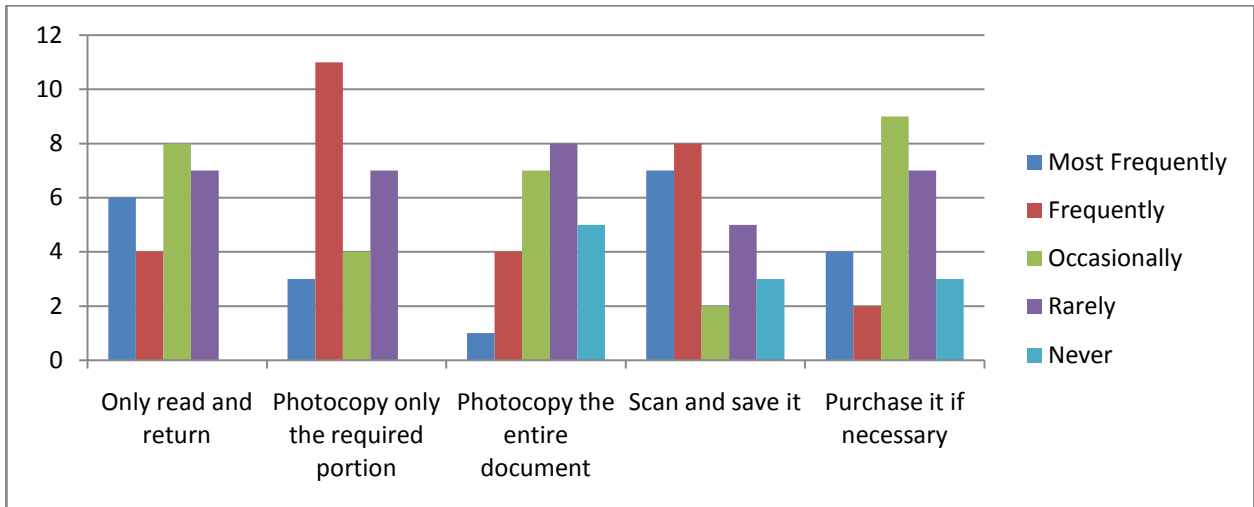
Figure 4.24: Activities after finding Printed Resources by Professors in Faculty of Science

Figure 4.22, 4.23 and 4.24 shows that the Assistant Professor and Professors in Faculty of Science most frequently scan and save the documents which denote that they prefer to preserve the soft copy of the document. But the Associate Professors most frequently only read and return and photocopy the required portion or purchase it if necessary.

Figure 4.25: Activities after finding Printed Resources by Assistant Professors in Faculty of Engineering and Technology

Figure 4.25 shows the activities after finding Printed Resources by Assistant Professors in the Faculty of Engineering and Technology. The figure describes that the equal number of Assistant Professors responded that they most frequently read and return the document or scan and save it. The equal number of Assistant Professors responded that they frequently read and return the document, photocopy only the required portion or scan and save it. The maximum respondents responded that they occasionally photocopy the entire document or purchase it if necessary.

Figure 4.26 reflects the activities after finding Printed Resources by Associate Professors in Faculty of Engineering and Technology. The maximum respondents most frequently photocopy the only required portion. The equal numbers of respondents frequently read and return the document or photocopy the only required portion. The equal number of respondents responded occasionally either photocopy the entire document, scan and save it or purchase it if necessary. The equal numbers of respondents neither photocopy the entire document nor purchase it if necessary.
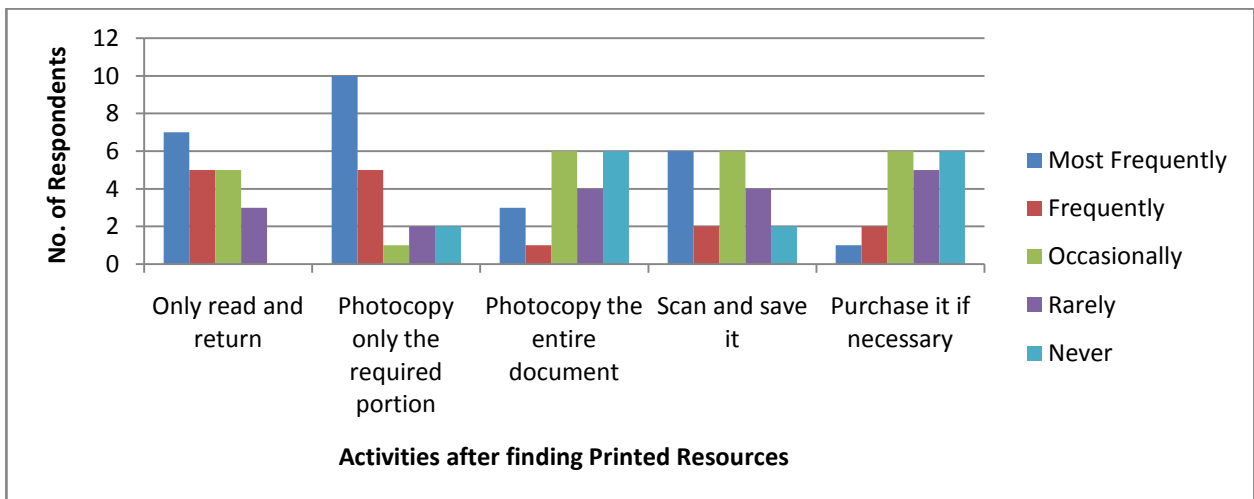
Figure 4.26: Activities after finding Printed Resources by Associate Professors in Faculty of Engineering and Technology

Figure 4.27 shows the activities after finding Printed Resources by Professors in Faculty of Engineering and Technology. The maximum respondents responded frequently prefer to, read and return whereas a good number of respondents photocopy only the required portion or scan and save it. Most of the respondents most frequently prefer to photocopy only the required portion. Most of the respondents occasionally photocopy the entire document but in case to purchase it if necessary most of them rarely do it.
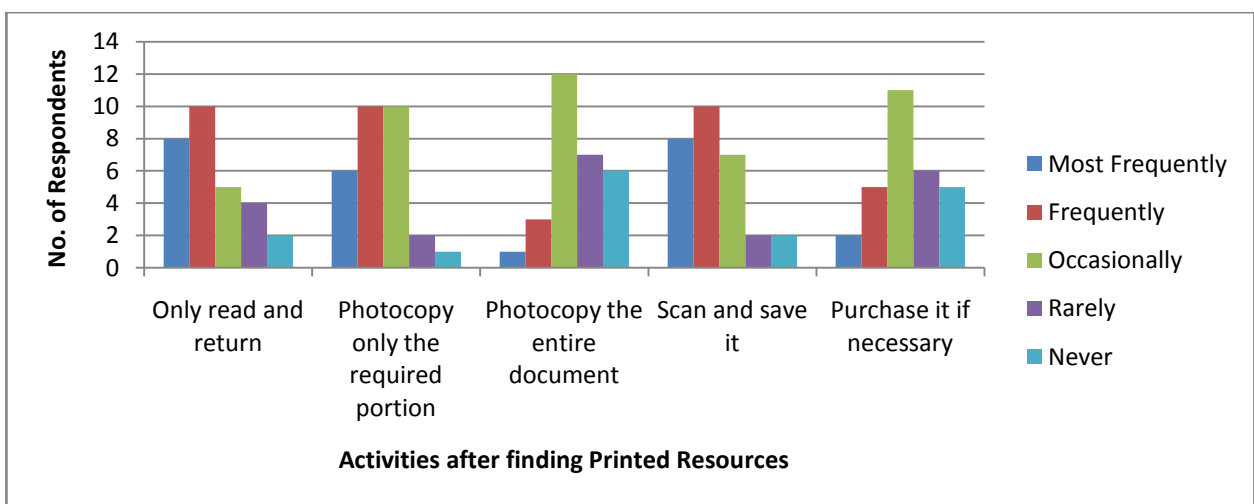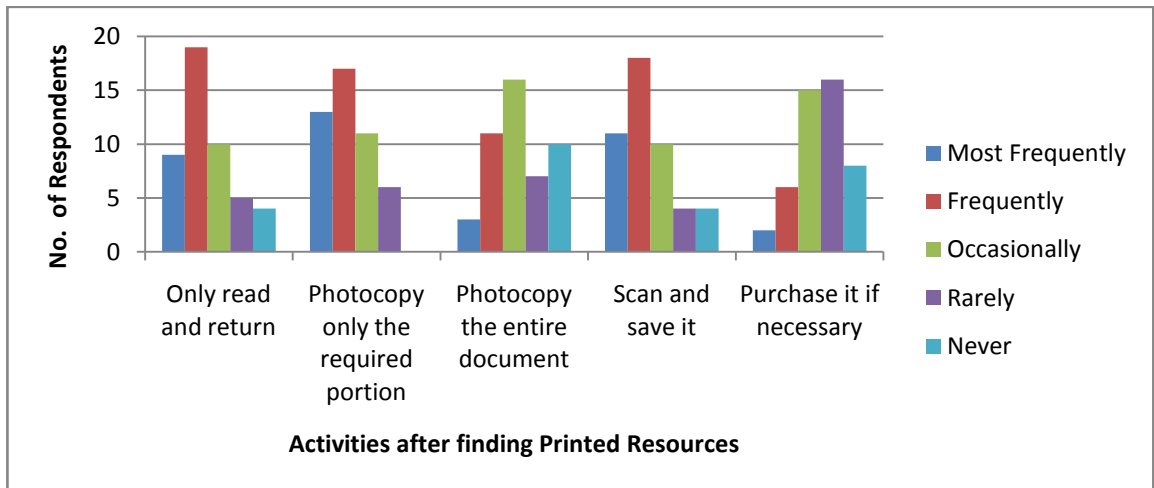
Figure 4.27: Activities after finding Printed Resources by Professors in Faculty of Engineering and Technology

Figure 4.25, 4.26 and 4.27 reflects that the maximum number of most frequently responded Assistant Professors of Faculty of Engineering and Technology only read and return the documents or scan and save it. But in case of Associate Professors and Professors they prefer to photocopy the required portion.

4.3.2.7 Advantages of using Printed Resources

In this section the figures illustrate about the advantages enjoyed by the Assistant Professors, Associate Professors and Professors in Faculty of Arts, Science and Engineering and Technology while using printed resources.

Figure 4.28 shows the advantages of using Printed Resources by Assistant Professor in Faculty of Arts. It is evident from the figure that the maximum numbers of respondents agreed that the advantage of printed resources is that it is easy to make notes or highlight any portion. The next advantage shown by the respondents are of three types - the printed resources can be owned by anyone, does not require any medium to access and does not require separate IT knowledge/ training. The maximum respondents remained neutral in response to the staff assistance in handling the printed resources. The maximum responses that are disagreed as advantages of using printed resources are that the printed resources does not require any search engine, it is not internet based and more sustainable. Maximum number of respondents disagree that printed resources does not require any search technique.

Figure 4.28: Advantages of using Printed Resources by Assistant Professor in Faculty of Arts

Figure 4.29 shows the advantages of using Printed Resources by Associate Professors in Faculty of Arts. The figure depicts that easy to make notes or highlight is strongly agreed or agreed by maximum respondents. The maximum number of respondents also agreed that the printed resources do not require any medium to access and does not require separate IT knowledge/training. The maximum equal number of respondents remained neutral to the statements that the printed resources does not require separate subscriptions, is not internet based, more sustainable and does not require any staff for handling.

Figure 4.29: Advantages of using Printed Resources by Associate Professors in Faculty of Arts

Figure 4.30 shows the advantages of using Printed Resources by Professors in Faculty of Arts. The figure describes that easy to make notes or highlight is the advantage strongly agreed by maximum number of respondents. The maximum responses that agree are the printed resource does not require any medium to access and does not require any separate subscriptions. The maximum respondents remained neutral to the statements that the printed resources can be carried anywhere, can be owned by anyone and does not require staff assistance in handling.
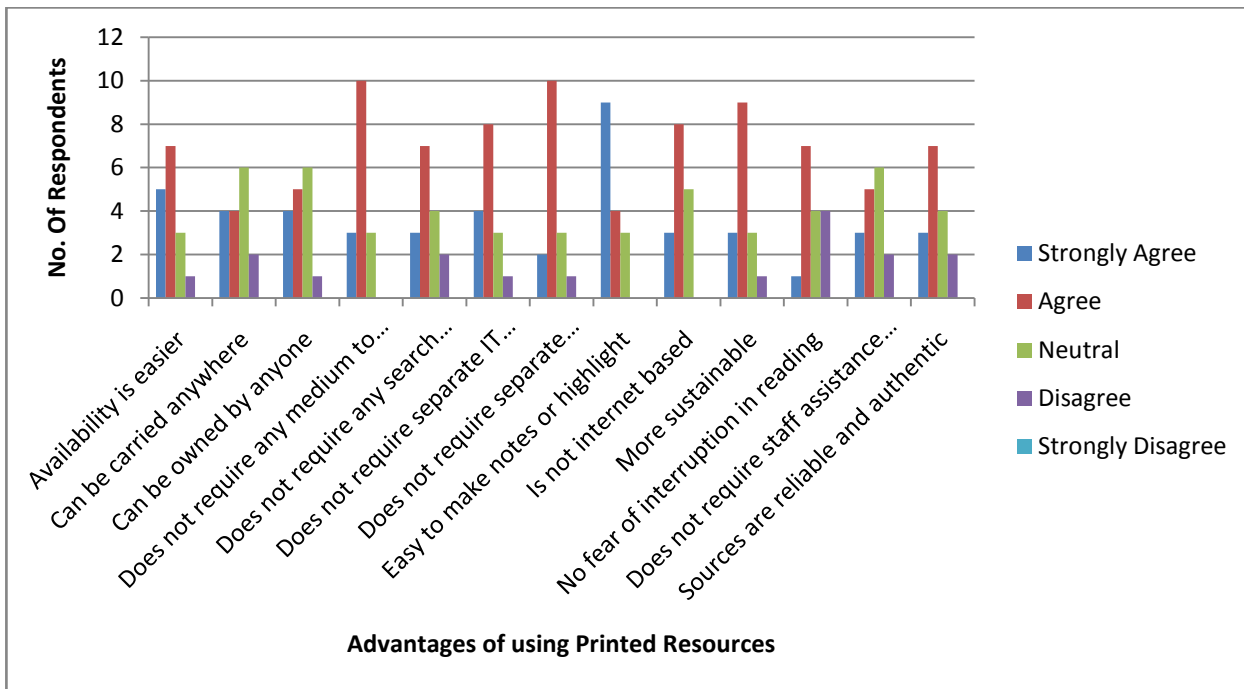
Figure 4.30: Advantages of using Printed Resources by Professors in Faculty of Arts

Figure 4.28, 4.29 and 4.30 shows the common advantages among the Assistant Professors, Associate Professors and Professors in Faculty of Arts are that the printed resources are available easier, does not require any medium to access, does not require separate IT knowledge, easy to make notes or highlight and no fear of interruption in reading. The fact reveals that perhaps it is more convenient to connect on paper than screen.

Figure 4.31 shows the advantages of using Printed Resources by Assistant Professor in Faculty of Science. The figure describes that easy to make notes or highlight is the advantage of using printed resources strongly agreed by maximum number of respondents. The maximum numbers of respondents agree that the printed resources can be owned by anyone, does not require any

medium to access, does not require any search technique, does not require separate IT knowledge/ training, does not require separate subscriptions and is not internet based. The maximum respondents remained neutral to the statement that printed resources are more sustainable, has no fear of interruption in reading and does not require staff assistance in handling.
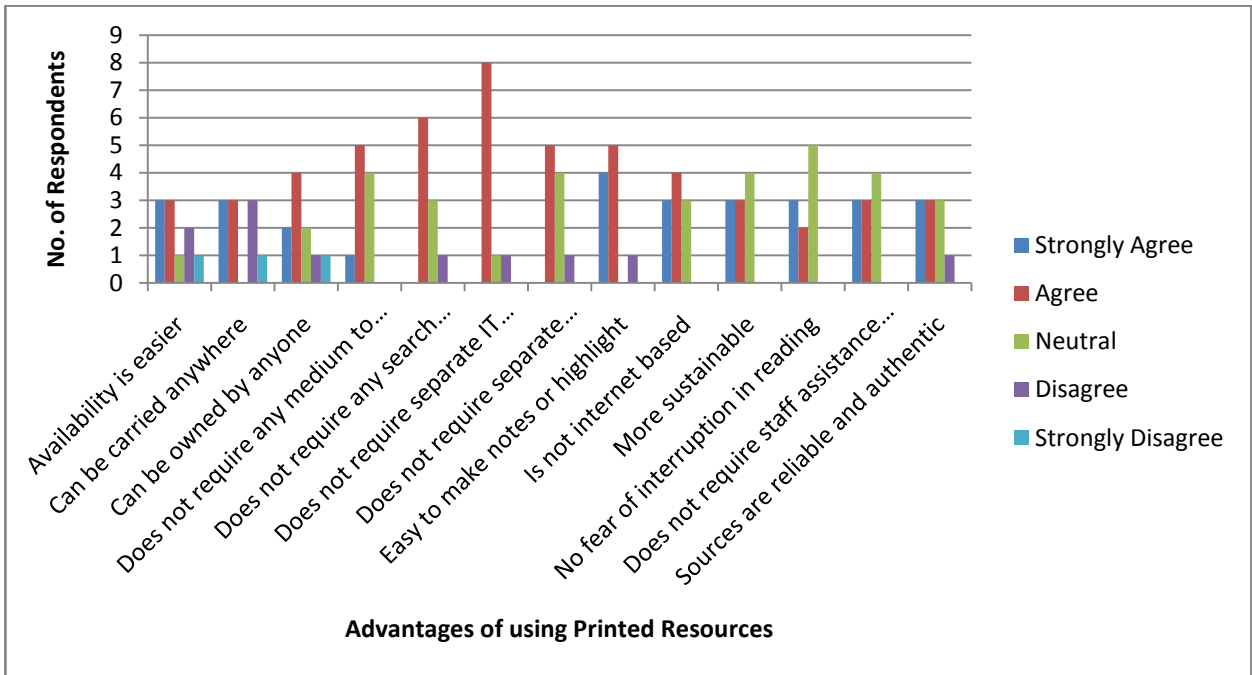
Figure 4.31: Advantages of using Printed Resources by Assistant Professors in Faculty of Science
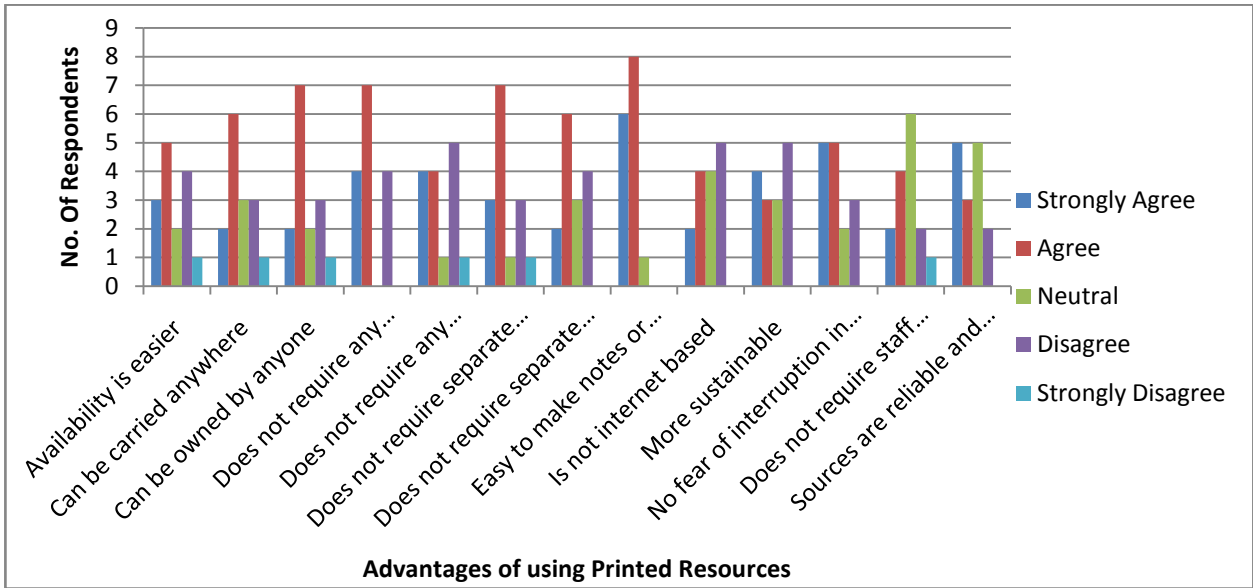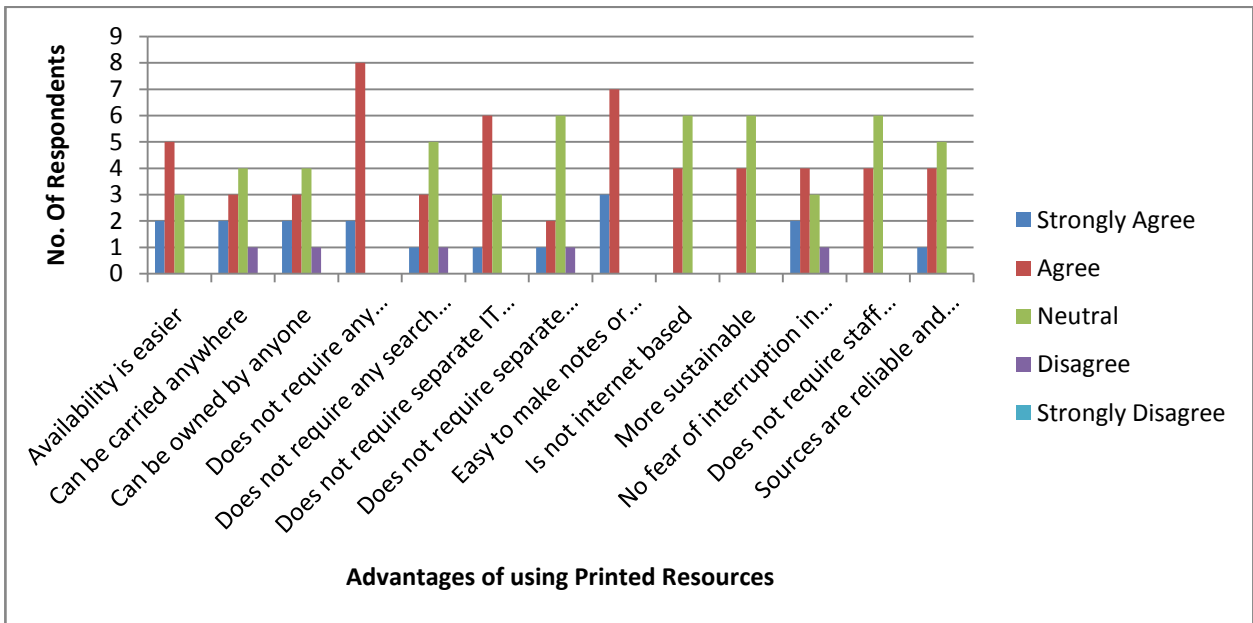

Figure 4.32: Advantages of using Printed Resources by Associate Professors in Faculty of Science

Figure 4.32 shows the advantages of using Printed Resources by Associate Professors in Faculty of Science. The figure reveals that easy to make notes or highlight is the advantage strongly agreed or agreed by maximum respondents. The maximum number of respondents also agreed that the printed resources can be owned by anyone, does not require any medium to access and is not internet based. The maximum number of respondents remained neutral to the statements that the printed resources does not require separate IT knowledge/training, more sustainable, no fear of interruption in reading, does not require staff assistance in handling and sources are reliable and authentic.

Figure 4.33 shows the advantages of using Printed Resources by Professors in Faculty of Science. The figure describes that easy to make notes or highlight is the advantage of using printed resource strongly agreed or agreed by maximum number of respondents. The maximum respondents also agreed that the printed resources can be owned by anyone, does not require any medium to access, does not require any search technique, does not require separate IT knowledge/training and sources are reliable and authentic. The equal number of respondents either agrees or remains neutral to the advantages of using printed resources like does not require separate subscriptions, is not internet based, more sustainable and no fear of interruption in reading.
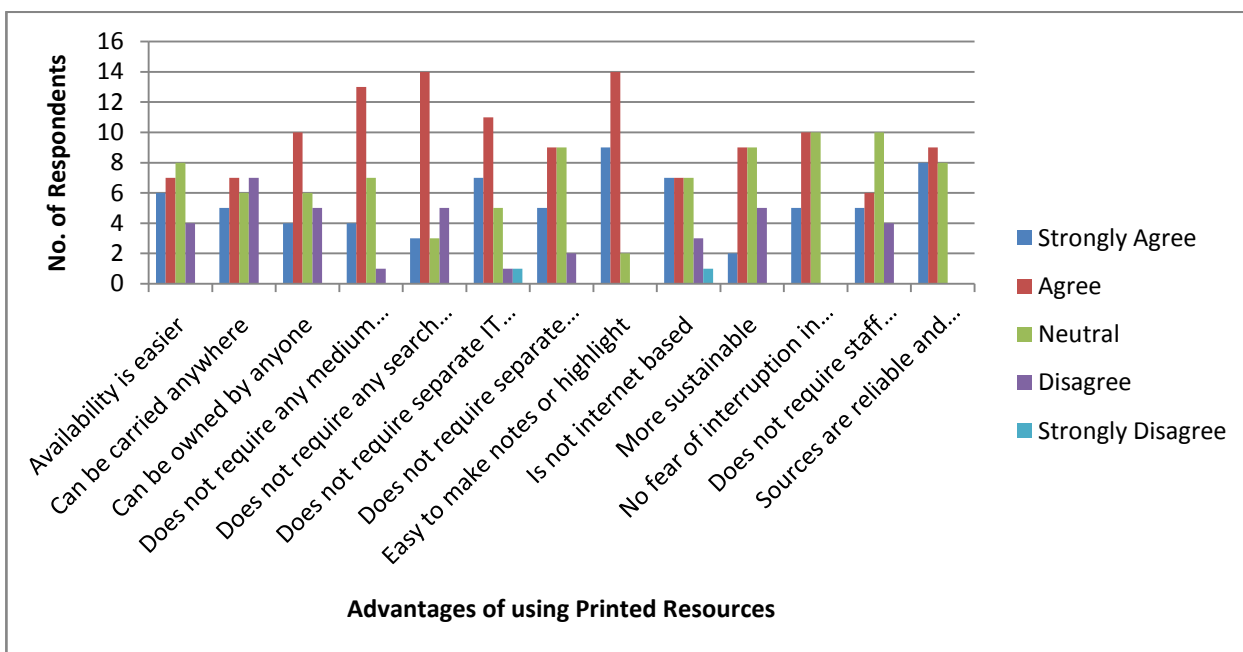
Figure 4.33: Advantages of using Printed Resources by Professors in Faculty of Science

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Figure 4.31, 4.32 and 4.33 reveals that the Assistant Professors, Associate Professors and Professors in Faculty of Science agree in common that the printed resources can be owned by anyone, does not require any medium to access and easy to make notes or highlight.

Figure 4.34 shows the advantages of using Printed Resources by Assistant Professor in Faculty of Engineering and Technology. The figure reveals that maximum respondents strongly agree on easy to make notes or highlight while using printed resources. The maximum numbers of respondents agree that the printed resource can be carried anywhere, does not require any medium to access, does not require any search technique and no fear of interruption in reading. The maximum respondents remained neutral to the statement that printed resources availability is easier, can be owned by anyone, does not require separate IT knowledge/training, does not require separate subscriptions, is not internet based, more sustainable and lastly does not require staff assistance in handling. Few respondents disagree with the statements that printed resources can be carried anywhere, does not require any search technique and does not require separate subscription.
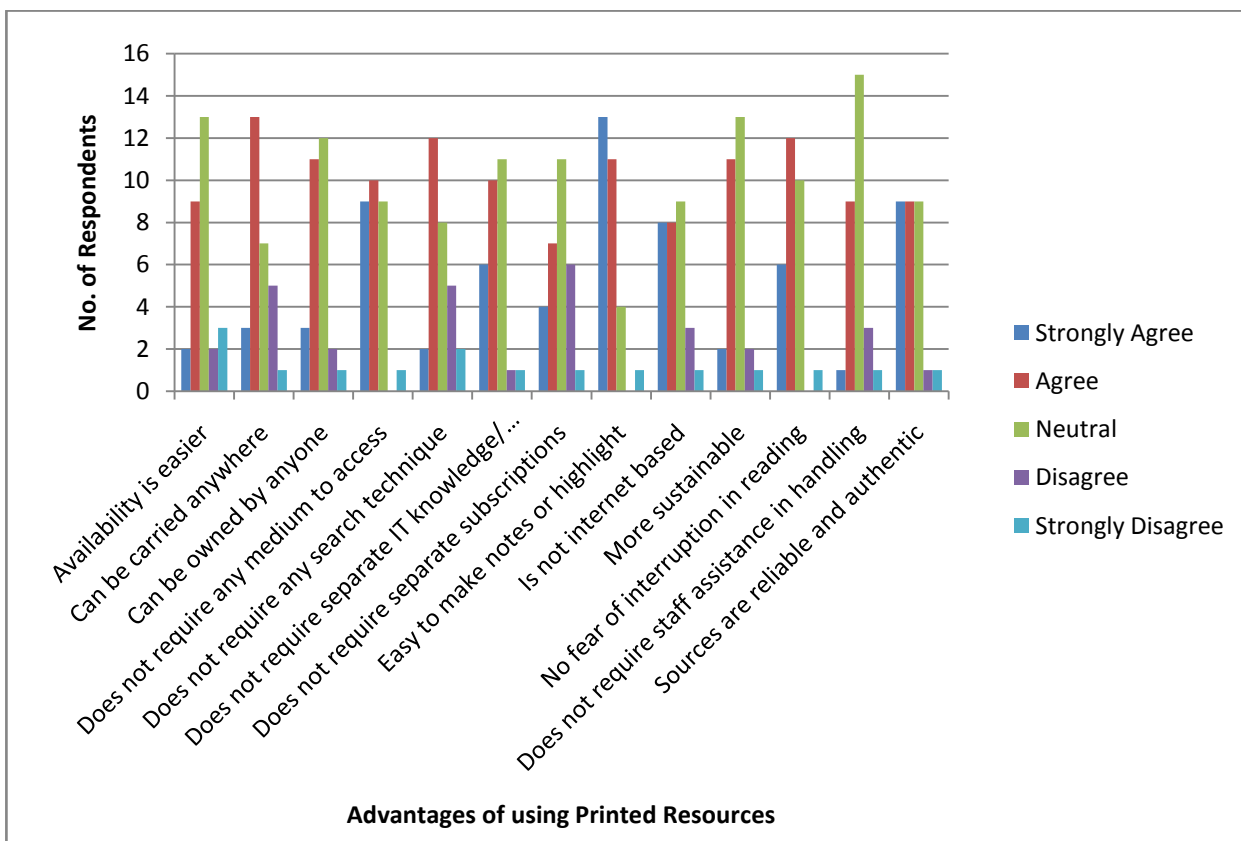
Figure 4.34: Advantages of using Printed Resources by Assistant Professors in Faculty of Engineering and Technology

Figure 4.35 reveals the advantages of using Printed Resources by Associate Professors in Faculty of Engineering and Technology. The maximum respondents strongly agree on the advantages that printed resources availability is easier, can be carried anywhere, more sustainable, no fear of interruption in reading and sources are reliable and authentic. The maximum respondents agree that printed resources can be owned by anyone, does not require any medium to access, does not require any search technique and easy to make notes or highlight.
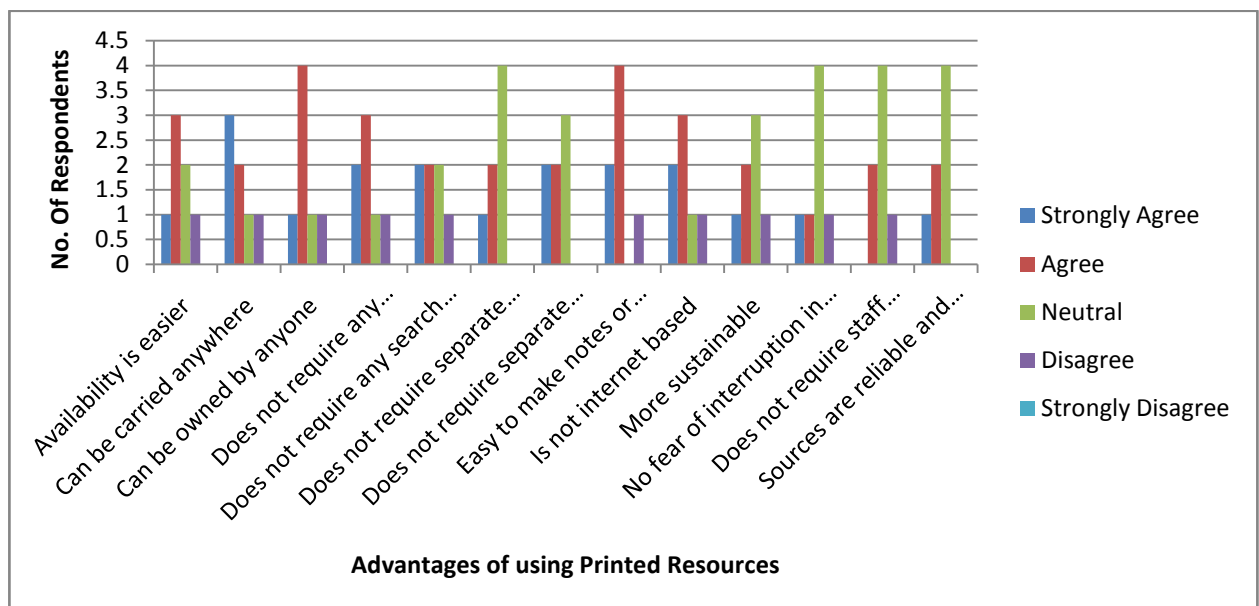

Figure 4.35: Advantages of using Printed Resources by Associate Professors in Faculty of Engineering and Technology
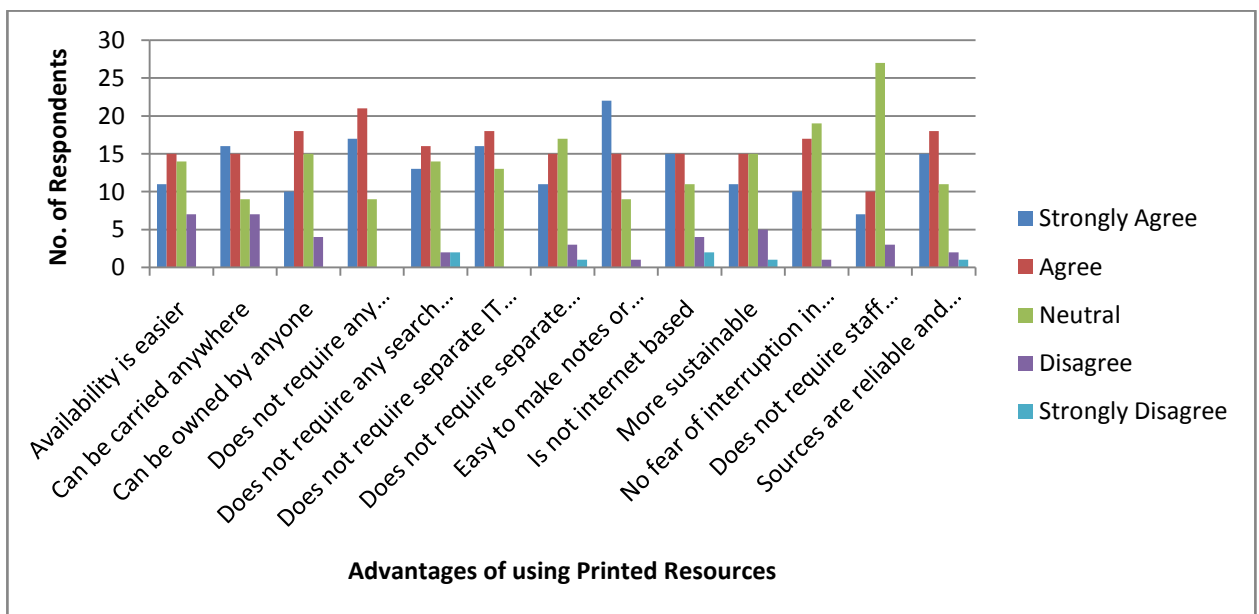
Figure 4.36: Advantages of using Printed Resources by Professors in Faculty of Engineering and Technology

Figure 4.36 reveals the advantages of using Printed Resources by Professors in Faculty of Engineering and Technology. Most of the respondents strongly agree that printed resources are easy to make notes or highlight. The maximum respondents agree with the advantages that the printed resources can be owned by anyone, does not require any medium to access, does not require any search technique, and does not require separate IT knowledge/training and sources are reliable and authentic.

Figure 4.34, 4.35 and 4.36 shows that the Assistant Professors and Professors of Faculty of Engineering and Technology strongly agree whereas the Associate Professors strongly agree or agree that printed resources does not require any medium to access, does not require any search technique and are easy to make notes or highlight.

4.3.2.8 Disadvantages of using Printed Resources:

In this section the figures illustrate about the disadvantages or the problems faced by the Assistant Professors, Associate Professors and Professors in Faculty of Arts, Science and Engineering and Technology while using printed resources.

Figure 4.37: Disadvantages of using Printed Resources by Assistant Professors in Faculty of Arts

Figure 4.37 shows the disadvantages of using Printed Resources by Assistant Professors in Faculty of Arts. The figure depicts that most of the respondents strongly agree the disadvantage

of printed resources as the required storage space. Most of the respondents agree that the printed resources are not up to date, document size may be difficult to handle, chances of physical damage, cannot have multiple access, may not be always cost-effective and difficult to locate/access. The equal numbers of respondents are either remain neutral or disagree the statement that the printed resources are not time-saving.

Figure 4.38 shows the disadvantages of using Printed Resources by Associate Professors in Faculty of Arts. Most of the respondents strongly agree that the disadvantage of using printed resources is the required storage space. The respondents agree that the printed resources are not up to date, document size may be difficult to handle, chances of physical damage, cannot have multiple access and may not be cost-effective. The other disadvantages responded neutral are document size may be difficult to handle and is not time-saving but some of the respondents disagree with the statements.
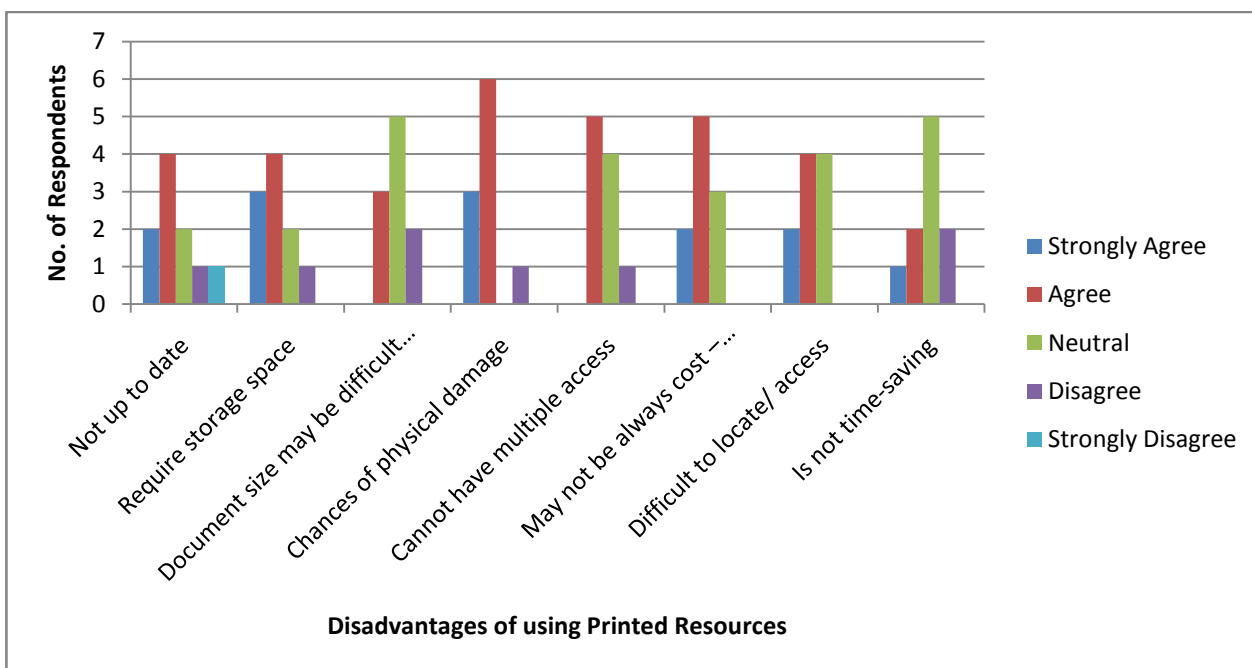
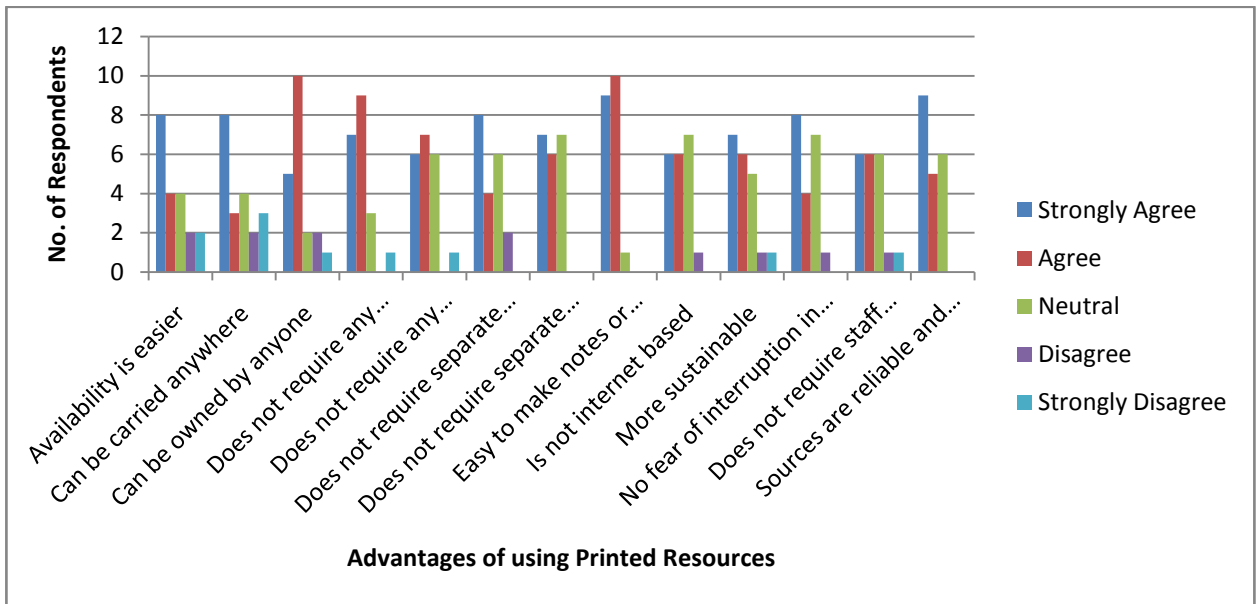
Figure 4.38: Disadvantages of using Printed Resources by Associate Professors in Faculty of Arts
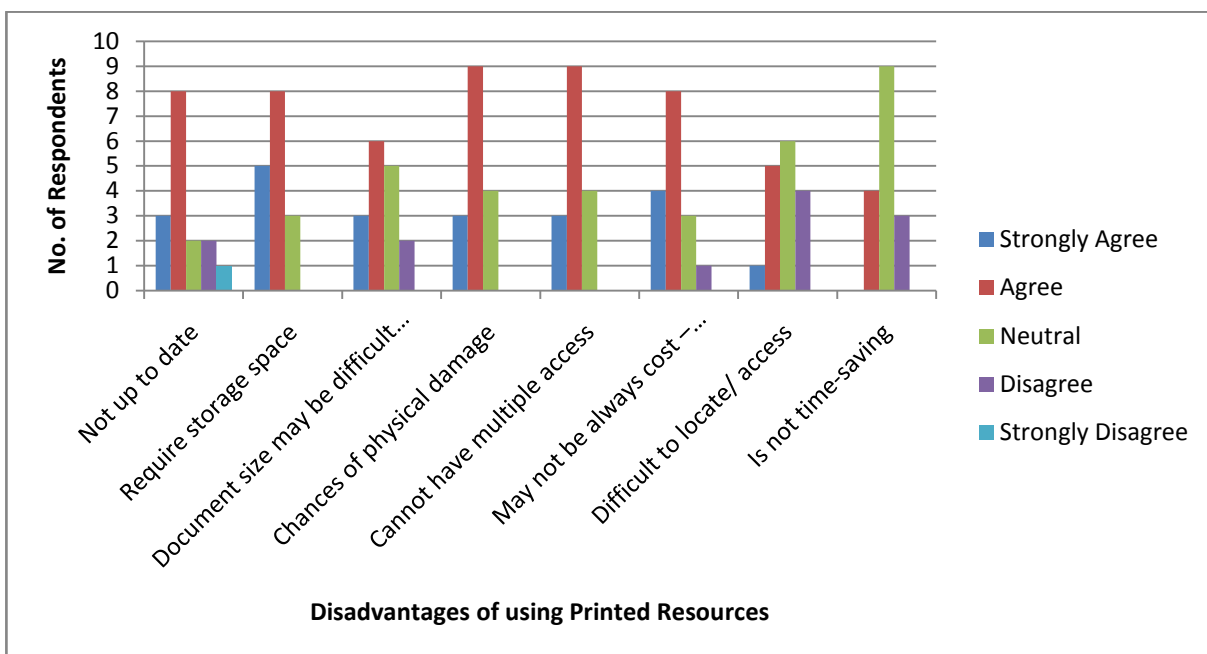
Figure 4.39: Disadvantages of using Printed Resources by Professors in Faculty of Arts

Figure 4.39 shows the disadvantages of using Printed Resources by Professors in Faculty of Arts. The figure reveals that maximum numbers of respondents strongly agree that printed resources require storage space. The equal numbers of respondents agree that the printed resources have chances of physical damage and they cannot have multiple accesses. A good number of respondents remain neutral to the statement that printed resource is not time saving.

Figure 4.37, 4.38 and 4.39 shows that the Assistant Professors, Associate Professors and Professors in Faculty of Arts strongly agree or agree that the printed resources require storage space which is a genuine problem in most of the libraries. All categories of faculty members of Arts agree that the printed resources are not up to date, chances of physical damage, cannot have multiple accesses and may not be always cost-effective. The Assistant Professors agree that the printed resources are difficult to locate, Associate Professors equally agree or remain neutral and Professors remain neutral. In case of the statement that printed resources are not time-saving all types of faculty members of Arts remained neutral.

Figure 4.40 shows the disadvantages of using Printed Resources by Assistant Professors in Faculty of Science. The maximum respondents agree that the printed resources document size may be difficult to handle, have the chances of physical damage, cannot have multiple access, may not be always cost-effective and difficult to locate/access. The equal numbers of respondents either agree or remain neutral in case of the statement that printed resources are not up to date or require storage space. Most of the respondents remain neutral to the statement that printed resource is not time –saving.
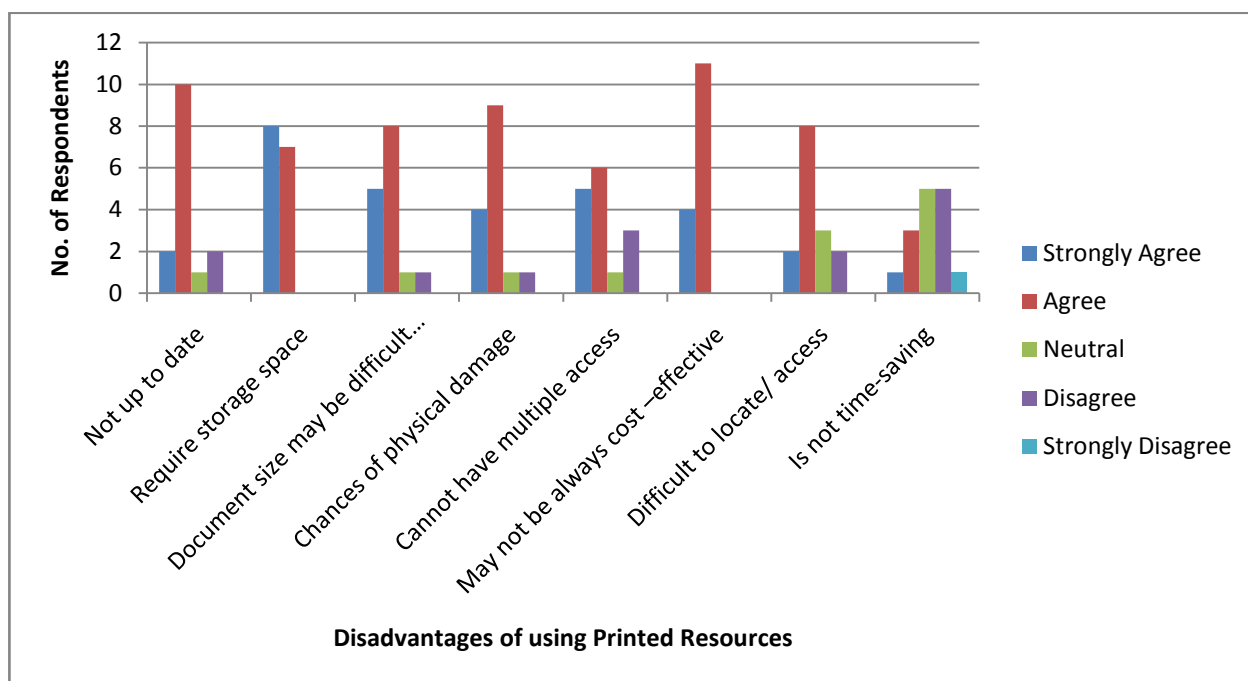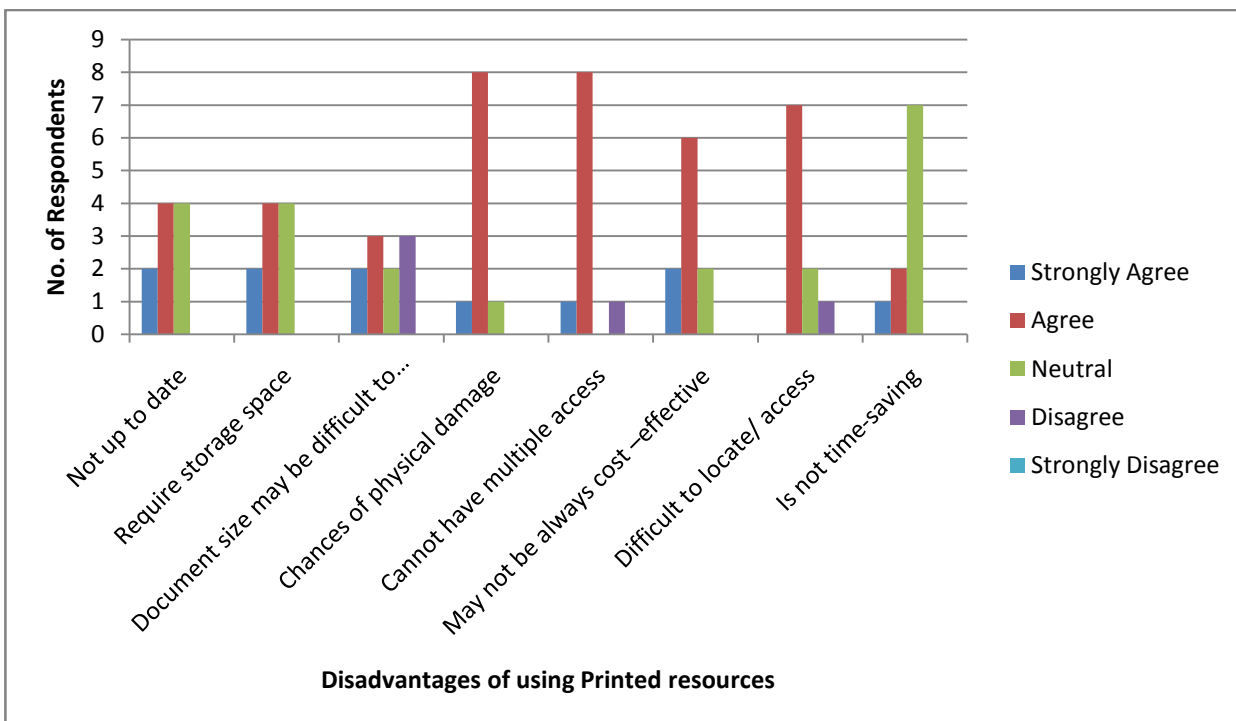

Figure 4.40: Disadvantages of using Printed Resources by Assistant Professors in Faculty of Science

Figure 4.41 shows the disadvantages of using Printed Resources by Associate Professors in Faculty of Science. The maximum numbers of respondents agree that the printed resources require storage space, document size may be difficult to handle, chances of physical damage, cannot have multiple access and may not be always be cost-effective. The equal numbers of respondents either agree or remain neutral for the statement that printed resources are not up to date. Most of the respondents remain neutral to the statement that printed resources are difficult to locate/access. Maximum respondents disagree to the statement that printed resources are not time-saving.
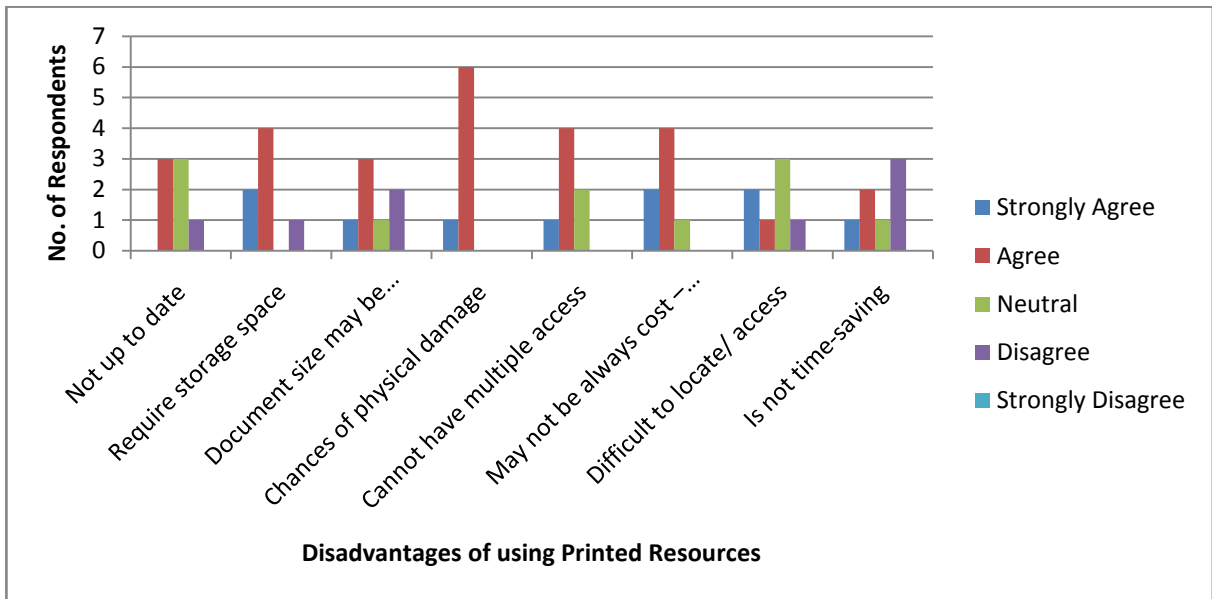
Figure 4.41: Disadvantages of using Printed Resources by Associate Professors in Faculty of Science
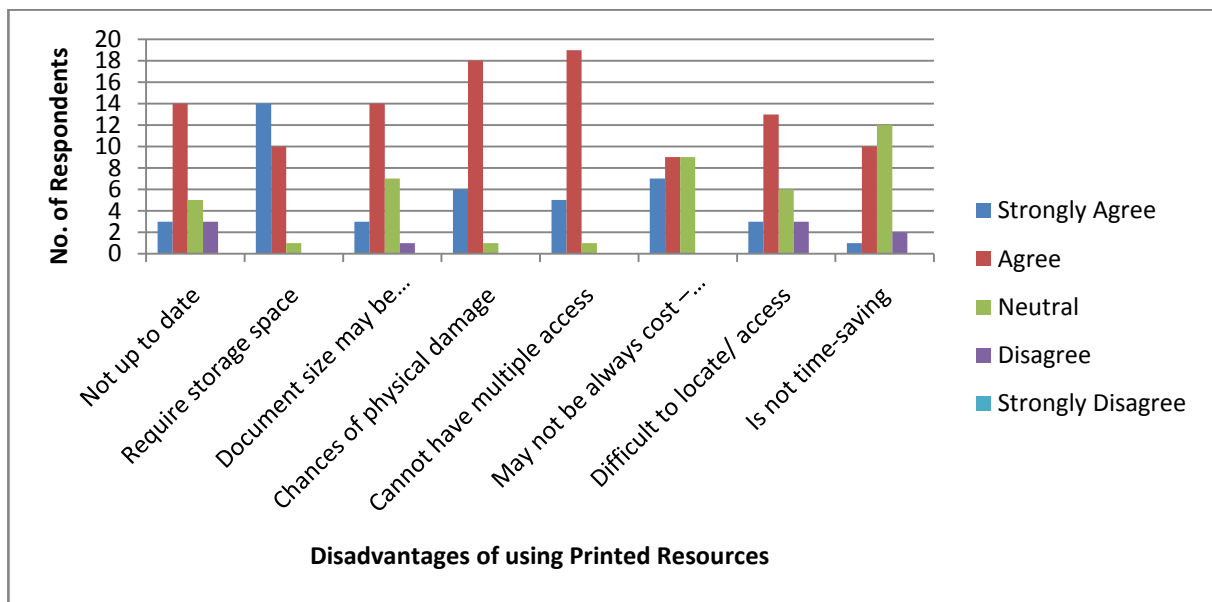
Figure 4.42: Disadvantages of using Printed Resources by Professors in Faculty of Science

Figure 4.42 shows the disadvantages of using Printed Resources by Professors in Faculty of Science. The maximum numbers of respondents strongly agree that the printed resources require storage space. Most of the respondents agree that the printed resources are not up to date, document size may be difficult to handle, chances of physical damage cannot have multiple access and difficult to locate/access. . The equal numbers of respondents either agree or remain neutral for the statement that printed resources may not be always cost-effective. Most of the respondents remain neutral to the statement that printed resource is not time-saving.

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Figure 4.40, 4.41 and 4.42 shows that the Assistant Professors, Associate Professors and Professors of Faculty of Science commonly agree that printed resources have chances of physical damage and cannot have multiple access. In case of the statement that printed resources are difficult to locate/access the Assistant Professors and Professors agree but the Associate Professors remain neutral. The Assistant Professors and Professors remain neutral to the statement that printed resource is not time-saving but the Associate Professors disagreed.

Figure 4.43 reveals the disadvantages of using printed resources by Assistant Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents strongly agree that the printed resources require storage space. Most of the respondents also agree that the printed resources are not up to date, document size may be difficult to handle, chances of physical damage, cannot have multiple access and may not be always cost-effective. The maximum number of respondents are neutral to the statement that using printed resource is not time –saving whereas a few disagree with the statement. Equal numbers of respondents strongly agree and agree that the printed resources are difficult to locate/access.
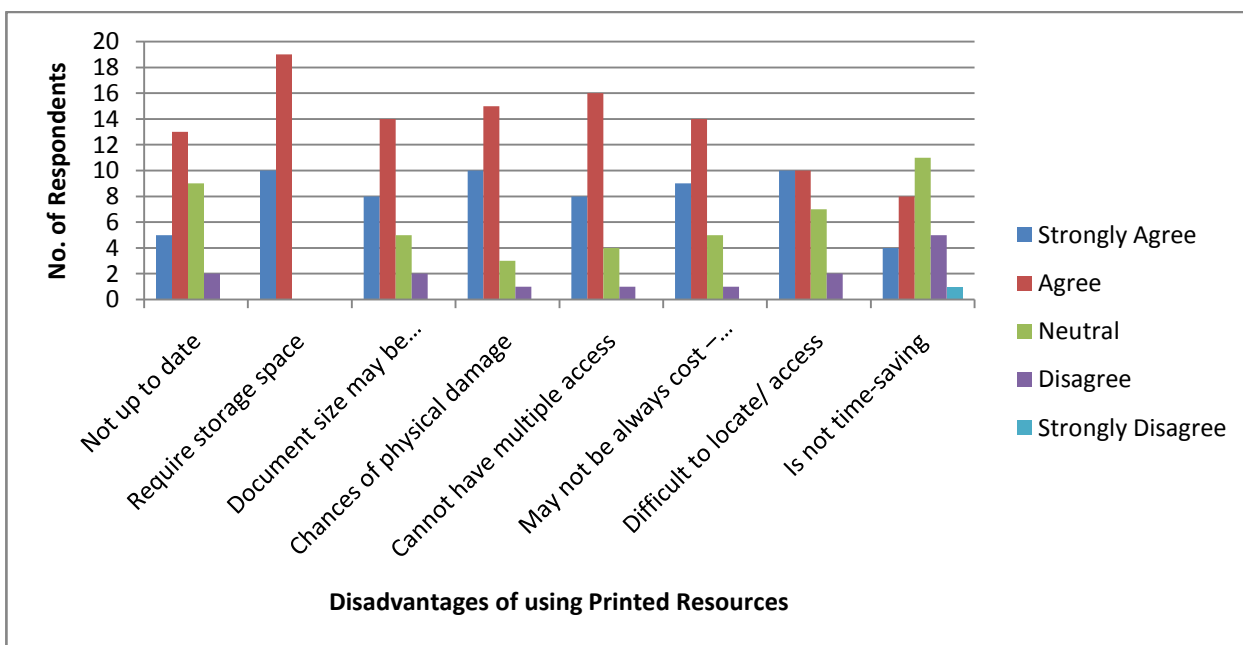
Figure 4.43: Disadvantages of using Printed Resources by Assistant Professors in Faculty of Engineering and Technology

Figure 4.44 shows the disadvantages of using printed resources by Assistant Professors in Faculty of Engineering and Technology. The figure reveals that most of the respondents strongly agree that the printed resources require storage space, chances of physical damage and difficult to locate/access. Other problems that the respondents agree are that the printed resources are not up to date, document size may be difficult to handle, cannot have multiple access and may not be always cost effective. . Most of the respondents remain neutral to the statement that printed resource it not time-saving where a few respondents disagree with the statement.
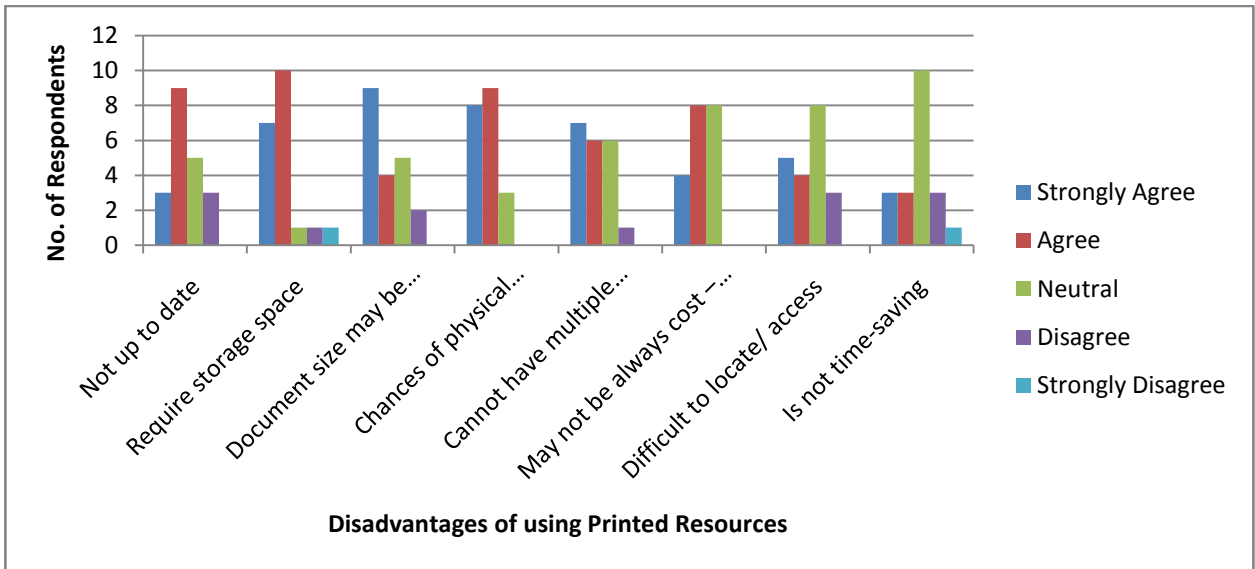
Figure 4.44: Disadvantages of using Printed Resources by Assistant Professors in Faculty of Engineering and Technology
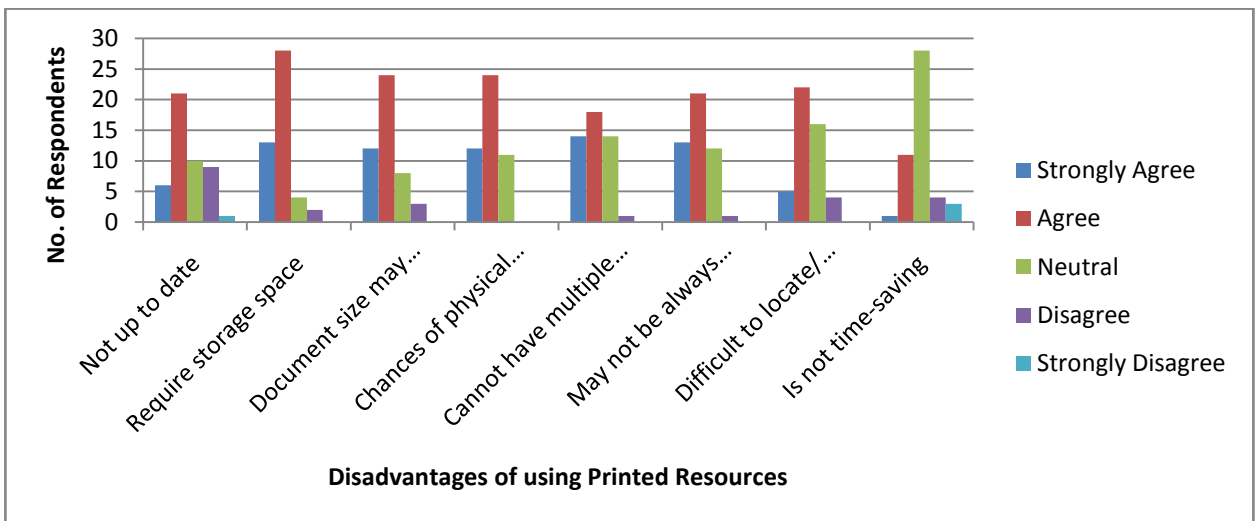
Figure 4.45: Disadvantages of using Printed Resources by Assistant Professors in Faculty of Engineering and Technology

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Figure 4.45 depicts the disadvantages of using Printed Resources by Associate Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents strongly agree that the document size may not be easy to handle. Other respondents agree that the printed resources are not up to date, require storage space, chances of physical damage, cannot have multiple access, may not be always cost-effective and difficult to locate/access. The maximum respondents remain neutral to the statement that using printed resources is not time-saving.

Figure 4.43, 4.44 and 4.45 shows that the Assistant Professors, Associate Professors and Professors commonly agreed that printed resources are not up to date, they require storage space and there are chances of physical damage. These are the genuine problems of using printed resources as printed resources are not regularly replaced with new editions, require storage space in case of physical copy and regular use may physically damage the resources. All categories of faculties of Engineering and Technology remain neutral to the statement that printed resource is not time-saving.

4.3.2.9 Facilities provided for Printed Resources

In this section the study illustrates about the facilities provided to the Assistant Professors, Associate Professors and Professors in three faculties.

Figure 4.46: Facilities provided for Printed Resources to Assistant Professors in Faculty of Arts

Figure 4.46 shows the facilities provided for Printed Resources to Assistant Professors in Faculty of Arts. The figure shows that maximum numbers of the respondents are satisfied on the no. of

books borrowed from Central Library and the overall collection of Departmental Library. Most of the respondents remained neutral on the no. of journals borrowed from Central Library. In case of access to bound volumes, access to rare books , access to newspapers, access to reference sources, library timings on weekends and overall collection of Central Library most of the respondents are satisfied.

Figure 4.47 reveals the facilities provided for Printed Resources to Associate Professors in Faculty of Arts. The figure shows that most of the respondents are satisfied on access to newspapers, access to Reference Resources in CL/DL, library timings on weekdays and overall collection of Departmental Library. Most of the resources remain neutral on the no. of books borrowed from Central Library which is the highest frequency in this figure. In case of no. of Journals borrowed from Central Library and access to Bound Volume Journals, access to Rare Books and overall collection of Central Library most of the respondents also remain neutral. Most of the respondents are partially satisfied on library timing on weekends.
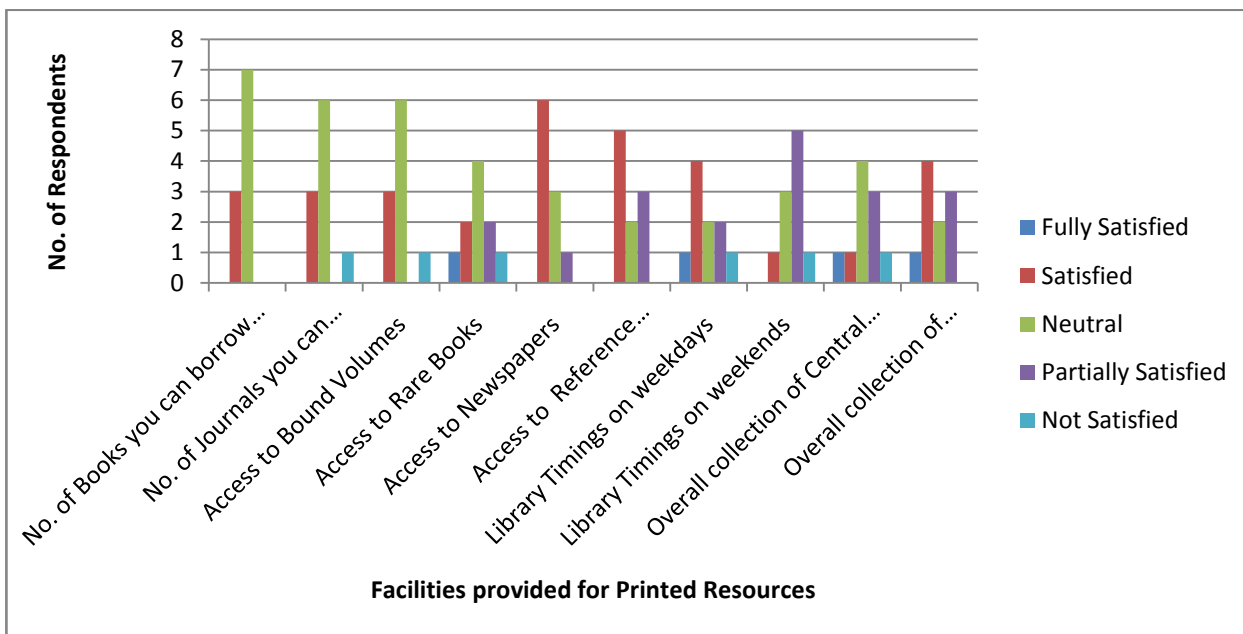
Figure 4.47 Facilities provided for Printed Resources to Associate Professors in Faculty of Arts

Figure 4.48 shows the facilities provided for Printed Resources to Assistant Professors in Faculty of Arts. The study reveals that most of the respondents are satisfied on the no. of Books borrowed from Central Library, library timings on weekdays and overall collection of Departmental Library. The maximum numbers of respondents remain neutral on the no. of Journals borrowed from Central Library, access to Bound Volumes, access to Newspapers,

access to Reference Resources in CL/DL, Library Timings on weekends and overall collection of Central Library. In case of access to rare books most of the respondents remain neutral which is the highest frequency in this figure.
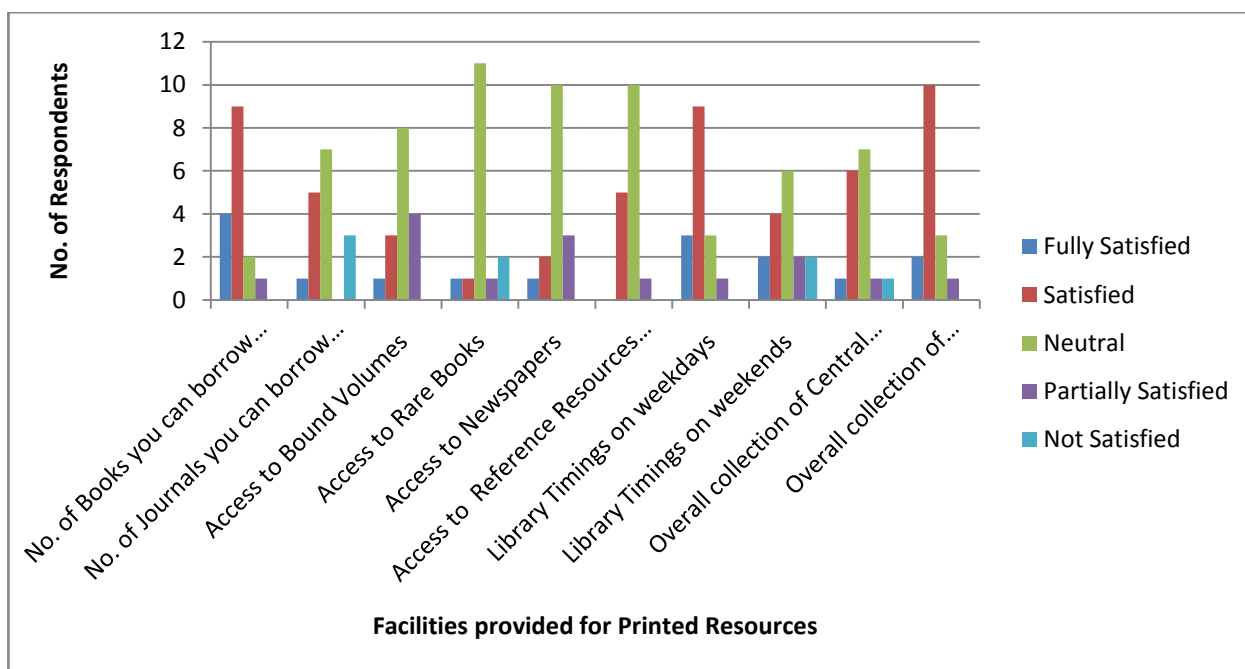
Figure 4.48: Facilities provided for Printed Resources to Professors in Faculty of Arts

Figure 4.46, 4.47 and 4.48 shows that the Assistant Professors, Associate Professors and Professors in Faculty of Arts are commonly satisfied with the library timing on weekdays and overall collection of Departmental Library. Most of the Assistant Professors and Professors are satisfied on no. of books borrowed from Central Library but the Associate Professors remain neutral. Most of the Assistant Professors and Associate Professors are satisfied on access to newspapers and access to Reference Resources but the Professors remain neutral.

Figure 4.49 describes the facilities provided for Printed Resources to Assistant Professors in Faculty of Science. The figure shows that maximum number of respondents remains neutral overall collection of Central Library which is the highest frequency in this figure. Most of the respondents also remain neutral on access to rare books, access to newspapers, library timing on weekends and overall collection of Departmental Library. Most of the respondents are satisfied on access to reference resources in CL/DL and library timings on weekdays.
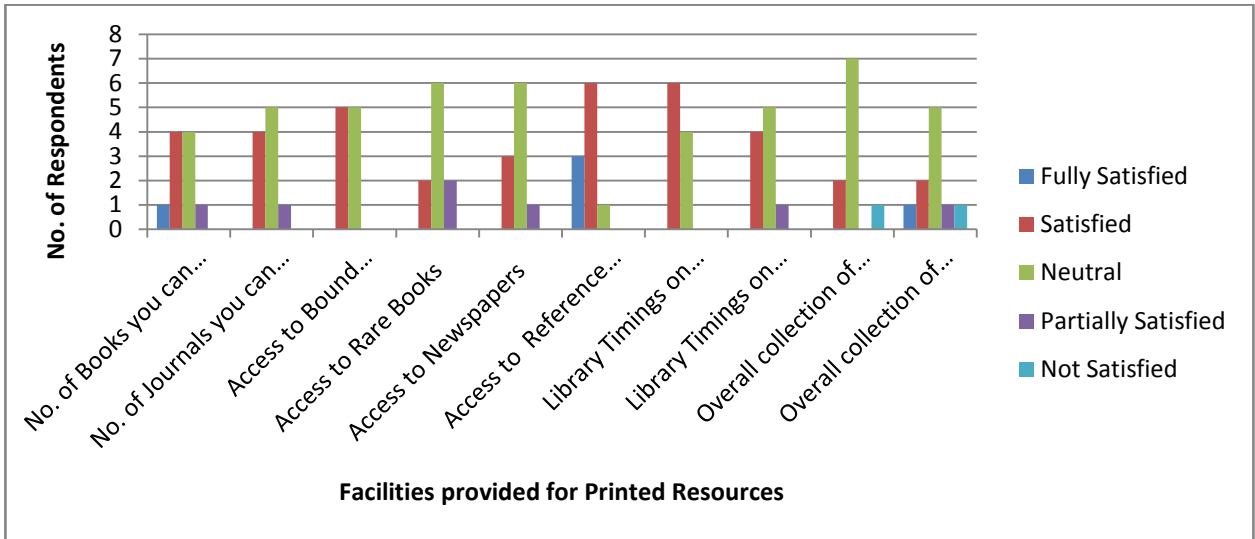
Figure 4.49: Facilities provided for Printed Resources to Assistant Professors in Faculty of Science

Figure 4.50 shows the facilities provided for Printed Resources to Associate Professors in Faculty of Science. The figure describes most of the respondents are fully satisfied on no. of books borrowed from Central Library and no. of Journals borrowed from Central Library. For the access to Rare Books and overall collection of Departmental Library maximum number of respondents are satisfied. The maximum number of respondents remains neutral for access to Newspapers. For all other facilities the respondents are satisfied and remain neutral in equal proportion.
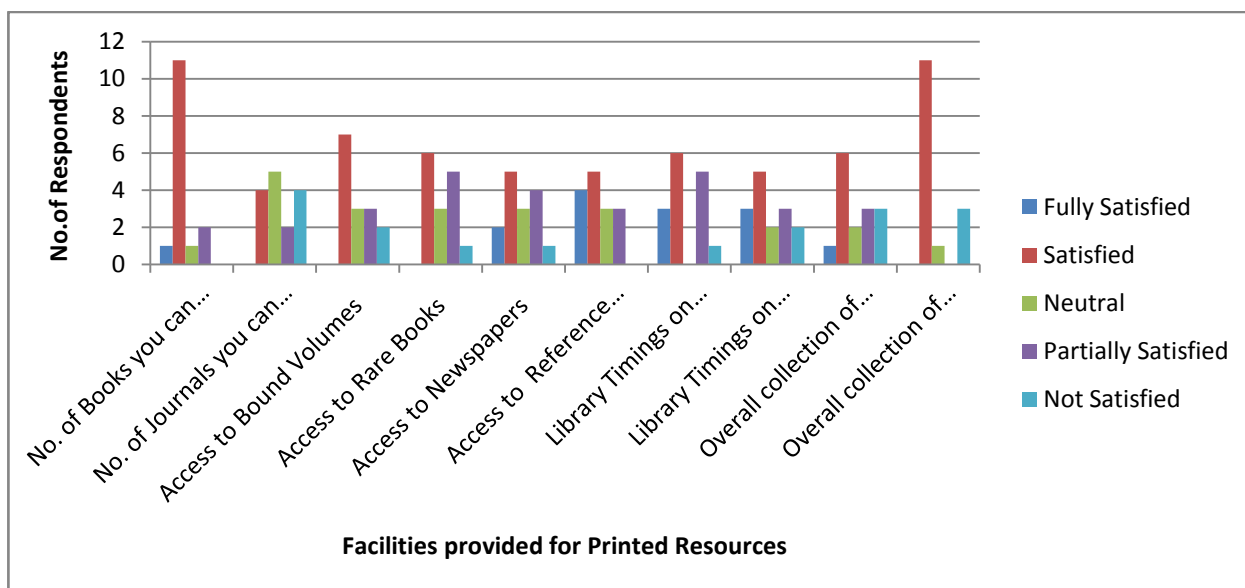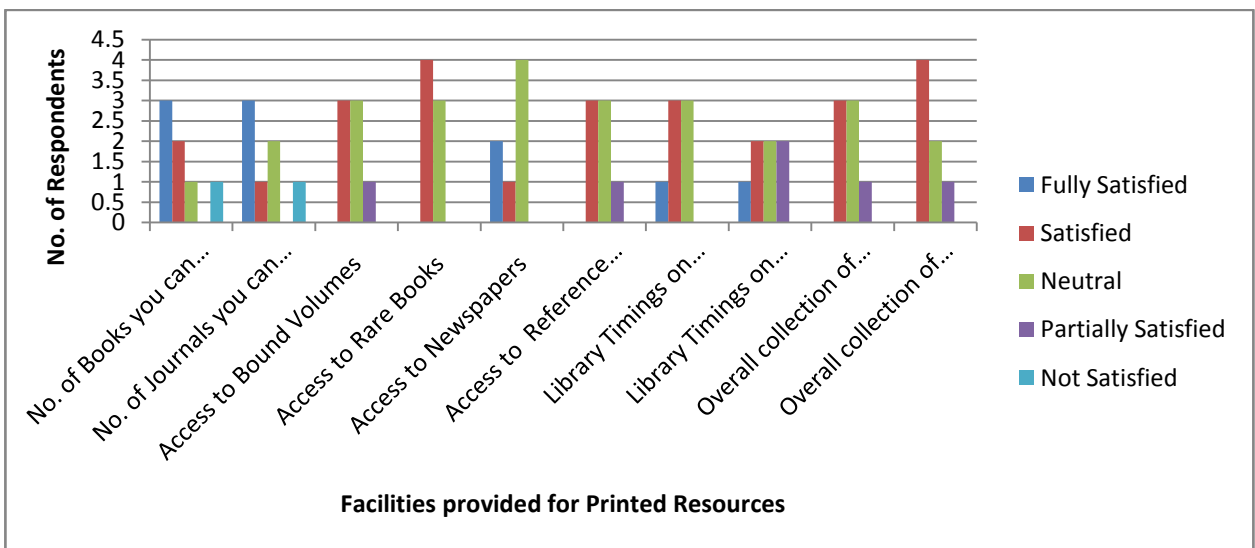

Figure 4.50: Facilities provided for Printed Resources to Associate Professors in Faculty of Science

Figure 4.51 shows the facilities provided for Printed Resources to Professors in Faculty of Science. The figure reveals that most of the respondents are satisfied on no. of Books borrowed from Central Library, the library timings on weekdays, the overall collection of Central Library as well as Departmental Library. The maximum number of respondents remains neutral in case of no. of Journals borrowed from Central Library, access to Bound Volumes, access to Rare Books and access to Newspapers.
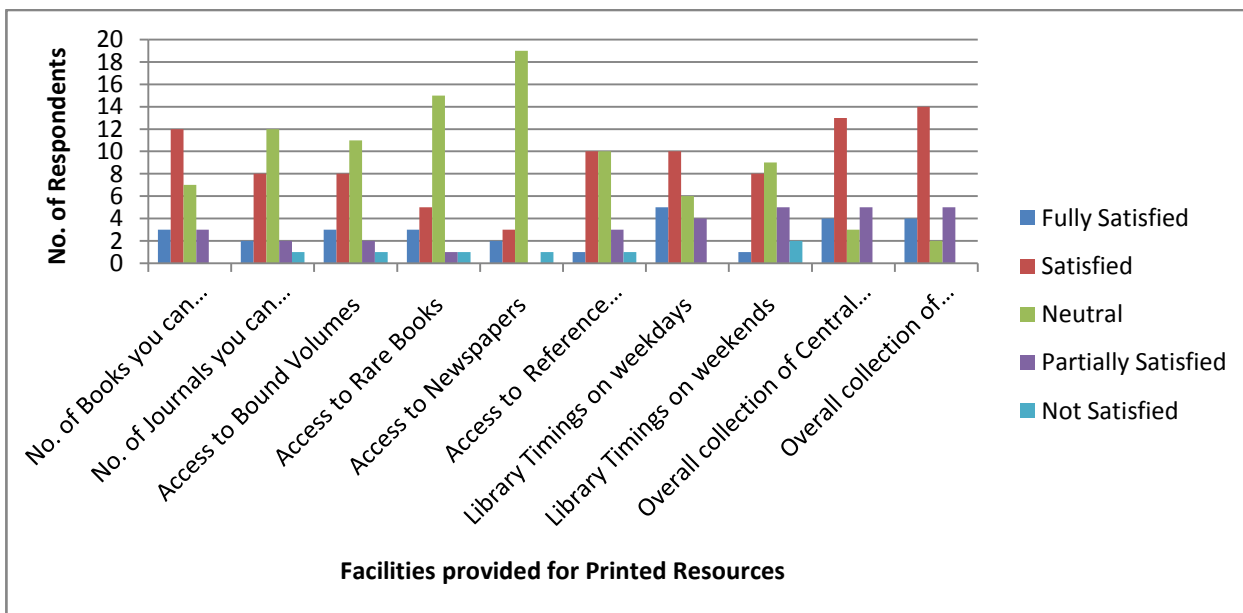
Figure 4.51: Facilities provided for Printed Resources to Professors in Faculty of Science

Figure 4.49, 4.50 and 4.51 reflect that all the three categories of Faculty of Science commonly satisfied on access to Reference Resources in CL/DL and on library timing on weekdays. In case of other facilities of the Central Library and the Departmental Library the opinions vary among the Assistant Professors, Associate Professors and Professors in Faculty of Science.

Figure 4.52 shows the facilities provided for Printed Resources to Assistant Professors in Faculty of Engineering and Technology. The figure reveals that most of the respondents are satisfied with all types of facilities provided for Printed Resources. This reflects that the Assistant Professors in Faculty of Engineering and Technology use both Central and Departmental Library to access printed resources.
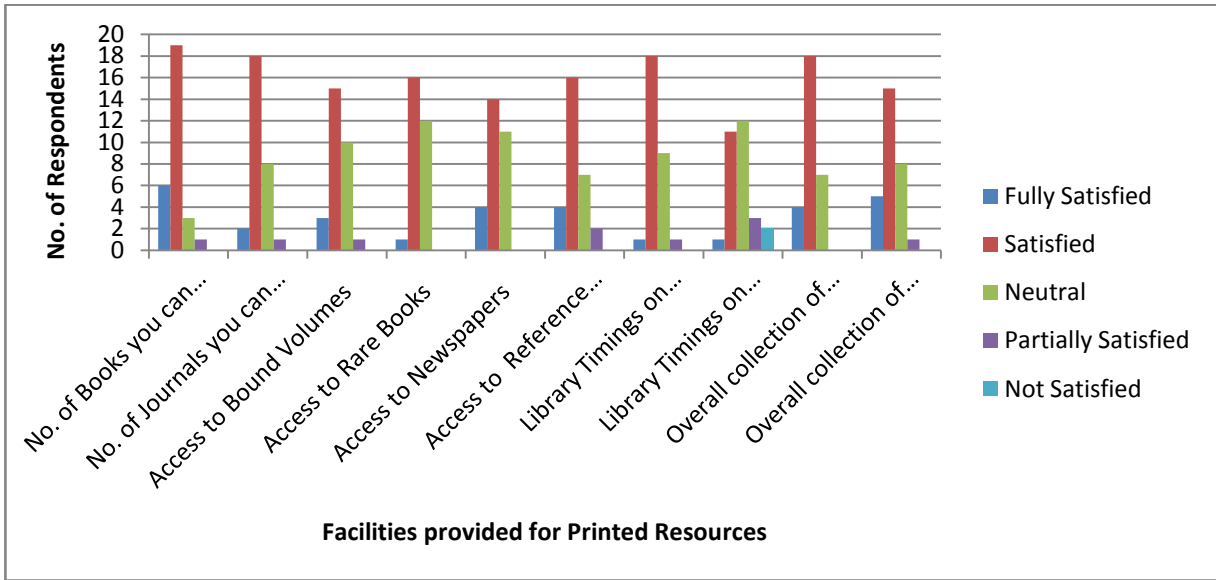
Figure 4.52: Facilities provided for Printed Resources to Assistant Professors in Faculty of Engineering and Technology

Figure 4.53 depicts the facilities provided for Printed Resources to Associate Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents are satisfied on availing all types of facilities except no. of journals borrowed from Central Library and library timings on weekends where most of the respondents remain neutral.
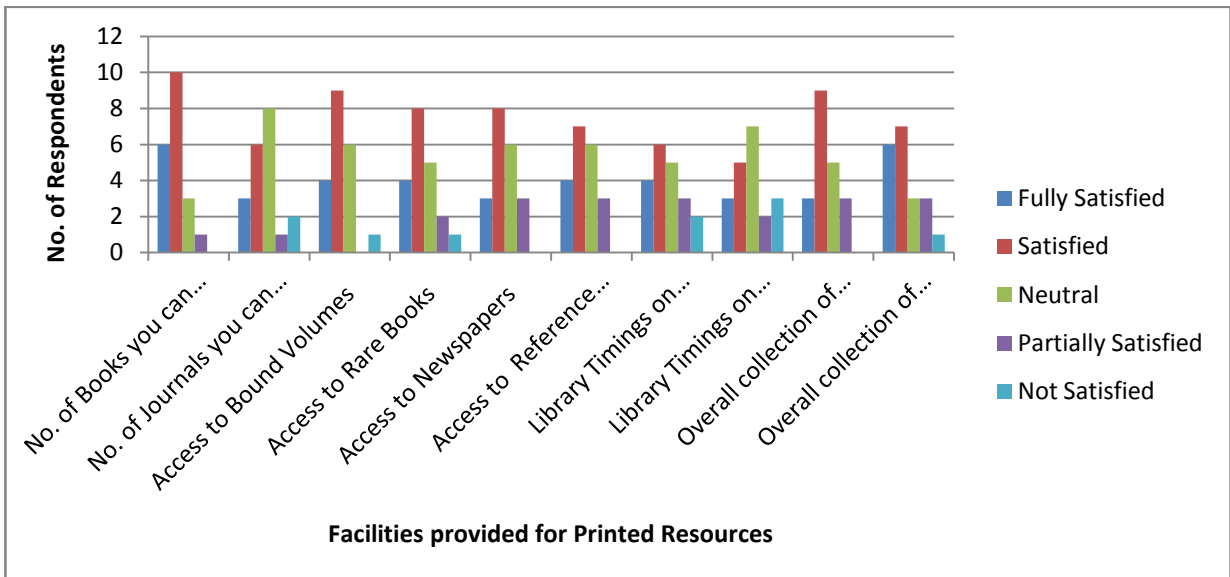
Figure 4.53: Facilities provided for Printed Resources to Associate Professors in Faculty of Engineering and Technology

Figure 4.54 depicts the facilities provided for Printed Resources to Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents are satisfied on no. of books borrowed from Central Library, access to Rare Books, access to Reference Resources in CL/DL, library timing on weekdays and overall collection of Central and Departmental Library. Most of the respondents remain neutral on the no. of journals borrowed from Central Library, access to bound volumes, access to newspapers and library timings on weekends.
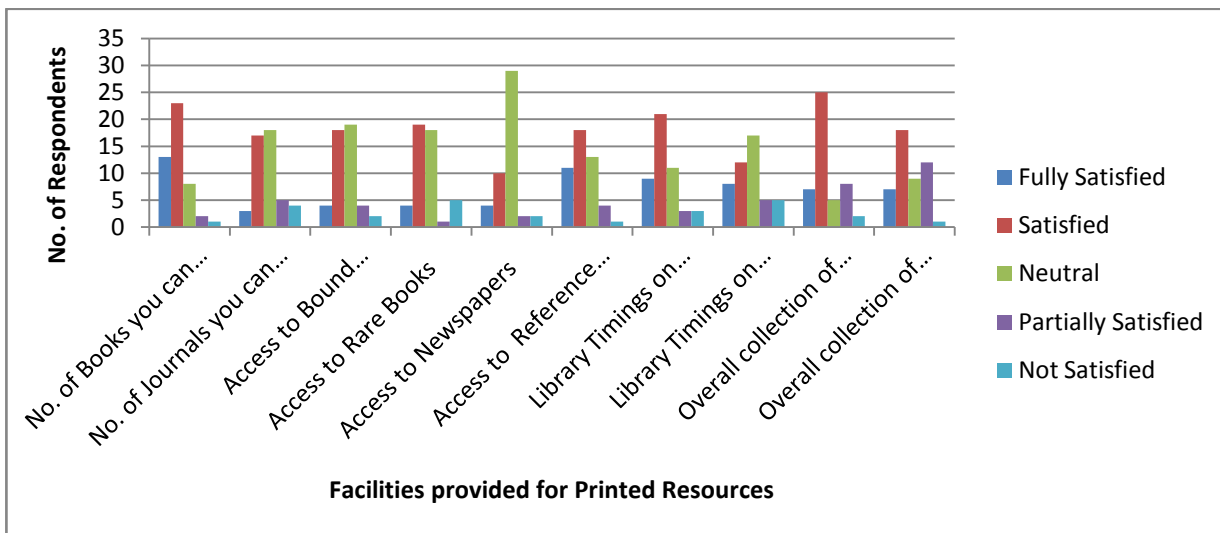
Figure 4.54: Facilities provided for Printed Resources to Professors in Faculty of Engineering and Technology

Figure 4.52, 4.53 and 4.54 reflects that most of the three categories of Faculty of Engineering and Technology are satisfied on no. of books borrowed from Central Library, access to Reference resources in CL/DL, library timing on weekdays and overall collection of Central Library and Departmental Library. This refers that the faculty members of Engineering and Technology simultaneously use Central and Departmental Library for the purpose of teaching.

4.3.3 Use of E-resources

In this present study, E-resources are also considered like printed documents. Data related to e-resources from faculty members under different categories are also mentioned and discussed in the following sections.

4.3.3.1 Period of using E-resources

Table 4.7 depicts the period of use of e-resources by the respondents. It is evident from the table that most respondents (124 respondents) are using the e-resources since more than 10 years.

Only 1 Professor and 1 Assistant Professor of Faculty of Science and 2 Assistant Professors of Faculty of Engineering and Technology are using the e-resources below 1 year.

Table 4.7: Period of using E-resources

Frequency of using E-resources	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
Below 1 year	0	0	0	1	0	2	2	0	0	5
1-5 years	4	1	2	1	0	1	6	4	5	24
6-10 years	3	2	3	1	1	2	5	4	5	26
More than 10 years	8	7	11	7	6	20	16	12	37	124
Total	15	10	16	10	7	25	29	20	47	179

AP = Assistant Professor, ASP = Associate Professor and P = Professor.

4.3.3.2 Frequency of using E-resources

Table 4.8 depicts the frequency of use of e-resources by the respondents. It is evident from the table that most respondents (135 respondents) have the habit of using e-resources daily followed by 33 respondents who have the habit of using e-resources 2-3 times a week. There was no respondent who never use the e-resources.

Table 4.8: Frequency of using E-resources

Frequency of use of E- Resources	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
Daily	10	6	11	8	6	19	23	17	35	135
2-3 times a week	4	4	5	2	1	3	3	1	10	33
Once in a week	1	0	0	0	0	0	2	2	2	7
Once in a month	0	0	0	0	0	3	1	0	0	4
Never	0	0	0	0	0	0	0	0	0	0
Total	15	10	16	10	7	25	29	20	47	179

AP = Assistant Professor, ASP = Associate Professor and P = Professor

4.3.3.3 Sources to know about E-resources

Table 4.9 depicts the sources from where the faculty members know about the e-resources. It is evident from the table that all categories of the faculty members mostly know about e-resources while browsing or searching materials followed by the citations listed in report, journals or conference papers. They also got this information through database searching, e-mail alerts send by publishers or distributors and through communication with friends and colleagues. Librarian

of the departmental library as the source to know about new e-resources is few compare to all other responds.

Table 4.9: Sources to know about E-resources

Sources to know about e-resources	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
From the reference given by my librarian	2	2	1	1	0	5	7	4	4	26
By browsing or searching from internet	10	8	15	9	6	18	26	17	40	149
Through database searching	7	6	10	8	2	12	13	11	23	92
By recommendations from subject experts	6	8	6	3	2	6	13	8	14	66
Announcements in journals	5	6	6	6	1	9	10	6	16	65
E-mail alerts from publishers/ distributors, etc.	5	5	9	5	3	13	14	9	22	85
Cited in report/ journals/conference papers	8	9	15	7	6	14	20	11	31	121
Through communication with friends/colleagues	6	8	8	7	1	7	15	12	20	84
Library Orientation Program / workshop	1	1	0	1	0	2	6	5	3	19
Total	50	53	70	47	21	86	124	83	173	707

AP = Assistant Professor, ASP = Associate Professor and P = Professor
(Multiple responses thus total numbers of responses are more than total respondents)

4.3.3.4 Way of learning to use E-resources

Table 4.10 depicts the way of learning of faculty members to use the e-resources. It is evident from the table that most respondents learn to use e-resources through self-learning approach followed by attending courses, trainings, workshops and seminars and getting help from other colleagues.

Table 4.10: Way of learning to use E-resources

Way of learning to use E-resources	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
With help from library staff	3	2	5	1	0	0	6	2	1	20
With help from computing staff/ technicians	1	1	4	0	1	2	2	2	3	16
With help from other colleagues	5	4	3	3	1	5	8	6	12	47
Attending courses, trainings, workshops and seminars	4	4	5	5	2	6	11	8	11	56
Self-learning	11	9	14	9	7	20	25	18	42	155
Trial and error	2	3	3	2	0	7	8	3	11	39
Total	26	23	34	20	11	40	60	39	80	333

AP = Assistant Professor, ASP = Associate Professor and P = Professor
(Multiple responses thus total numbers of responses are more than total respondents)

4.3.3.5 Consultation of issues while using E-resources

Table 4.11 depicts whom the faculty members consult while facing any issue to use e-resources. It is evident from the table that they mostly search online for solution followed by consultation with other colleagues.

Table 4.11: Consultation of issues while using E-resources

Consultation for problems using E-resources	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
Librarian	3	3	6	4	2	6	12	7	5	48
Colleagues	7	6	10	6	5	11	17	13	32	100
Search online for solutions	8	8	8	9	5	18	14	13	32	115
Database vendor	0	1	0	0	0	2	1	2	2	8
Total	18	18	24	19	12	37	44	35	71	278

AP = Assistant Professor, ASP = Associate Professor and P = Professor
(Multiple responses thus total numbers of responses are more than total respondents)

4.3.3.6 Location of access to E-resources

Table 4.12 depicts the location from where the faculty members access the e-resources. It is evident from the table that the faculty members mostly prefer to use the e-resources beyond campus followed by personal purchase or subscription.

Table 4.12: Location of access to E-resources

Location to access E- resources	Faculty of Arts			Faculty of Science			Faculty of Engineering and Technology			Total
	AP	ASP	P	AP	ASP	P	AP	ASP	P	
From Central Library	3	1	4	5	3	11	10	6	14	57
From Departmental Library	5	5	5	4	2	8	11	5	18	63
Personal Purchase/ Subscription	9	4	9	3	3	6	12	7	16	69
Remote Access (Beyond Campus)	7	6	8	4	5	10	16	12	22	90
Others	0	0	0	0	1	0	1	1	1	4
Total	24	16	26	16	14	35	50	31	71	283

AP = Assistant Professor, ASP = Associate Professor and P = Professor
(Multiple responses thus total numbers of responses are more than total respondents)

4.3.3.7 Library support for using E-resources

This section describes the library support provided to the Assistant Professors, Associate Professors and Professors in Faculty of Arts, Science and Engineering and Technology for using the E-resources.

Figure 4.55 reflects library support for using E-resources by Assistant Professor in Faculty of Arts. The figure shows that maximum numbers of respondents are provided Wi-Fi connections most frequently. Most of the respondents in equal numbers either frequently or occasionally get the support of updating new technologies to use the e-resources. Most of the respondents occasionally get the guidance to use the e-resources and rarely get awareness about legal issues. Most of the respondents never get periodic training for using e-resources.
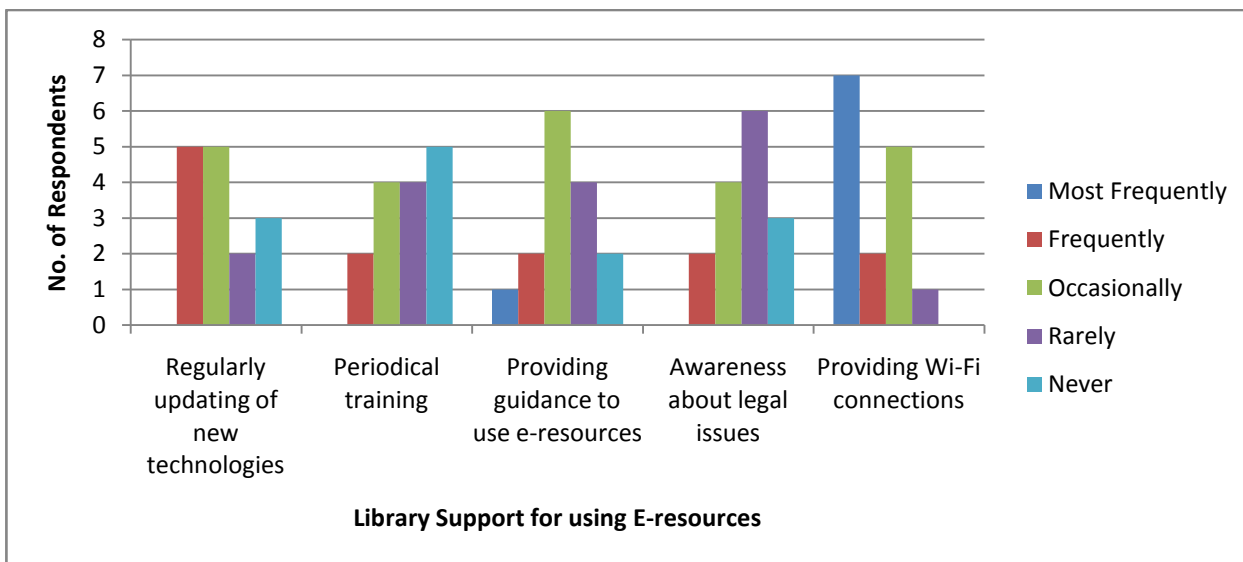
Figure 4.55: Library support for using E-resources by Assistant Professor in Faculty of Arts
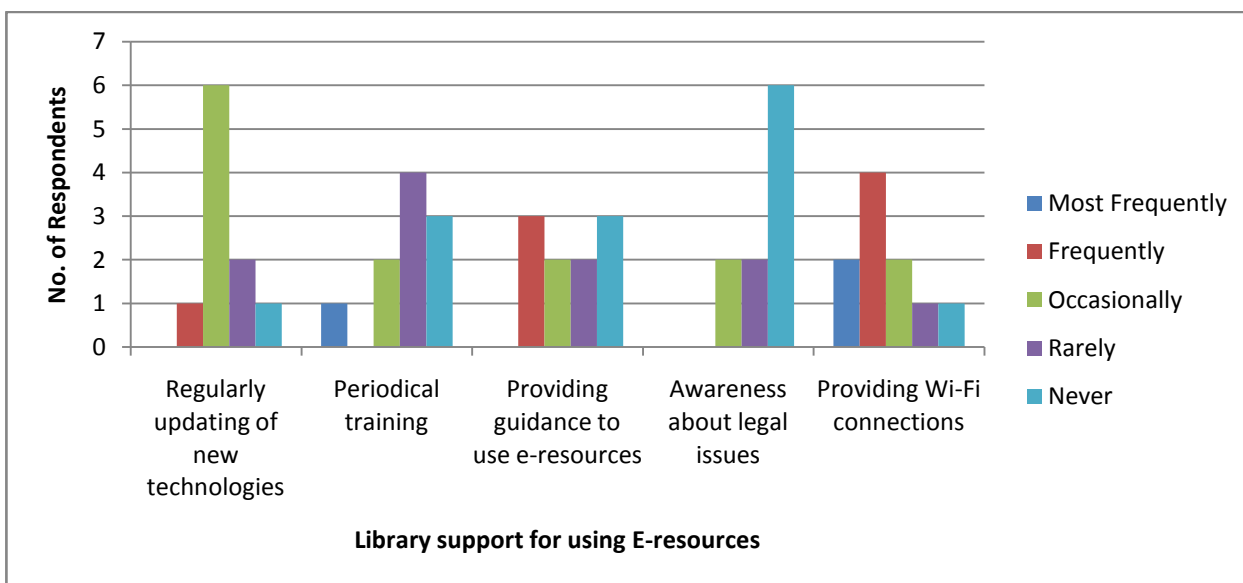
Figure 4.56: Library support for using E-resources by Associate Professors in Faculty of Arts

Figure 4.56 shows library support for using E-resources by Associate Professors in Faculty of Arts. It is evident from the figure that most of the respondents are frequently provided Wi-Fi connections and provided guidance for using e-resources. The maximum numbers of respondents occasionally get the support to update new technologies but rarely get periodic training for using e-resources. Most of the respondents never get awareness about legal issues.

Figure 4.57 shows library support for using E-resources by Professors in Faculty of Arts. The figure shows most of the respondents are occasionally provided Wi-Fi connections and provided guidance to use e-resources. Most of the respondents are rarely updated of new technologies and are rarely made aware about legal issues for using e-resources. In case of periodic training equal number of respondents either rarely or never got the training.

Figure 4.57: Library support for using E-resources by Professors in Faculty of Arts

Figure 4.55, 4.56 and 4.57 reflects that most of the Assistant Professors frequently, the Associate Professors occasionally and the Professors rarely get the support of updating new technologies. In case of periodical training and awareness about legal issues the three categories of users in Faculty of Arts either rarely or never got the periodic training which reflects lack of user orientation facilities for using e-resources in the library. In case of getting guidance to use e-resources the Assistant Professors and Professors get it occasionally but the Associate Professors get the support frequently. The Assistant Professors and the Professors of Faculty of Arts are occasionally and the Associate Professors are frequently provided Wi-Fi connection.

Figure 4.58 reflects library support for using E-resources by Assistant Professors in Faculty of Science. The figure shows most of the respondents are frequently getting update of new technologies and frequently provided Wi-Fi connections. Most of the respondents never get periodical training and awareness about legal issues for using e-resources in the library. The maximum respondents rarely get the guidance to use e-resources.
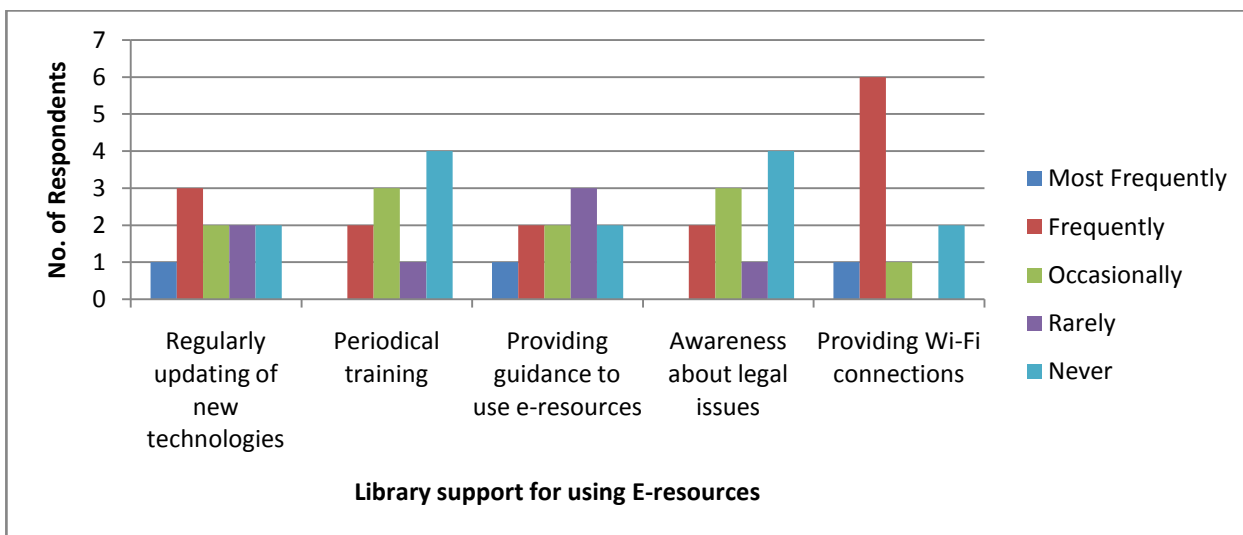
Figure 4.58: Library support for using E-resources by Assistant Professors in Faculty of Science
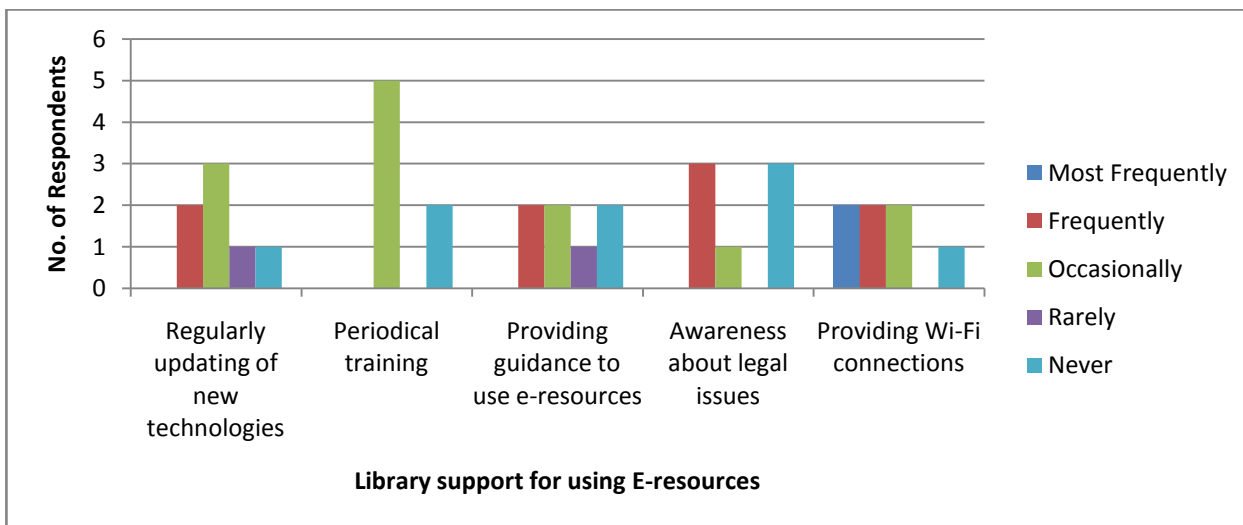
Figure 4.59: Library support for using E-resources by Associate Professors in Faculty of Science

Figure 4.59 shows library support for using E-resources by Associate Professors in Faculty of Science. The figure denotes that most of the respondents are occasionally supported by updating of new technologies for using e-resources. They also get periodical training occasionally. In case of providing guidance to use e-resources equal numbers of respondents responded frequently,

occasionally or never. While responding about awareness about legal issues equal number of respondents responded frequently or never. In case of providing Wi-Fi connections equal number of respondents responded most frequently or frequently or never.

Figure 4.60 reflects library support for using E-resources by Professors in Faculty of Science. The figure shows most of the respondents are frequently getting update of new technologies and frequently provided Wi-Fi connections. Most of the respondents never get periodical training and awareness about legal issues for using e-resources in the library. The maximum respondents occasionally get the guidance to use e-resources.
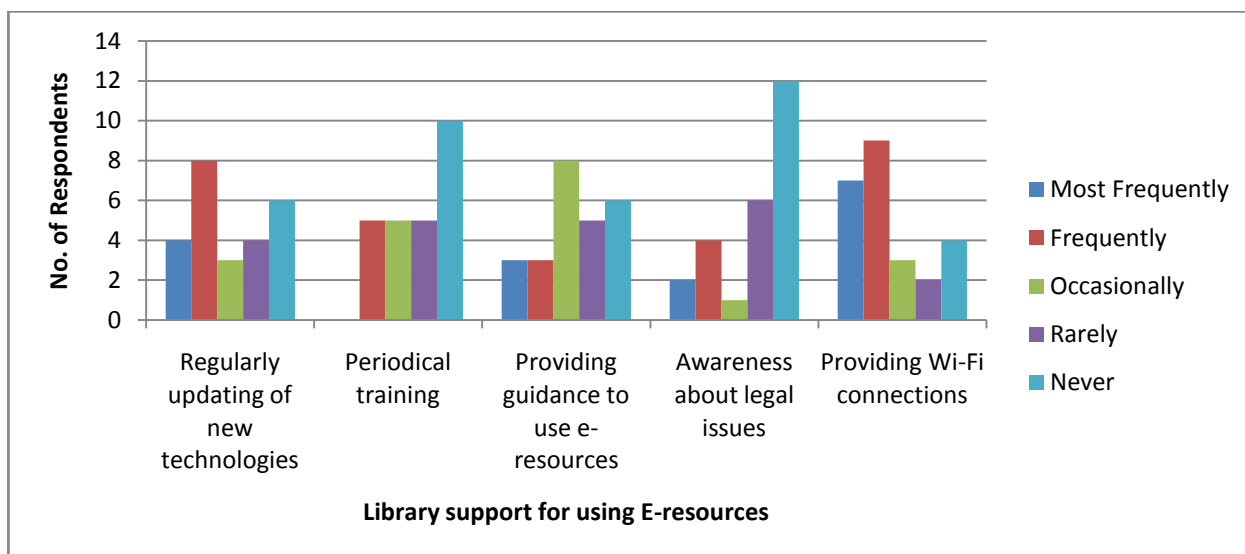
Figure 4.60: Library support for using E-resources by Professors in Faculty of Science

Figure 4.58, 4.59 and 4.60 shows that the Assistant Professors and Professors in Faculty of Science are getting same types of support for using e- resources in the library. But among the Associate Professors there is a variety of responses in getting different types of support. They are frequently aware about legal issues but occasionally updating of new technologies and get periodic training.

Figure 4.61 shows library support for using E-resources by Assistant Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents most frequently get the support of updating of new technologies and providing Wi-Fi connections. They occasionally get the periodical training and provided guidance to use of e-resources in the library. Most of the respondents never get awareness about legal issues for using e-resources in the library.
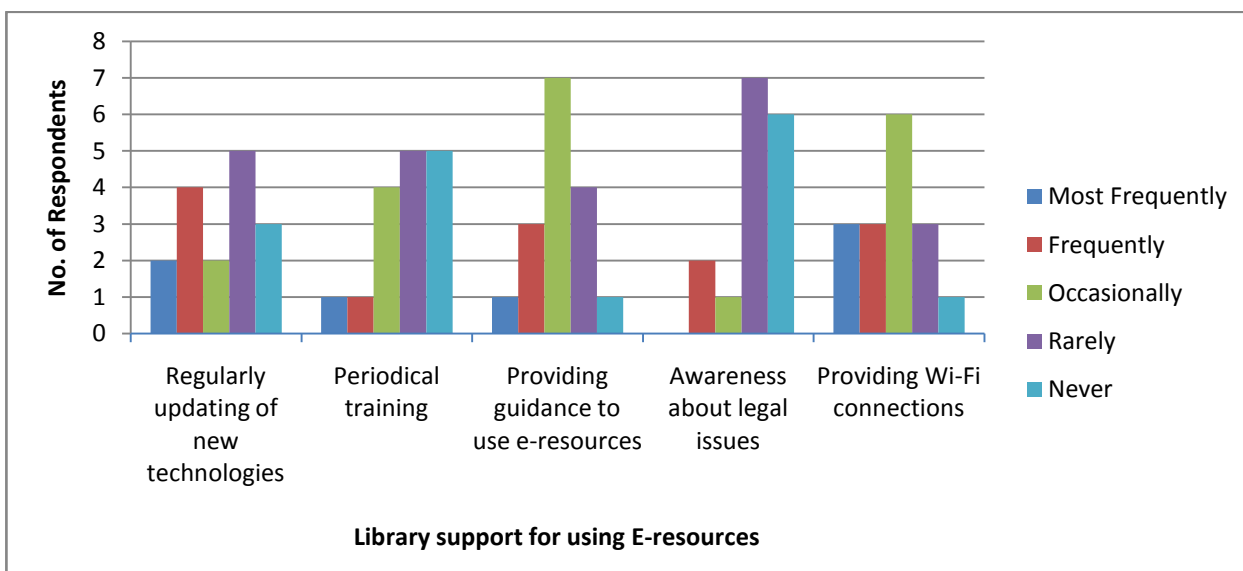
131
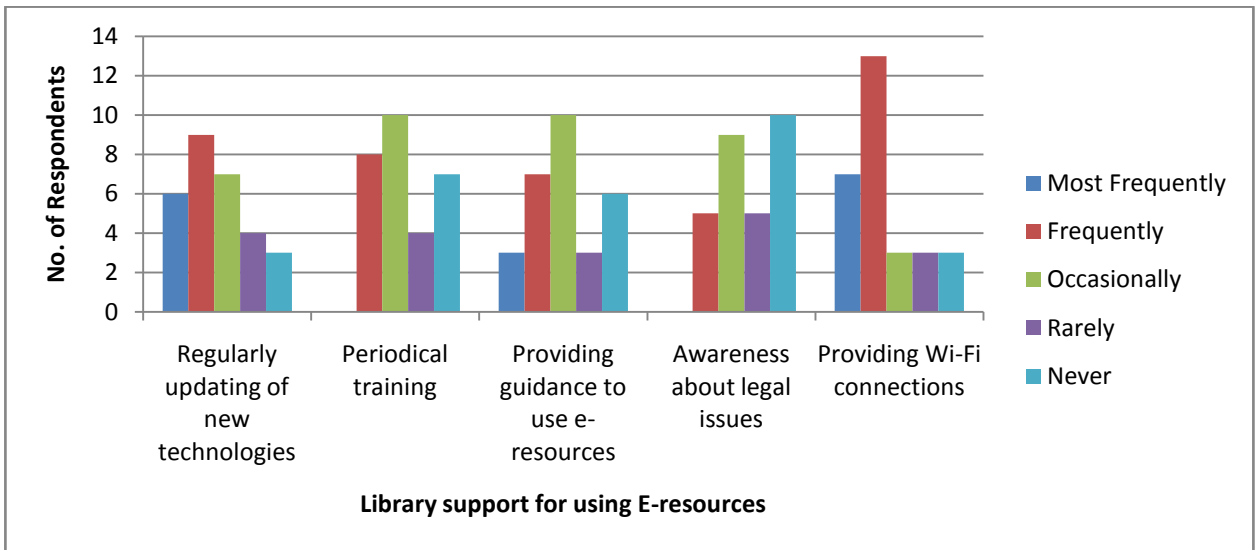
Figure 4.61: Library support for using E-resources by Assistant Professors in Faculty of Engineering and Technology

Figure 4.62 reflects library support for using e-resources by Associate Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents frequently get the support of updating new technologies, providing guidance to use e-resources and most frequently get Wi-Fi connections. They occasionally get periodical training. Most of the respondents never get awareness about legal issues.
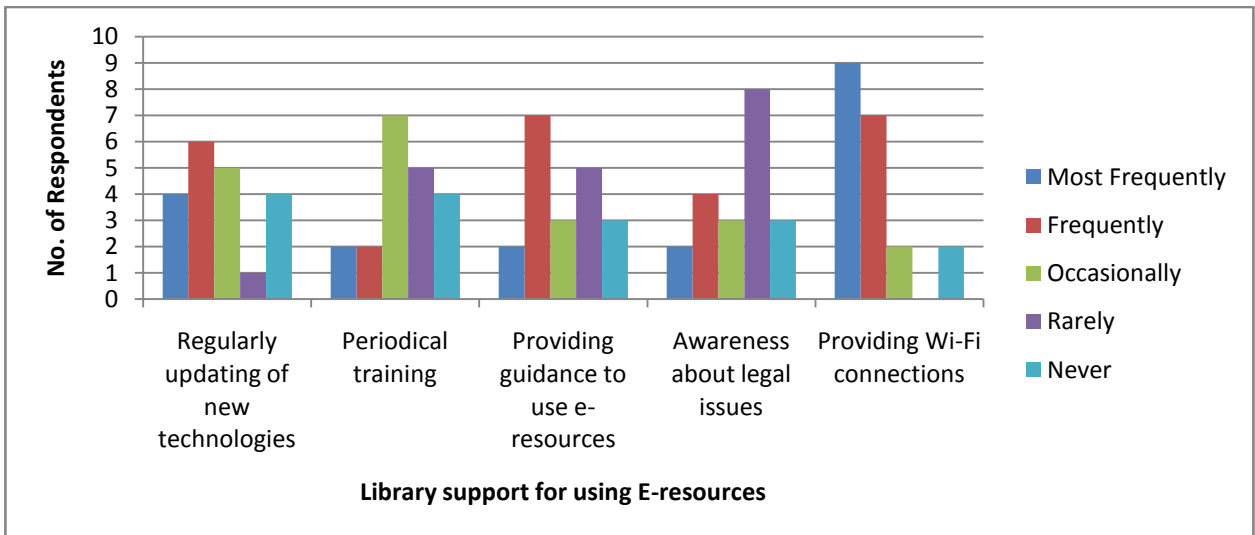
Figure 4.62: Library support for using E-resources by Associate Professors in Faculty of Engineering and Technology

Figure 4.63 shows library support for using E-resources by Professors in Faculty of Engineering and Technology. The figure depicts that most of the respondents get the support of updated new

technologies and Wi-Fi connections for using e-resources most frequently. The maximum numbers of respondents get the support of periodical training and guidance to use e-resources rarely. In case of awareness about legal issues in using e-resources most of the respondents never get any support.
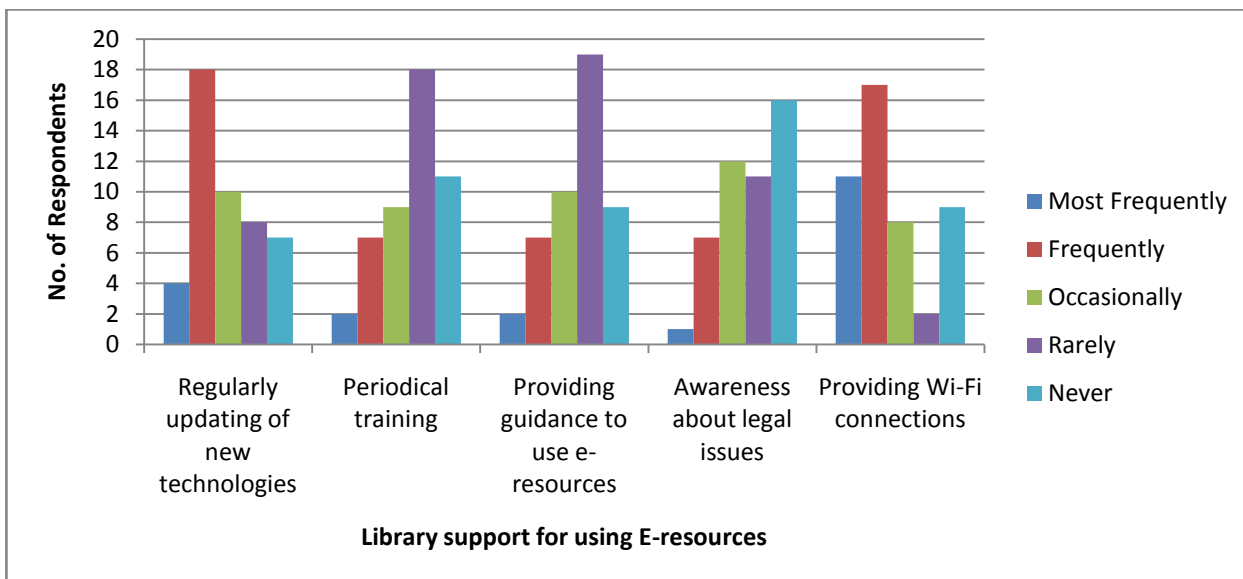
Figure 4.63: Library support for using E-resources by Professors in Faculty of Engineering and Technology

Figure 4.61, 4.62 and 4.63 reflects that the Assistant Professors, Associate Professors and Professors of Engineering and Technology are frequently getting support of updated new technologies. In case of periodical training the Assistant Professors and Associate Professors occasionally get the support but the Professors rarely get it. The Assistant Professors occasionally, the Associate Professors frequently and the Professors rarely get the guidance to use e-resources. In case of awareness about legal issues the Assistant Professors and Professors never get the support whereas the Associate Professors rarely get it. The Assistant Professors and the Professors get the Wi-Fi connections frequently whereas the Associate Professors get it most frequently.

4.3.3.8 Methods of searching E-resources

In this section the method of searching E-resources by the Assistant Professors, Associate Professors and Professors in Faculty of Arts, Science and Engineering has been depicted.

Figure 4.64 shows the searching methods for e-resources by Assistant Professors in Faculty of Arts. Most of the respondents in this category most frequently use search engines to find e-resources. The equal number of respondents either frequently or occasionally use links from bibliographic databases. In case of searching through University/Library website equal number of respondents responded frequently and rarely. Most of the respondents frequently use subject gateways/portals on the Internet. The equal numbers of respondents rarely or never search directly through publisher/vendor website.

Figure 4.64: Searching methods for E-resources by Assistant Professors in Faculty of Arts

Figure 4.65 shows the searching methods for E-resources by Associate Professors in Faculty of Arts. The figure denotes that most of the users are using search engines most frequently. They use links from bibliographic databases occasionally. Most of the respondents rarely search through University/Library website. The equal numbers of respondents use subject gateways/portals on the internet most frequently or frequently or occasionally. Most of the respondents never search directly through publisher/vendor website.
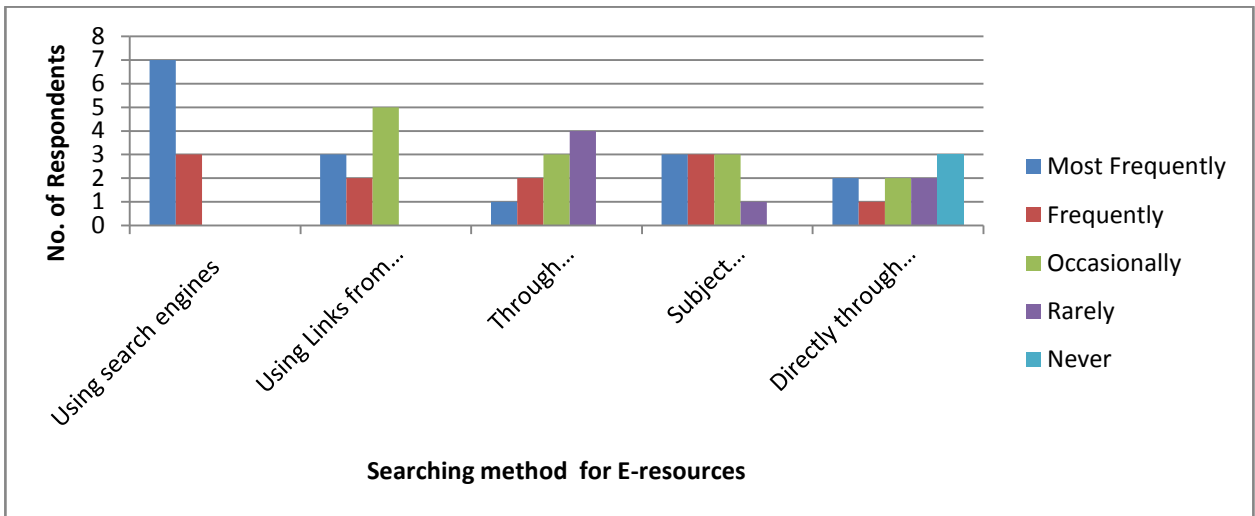
Figure 4.65: Searching methods for E-resources by Associate Professors in Faculty of Arts

Figure 4.66 reflects the searching methods for E-resources by Professors in Faculty of Arts. The figure depicts that most of the respondents use search engines most frequently. They use links from bibliographical databases frequently. Most of the respondents rarely search e-resources through University/Library website. They frequently use subject gateways/portals on the internet. The equal numbers of respondents either occasionally or never search directly through publisher/vendor website.

Figure 4.66: Searching methods for E-resources by Professors in Faculty of Arts

Figure 4.64, 4.65 and 4.66 reflects that the Assistant Professors, Associate Professors and Professors most frequently use the search engines for searching e-resources. In case of using links from bibliographic databases the Assistant Professors either use frequently or occasionally, the Associate Professors use occasionally and the Professors use frequently for searching e-resources. The Assistant Professors use the University/ Library website frequently and rarely in equal numbers whereas most of the Associate Professors and Professors use it rarely. Most of the Assistant Professors and Professors use subject gateways/portals on the internet frequently whereas the Associate Professors use it frequently, occasionally or never in equal numbers. In case of searching e-resources directly through publisher/ vendor website the Assistant Professors use it rarely or never in equal number, the Associate Professors never use it and the Professors use it occasionally or never in equal numbers. It can be concluded that all the three categories in Faculty of Arts maximum use the search engines. Variations are seen in using links from bibliographic databases and subject gateways /portals on the internet. Use of University/Library website is poor in searching e-resources among the faculty members of Arts.
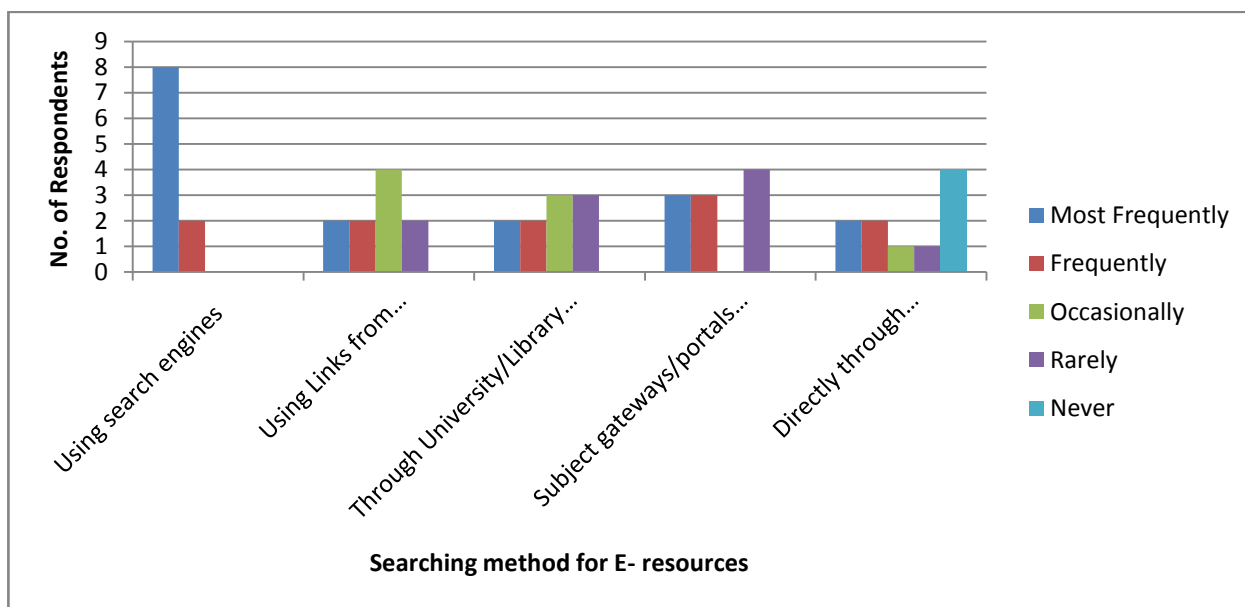
Figure 4.67: Searching methods for E-resources by Assistant Professors in Faculty of Science

Figure 4.67 shows the searching methods for e-resources by Assistant Professors in Faculty of Science. The figure reflects that most of the respondents most frequently use search engines. They use the links for bibliographic databases occasionally. The equal numbers of respondents

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either occasionally or rarely search the e-resources through University/Library website. Most of the respondents use subject gateways/portals on the internet rarely whereas they never search e-resources directly through publisher/vendor website.

Figure 4.68 shows the searching methods for e-resources by Associate Professors in Faculty of Science. The figure represents that most of the respondents use search engines and use links from bibliographic databases most frequently. In case of searching through University/Library website equal numbers of respondents use it most frequently, occasionally and rarely. Most of the respondents use subject gateway/portals on the internet frequently whereas they most frequently searched directly through Publisher/Vendor website.
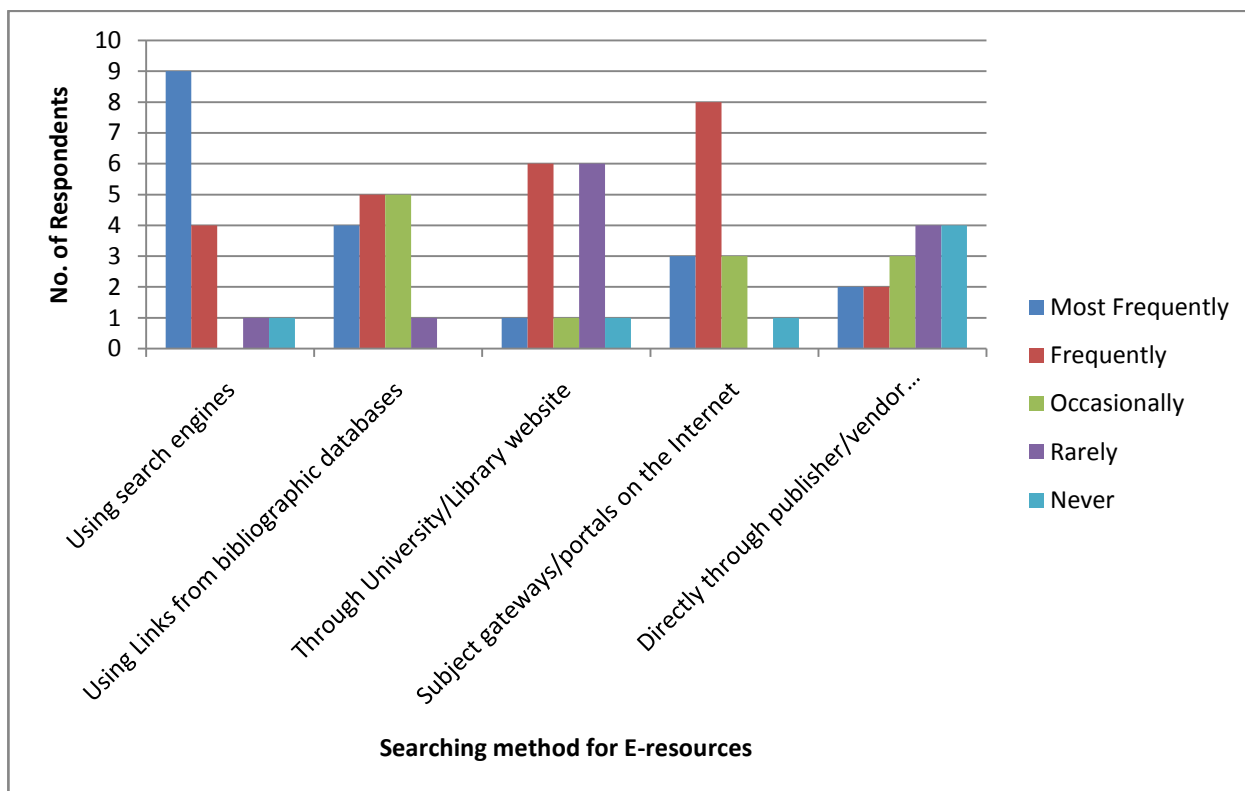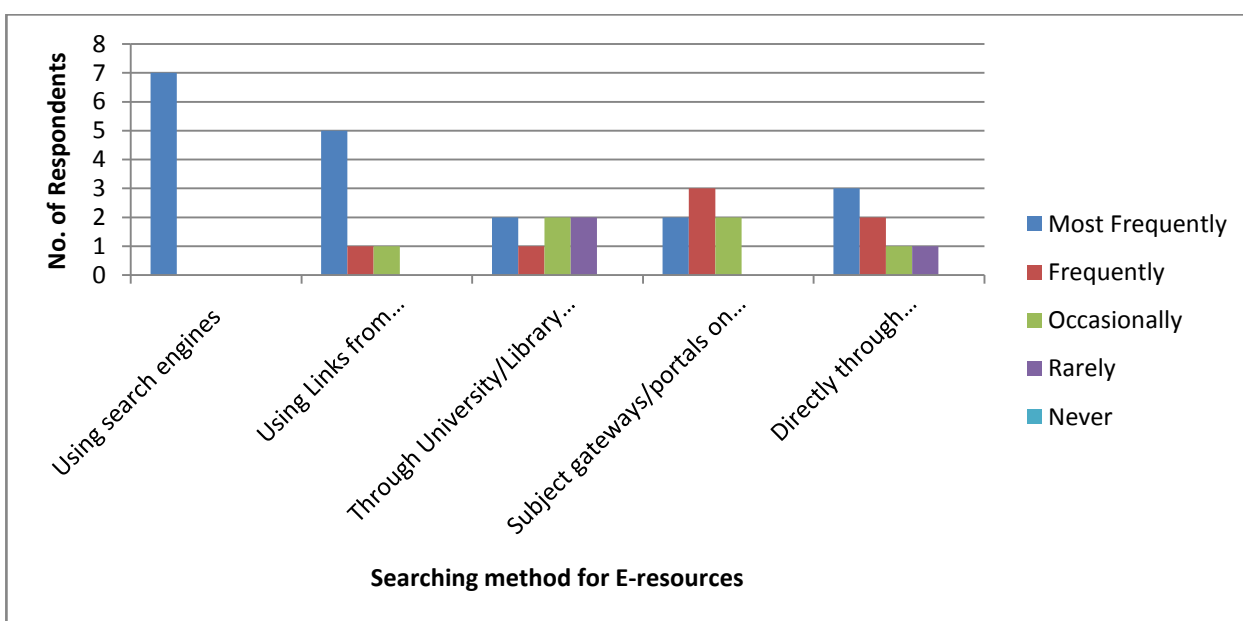

Figure 4.68: Searching methods for E-resources by Associate Professors in Faculty of Science

Figure 4.69 shows the searching methods for E-resources by Professors in Faculty of Science. The figure reflects that most of the respondents use search engines to search e-resources. In case of using links from bibliographic databases the equal numbers of respondents use most frequently or occasionally. Most of the respondents use University/Library portal rarely to search e-resources. In case of searching through subject gateways/portals in the internet most of the respondents use it most frequently whereas they never searched directly through publishers/vendors website.
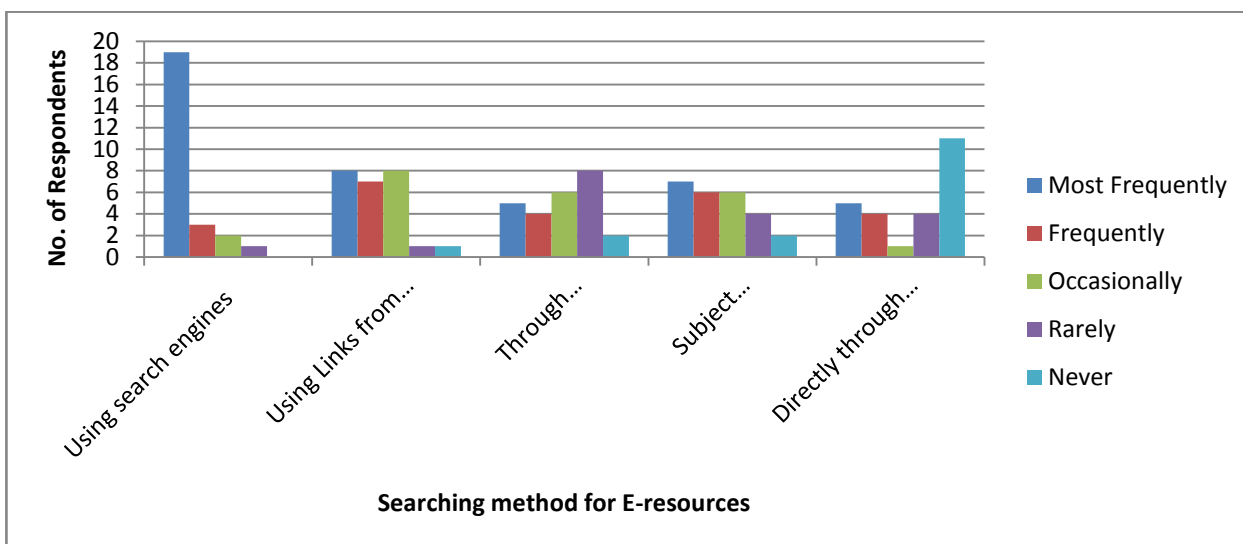
Figure 4.69: Searching methods for E-resources by Professors in Faculty of Science

Figure 4.67, 4.68 and 4.69 shows that the Assistant Professors, Associate Professors and Professors of Faculty of Science use search engines most frequently for searching e-resources. In case of using links from bibliographical databases the Assistant Professors use it occasionally whereas the Associate Professors and Professors use it most frequently. The Assistant Professors search for e-resources through University/Library website occasionally or rarely, the Associate Professors use it most frequently, occasionally or rarely in equal numbers and the Professors use the University/Library website rarely. The subject gateways/portals on the internet are used by the Assistant Professors rarely, the Associate Professors frequently and the Professors most frequently. In case of searching e-resources directly through publisher/vendor website the Assistant Professors and Professors never use it whereas the Associate Professors use it most frequently. It is evident from the three figures that all the three categories of faculty members of Science most frequently use search engines for searching e-resources. There is a lot of variation in using other searching methods among the faculty members of Science.

Figure 4.70 shows the searching methods for E-resources by Assistant Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents use search engines most frequently for searching e-resources. The links from bibliographic databases, the University/Library website and subject gateways/portal on the Internet are frequently used by most of the respondents. Most of respondents occasionally search the e-resources directly through publisher/vendor website.

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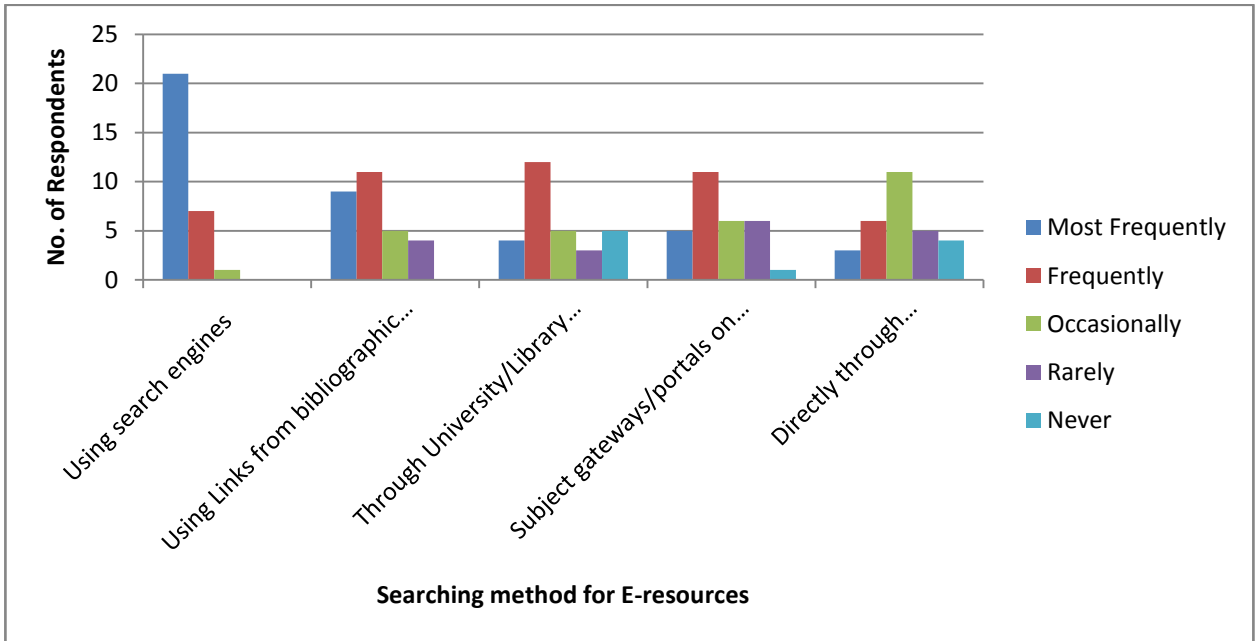
Figure 4.70: Searching methods for E-resources by Assistant Professors in Faculty of Engineering and Technology
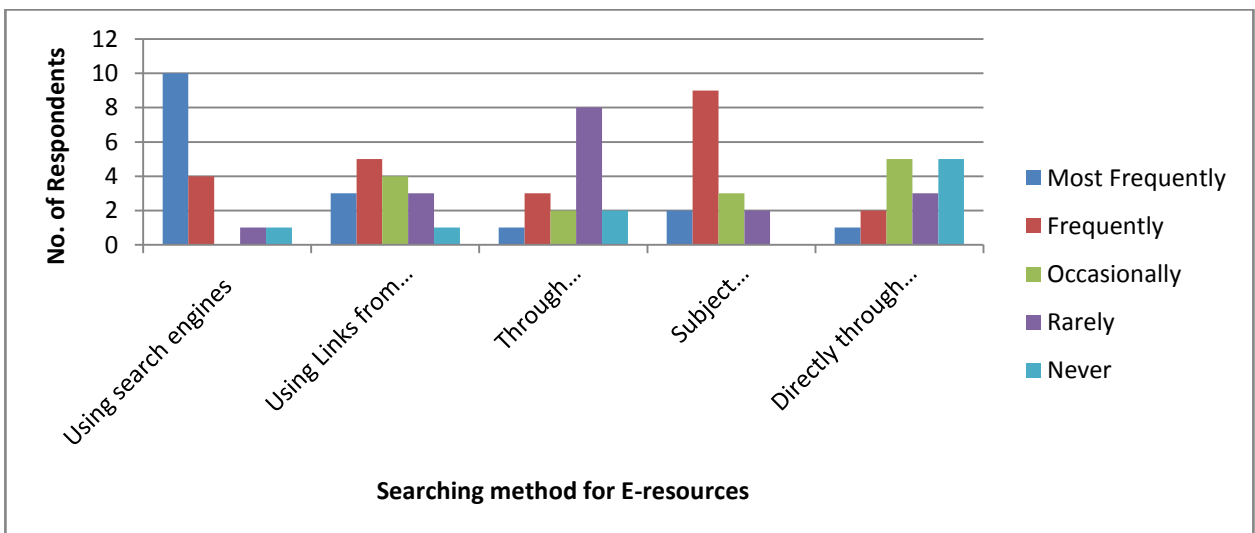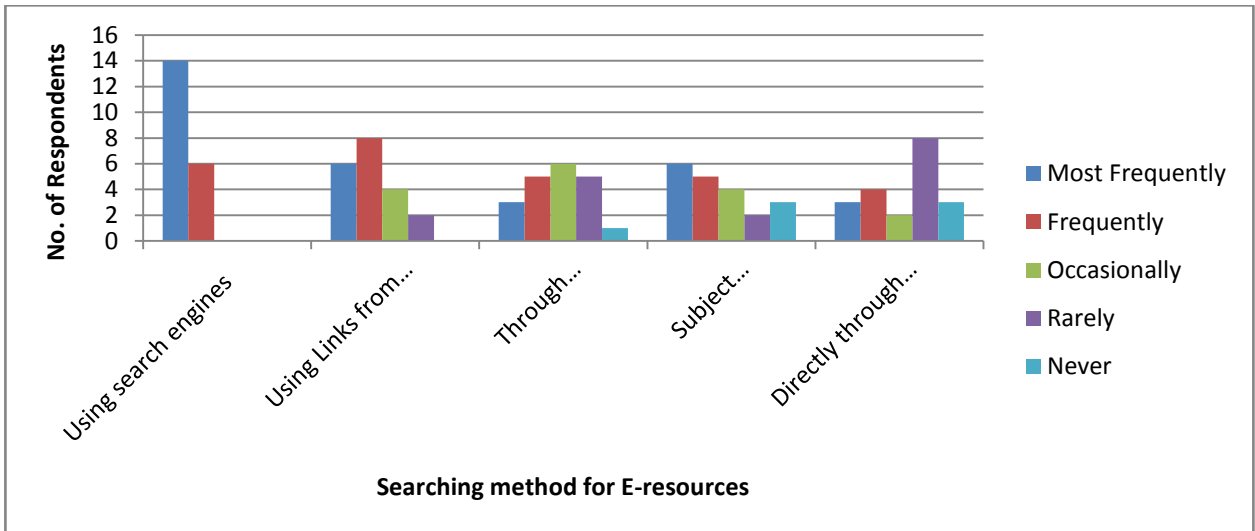

Figure 4.71: Searching methods for E-resources by Associate Professors in Faculty of Engineering and Technology

Figure 4.71 shows the searching methods for E-resources by Associate Professors in Faculty of Engineering and Technology. The figure reflects that most of the respondents use search engines most frequently whereas links from bibliographical databases are used frequently by them. It is evident that most of the respondents occasionally search e-resources through University/Library

website but use the subject gateway/portals on the internet most frequently. Most of the respondents rarely search e-resources directly through publisher/vendor website.

Figure 4.72 shows the searching methods for E-resources by Professors in Faculty of Engineering and Technology. The figure depicts that most of the respondents use search engines most frequently whereas links from bibliographical databases are used frequently by them. It is evident that equal numbers of respondents frequently or rarely search e-resources through University/Library website but they use the subject gateway/portals on the internet frequently. Most of the respondents never search e-resources directly through publisher/vendor website.
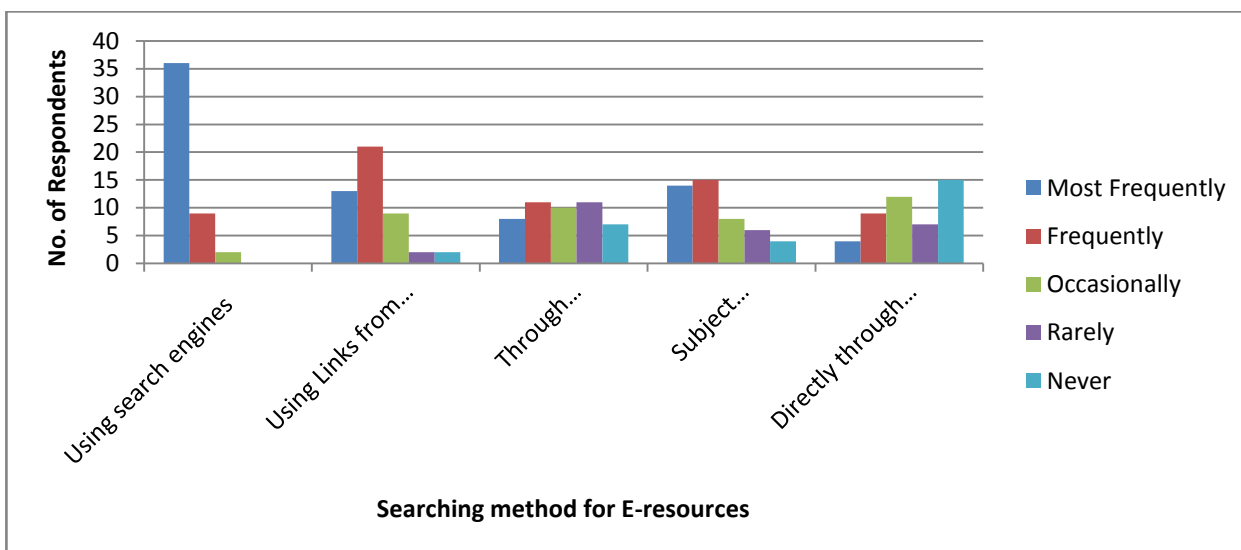
Figure 4.72: Searching methods for E-resources by Professors in Faculty of Engineering and Technology

Figure 4.70, 4.71 and 4.72 reflects that the Assistant Professors, Associate Professors and Professors in Faculty of Engineering and Technology use search engines most frequently and use links from bibliographical databases frequently for searching e-resources. In case of searching e-resources through University/Library website the Assistant Professors and Professors search frequently whereas the Associate Professors use occasionally. Most of the Assistant Professors and Professors use subject gateways/portals on the internet frequently whereas the Associate Professors use it most frequently. Most of the Assistant Professors occasionally search directly through publisher/vendor website; the Associate Professors use it rarely whereas the Professors never use it to search the e-resources. It is evident that using search engine, using links from bibliographic databases and subject gateway/ portals on the internet are the most popular method of searching among the Faculty members of Engineering and Technology.

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4.3.3.9 Search Strategy for finding E-resources

This section deals with the search strategy used for finding E-resources among the Assistant Professors, Associate Professors and Professors in Faculty of Arts, Science and Engineering and Technology.

Figure 4.73 shows the search strategy for finding E-resources by Assistant Professors in Faculty of Arts. The figure denotes that most of the respondents use subject and keyword most frequently for finding e-resources. The author and DOI are frequently used by most of the respondents. The equal numbers of respondents use title of the article most frequently or frequently, use journal title frequently or occasionally and use year/date occasionally or rarely for finding e-resources. Most of the respondents occasionally use abstract and phrase search whereas they never use boolean search, proximity operator or truncation for finding e-resources.

Figure 4.73: Search strategy for finding E-resources by Assistant Professors in Faculty of Arts

Figure 4.74 shows the search strategy for finding E-resources by Associate Professors in Faculty of Arts. The figure denotes that most of the respondents use title of the article, subject and keyword most frequently for finding e-resources. The equal numbers of respondents prefer to use author most frequently or frequently whereas DOI are frequently used by most of the respondents. Most of the respondents use journal title, publisher, boolean search and phrase search occasionally for finding e-resources. Year/date and abstract are used rarely by most of the respondents whereas proximity operator and truncation are never used by most of the respondents for finding e-resources.
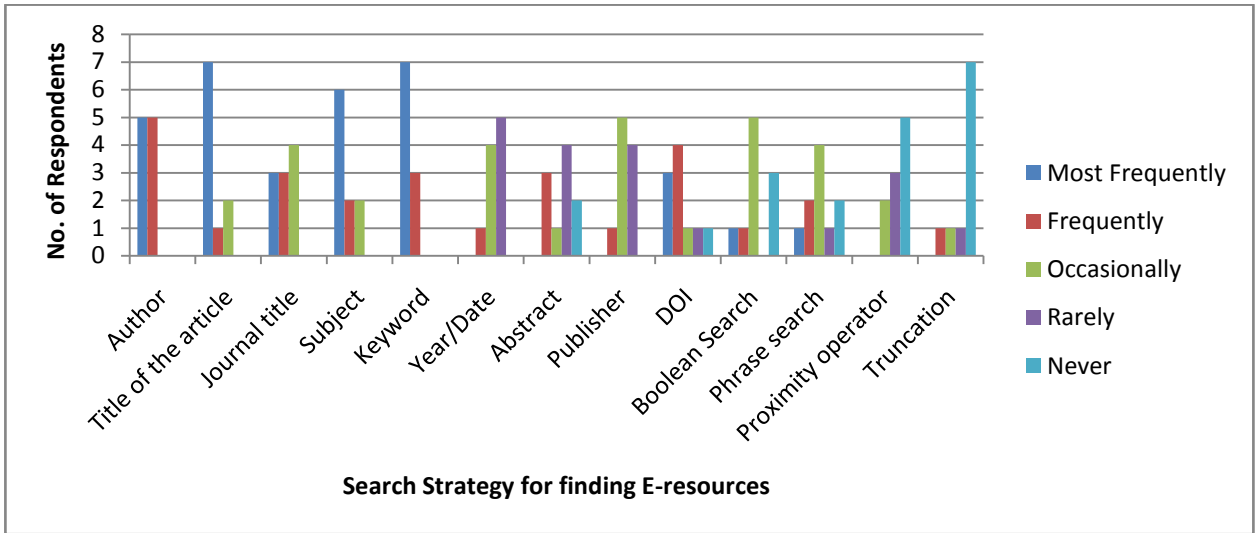
Figure 4.74: Search strategy for finding E-resources by Associate Professors in Faculty of Arts

Figure 4.75: Search strategy for finding E-resources by Professors in Faculty of Arts

Figure 4.75 shows the search strategy for finding E-resources by Professors in Faculty of Arts. The figure represents that most of the respondents use author and title of the article most frequently for finding e-resources. The subject and keyword are frequently used search strategy for most of the respondents. Maximum respondents use journal title and DOI occasionally for finding e-resources. Most of the respondents rarely use abstract and publisher for finding e-resources. The equal numbers of respondents use year/date occasionally and rarely. In case of

phrase search equal numbers of respondents use it rarely or never. Most of the respondents never use Boolean search, proximity operator and truncation for finding e –resources.

Figure 4.73, 4.74 and 4.75 reflects that the Assistant Professors, Associate Professors and Professor in Faculty of Arts most frequently or frequently use author, title of the article, subject and keyword for finding e-resources. The Assistant Professors and Professors never use boolean search, proximity operator and truncation for searching e-resources whereas the Associate Professors use boolean search occasionally but never use proximity operator and truncation. It is evident that author, title of the article, subject and keyword are the most popular search strategy among the faculty members of Arts.

Figure 4.76 represents the search strategy for finding E-resources by Assistant Professors in Faculty of Science. The figure shows that most of the respondents use author, title of the article, journal title and keyword most frequently for finding e-resources. Subject and DOI are used by equal numbers of respondents most frequently or frequently. Most of the respondents use abstract, publisher and boolean search occasionally whereas phrase search is used frequently. Year/date is used frequently or occasionally by equal numbers of respondents. Most of the respondents never use proximity operator and truncation for searching e-resources.

Figure 4.76: Search strategy for finding E-resources by Assistant Professors in Faculty of Science

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Figure 4.77 shows the search strategy for finding E-resources by Associate Professors in Faculty of Science. The figure denotes that most of the respondents use title of the article, subject, keyword, year/date and DOI most frequently for searching e-resources. Author and abstract are frequently used by most of the respondents whereas journal title is used either most frequently or frequently by equal numbers of respondents. Most of the respondents use phrase search occasionally but never uses the boolean search, proximity operator and truncation for searching e-resources.
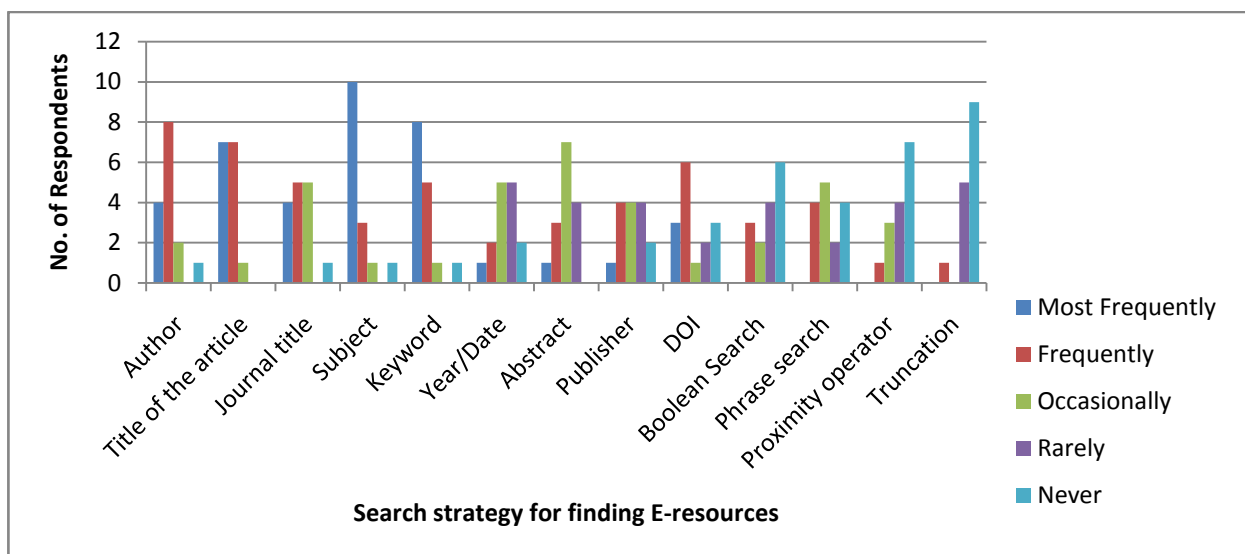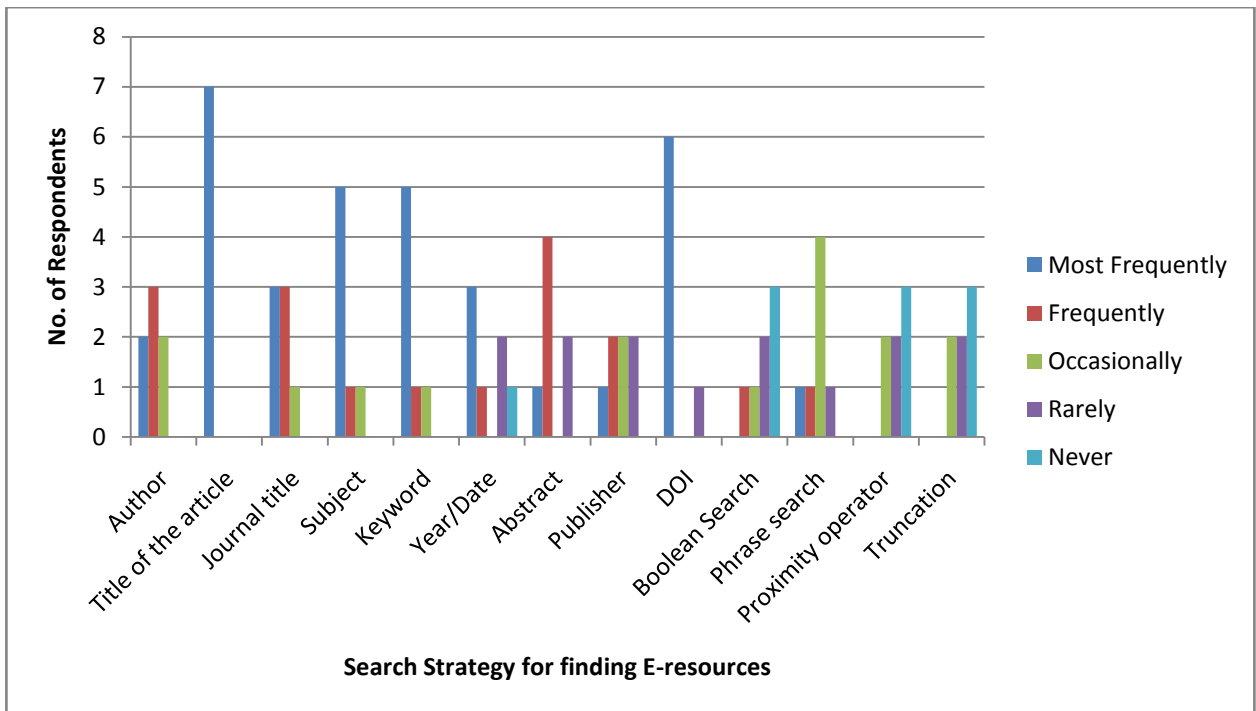

Figure 4.77: Search strategy for finding E-resources by Associate Professors in Faculty of Science

Figure 4.78 reflects the search strategy for finding E-resources by Professors in Faculty of Science. The figure shows that most of the respondents use title of the article, journal title, keyword and DOI most frequently for finding e-resources. Most of the respondents frequently use author and abstract whereas subject is used either most frequently or frequently by equal numbers of respondents. Year/date and publisher are used occasionally by most of the respondents. Phrase search is used either frequently or occasionally by equal numbers of respondents. Most of the respondents never use boolean search, proximity operator and truncation for searching e-resources.
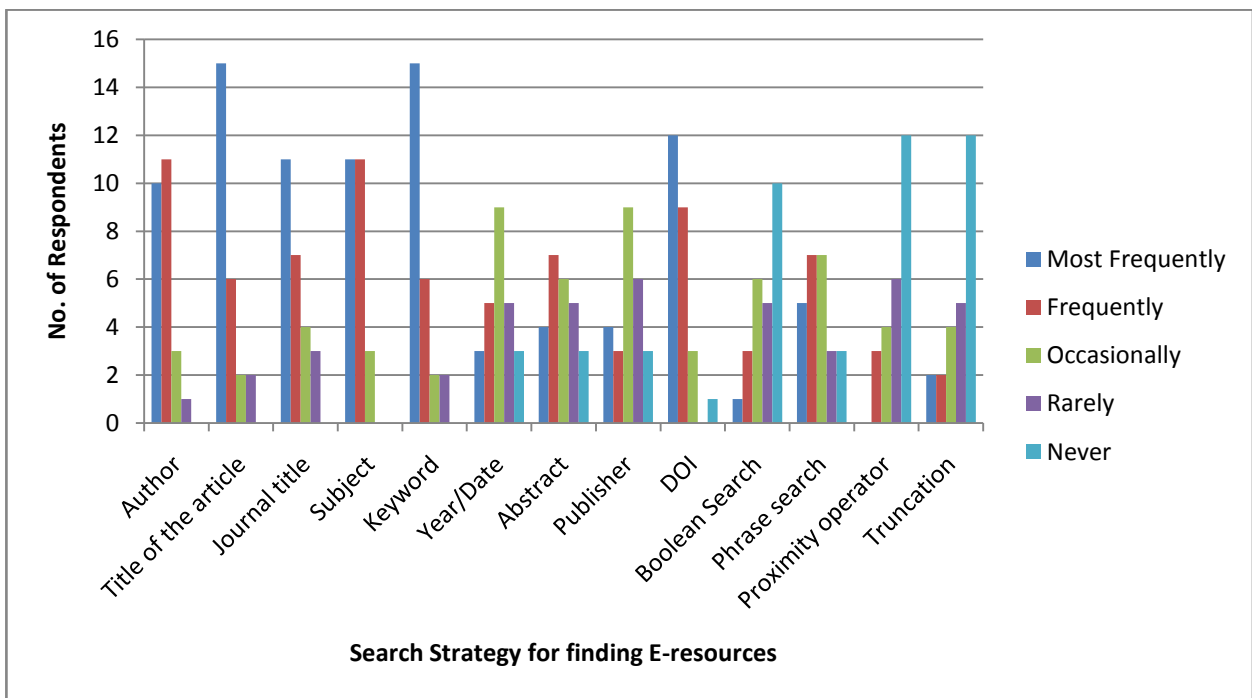
Figure 4.78: Search strategy for finding E-resources by Professors in Faculty of Science

Figure 4.76, 4.77 and 4.78 reflects that the all the three categories of respondents of Faculty of Science commonly use title of the article and keyword most frequently for finding e-resources. They also use subject and DOI most frequently or frequently or finding e-resources. The Assistant Professors, Associate Professors and Professors of Faculty of Science never use proximity operator or truncation for searching e-resources.

Figure 4.79 shows the search strategy for finding e-resources by Assistant Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents use title of the article, journal title, subject and keyword most frequently for finding e-resources. The author, year/date and publisher are used frequently by most of the respondents. Most of the respondents use abstract occasionally whereas proximity operator and truncation are used rarely by maximum respondents. The equal numbers of respondents use DOI either most frequently or frequently. Boolean search is used either rarely or never by equal numbers of respondents. Phrase search is used either most frequently or occasionally by equal numbers of respondents. Proximity operator and Truncation are used rarely by most of the respondents.
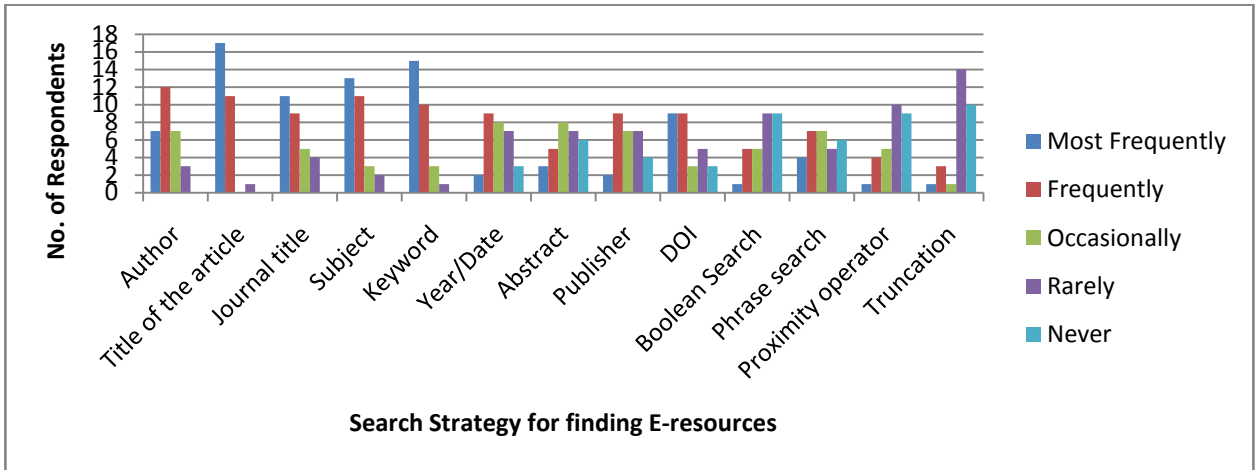
Figure 4.79: Search strategy for finding E-resources by Assistant Professors in Faculty of Engineering and Technology
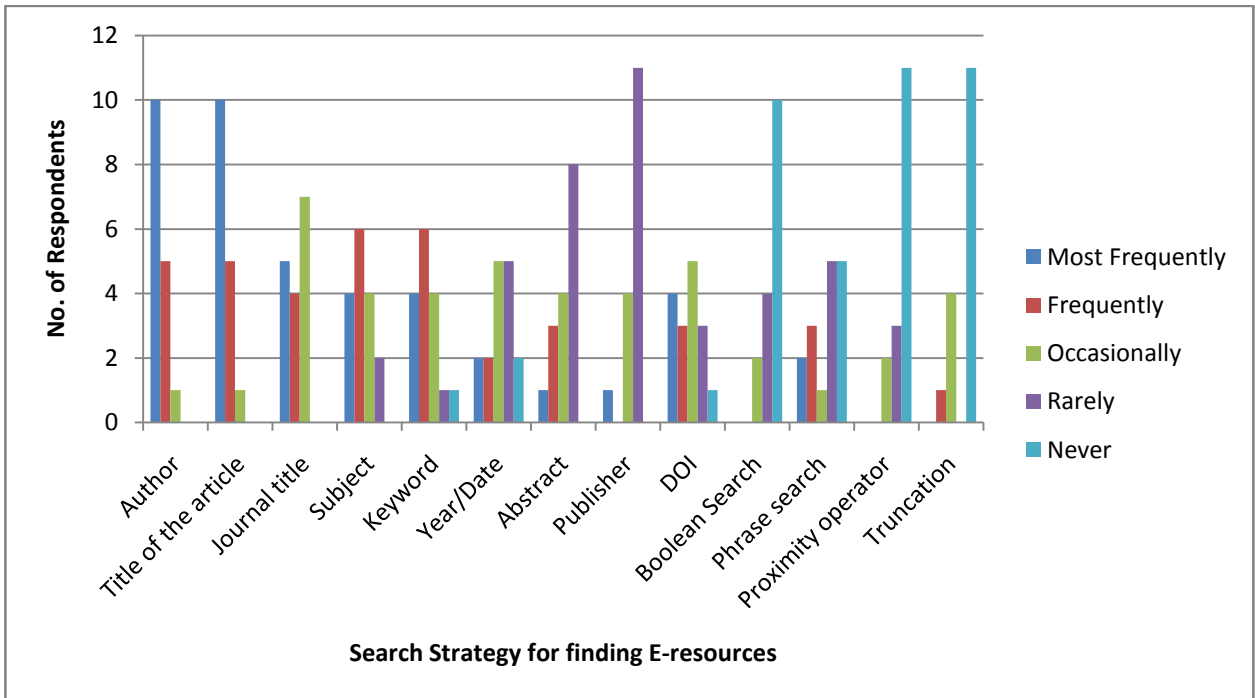
Figure 4.80 represents the search strategy for finding E-resources by Associate Professors in Faculty of Engineering and Technology. Most of the respondents use title of the article, subject, keyword and phrase search most frequently whereas author and journal title are used frequently by maximum respondents. Year/date, abstract and publisher are used occasionally by most of the respondents. The equal numbers of respondents use DOI either most frequently or frequently. Boolean search is used either occasionally or rarely by equal numbers of respondents. Most of the respondents never use proximity operator and truncation for searching e-resources.
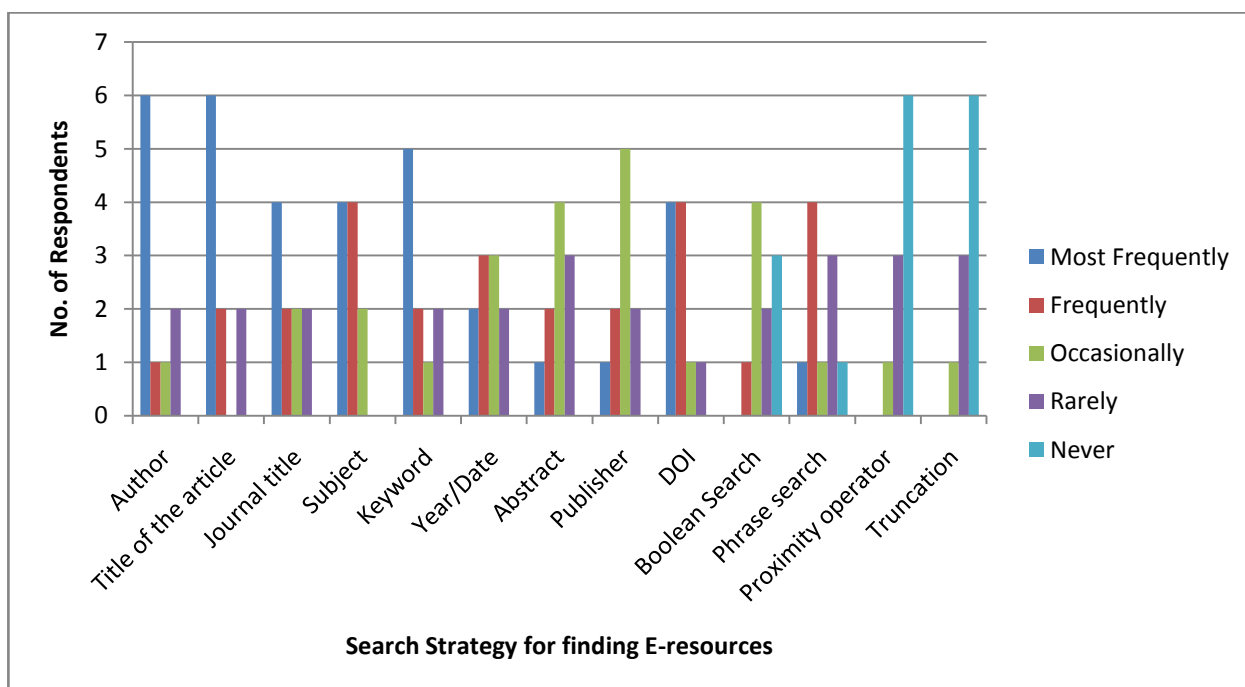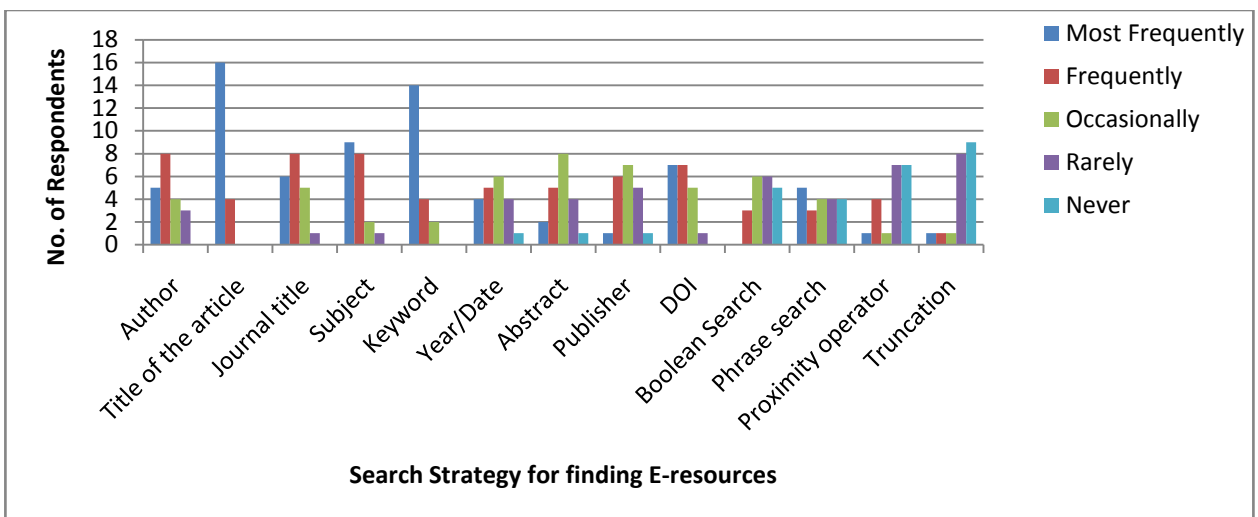

Figure 4.80: Search strategy for finding E-resources by Associate Professors in Faculty of Engineering and Technology

Figure 4.81 reflects the search strategy for finding E-resources by Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents use title of the article, journal title, subject and keyword most frequently whereas DOI and phrase search are used frequently by maximum respondents. The equal numbers of respondents use author either most frequently or frequently for finding e-resources. Most of the respondents use year/date and publisher occasionally whereas the abstract is used rarely by maximum respondents. Most of the respondents never use Boolean search, proximity operator and truncation for searching e-resources.

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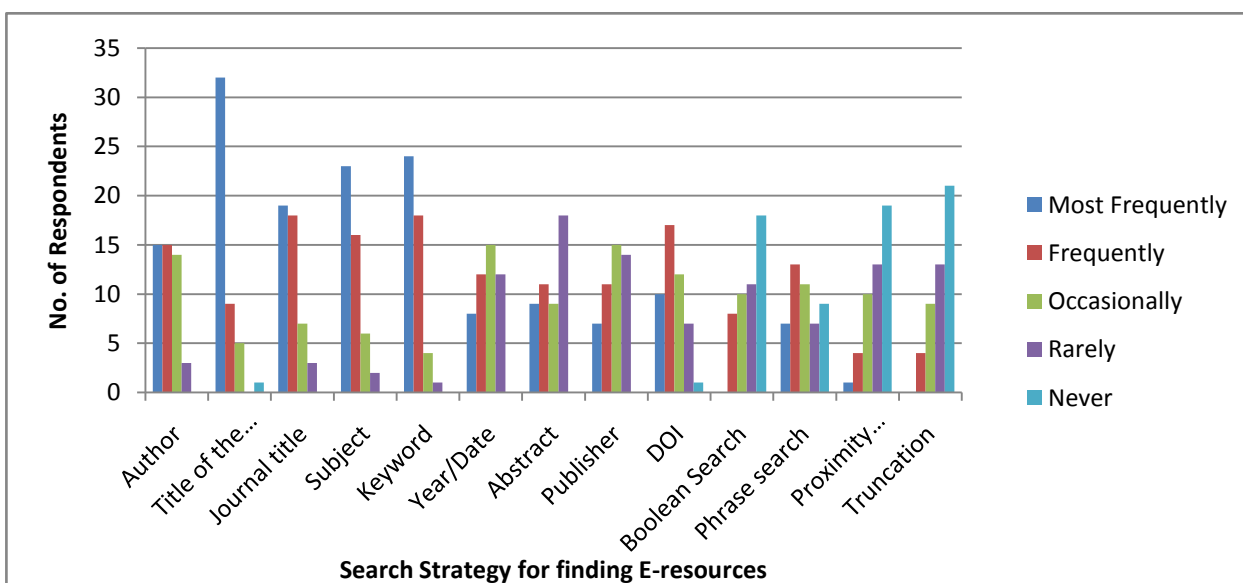
Figure 4.81: Search strategy for finding E-resources by Professors in Faculty of Engineering and Technology

Figure 4.79, 4.80 and 4.81 depicts that the Assistant Professors, Associate Professors and Professors in Faculty of Engineering and Technology commonly use title of the article, subject and keyword most frequently. All the three categories of faculties of Engineering and Technology use DOI most frequently or frequently. All the three categories in Faculty of Engineering and Technology use the proximity operator and truncation either rarely or never which reflects that these are the least used search strategy among the faculty member of Engineering and Technology.

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4.3.3.10 Types of E-resources used

Figure 4.82 reveals the frequency of use of e-resources by Assistant Professors in Faculty of Arts. The figure shows that most respondents access the E-books, E-journals, E-newspapers, E-reference sources, E-archives most frequently whereas E-theses/dissertations and Institutional repositories are used frequently by them. It is evident that the respondents occasionally use the E-conference proceedings, E-research reports, Indexing and abstracting databases, Open educational resources, and open access resources Most of the respondents never used the E-standards, patents and specifications.
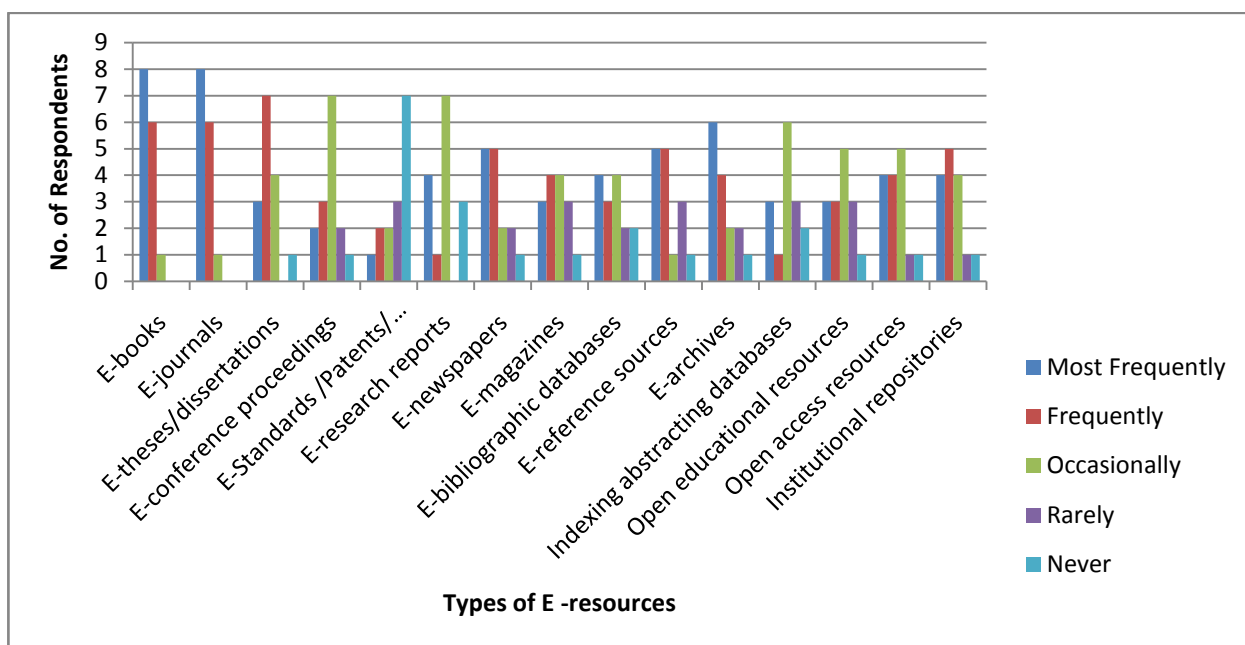
Figure 4.82: Use of E-resources by Assistant Professors in Faculty of Arts

Figure 4.83 reveals the frequency of use of e-resources by Associate Professors in Faculty of Arts. The figure shows that most respondents access the E-archives and Open access resources most frequently whereas E-journals, E-newspapers and E-reference sources are used frequently by them. It is evident that the respondents occasionally use the E-books, E-thesis/dissertations, E-conference proceedings, E-research reports, E-magazines, Indexing and abstracting databases, Open educational resources and Institutional repositories. Most of the respondents rarely use the E-bibliographic databases but never use the E-standards, patents and specifications.
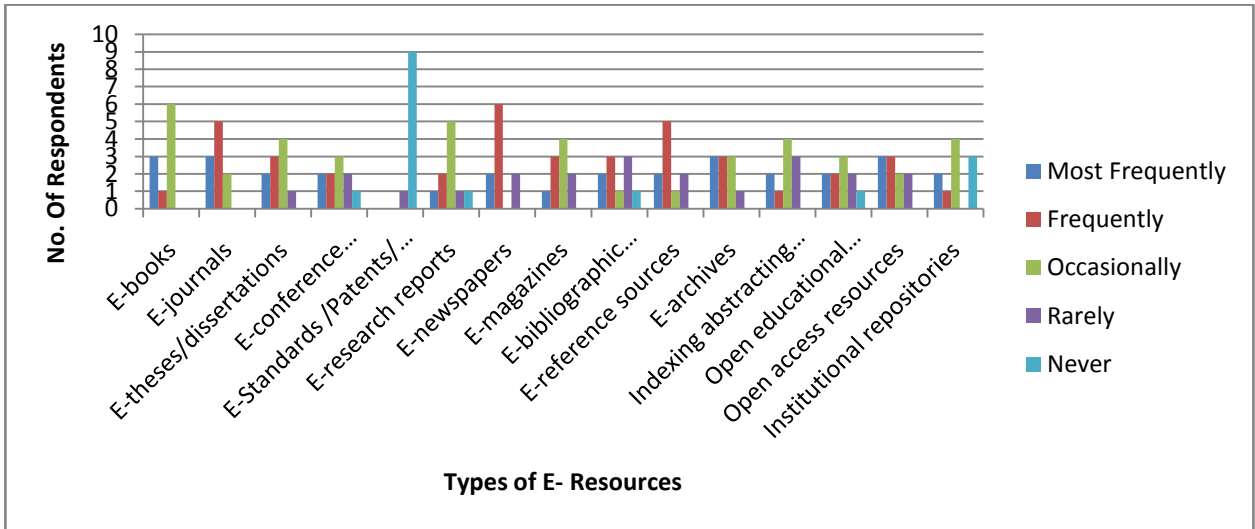
Figure 4.83: Use of E-resources by Associate Professors in Faculty of Arts

Figure 4.84 shows the frequency of use of E- resources by Professors in Faculty of Arts. It is revealed from the figure that most respondents accessed E-journals most frequently whereas E-newspapers, E-magazines and Open access resources were accessed frequently. They occasionally accessed other types of e-resources namely E-books, E-research reports, E bibliographical databases, E-reference sources, E-archives, Open educational resources and Institutional repositories. Most of the respondents rarely used E-standards, patents and specifications and Indexing and abstracting journals.
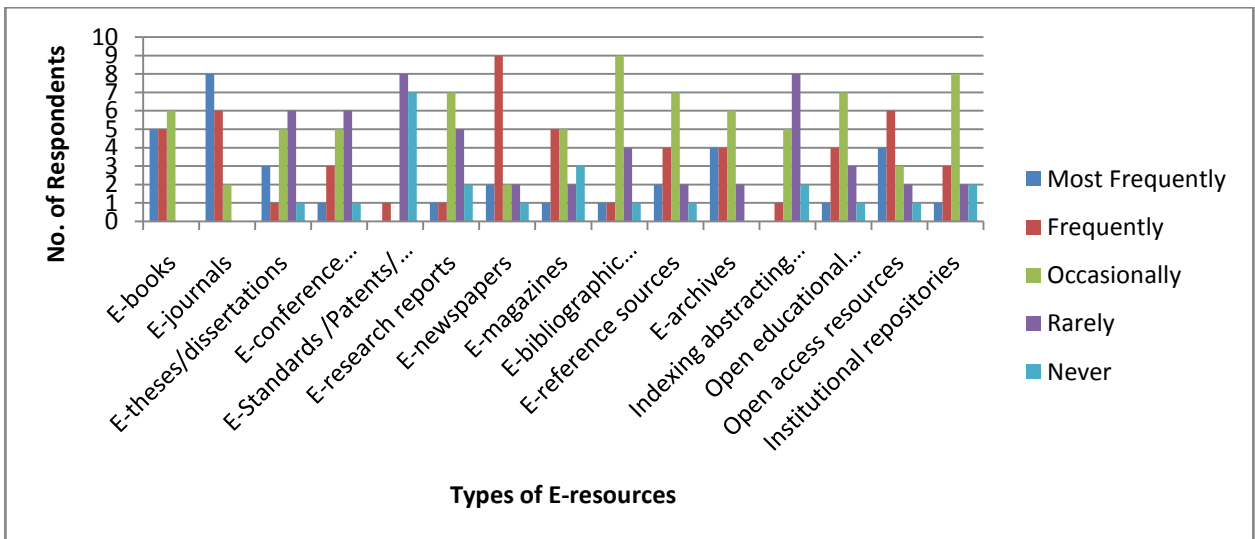
Figure 4.84: Use of E-resources by Professors in Faculty of Arts

Figure 4.82, 4.83 and 4.84 reveals that the Assistant Professors in Faculty of Arts mostly access E-books, E-journals, E-newspapers, E-reference sources, E-archives whereas Associate Professors of Faculty of Arts mostly depends on E-archives and Open Access Resources and the Professors of Faculty of Arts preferred to access the E-journals most frequently among various types of e-resources. E-newspapers are frequently used by all the three categories of respondents in Faculty of Arts. E-standards/Patents/Specifications are rarely or never used by most of the respondents.

Figure 4.85 reveals the frequency of use of e-resources by Assistant Professors in Faculty of Science. The figure shows that most respondents access the E-journals most frequently whereas E-conference proceedings, E-research reports and E-newspapers are used frequently by them. It is evident that the respondents occasionally use E-books, E-theses/dissertations, E-standard/ patents and specifications and Open educational resources. Most of the respondents rarely use E-bibliographic databases, E-archives and Open access resources.
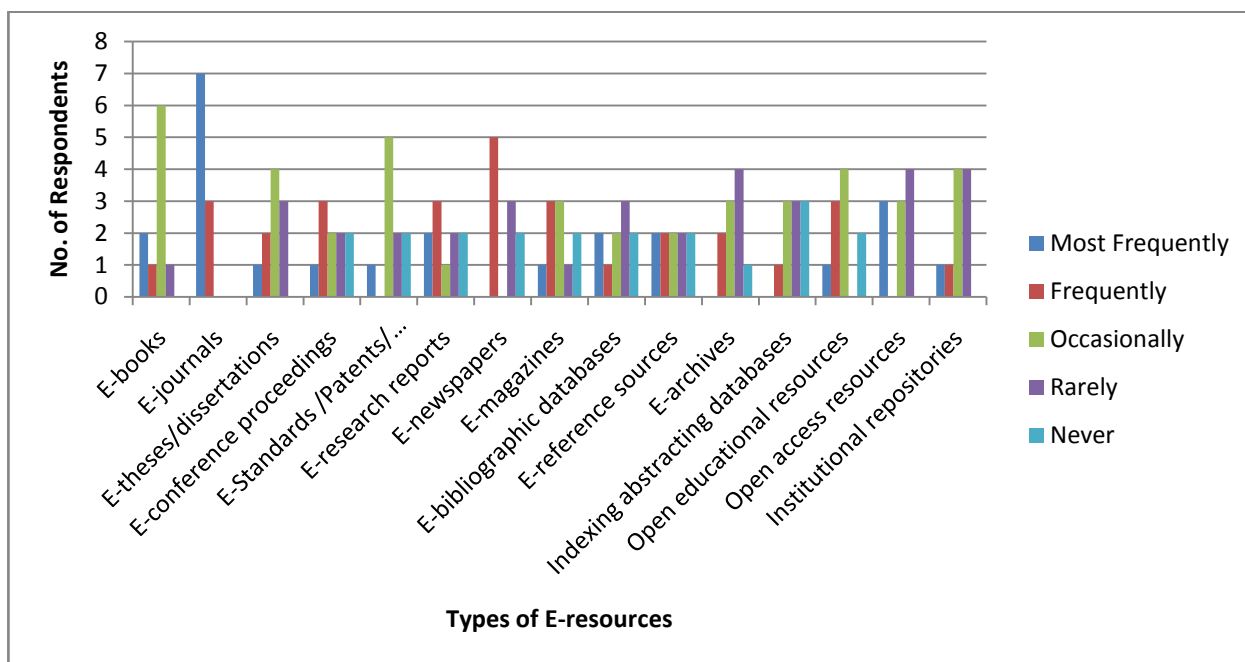
Figure 4.85: Use of E-resources by Assistant Professors in Faculty of Science

Figure 4.86 shows the use of E-resources by Associate Professors in Faculty of Science. The figure shows that most respondents access E-books, E-journals, E-newspapers and Open educational resources most frequently whereas E-reference sources, Open access sources and

Institutional repositories are used frequently by them. It is evident that the respondents occasionally use E-conference proceedings and E-achieves. Most of the respondents rarely use E-standards, patents and specifications, E-magazines and E-bibliographic databases.
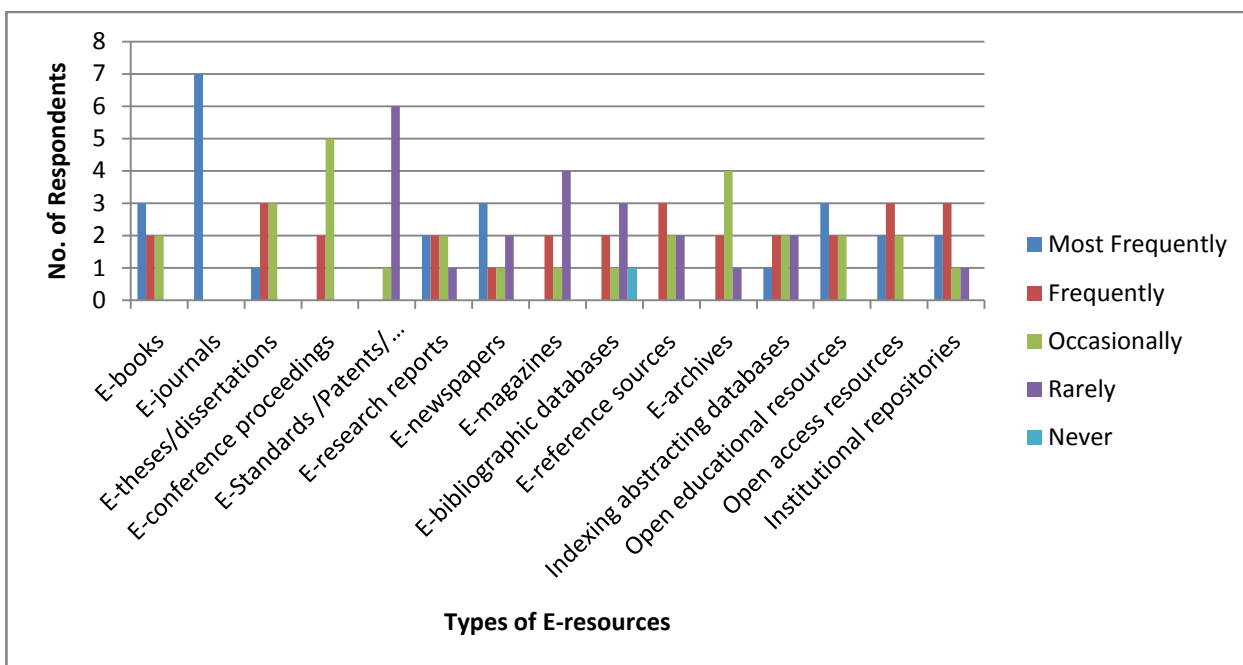
Figure 4.86: Use of E-resources by Associate Professors in Faculty of Science
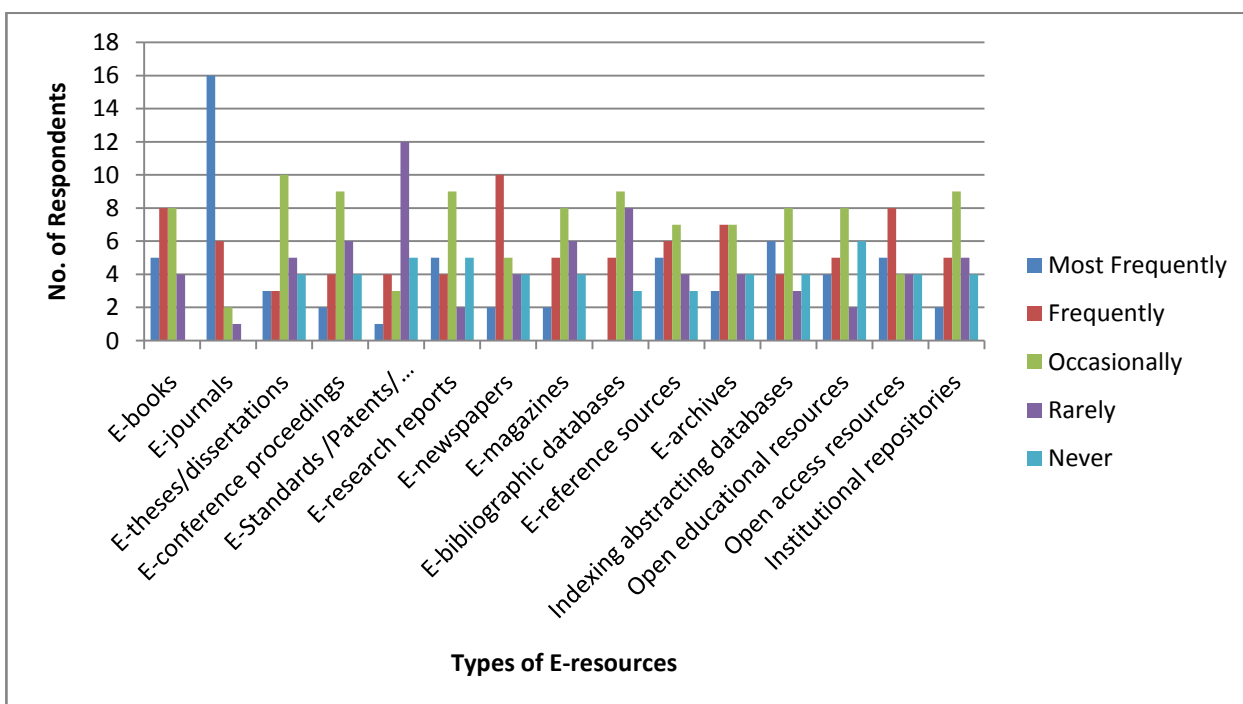
Figure 4.87: Use of E-resources by Professors in Faculty of Science

Figure 4.87 shows the frequency of use of E- resources by Professors in Faculty of Science. It is revealed from the figure that most respondents access E-journals most frequently whereas E-newspapers and Open access resources were accessed frequently. They occasionally accessed other types of e-resources namely E-theses/dissertations, E-conference proceedings, E- research reports, E-magazines, E-bibliographic databases, E-reference sources, Indexing and abstracting journals, open educational resources and Institutional repositories. Most of the respondents rarely used E-standards, patents and specifications.

Figure 4.85, 4.86 and 4.87 reveals that the Assistant Professors, Associate Professors and Professors in Faculty of Science mostly depend on E-journals. E-newspapers are either most frequently or frequently used by all the three categories of faculty member in Science. Other types of e-resources are used in various frequencies by the Assistant Professors, Associate Professors and Professors in Faculty of Science.

Figure 4.88 reveals the frequency of use of e-resources by Assistant Professors in Faculty of Engineering and Technology. The figure shows that most respondents access the E-books, E-journals, E-conference proceedings and E-newspapers most frequently whereas E-standard, patents and specifications, E-research reports, E-magazines, E-bibliographic databases, e-reference sources, E-archives, Open educational resources and Open access resources are used frequently by them. Most of the respondents occasionally use Institutional repositories.
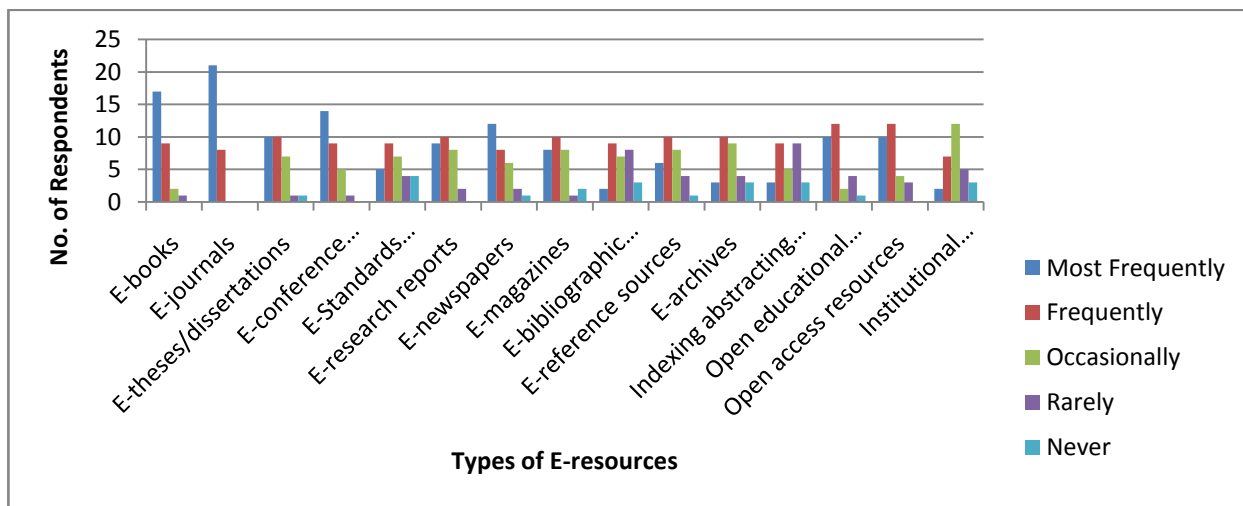
Figure 4.88: Use of E-resources by Assistant Professors in Faculty of Engineering and Technology

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Figure 4.89 shows the use of E-resources by Associate Professors in Faculty of Engineering and Technology. The figure shows that most respondents access E-books, E-journals, E-theses/ dissertations, E-conference proceedings, E-research reports and E-newspapers most frequently whereas E-standards/patents and specifications, E-bibliographic databases, E-reference sources, Open educational resources and Open access resources are used frequently by them. It is evident that the respondents occasionally use E-magazines, Indexing and abstracting databases and Institutional repositories. E-archives are used either frequently or occasionally by equal numbers of respondents.
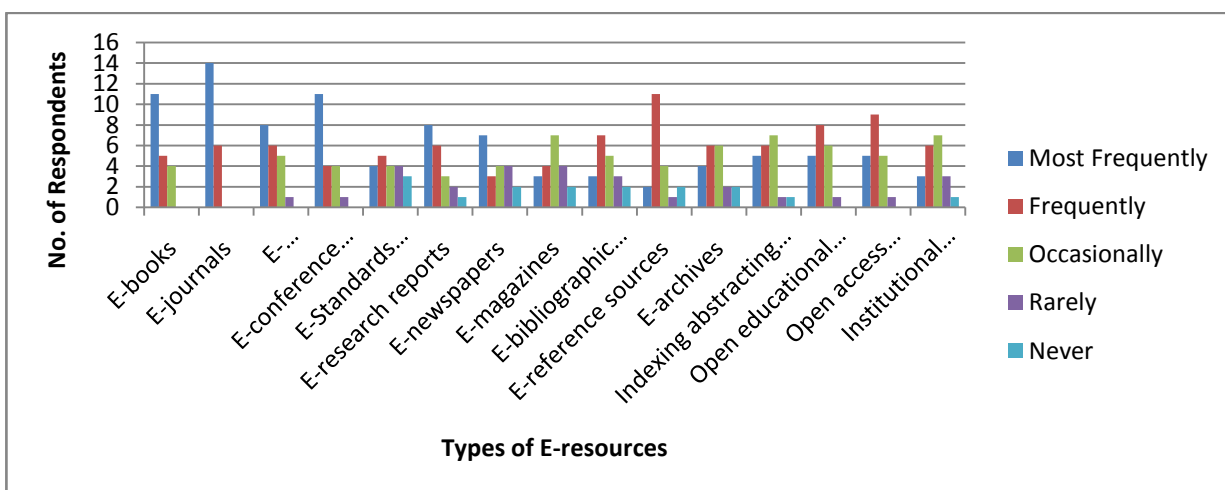
Figure 4.89: Use of E-resources by Associate Professors in Faculty of Engineering and Technology
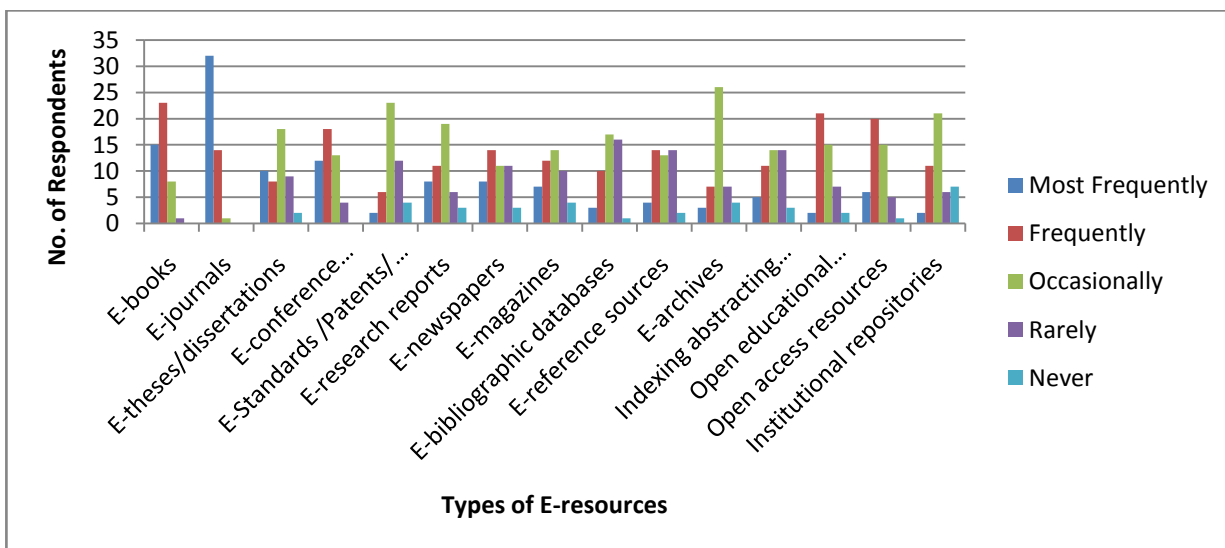
Figure 4.90: Use of E-resources by Professors in Faculty of Engineering and Technology

Figure 4.90 shows the frequency of use of E- resources by Professors in Faculty of Engineering and Technology. It is revealed from the figure that most respondents access E-journals most frequently whereas E-books, E-conference proceedings, E-newspapers, E-reference sources, Open educational resources, Open access resources are accessed frequently. They occasionally access other types of e-resources namely E-theses/dissertations, E-standards, patents and specifications, E-research reports, E-magazines, E-bibliographic databases, E-archives and Institutional repositories.

Figure 4.88, 4.89 and 4.90 reveals that the Assistant Professors, Associate Professors and Professors in Engineering and Technology most frequently or frequently access E-books, E-journals, E-conference proceedings, E-newspapers, Open educational resources and Open access resources. Other types of e-resources vary in frequency in all the three categories of respondents in Faculty of Engineering and Technology.

4.3.3.11 Use of Popular E-resources

Table 4.13 depicts the rank of popular e-resources as per the use by Assistant Professors, Associate Professors and Professors of the Faculty of Arts. The table reveals that the JSTOR is the most popular database among the faculty members of this faculty. Maximum respondents (23) ranked the JSTOR first followed by 6 respondents who ranked the Oxford University Press first. Sage Journals Online, Springer Link and Taylor and Francis are also popular among the faculty members of Faculty of Arts.

Table 4.13: Use of Popular E-resources by Faculty of Arts

Name of the E-resources	Faculty of Arts												
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	Rank 10	Rank 11	Rank 12	Rank 13
EBSCO Research Databases	1	2	1	3	1	0	0	2	2	2	1	0	0
Emerald Insight	0	0	1	0	1	0	0	1	3	2	2	2	0
IEEE Xplore	0	0	0	0	0	1	1	0	3	1	1	4	0
JSTOR	23	0	0	2	0	0	1	0	1	1	1	2	0
Oxford University Press	6	5	3	2	5	2	2	1	0	0	0	0	0
ProQuest	0	4	4	5	1	2	2	0	2	0	2	0	0

Name of the E-resources	Faculty of Arts												
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	Rank 10	Rank 11	Rank 12	Rank 13
Sage Journals Online	3	6	8	5	3	1	1	1	0	1	0	0	0
Science Direct	1	0	0	1	3	2	1	1	0	0	1	0	0
Scopus	0	1	0	0	0	0	0	0	0	0	0	0	0
Springer Link	3	3	3	4	3	4	1	1	0	0	0	0	0
Taylor and Francis	2	5	3	3	4	4	1	1	1	0	1	0	0
Web of Science	0	3	0	0	0	3	0	1	1	2	0	0	0
Wiley Blackwell	0	0	3	2	5	2	3	2	1	2	1	0	0

Table 4.14 depicts the rank of popular e-resources as per the use by Assistant Professors, Associate Professors and Professors of the Faculty of Science. The table reveals that the Science Direct is the most popular database among the faculty members of this faculty. Maximum respondents (23) ranked the Science Direct first followed by 5 respondents who ranked the Web of Science first. Springer Link, Oxford University Press and Scopus are also popular among the faculty members of Faculty of Science.

Table 4.14: Use of Popular E-resources by Faculty of Science

Name of the E-resources	Faculty of Science												
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	Rank 10	Rank 11	Rank 12	Rank 13
EBSCO Research Databases	0	1	0	0	0	0	1	1	1	0	4	6	1
Emerald Insight	0	0	0	0	1	0	2	0	2	4	5	2	1
IEEE Xplore	0	0	4	4	1	4	3	5	2	2	1	0	0
JSTOR	0	1	1	5	2	6	2	3	2	2	0	0	0
Oxford University Press	2	3	0	2	3	5	6	2	2	2	0	0	0
ProQuest	0	0	0	0	0	1	0	3	4	4	0	2	0
Sage Journals Online	0	0	1	0	0	2	2	0	4	1	4	1	0
Science Direct	23	7	2	2	1	2	0	0	0	0	0	0	0
Scopus	2	2	2	0	0	0	0	0	0	0	0	0	0
Springer Link	3	22	6	4	1	1	1	0	0	0	0	0	0
Taylor and Francis	0	3	13	5	7	3	2	0	0	0	0	0	0
Web of Science	5	3	5	6	6	2	3	1	0	0	0	0	0
Wiley Blackwell	1	1	4	5	7	4	1	2	1	0	1	0	0

Table 4.15 depicts the rank of popular e-resources as per the use by Assistant Professors, Associate Professors and Professors of the Faculty of Engineering and Technology. The table reveals that the Science Direct is the most popular database among the faculty members of this faculty. Maximum respondents (49) ranked the Science Direct first followed by 21 respondents who ranked the IEEE Explore first. Springer Link, Scopus and Web of Science are also popular among the faculty members of Faculty of Engineering and Technology.

Table 4.15: Use of Popular E-resources by Faculty of Engineering and Technology

Name of the E-resources	Faculty of Engineering and Technology												
	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7	Rank 8	Rank 9	Rank 10	Rank 11	Rank 12	Rank 13
EBSCO Research Databases	0	1	0	0	3	3	8	10	6	4	5	6	1
Emerald Insight	0	0	1	5	5	5	5	4	6	8	8	2	0
IEEE Xplore	21	6	5	8	7	6	3	3	5	4	1	2	0
JSTOR	2	1	0	3	3	2	4	8	7	9	3	3	1
Oxford University Press	2	5	3	6	7	12	12	6	9	3	0	1	0
ProQuest	0	1	3	4	1	1	5	8	9	5	9	4	0
Sage Journals Online	2	3	4	2	10	6	7	7	5	2	9	6	0
Science Direct	49	22	9	3	0	4	0	0	0	1	1	1	0
Scopus	8	2	0	0	0	0	0	0	0	0	0	0	0
Springer Link	13	33	28	8	0	1	1	2	0	1	0	0	0
Taylor and Francis	4	13	23	16	12	3	3	0	1	3	1	0	0
Web of Science	6	4	10	13	13	10	4	3	0	2	4	2	0
Wiley Blackwell	1	5	2	14	13	10	6	2	0	2	2	11	0

4.3.3.12 Purpose of using E-resources

This section deals with the purpose of using E-resources among the Assistant Professors, Associate Professors and Professors in Faculty of Arts, Faculty of Science and Faculty of Engineering.

Figure 4.91 represents the purpose of using e-resources by Assistant Professors in Faculty of Arts. The figure shows that most of the respondents strongly agree that the e-resources are used

to know current developments, for research purpose, for writing research paper, for guiding researchers, for reading articles and for teaching/lecture purpose. The maximum respondents agree that the e-resources are accessed for general information, for seminar/conference/workshop, for scientific news and for statistical information. For new standards/patents related news and designing curriculum as the purpose of using e-resources most of the respondents remained neutral.

Figure 4.91: Purpose of using E-resources by Assistant Professors in Faculty of Arts

Figure 4.92 shows the purpose of using E-resources by Associate Professors in Faculty of Arts. The figure shows that most of the respondents strongly agree that the e-resources are used for reading articles and for teaching/lecture purpose whereas they agree that the e-resources are accessed to know current developments, for general information, for research purpose, for writing research paper, for guiding researchers, for seminar/conference/workshop and for statistical information. Most of the respondents occasionally accessed e-resources for scientific news and for new standards/patents related news. The equal numbers of respondents either strongly agree or agree that the e-resources are accessed for teaching/lecture purpose.

Figure 4.92: Purpose of using E-resources by Associate Professors in Faculty of Arts
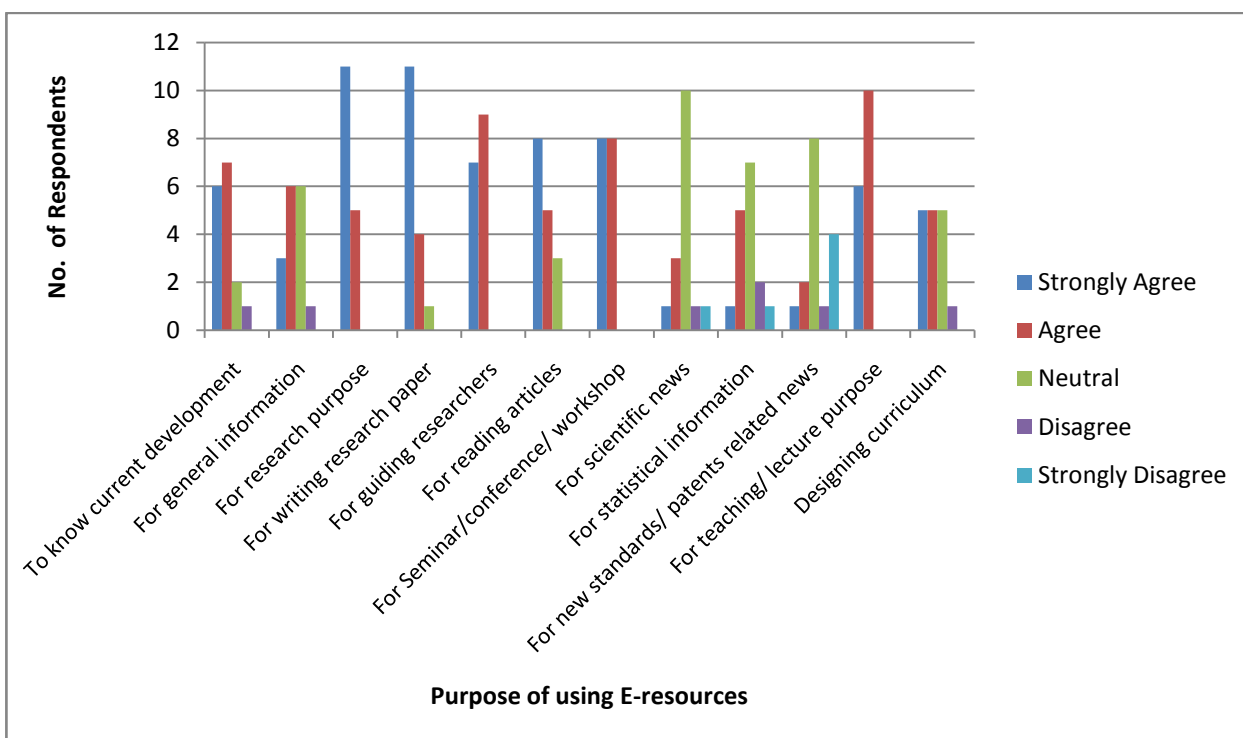
Figure 4.93: Purpose of using E-resources by Professors in Faculty of Arts

Figure 4.93 shows the purpose of using E-resources by Professors in Faculty of Arts. The figure reflects that most of the respondents strongly agree that e-resources are accessed for research

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purpose, for writing research paper and for reading articles whereas they agree that the e-resources are used to know current developments, for guiding researchers and for teaching /lecture purpose. Most of the respondents remain neutral for scientific news, for statistical information and for new standards/patents related news as the purposes of using e-resources. The equal numbers of respondents either agree or remain neutral for general information as the purpose of using e-resources.

Figure 4.91, 4.92 and 4.93 reflects that the Assistant Professors, Associate Professors and Professors in Faculty of Arts either strongly agree or agree that the e-resources are accessed to know current developments, for research purpose, for writing research paper, for guiding researchers, for reading articles, for seminar/conference/workshop and for teaching/lecture purpose. The study shows that awareness about new developments in the subjects under study, the activities related to research and preparation of lectures for teaching are the main purposes of using e-resources among the faculty members of Arts.
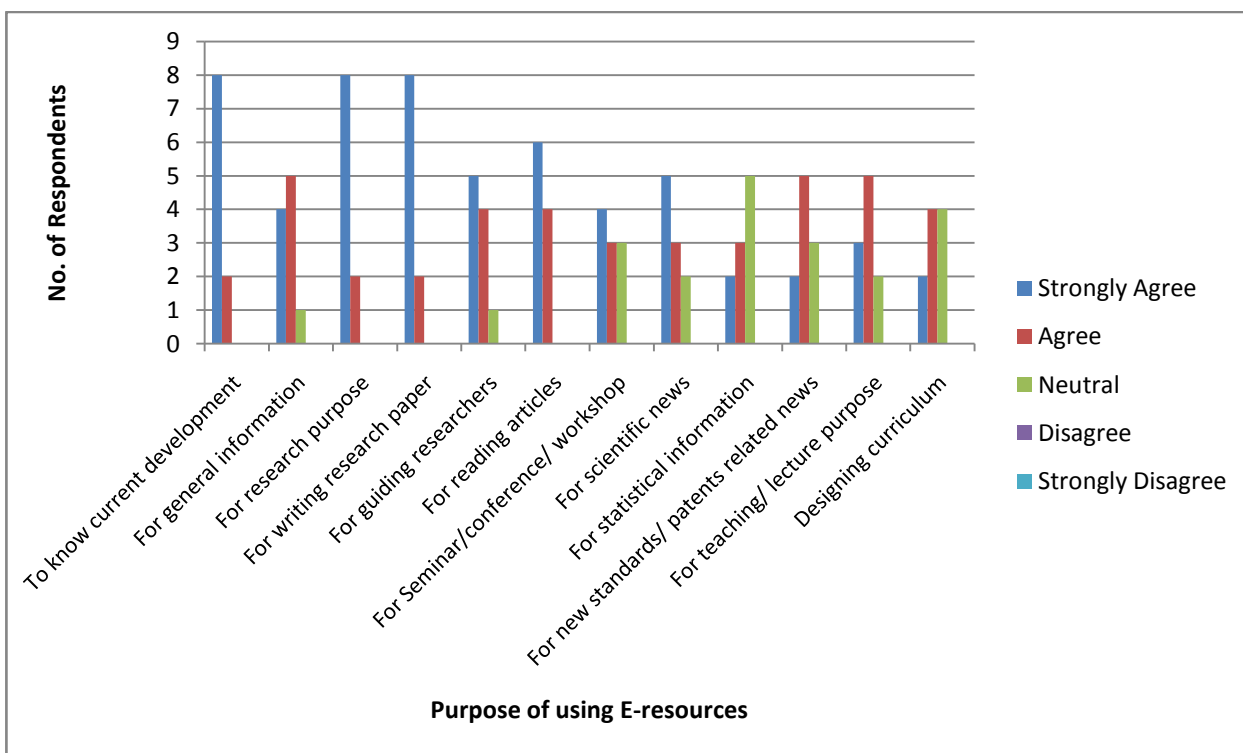
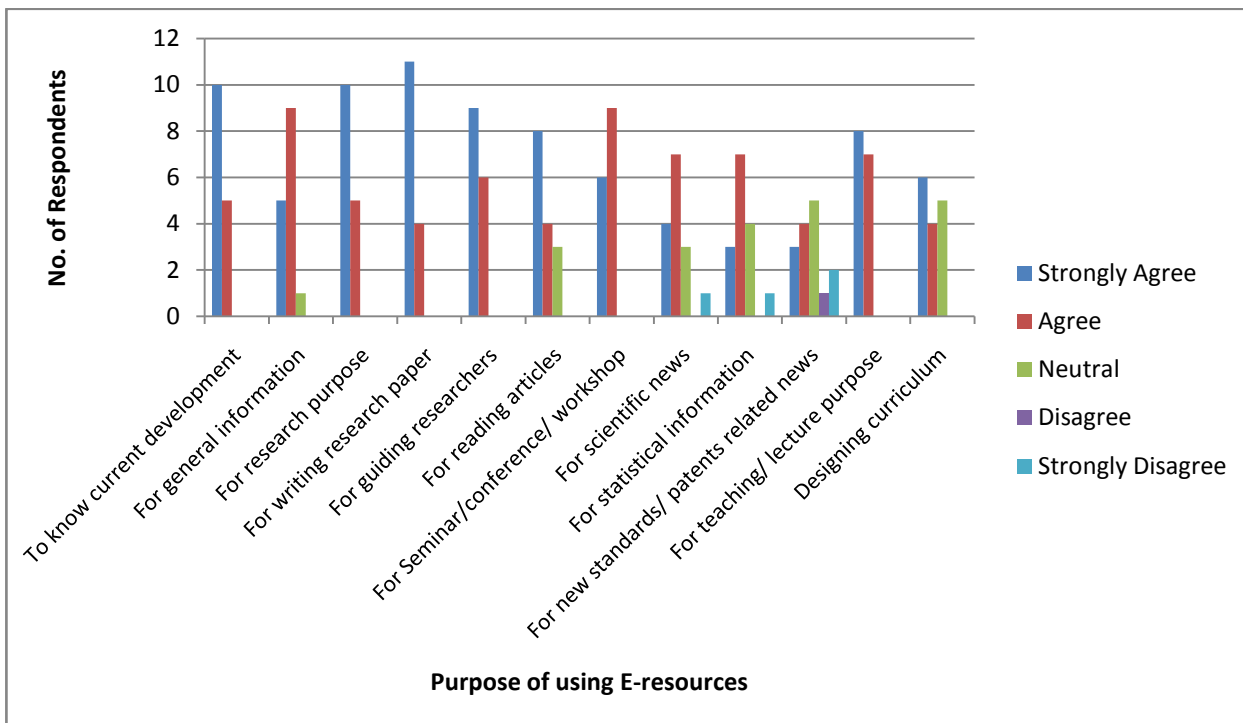
Figure 4.94: Purpose of using E-resources by Assistant Professors in Faculty of Science

Figure 4.94 shows the purpose of using E-resources by Assistant Professors in Faculty of Science. The figure shows that most of the respondents strongly agree that e-resources are accessed to know current developments, for research purpose, for writing research paper, for

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guiding researchers, for reading articles, for seminar/conference/workshop and for scientific news. The maximum numbers of respondents agree that the e-resources are used for new standard/patents related information and for teaching/lecture purpose. Most of the respondents occasionally access that the e-resources are accessed for statistical information. The equal numbers of respondents either agree or remain neutral for designing curriculum as the purpose of accessing e-resources.

Figure 4.95 shows the purpose of using E-resources by Associate Professors in Faculty of Science. The figure reflects that most of the respondents strongly agree that the e-resources are accessed to know current developments, for general information, for research purpose, for writing research paper, for guiding researchers, for reading articles, for scientific news and for teaching/lecture purpose. They agree that the e-resources are used for seminar/conference/workshop, for statistical information and for designing curriculum. For new standards/ patents related news as the purpose of using e-resources, equal numbers of respondents either agree or remain neutral.
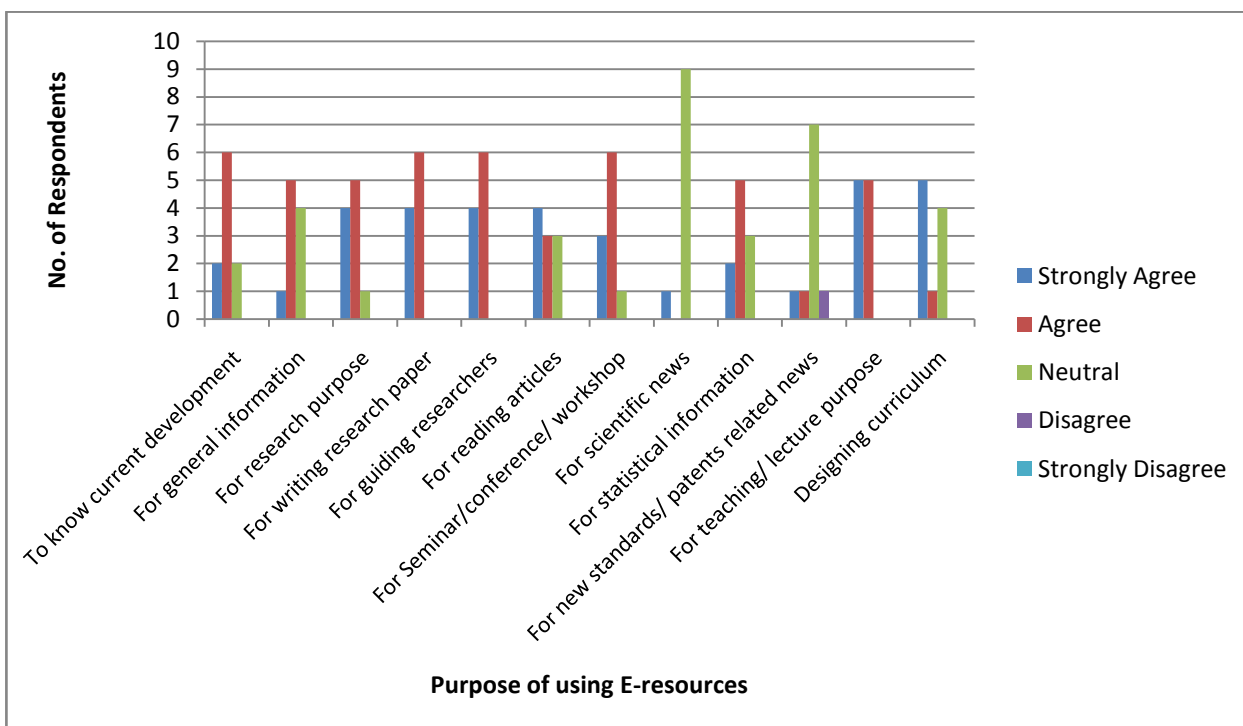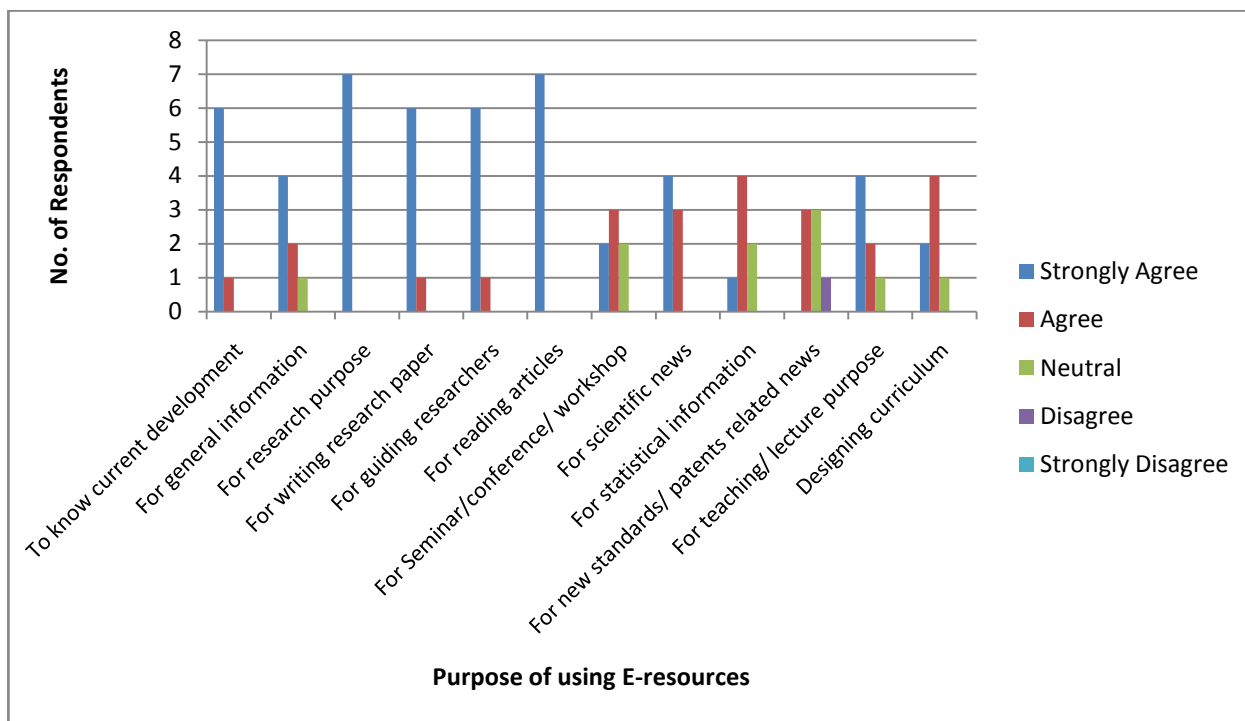

Figure 4.95: Purpose of using E-resources by Associate Professors in Faculty of Science

Figure 4.96 reflects the purpose of using E-resources by Professors in Faculty of Science. The figure shows that most of the respondents strongly agree that the e-resources are used to know current developments, for research purpose, for writing research paper and for guiding

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researchers. The maximum numbers of respondents agree that the e-resources are accessed for general information, for reading articles, for seminar/conference/workshop, for scientific news, for teaching/lecture purpose and for designing curriculum. For statistical information as the purpose of using e-resource most of the respondents remain neutral.
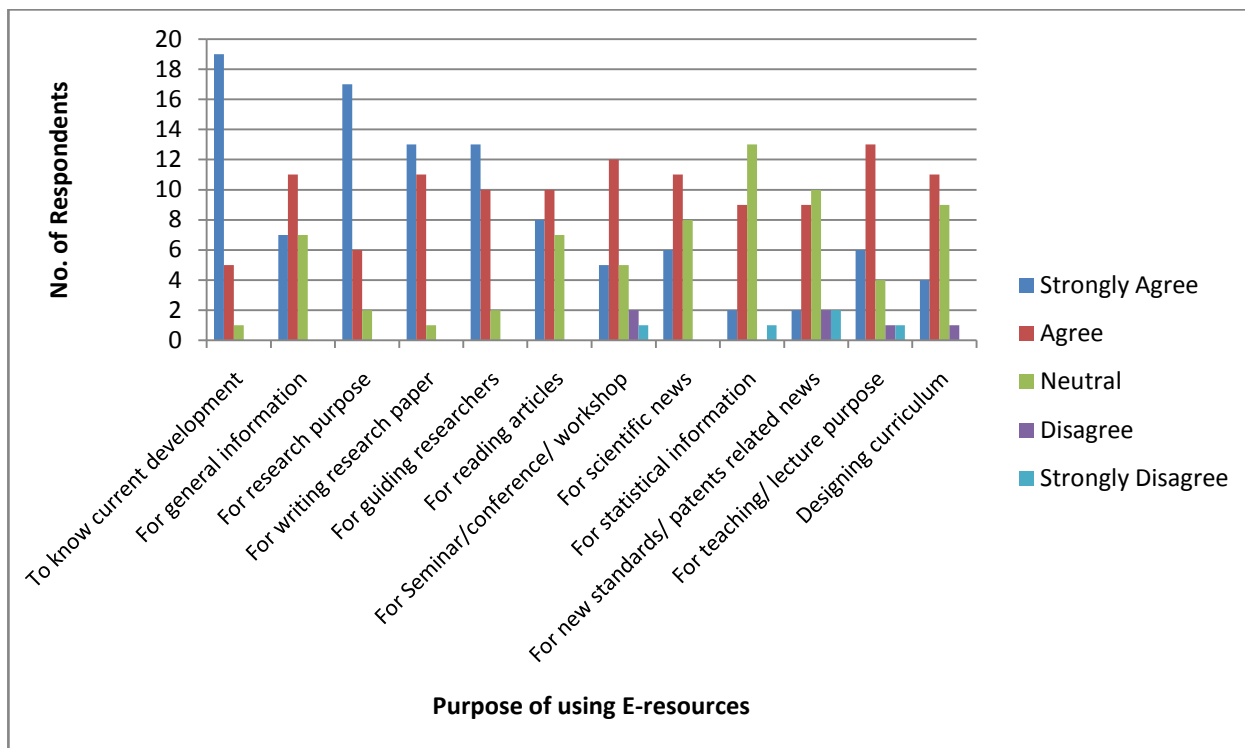
Figure 4.96: Purpose of using E-resources by Professors in Faculty of Science

Figure 4.94, 4.95 and 4.96 depicts that the Assistant Professors, Associate Professor and Professors in Faculty of Science either strongly agree or agree that the respondents access e-resources to know current developments, for general information, for research purpose, for writing research paper, for guiding researchers, for reading articles, for seminar/conference/workshop and for teaching/lecture purpose. The study reflects that all the three categories in Faculty of Science access e-resources for recent developments in their field, for research related activities, for participation in seminar, conference or workshop and for preparing lectures for teaching.

Figure 4.97 reflects the purpose of using E-resources by Assistant Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents strongly agree that the e-resources are accessed to know current developments, for research purpose, for writing

research paper, for guiding researchers, for reading articles, for seminar/conference/workshop, for scientific news and for teaching/ lecture purpose. Most of the respondents agree that the e-resources are used for general information and for statistical information. For new standards/patent related information as the purpose of using e-resources most of the respondents remain neutral. The equal numbers of respondents either agree or remain neutral as the purpose of using e-resources.
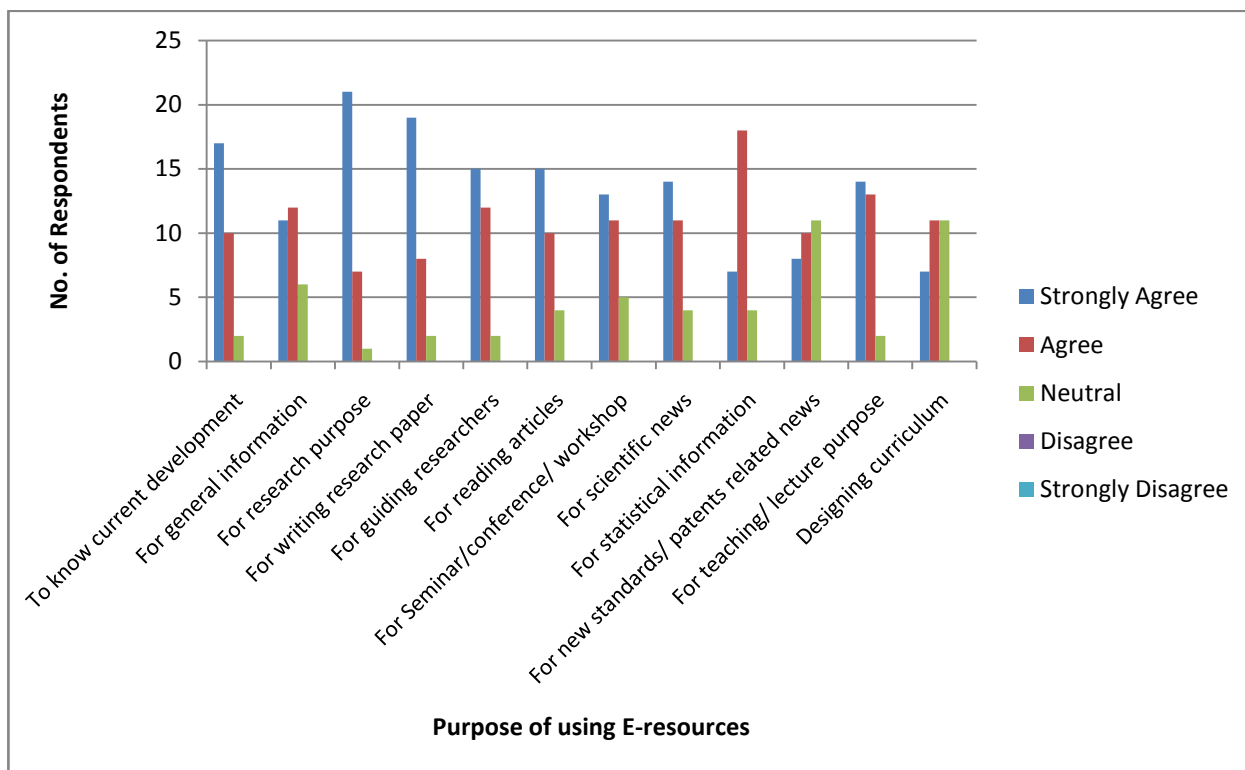
Figure 4.97: Purpose of using E-resources by Assistant Professors in Faculty of Engineering and Technology

Figure 4.98 shows the purpose of using E-resources by Associate Professors in Faculty of Engineering and Technology. The figure denotes that the maximum numbers of respondents strongly agree that the e-resources are used to know current development, for general information, for research purpose, for writing research paper, for guiding researchers, for reading articles, for seminar/conference/workshop, for scientific news and for teaching/lecture purpose. Most of the respondents agree that the e-resources are accessed for statistical information and for new standards/patent related information. The equal numbers of respondents either strongly agree or remained neutral on designing curriculum as the purpose of using e-resources.

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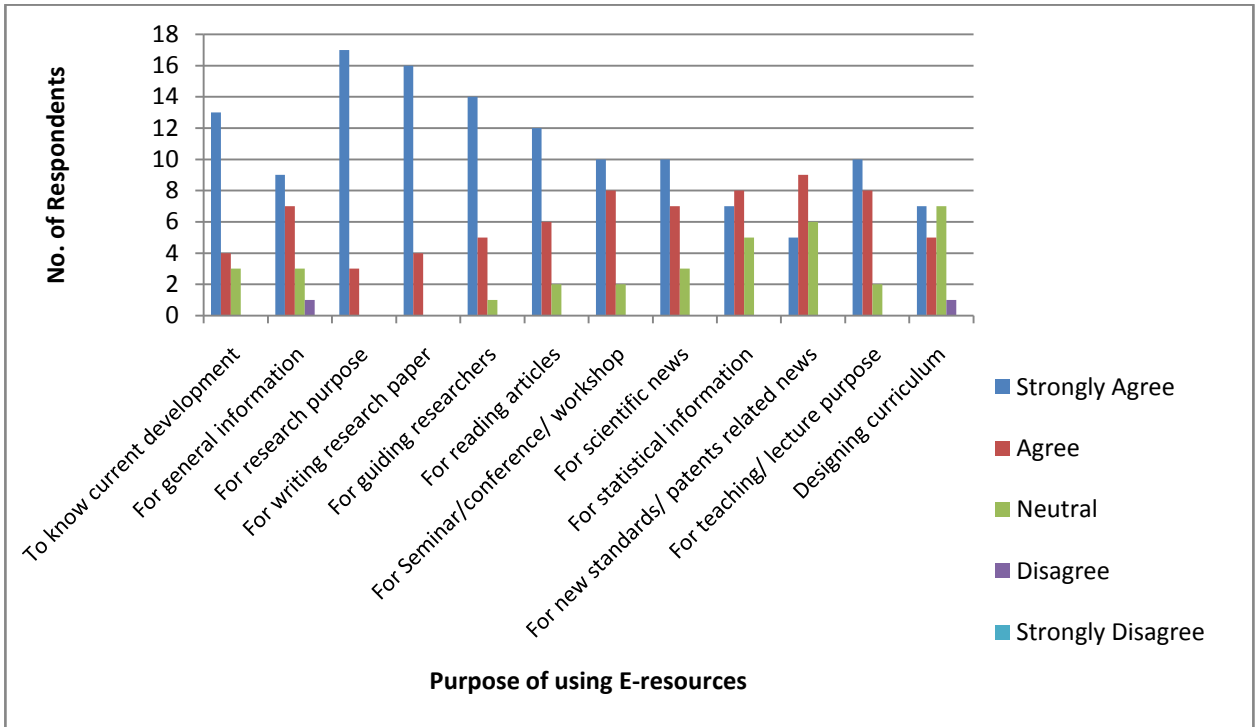
Figure 4.98: Purpose of using E-resources by Associate Professors in Faculty of Engineering and Technology
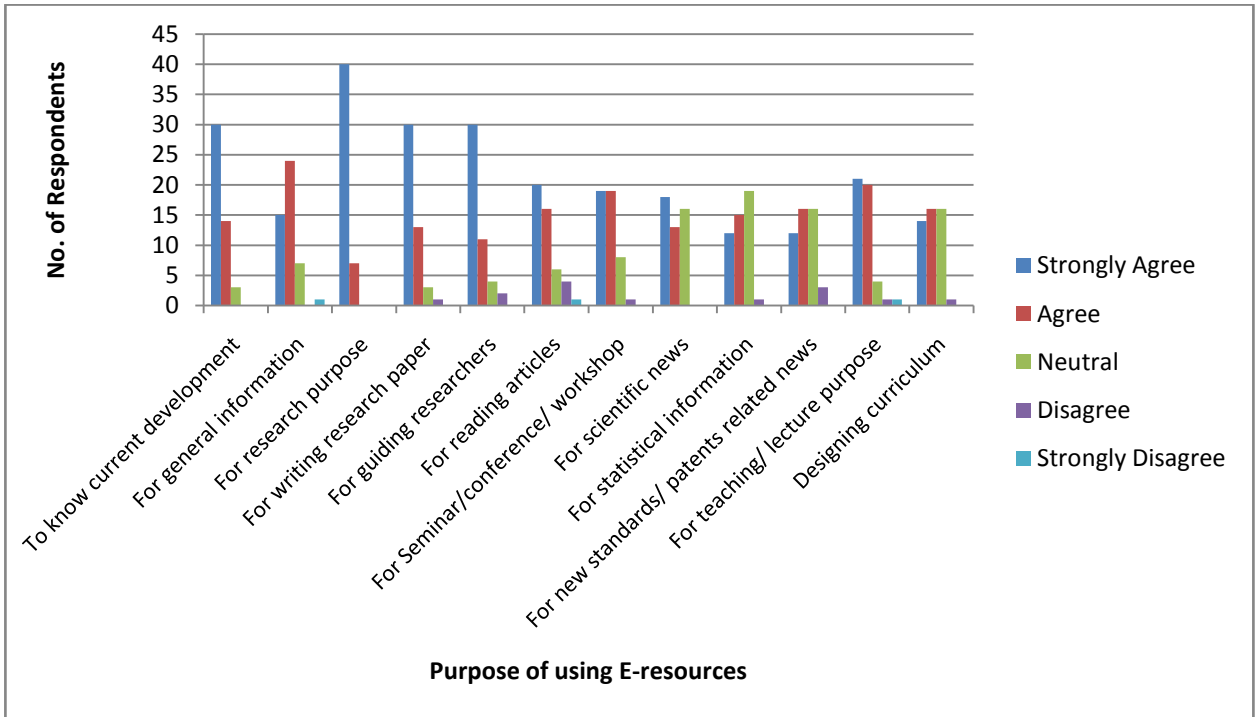
Figure 4.99: Purpose of using E-resources by Professors in Faculty of Engineering and Technology

Figure 4.99 represents the purpose of using E-resources by Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents strongly agree that the e-resources are accessed to know current developments, for research purpose, for writing research paper, for guiding researchers, for reading articles, for scientific news and for teaching/lecture purpose. Most of the respondents remain neutral for statistical information as the purpose of using e-resources. The equal numbers of respondents either strongly agree or agree that the e-resources are accessed for seminar/conference/workshop. The equal numbers of respondents either agree or remain neutral for new standards/patents related information and for designing curriculum as the purpose of using e-resources.

Figure 4.97, 4.98 and 4.99 represents that the Assistant Professors, Associate Professors and Professors in Faculty of Engineering and Technology either strongly agree or agree that the e-resources are accessed to know current developments, for general information, for research purpose, for writing research paper, for guiding researchers, for reading articles, for seminar/conference/workshop, for scientific news and for teaching/lecture purpose. It is evident from the study that all the three categories in Faculty of Engineering and Technology access e resources to know the recent developments in the field of Engineering and Technology, to get information required in everyday life, for research related activities, for preparing lectures and provide guidance to researchers.

4.3.3.13 Activities after finding E-resources

This parameter deals with the activities done after finding the e-resources by Assistant Professors, Associate Professors and Professors in Faculty of Arts, Science and Engineering and Technology. The activities include bookmarking, save and download, save the document by copy paste, email the document take print out, purchase, read the document online and save the URL.

Figure 4.100 shows the activities after finding E-resources by Assistant Professors in Faculty of Arts. The figure shows that maximum number of the respondents most frequently save the e-resource by downloading, email it or read it online. They frequently bookmark the e- resource, save it by copy paste and save the URL. Most of the respondents occasionally take print out of the e-resource or purchase it (if needed).
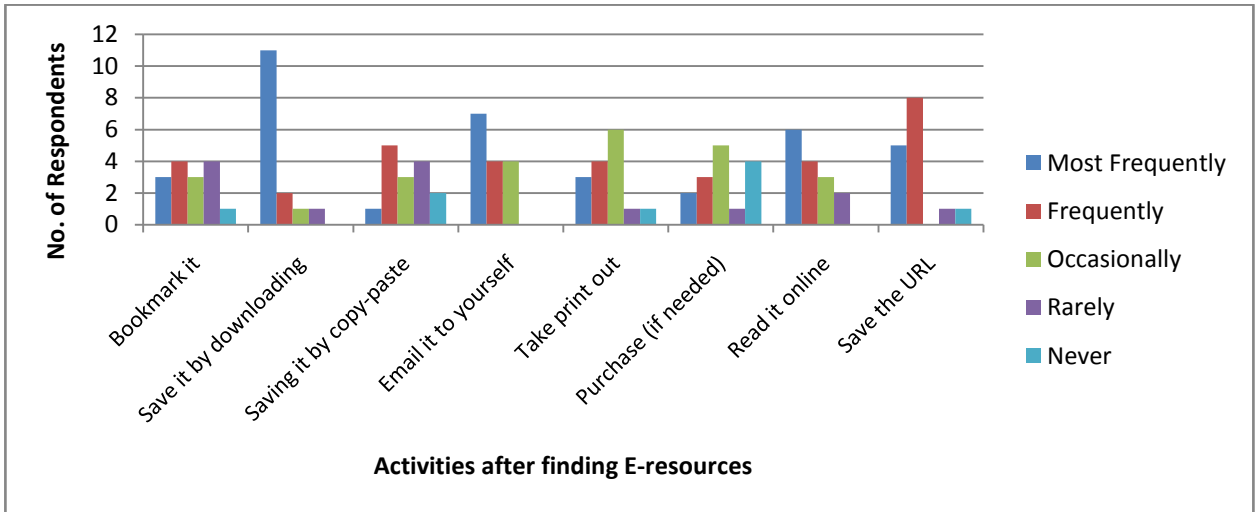
Figure 4.100: Activities after finding E-resources by Assistant Professors in Faculty of Arts
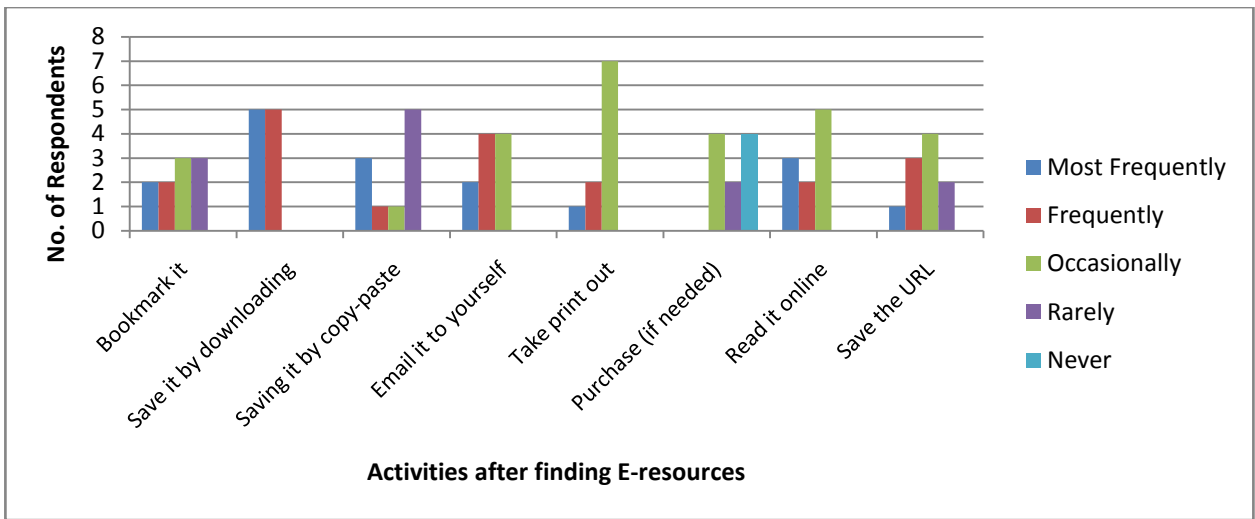
Figure 4.101: Activities after finding E-resources by Associate Professors in Faculty of Arts

Figure 4.101 shows the activities after finding E-resources by Associate Professors in Faculty of Arts. The figure depicts the equal numbers of respondents either most frequently or frequently save the e-resource by downloading it. The equal numbers of respondents either frequently or occasionally e-mail the e-resource. Most of the respondents occasionally take print out, read it online and save the URL. The equal numbers of respondents either occasionally or rarely bookmark it. Most of the respondents rarely save the e-resource by copy-paste.

Figure 4.102 shows the activities after finding E-resources by Professors in Faculty of Arts. The figure denotes that most of the respondents most frequently save the e-resources by downloading it. They frequently read the e-resources online and email it. Most of the respondents occasionally

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bookmark it, take print out or save the URL whereas they rarely save the e-resource by copy-paste or purchase it (if needed).
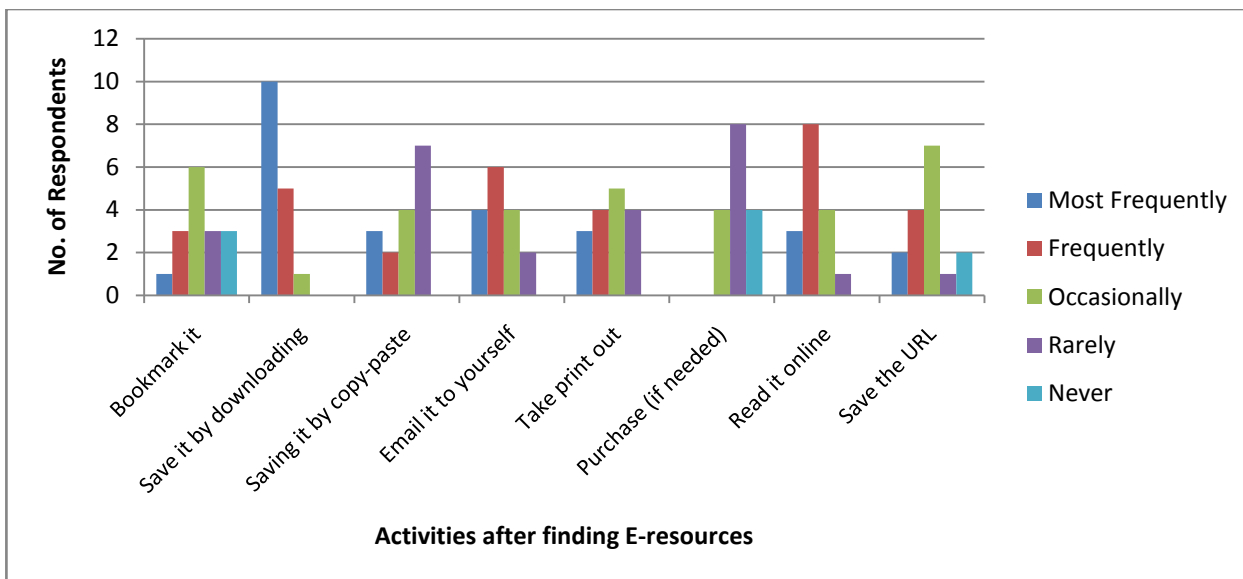
Figure 4.102: Activities after finding E-resources by Professors in Faculty of Arts

Figure 4.100, 4.101 and 4.102 reflects that the most frequently used activity among all the three categories of respondents in Faculty of Arts is to save the e-resource by downloading. The Assistant Professors, Associate Professors and Professors in Faculty of Arts most frequently or frequently e-mail the e-resources to themselves. The three categories of respondents in Faculty of Arts occasionally take print out of the e-resource. This reflects that all the respondents preserve the e-resources in soft copy either by downloading or in e-mail and take the hard copy in the form of prints out as and when required.

Figure 4.103 shows the activities after finding E-resources by Assistant Professors in Faculty of Science. The figure depicts that most of the respondents most frequently save the e-resources by downloading. They frequently save the e-resource by copy-paste, read it online or save the URL. Most of the respondents bookmark the e-resources occasionally whereas they never purchase it. The equal numbers of respondents frequently, occasionally or rarely e-mail the e-resources to themselves.

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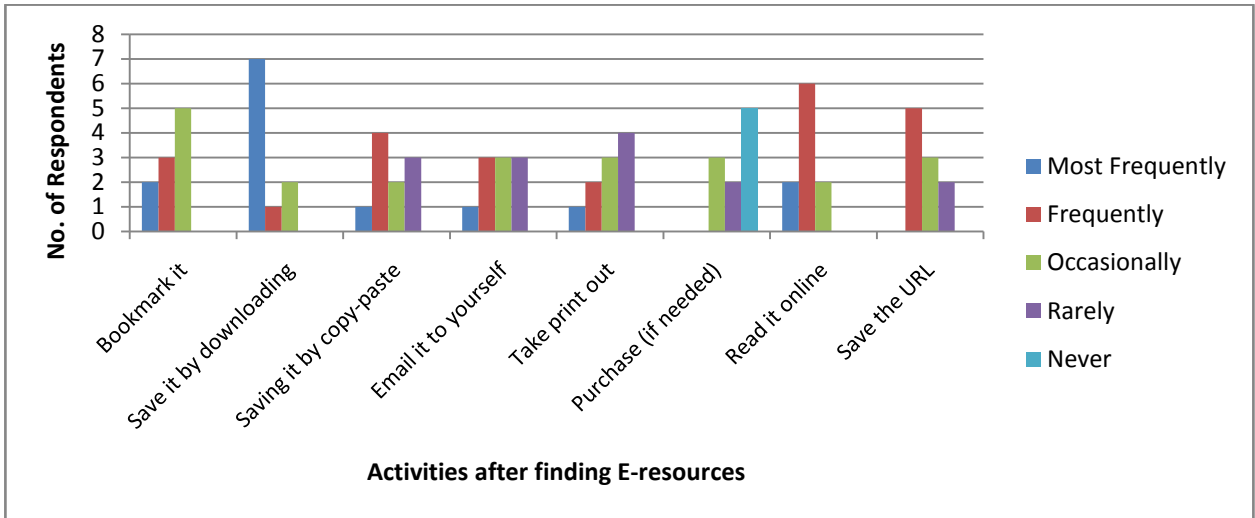
Figure 4.103: Activities after finding E-resources by Assistant Professors in Faculty of Science

Figure 4.104 shows the activities after finding E-resources by Associate Professors in Faculty of Science. The figure reflects that most of the respondents most frequently save the e-resource by downloading it or read it online. They frequently bookmark the e-resource and save it by copy-paste. Most of the respondents occasionally e-mail the e-resource to themselves and take print out of it. They rarely save the URL but never purchase the e-resource.
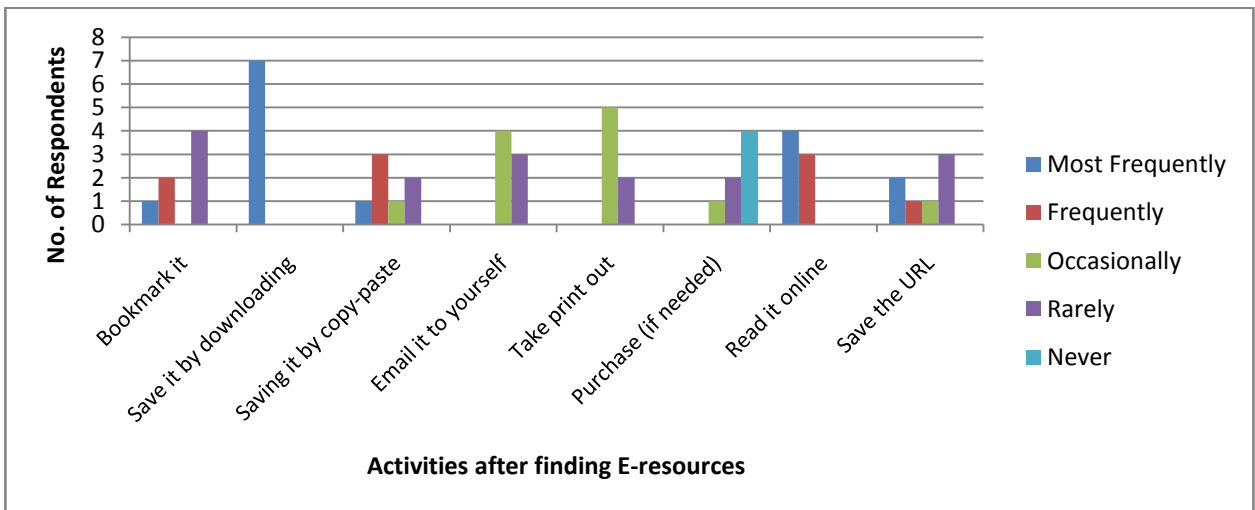
Figure 4.104: Activities after finding E-resources by Associate Professors in Faculty of Science

Figure 4.105 reflects the activities after finding E-resources by Professors in Faculty of Science. The figure represents that the most frequently used activity is to save the e-resources by downloading by most of the respondents. The frequently used activity is to save the URL. Most of the respondents occasionally bookmark it, email it to themselves and take print out after

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finding the e-resources. The equal numbers of respondents either frequently or occasionally read it online. The rarely used activities by most of the respondents are saving the e-resources by copy-paste or purchase it (if needed)
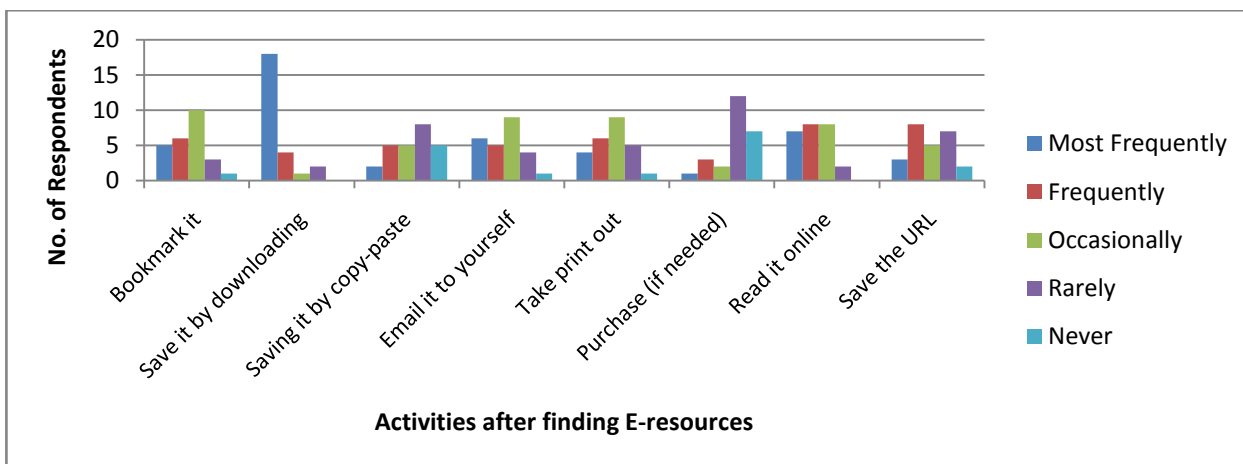
Figure 4.105: Activities after finding E-resources by Professors in Faculty of Science

Figure 4.103, 4.104 and 4.105 depicts that the most frequently used activity among the Assistant Professors, Associate Professors and Professors in Faculty of Science is to save the e-resources by downloading. Other activities vary in frequency among the three categories of respondents in Faculty of Science. The common activity reflects that all the three categories of respondents prefer to preserve the e-resources in soft copy.
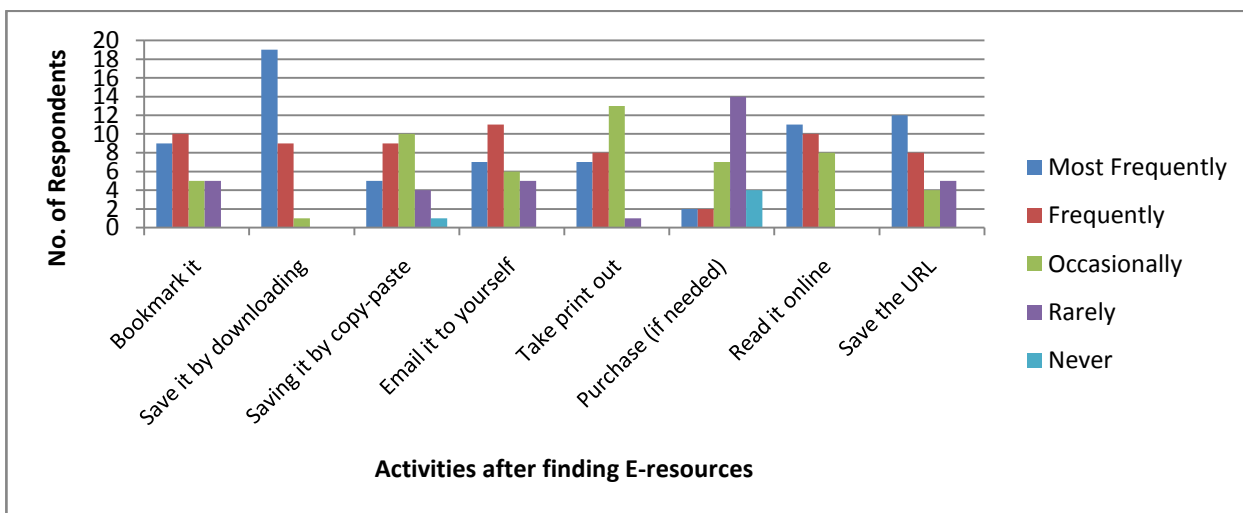
Figure 4.106: Activities after finding E-resources by Assistant Professors in Faculty of Engineering and Technology

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Figure 4.106 shows the activities after finding E-resources by Assistant Professors in Faculty of Engineering and Technology. It is evident from the figure that most frequently used activities among most the respondents are to save the e-resources by downloading, read it online and save the URL. Most of the respondents frequently bookmark the e-resources or email it to themselves. They occasionally save the e-resources by copy-paste or take print out whereas rarely purchase the e-resource.

Figure 4.107 shows the activities after finding E-resources by Associate Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents most frequently save the e-resources by downloading and save it by copy paste also. They frequently email the e-resources to themselves and save the URL. In case of bookmark the e-resources most of the respondents occasionally do it. Most of the respondents rarely take print out and rarely purchase the e-resources if needed.
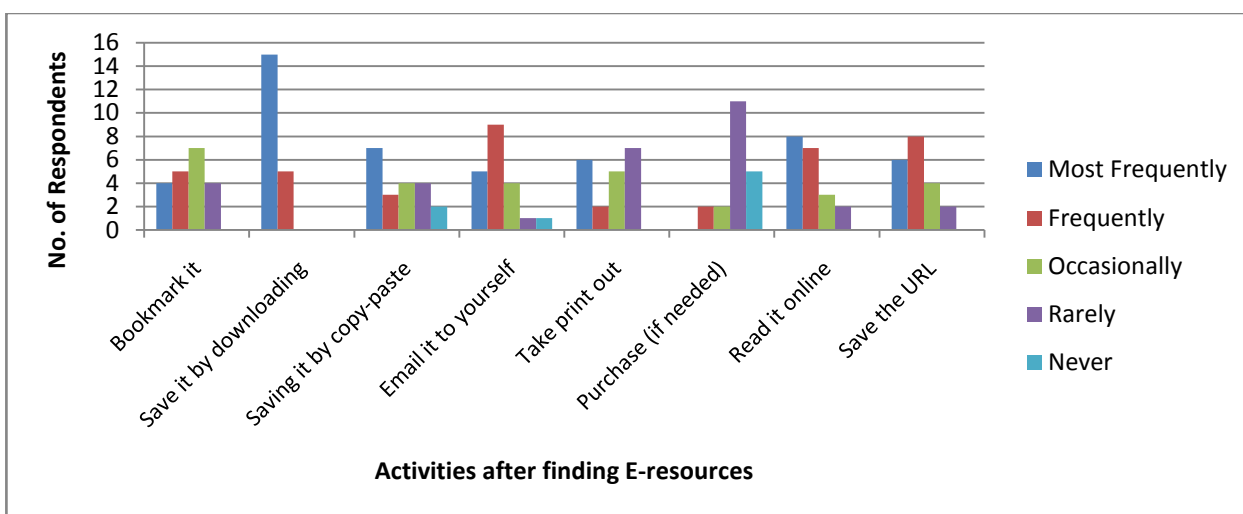
Figure 4.107: Activities after finding E-resources by Associate Professors in Faculty of Engineering and Technology

Figure 4.108 refers to the activities after finding E-resources by Professors in Faculty of Engineering and Technology. It is evident from the figure that the most frequently used activity by most of the respondents is to save the e-resources by downloading. Most of the respondents frequently email the e-resources to themselves and frequently read it online. The occasionally used activities by most of the respondents are bookmark the e-resources, take print out and save the URL. Most of the respondents rarely purchase the e-resource if needed.
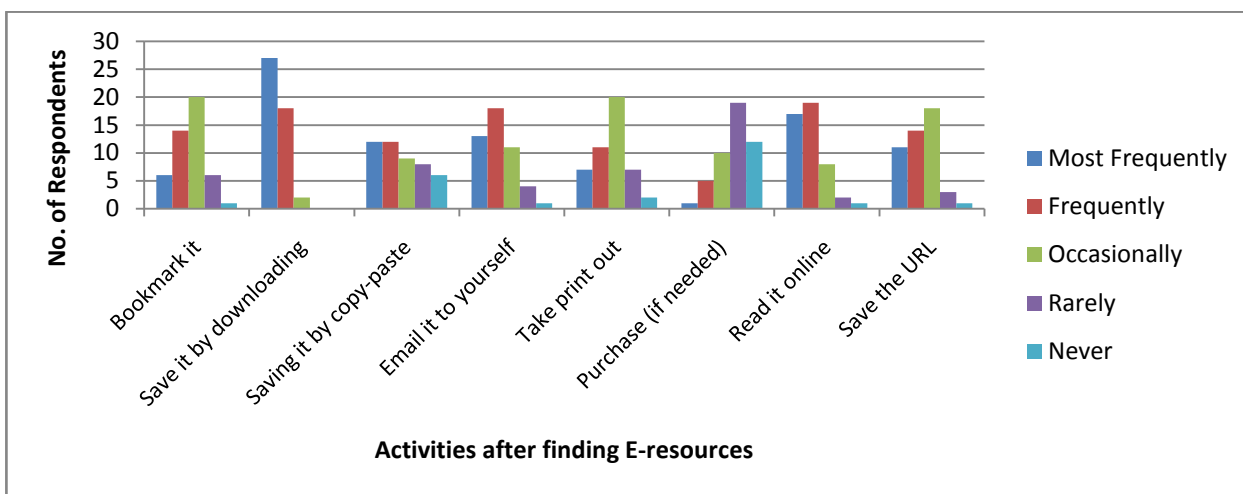
Figure 4.108: Activities after finding E-resources by Professors in Faculty of Engineering and Technology

Figure 4.106, 4.107 and 4.108 reflects that the most frequently used activity among the Assistant Professors, Associate Professors and Professors in Faculty of Engineering and Technology is to save the e-resources by downloading. The common frequently used activity among the three categories in Faculty of Engineering and Technology is to email the e-resources to themselves. They rarely purchase the e-resources if needed. From the figures it can be concluded that all categories of respondents want to preserve the e-resources used in soft copy by downloading and e-mail those documents.

4.3.3.14 Advantages of using E-resources

This section deals with advantages of using e-resources among the Assistant Professors, Associate Professors and Professors in Faculty of Arts, Faculty of Science and Faculty of Engineering.

Figure 4.109 shows the advantages of using E-resources by Assistant Professors in Faculty of Arts. The figure reflects that maximum numbers of respondents strongly agree that advantages of using e-resources are timesaving/24*7 accessibility, space saving, easy to handle easy to access, multiple access, file sharing, portability and up to date. Cost-saving agreed by most of the respondents.
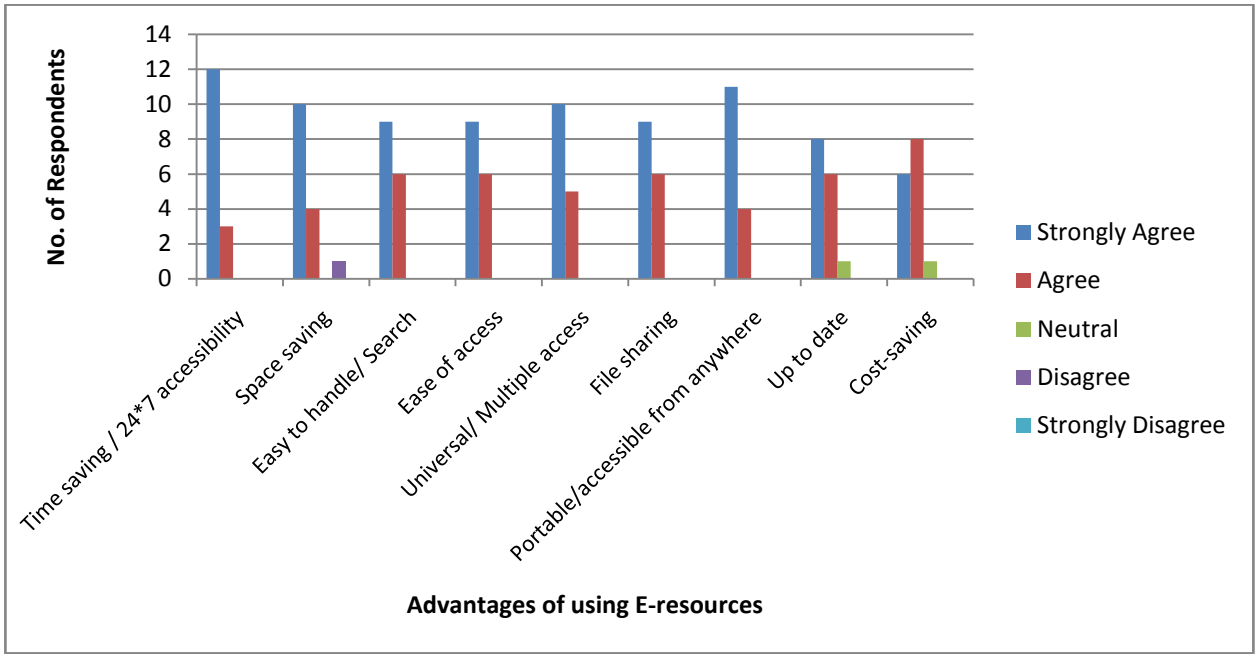
Figure 4.109: Advantages of using E-resources by Assistant Professors in Faculty of Arts
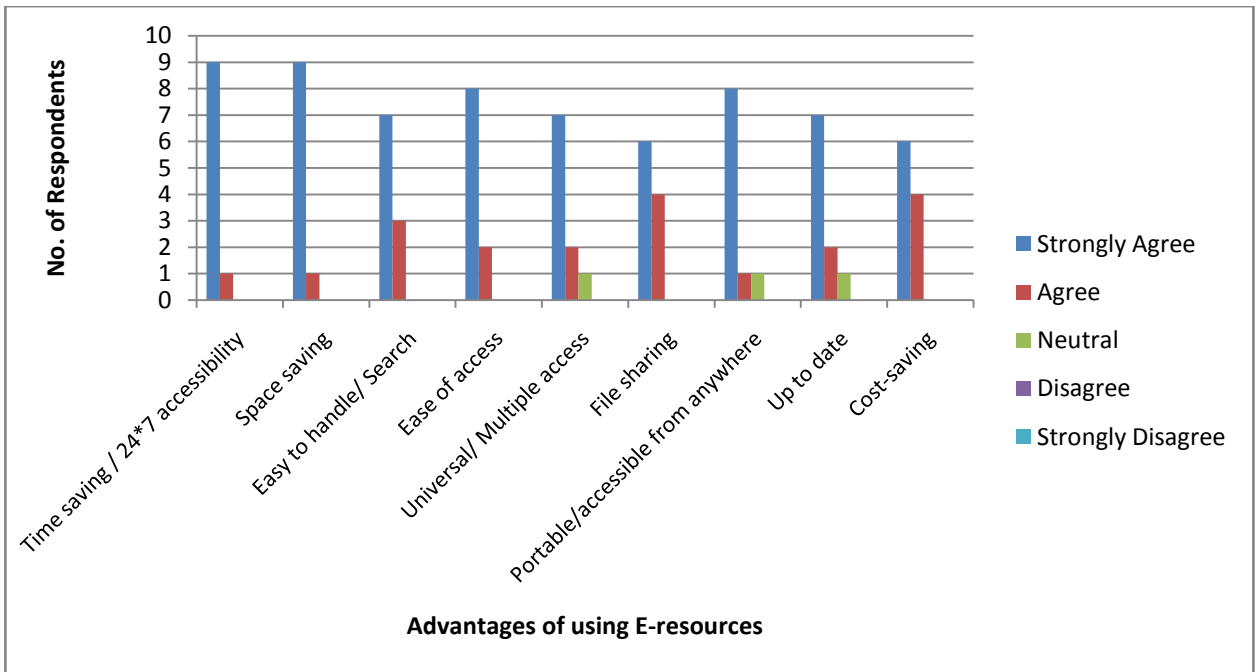
Figure 4.110: Advantages of using E-resources by Associate Professors in Faculty of Arts

Figure 4.110 represents the advantages of using E-resources by Associate Professors in Faculty of Arts. The figure reflects that maximum number of respondents strongly agree that using e-resources are time saving /24*7 accessibility and space saving. Other advantages of using e-resources like easy to handle, easy to access, multiple access, file sharing, portability, up to date and cost-saving are also strongly agreed by most of the respondents.

Figure 4.111 depicts the advantages of using E-resources by Professors in Faculty Arts. The figure shows that maximum number of respondents strongly agrees that using e-resources is space saving. Other advantages of using e-resources like time saving /24*7 accessibility, easy to handle easy to access, multiple access, file sharing, portability, up to date and cost-saving are also strongly agreed by most of the respondents.
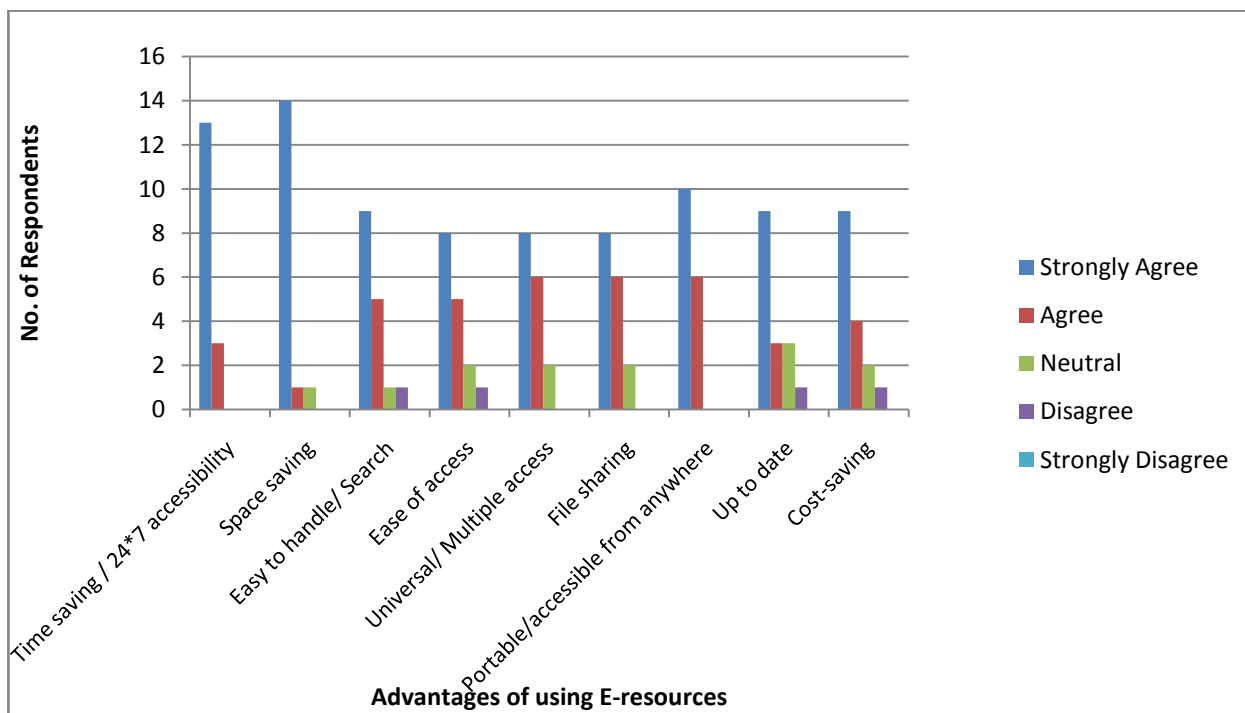
Figure 4.111: Advantages of using E-resources by Professors in Faculty of Arts

Figure 4.109, 4.110 and 4.111 reflects that all the advantages of using e-resources are strongly agreed by most of the respondents in Faculty of Arts. The highest number of respondents among Assistant Professors and Associate Professors strongly agreed on time saving/ 24*7 accessibility but Professors strongly agreed on space saving. Thus time saving and space saving are the most important advantages in using e-resources by the faculty members of Arts. Other advantages are also strongly agreed or agreed by all the three categories of Respondents of Faculty of Arts.

Figure 4.112 shows the advantages of using E-resources by Assistant Professors in Faculty of Science. The figure denotes universal/multiple access is strongly agreed as the advantage of using e-resources by the maximum number of respondents. Other advantages of using e-resources like time saving /24*7 accessibility, space saving, easy to handle easy to access, multiple access, file sharing, portability and cost saving are also strongly agreed by most of the respondents. Up to date is the advantage of using e-resources agreed by most of the respondents.

Figure 4.112: Advantages of using E-resources by Assistant Professors in Faculty of Science

Figure 4.113 shows the advantages of using E-resources by Associate Professors in Faculty of Science. The figure shows that time saving/24*7 accessibility and space saving are the two strongly agreed advantages of using e-resources by maximum number of respondents. Other advantages of using e-resources like easy to handle, easy to access, multiple access, file sharing, portability, up to date and cost-saving are also strongly agreed by most of the respondents.

Figure 4.113: Advantages of using E-resources by Associate Professors in Faculty of Science

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Figure 4.114 shows the advantages of using E-resources by Professors in Faculty of Science. The figure describes that maximum number of respondents strongly agree that time saving/24*7 accessibility and space saving are the advantages of using e-resources. Other advantages of using e-resources like easy to handle, easy to access, multiple access, file sharing, portability, up to date and cost-saving are also strongly agreed by most of the respondents.
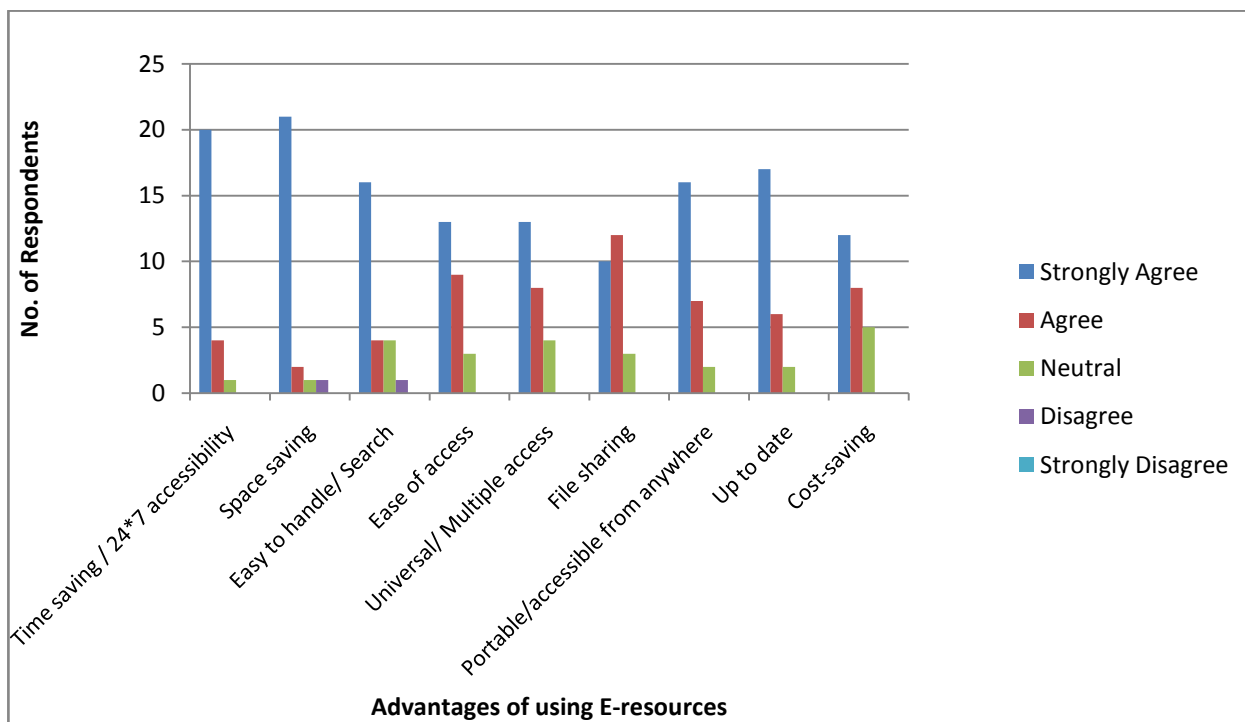
Figure 4.114: Advantages of using E-resources by Professors in Faculty of Science

Figure 4.112, 4.113 and 4.114 reflects that universal/multiple access is the advantage of using e-resources by maximum number of Assistant Professors in Faculty of Science whereas time saving/24*7 accessibility and space saving are the two advantages supported by maximum numbers of Associate Professors and Professors in Faculty of Science.

Figure 4.115 denotes the advantages of using E-resources by Assistant Professors in Faculty of Engineering and Technology. The figure shows that ease of access is the strongly agreed advantage of using e-resources by maximum number of respondents. Other advantages like timesaving/24*7 accessibility, space saving, easy to handle, universal/multiple access, file sharing, portable/accessible from anywhere, up to date and cost-saving are also strongly agreed by most of the respondents.
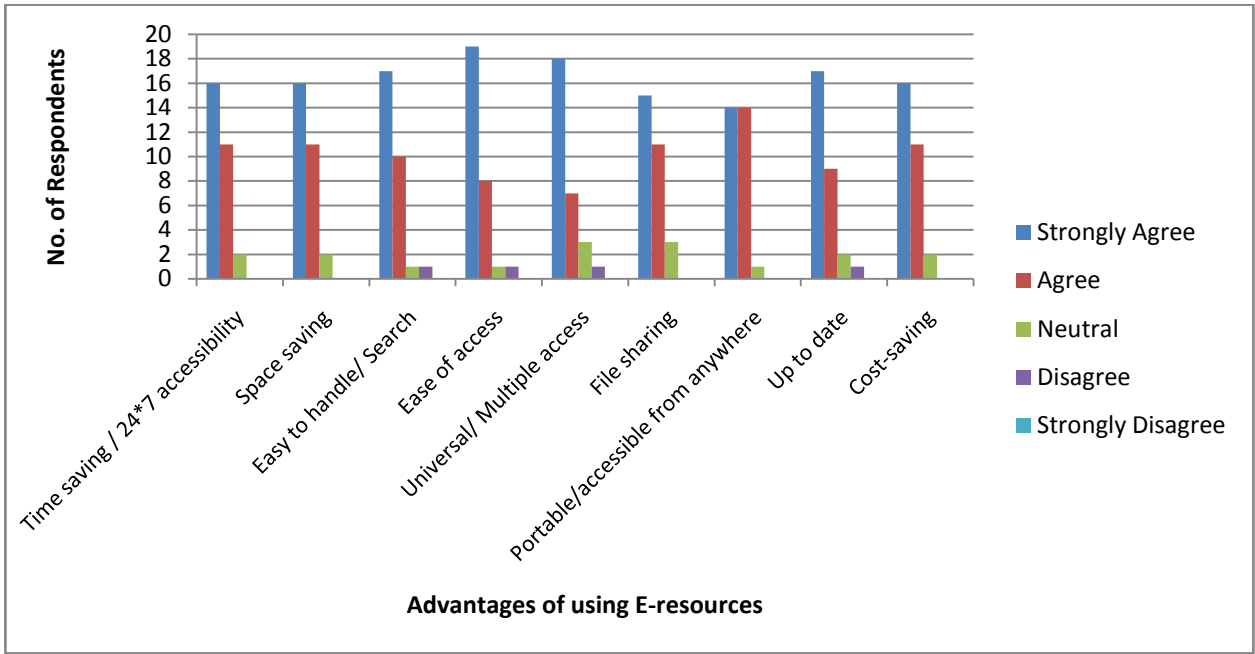
Figure 4.115: Advantages of using E-resources by Assistant Professors in Faculty of Engineering and Technology
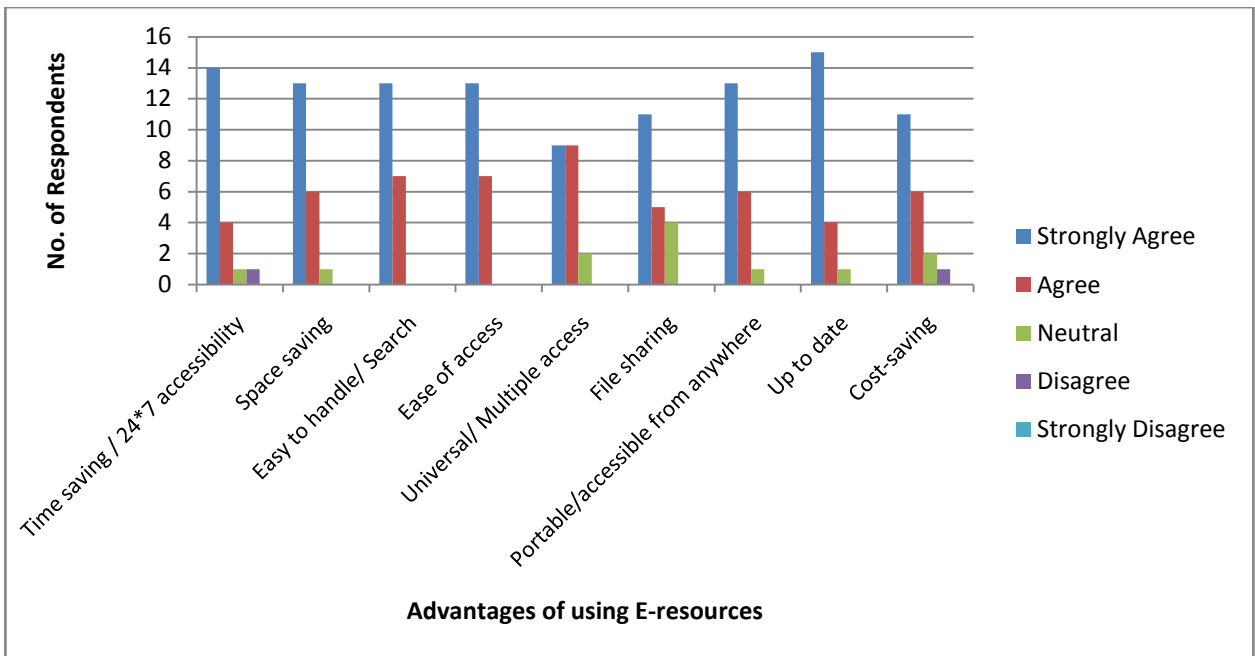
Figure 4.116: Advantages of using E-resources by Associate Professors in Faculty of Engineering and Technology

Figure 4.116 shows the advantages of using E-resources by Associate Professors in Faculty of Engineering and Technology. The figure reflects that up to date is strongly agreed as advantage of using e-resource by maximum number of respondents. Other advantages like timesaving/24*7

accessibility, space saving, easy to handle, ease of access, universal/multiple access, file sharing, portable/accessible from anywhere and cost-saving are also strongly agreed by most of the respondents.

Figure 4.117 shows the advantages of using E-resources by Professors in Faculty of Engineering and Technology. The figure represents that time saving/24*7 accessibility is strongly agreed as the advantage of using e-resources by maximum number of respondents. Other advantages like space saving, easy to handle, ease of access, universal/multiple access, file sharing, portable/accessible from anywhere, up to date and cost-saving are also strongly agreed by most of the respondents.
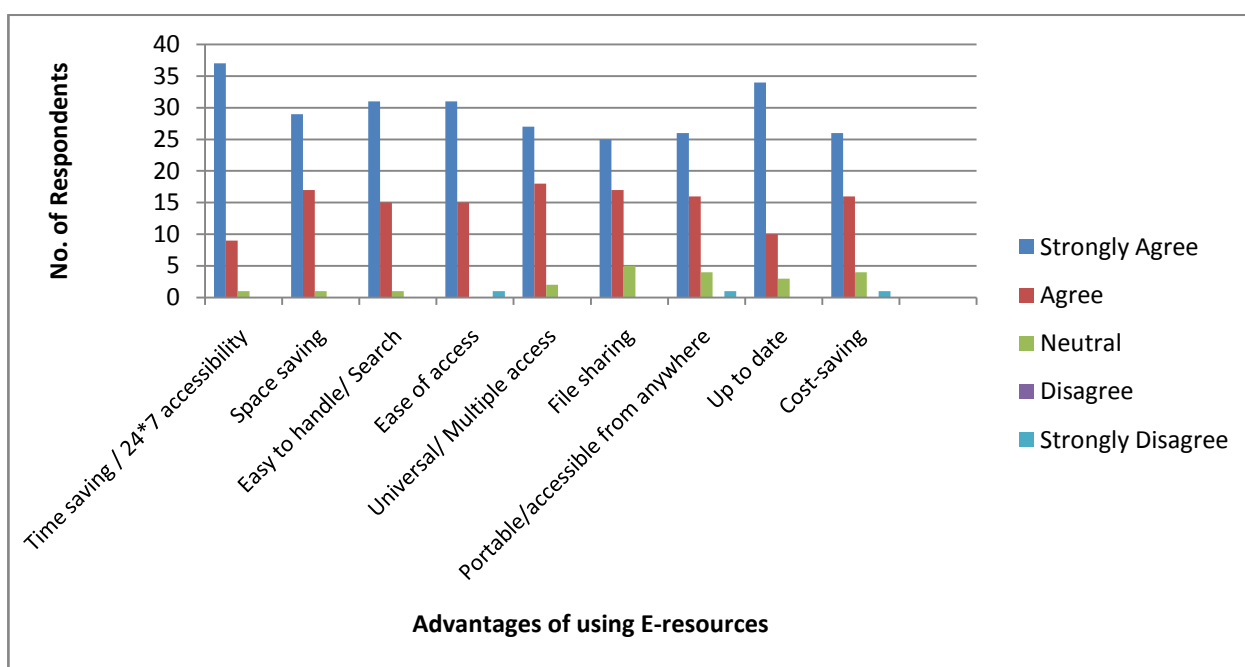
Figure 4.117: Advantages of using E-resources by Professors in Faculty of Engineering and Technology

Figure 4.115, 4.116 and 4.117 reflects that the Assistant Professors prefer ease of access, the Associate Professors prefer up to date and the Professors prefer timesaving/24*7 accessibility as the main advantages of using e-resources in Faculty of Engineering and Technology. These advantages denote that the right information for the right user in right time can be achieved. Ease of access also refers that the respondents prefers the technological advancement in the use of e-resources.

4.3.3.15 Problems of using E-resources

Figure 4.118 shows the problems of using E-resources by Assistant Professors in Faculty of Arts. The figure reflects that subscription based access is the problem of using e-resources agreed by maximum number of respondents. Slow download, information overload, problems to access back issues, copyright issue, quality or authenticity issue, diverse format, requires remote access limited access to computers and discomfort in online reading are some other problems of using e-resources agreed by most of the respondents. Most of the respondents remain neutral to the problems mentioned that e-resources can be lost/ have volatile access, have internet issue/slow download and lack of IT knowledge/training. Perhaps the neutral reflects that the respondents are not sure whether they are problems of e-resources or not.
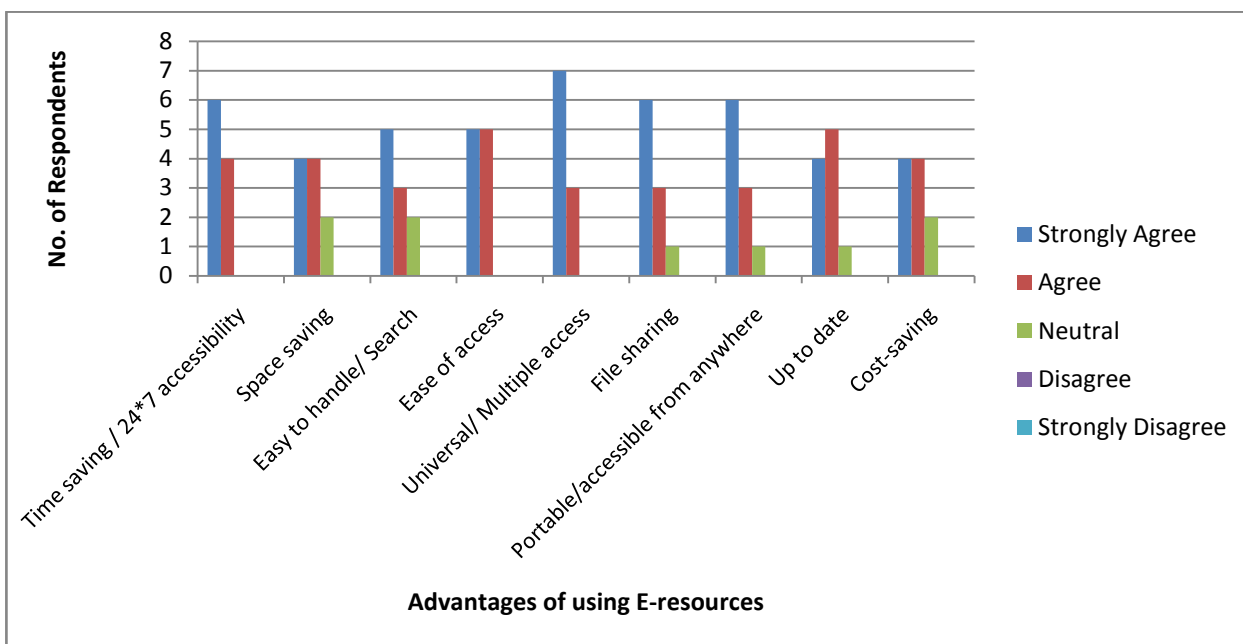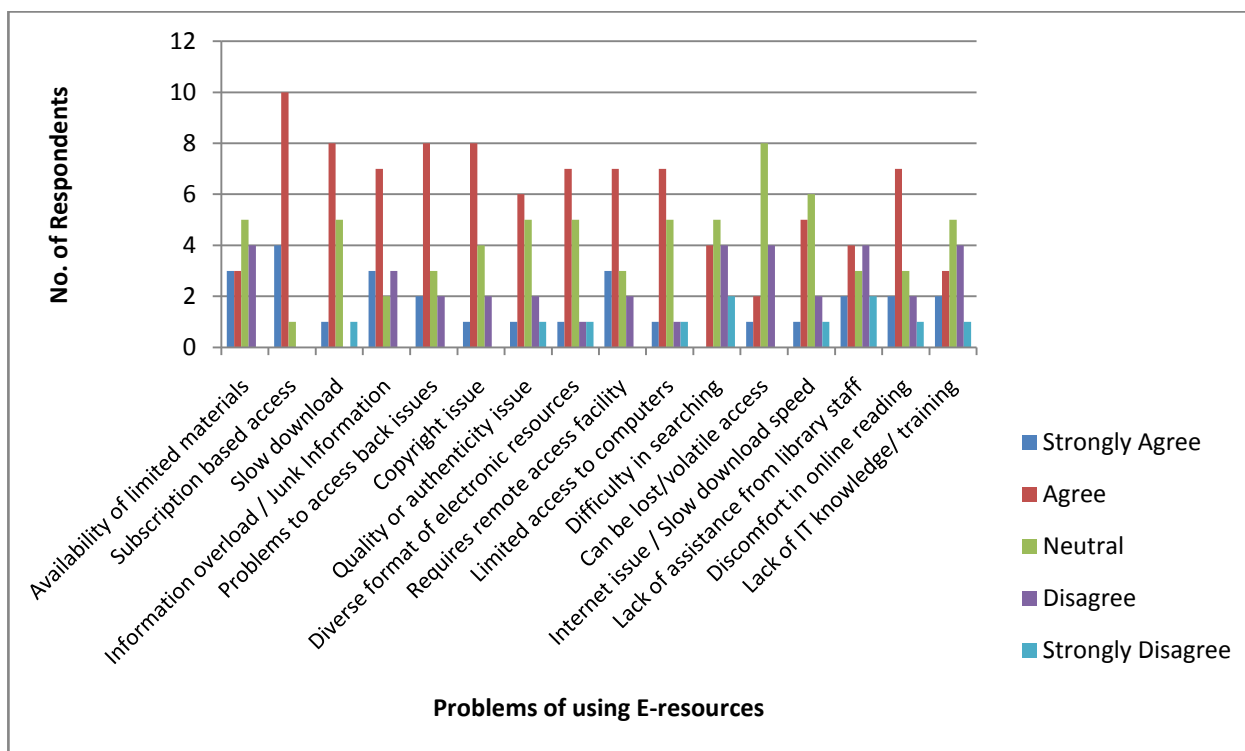

Figure 4.118: Problems of using E-resources by Assistant Professors in Faculty of Arts

Figure 4.119 shows the problems of using E-resources by Associate Professors in Faculty of Arts. The figure reflects that subscription based access is the problem of using e-resources agreed by maximum number of respondents. Availability of limited materials, problems to access back issues, discomfort in online reading are some other problems of using e-resources agreed by most of the respondents. Most of the respondents remain neutral in quality or authenticity issue, difficulty in searching can be lost/volatile access, internet issue/slow

download, lack of assistance from library and lack of IT knowledge as the problems of e-resources.
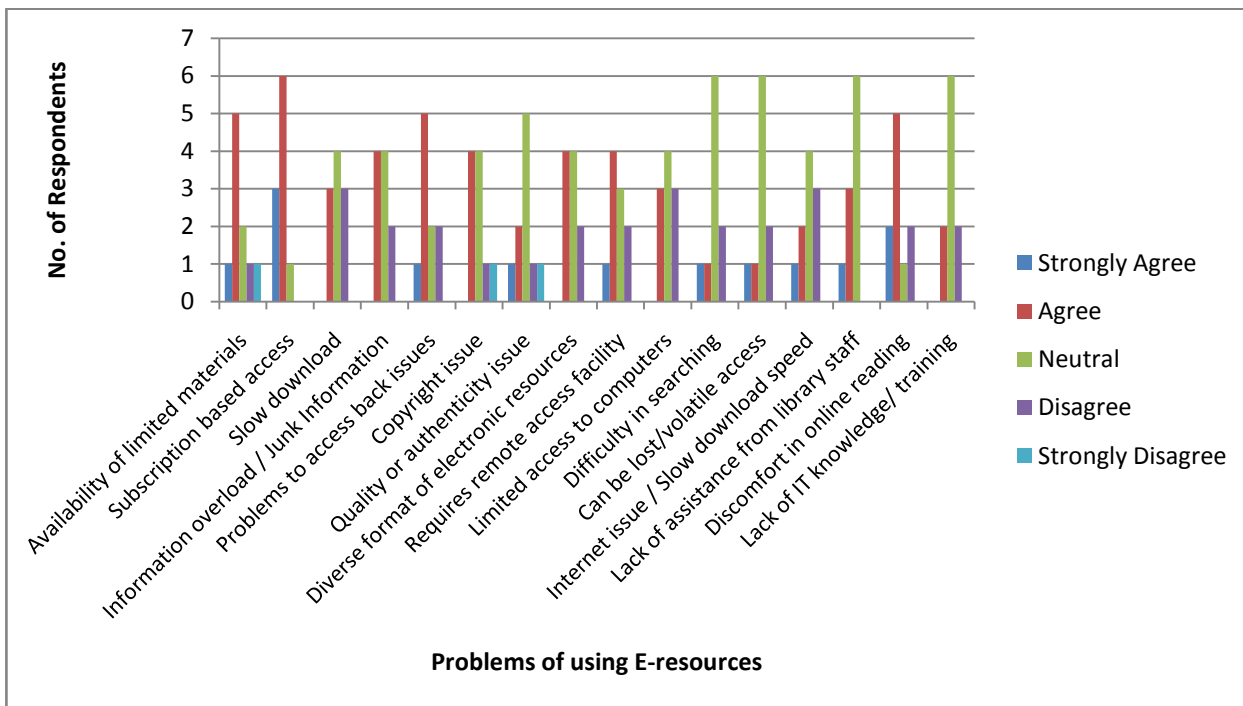
Figure 4.119: Problems of using E-resources by Associate Professors in Faculty of Arts
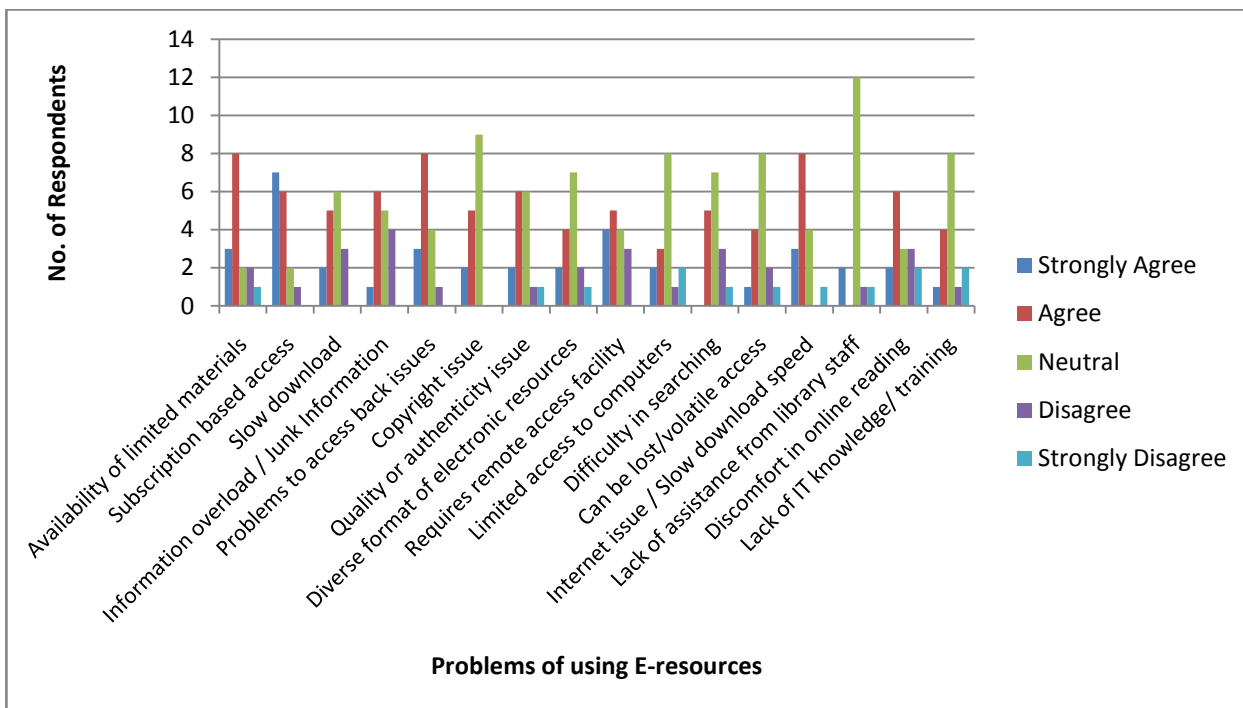
Figure 4.120: Problems of using E-resources by Professors in Faculty of Arts

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Figure 4.120 shows the problems of using E-resources by Professors in Faculty of Arts. The figure depicts that subscription based access is strongly agreed as the problem of accessing e-resources by maximum respondents. Most of the respondents agree that availability of limited materials, information overload/junk information, problems to access back issues, remote access facility and internet issue/slow download are other problems of accessing e-resources. Most of the respondents remain neutral on copyright issues, diverse format of electronic resources, limited access to computers, difficulty in searching, can be lost/volatile access, lack of assistance from library staff and lack of IT knowledge/training.

Figure 4.118, 4.119 and 4.120 represents that all the three categories of respondents in Faculty of Arts commonly agree that subscription based access is the problem of accessing e-resources. Problem to access back issues and discomfort in online reading are the other two commonly shared problems of accessing e-resources by the three categories of respondents in Faculty of Arts. The problems reflect that there are certain problems with vendors regarding subscription or there is a communication gap between the faculties and the library. Discomfort in online reading refers that the respondents wants to get e-resources but does not prefer to read on computer screen.
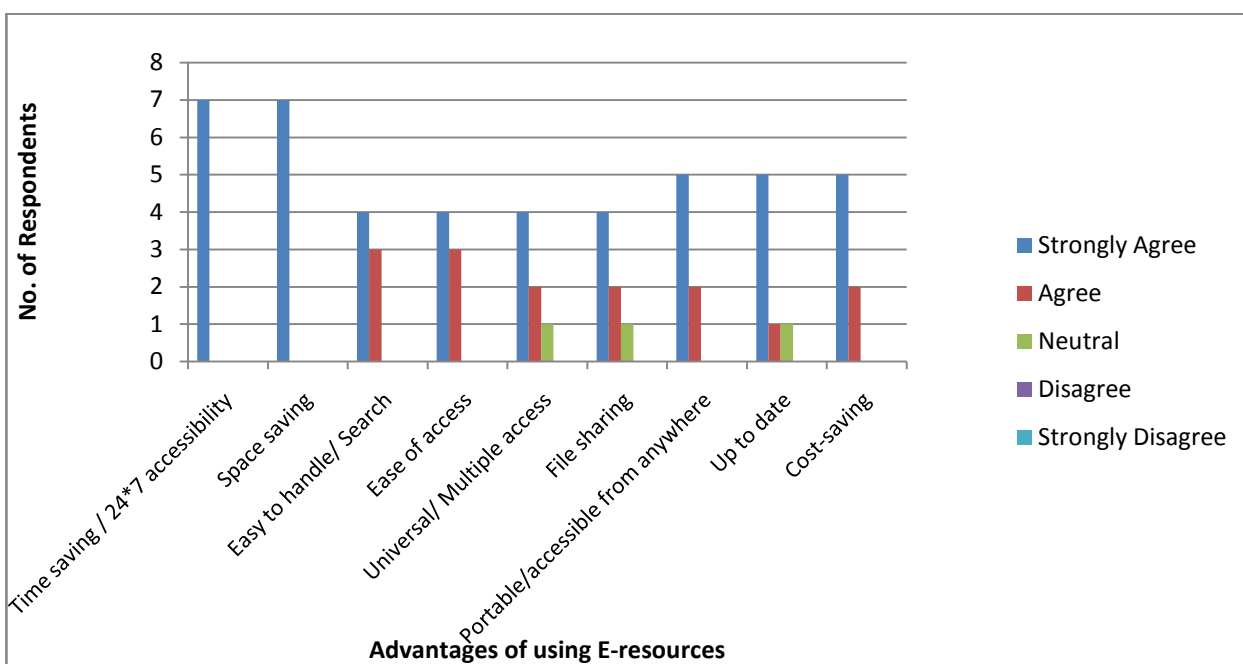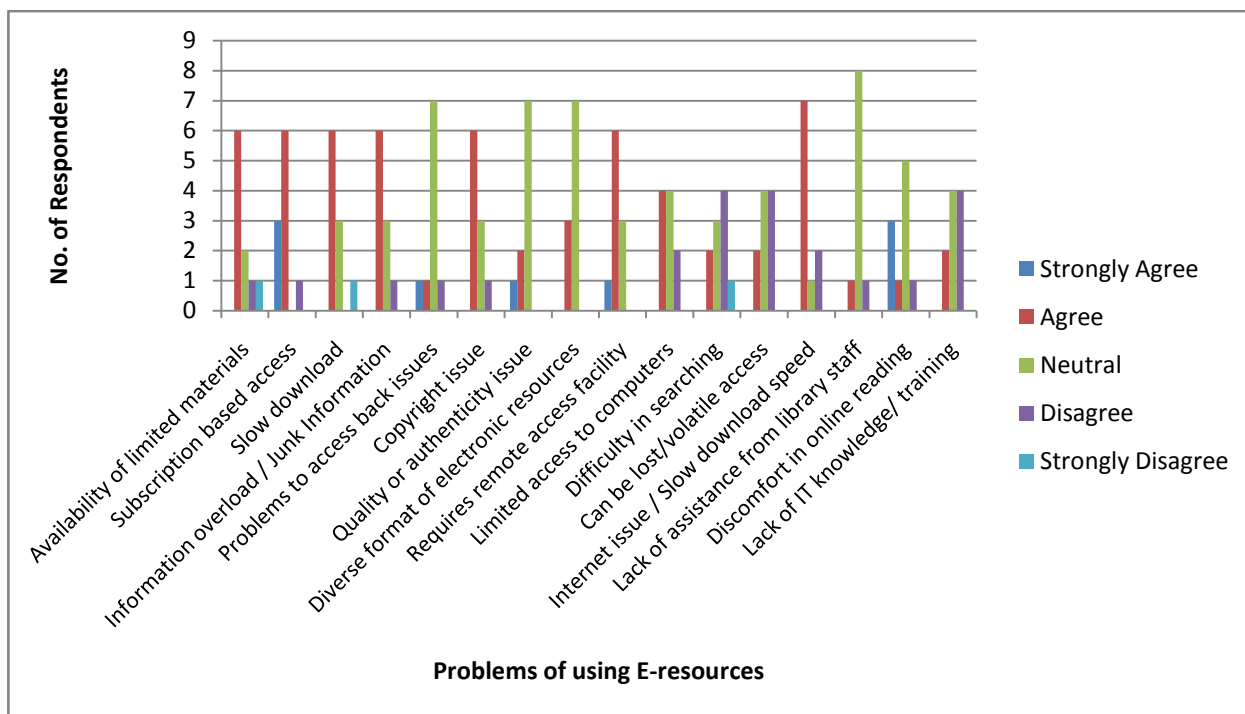

Figure 4.121: Problems of using E-resources by Assistant Professors in Faculty of Science

Figure 4.121 shows the problems of using E-resources by Assistant Professors in Faculty of Science. Internet issue/slow download has been agreed as the problem of accessing e-resources by maximum numbers of respondents. Other problems are availability of limited materials, subscription based access, information overload/junk information copyright issue and remote access facility agreed by most of the respondents. Most of the respondents remain neutral on problems to access back issues, quality or authenticity issue, diverse format of electronic resources, lack of assistance from library staff and discomfort in online reading.

Figure 4.122 shows the problems of using E-resources by Associate Professors in Faculty of Science. The figure reflects that availability of limited materials and subscription based access are the strongly agreed problems of accessing e-resources by maximum respondents. Most of the respondents also agree that information overload/junk information, problem to access back issues, copyright issue, can be lost/volatile access and internet issue/slow download speed are the other problems of using e-resources. Most of the respondents remain neutral on quality or authenticity issue, diverse format of electronic resources, limited access to computers, difficulty in searching, lack of assistance from library staff and lack of IT knowledge/training.
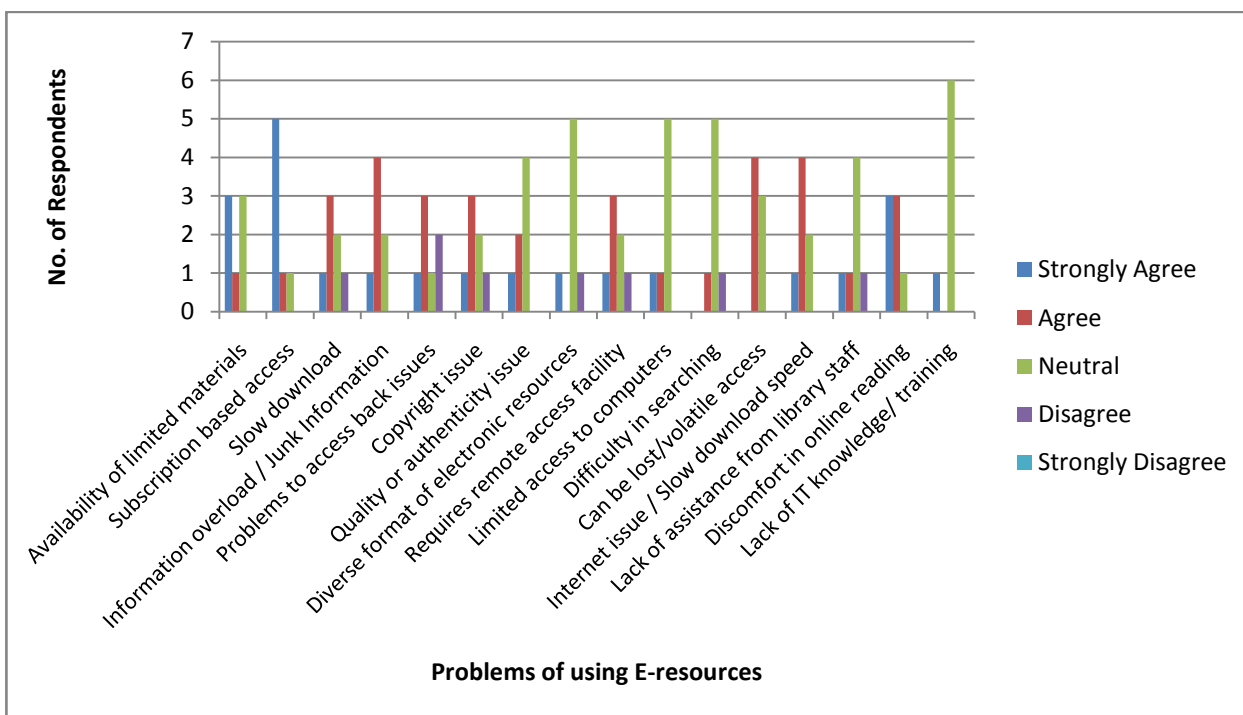
Figure 4.122: Problems of using E-resources by Associate Professors in Faculty of Science

Figure 4.123 shows the problems of using E-resources by Professors in Faculty of Science. The figure denotes that availability of limited resources, subscription based access, information overload/junk information and discomfort in online reading are the problems to access e-resources agreed by maximum number of respondents. Most of the respondents remain neutral on copyright issue, quality or authenticity issue, diverse format of electronic resources, remote access facility, limited access to computers, difficulty in searching, can be lost/volatile access, internet issue/slow download speed, lack of assistance from library staff and lack of IT knowledge/training.
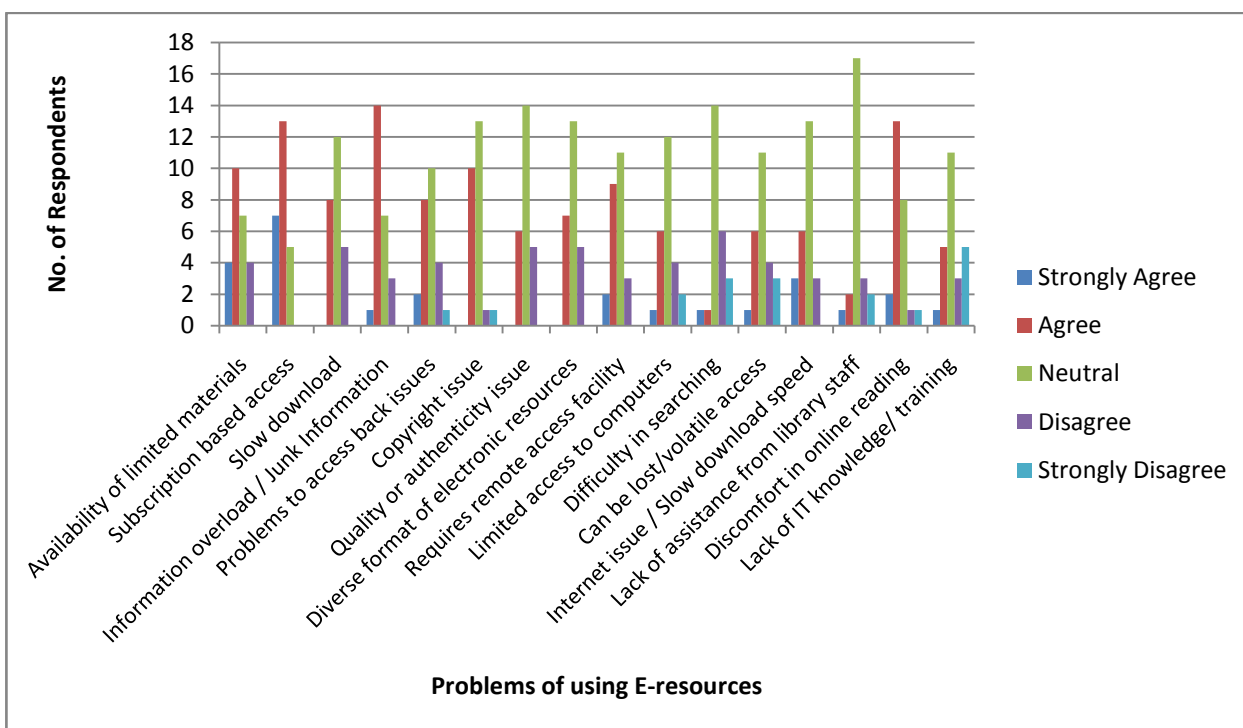
Figure 4.123: Problems of using E-resources by Professors in Faculty of Science

Figure 4.121, 4.122 and 4.123 reflects that all the categories of respondents in Faculty of Science strongly agree or agree that availability of limited materials, subscription based access and information overload/junk information are the common problems in accessing e-resources. The problems reflect that there is a communication gap between the vendor, the library and the faculties.

Figure 4.124 shows the problems of using E-resources by Assistant Professors in Faculty of Engineering and Technology. The figure reflects that availability of limited materials, subscription based access, information overload/junk information, problems of back issues and

remote access facility are the problems agreed in accessing e-resources by most of the respondents. Most of the respondents remain neutral on quality or authenticity issue, diverse format of e-resources, limited access to computers, can be lost/volatile access, internet issue/slow download speed and lack of assistance from library staff. Most of the respondents disagree that lack of IT knowledge/training is a problem in using e-resources.
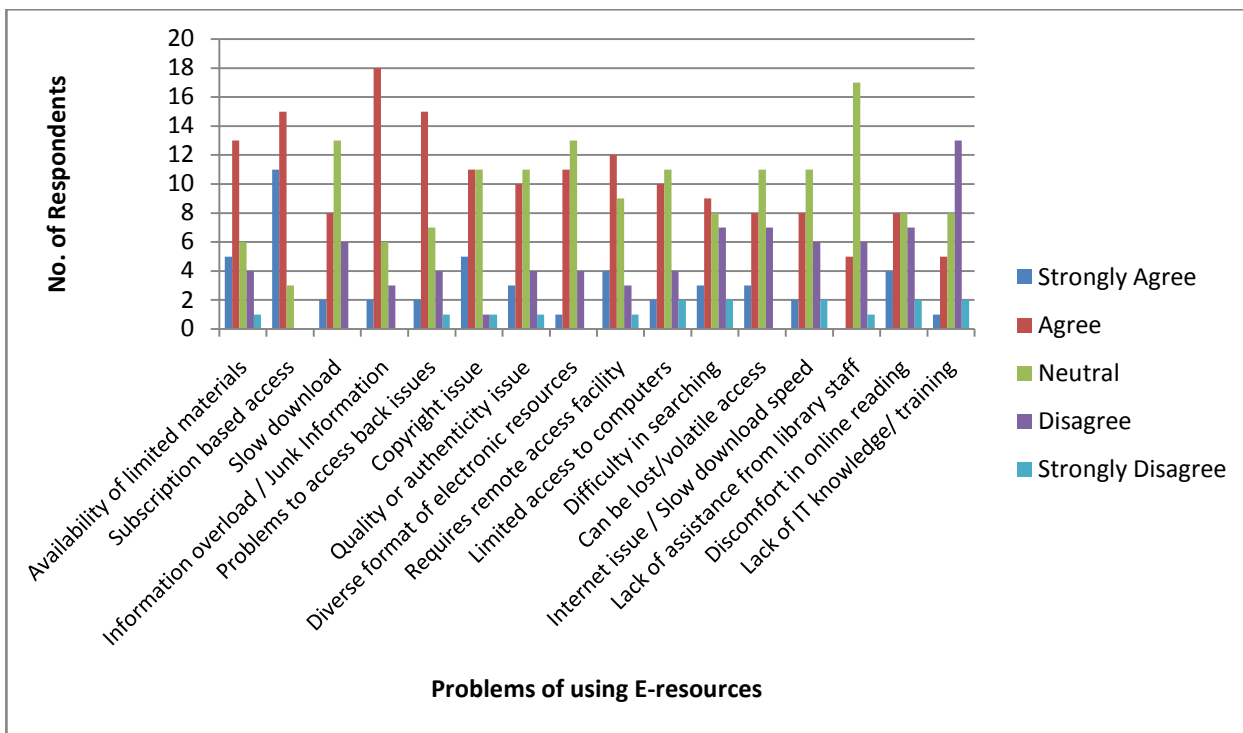
Figure 4.124: Problems of using E-resources by Assistant Professors in Faculty of Engineering and Technology

Figure 4.125 shows the problems of using E-resources by Associate Professors in Faculty of Engineering and Technology. The figure represents that availability of limited materials, subscription based access, information overload/junk information and problems to access back issues are the commonly agreed problems in using e-resources by maximum number of respondents. Most of the respondents remain neutral on quality or authenticity issue, diverse format of electronic resources, remote access facility, limited access to computers, and discomfort in online reading and lack of IT knowledge/training. Most of the respondents disagree difficulty in searching, volatile access and lack of assistance from library staff are the problems of accessing e-resources.
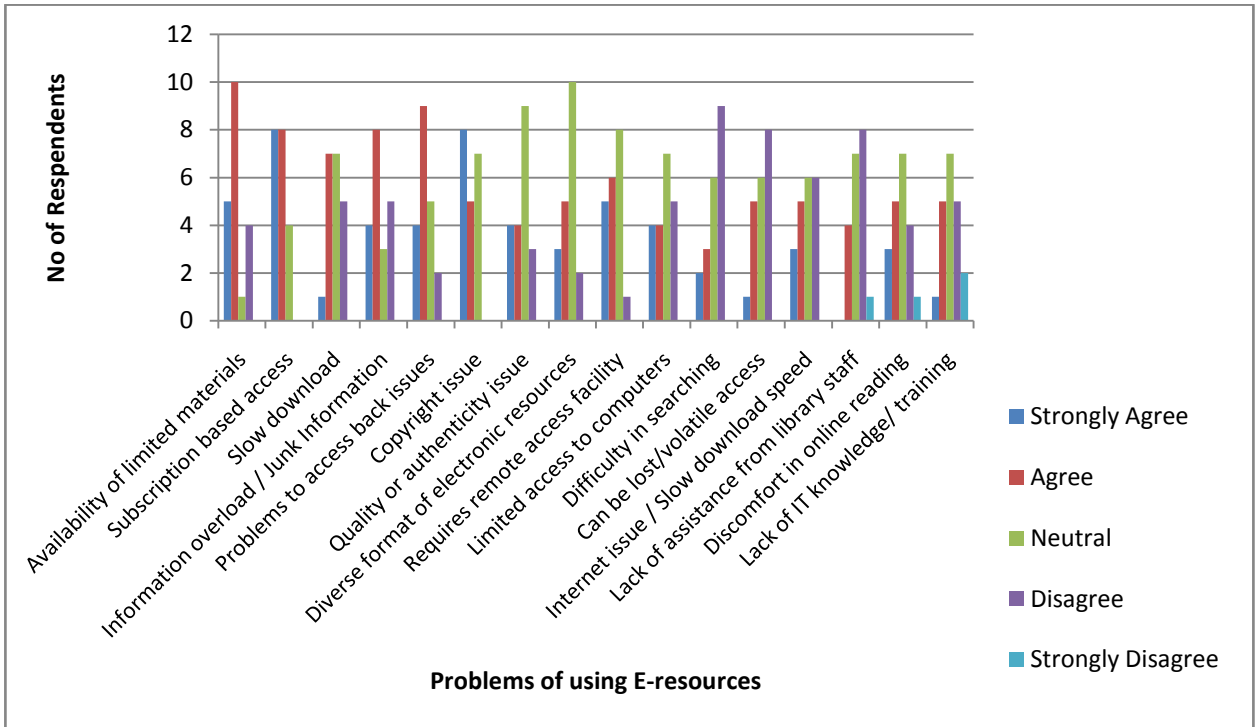
Figure 4.125: Problems of using E-resources by Associate Professors in Faculty of Engineering and Technology
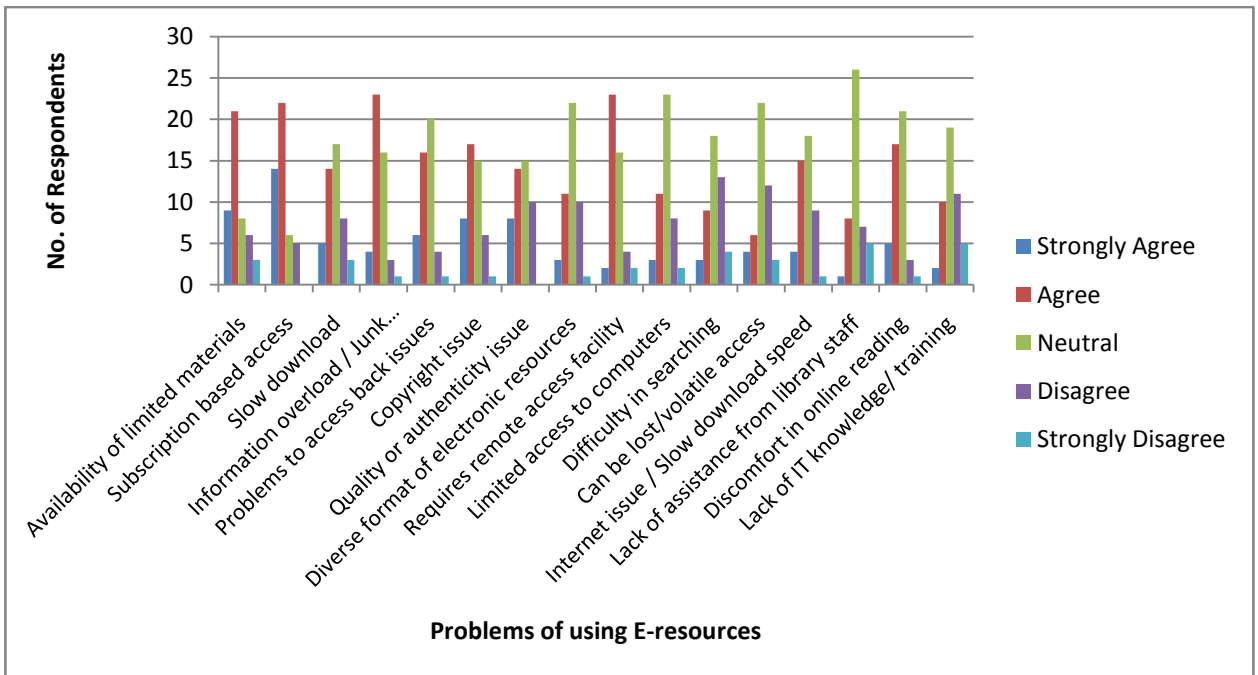
Figure 4.126: Problems of using E-resources by Professors in Faculty of Engineering and Technology

Figure 4.126 shows the problems of using E-resources by Professors in Faculty of Engineering and Technology. The figure denotes that availability of limited materials, subscription based access, information overload/junk information, copyright issue and remote access facility are agreed as problems in using e-resources by maximum numbers of respondents. Most of the respondents remain neutral on slow download, problems to access back issues, diverse format of electronic resources, limited access to computers, difficulty in searching , can be lost/volatile access, internet issue/ slow download speed, lack of assistance from library staff , discomfort in online reading and lack of IT knowledge training.

Figure 4.124, 4.125 and 4.126 reflects that the availability of limited materials, subscription based access and information overload/junk information are the commonly agreed problems of using e-resources by the Assistant Professors, Associate Professors and Professors in Faculty of Engineering and Technology. These problems denoted that there is a communication gap between the vendor, the library and the faculty members. Proper negotiations with vendors and orientation of the users are much required activity.

4.3.3.16 Infrastructure Facilities for using E-resources

This section deals with the infrastructure facilities for using E-resources provided to the Assistant Professors, Associate Professors and Professors of faculty of Arts, Faculty of Science and Faculty of Engineering and Technology.

Figure 4.127 shows the facilities provided for E-resources to Assistant Professors in Faculty of Arts. The figure reflects that most of the respondents are satisfied on access to e-resources in Department, internet facility/Wi-Fi and internet speed/bandwidth. The equal numbers of respondents either satisfied or remain neutral on access to e-resources in Central Library. Most of the respondents remain neutral on access to e-resources outside the University, no. of computers in Central Library and no. of computers in Department Library.
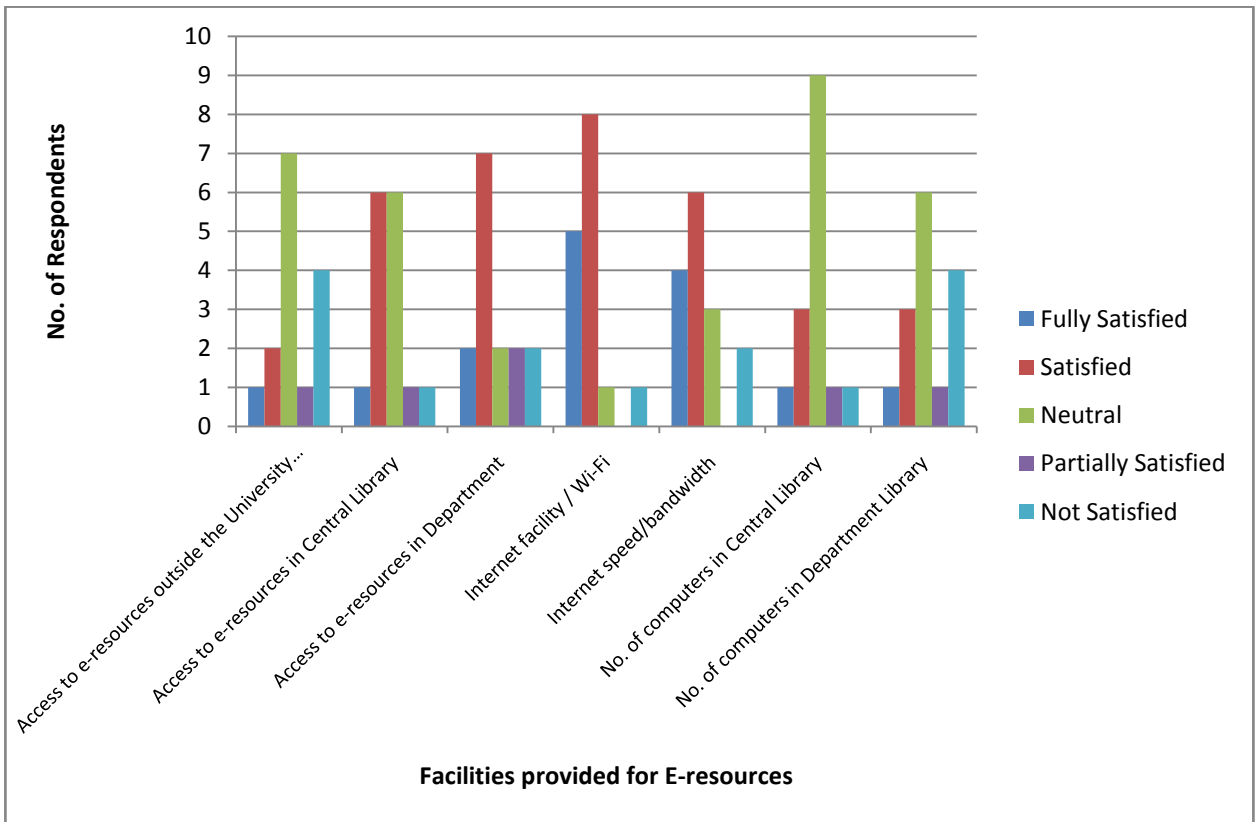
Figure 4.127: Facilities provided for E-resources to Assistant Professors in Faculty of Arts
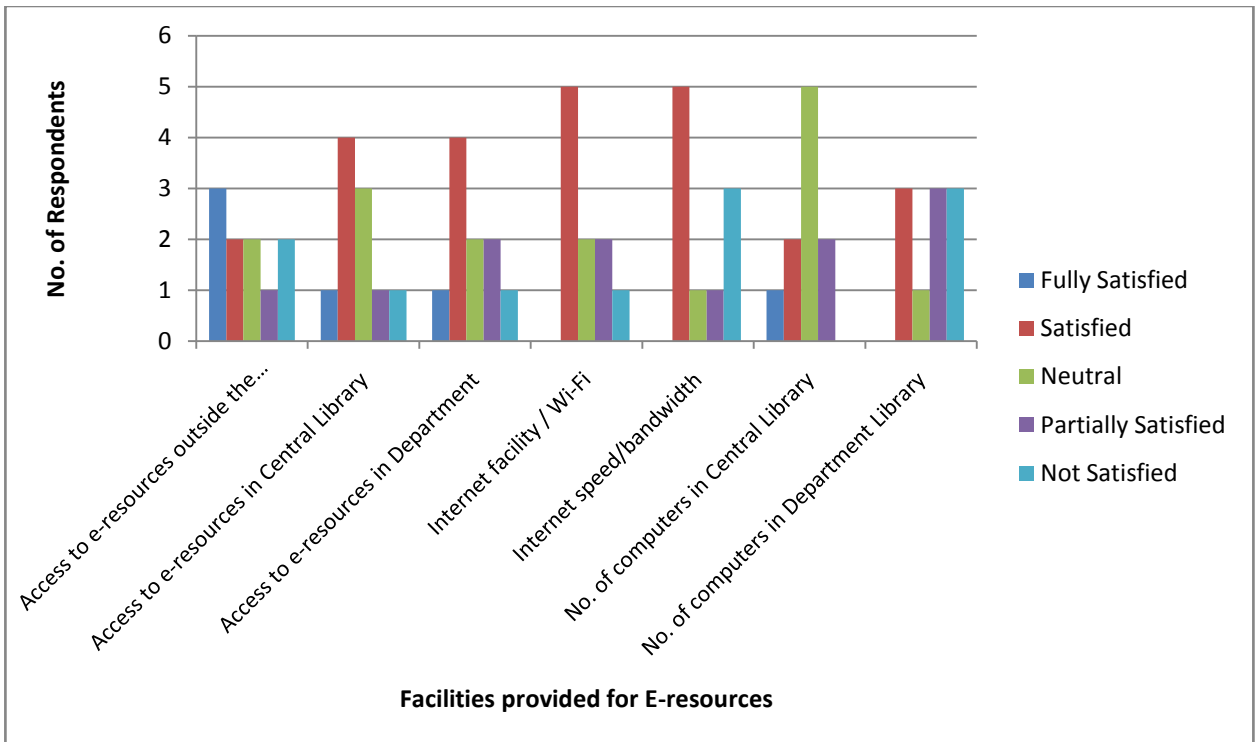
Figure 4.128: Facilities provided for E-resources to Associate Professors in Faculty of Arts

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Figure 4.128 shows the facilities provided for E-resources to Associate Professors in Faculty of Arts. The figure reflects that maximum number of respondents is fully satisfied with the access to e-resources outside the University. Most of the respondents are satisfied with the access to e-resources in Central Library, access to e-resources in Departmental Library, internet facility/Wi-Fi and internet speed/bandwidth. Most of the respondents remain neutral on no. of computers in Central Library. The equal numbers of respondents are satisfied, partially satisfied or not satisfied on no. of computers in Departmental Library.

Figure 4.129 shows the facilities provided for E-resources to Professors in Faculty of Arts. The figure depicts that most of the respondents are satisfied on the access to e-resources outside the University campus, access to e-resources in Central Library, access to e-resources in Department, internet facility/Wi-Fi and internet speed/bandwidth. Most of the respondents remain neutral on the no. of computers in Central Library and no. of computers in Departmental Library.
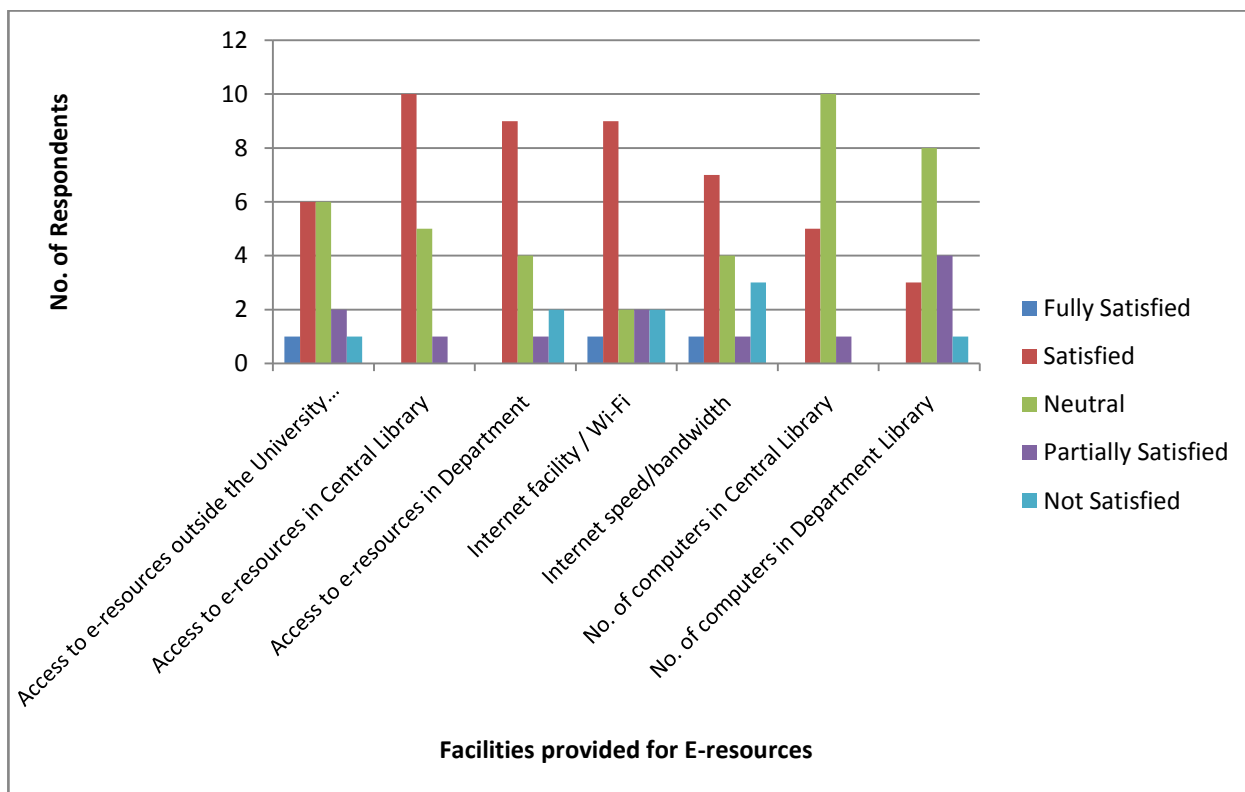
Figure 4.129: Facilities provided for E-resources to Professors in Faculty of Arts

Figure 4.127, 4.128 and 4.129 reflects that the Assistant Professors, Associate Professors and Professors in Faculty of Arts are commonly satisfied on the access to e-resources in Central

library, access to e-resources in Department, internet facility/Wi-Fi and internet speed/bandwidth. This denotes that they are satisfied on the departmental facilities and internet facilities.

Figure 4.130 shows the facilities provided for E-resources to Assistant Professors in Faculty Science. The figure reflects that most of the respondents are only satisfied with the internet facility/Wi-Fi whereas they remain neutral for all the other facilities provided for accessing e-resources.
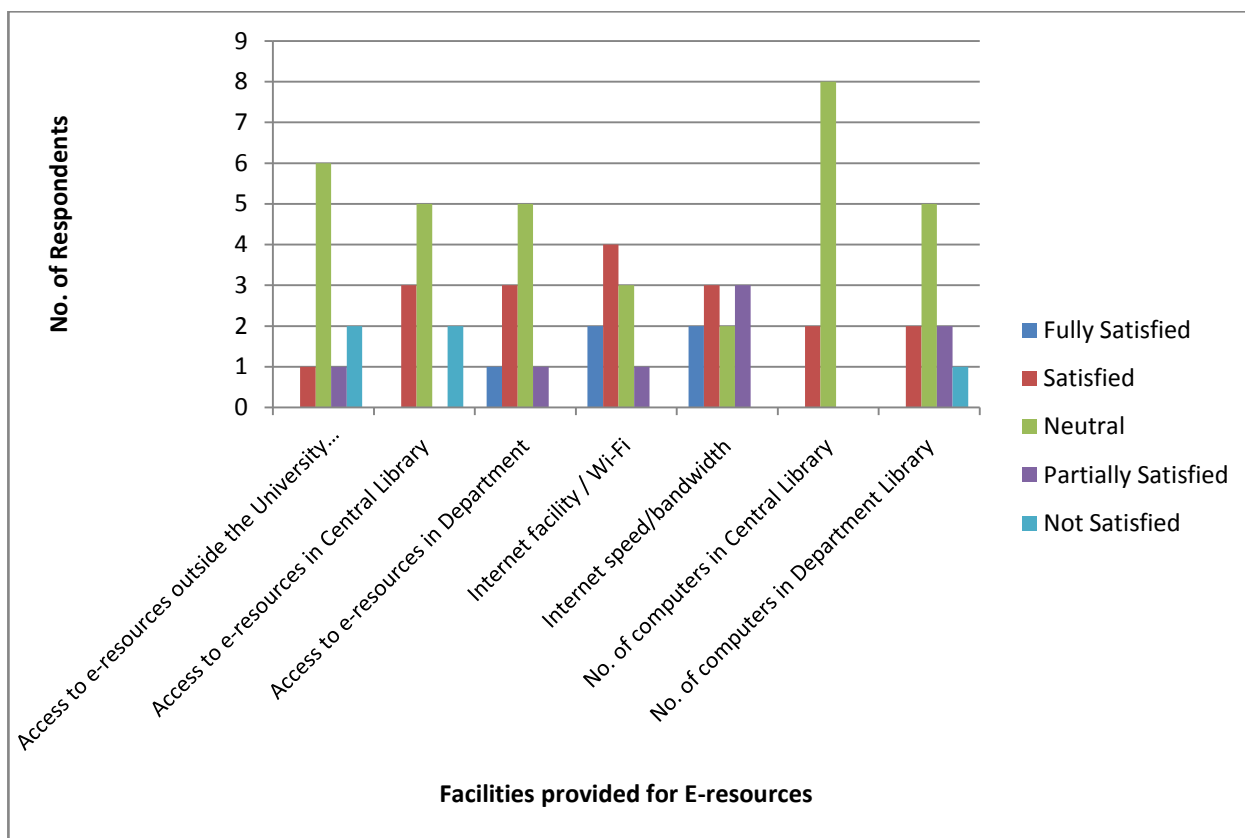
Figure 4.130: Facilities provided for E-resources to Assistant Professors in Faculty of Science

Figure 4.131 shows the facilities provided for E-resources to Associate Professors in Faculty of Science. The figure reflects that most of the respondents are satisfied access to e-resources outside the University campus (remote access), access to e-resources in Central Library, internet facility/Wi-Fi and internet speed/bandwidth. In case of access to e-resources in Departmental Library, no. of computers in Central Library and no. of computers in Departmental Library the equal number of respondents either satisfied or remain neutral.
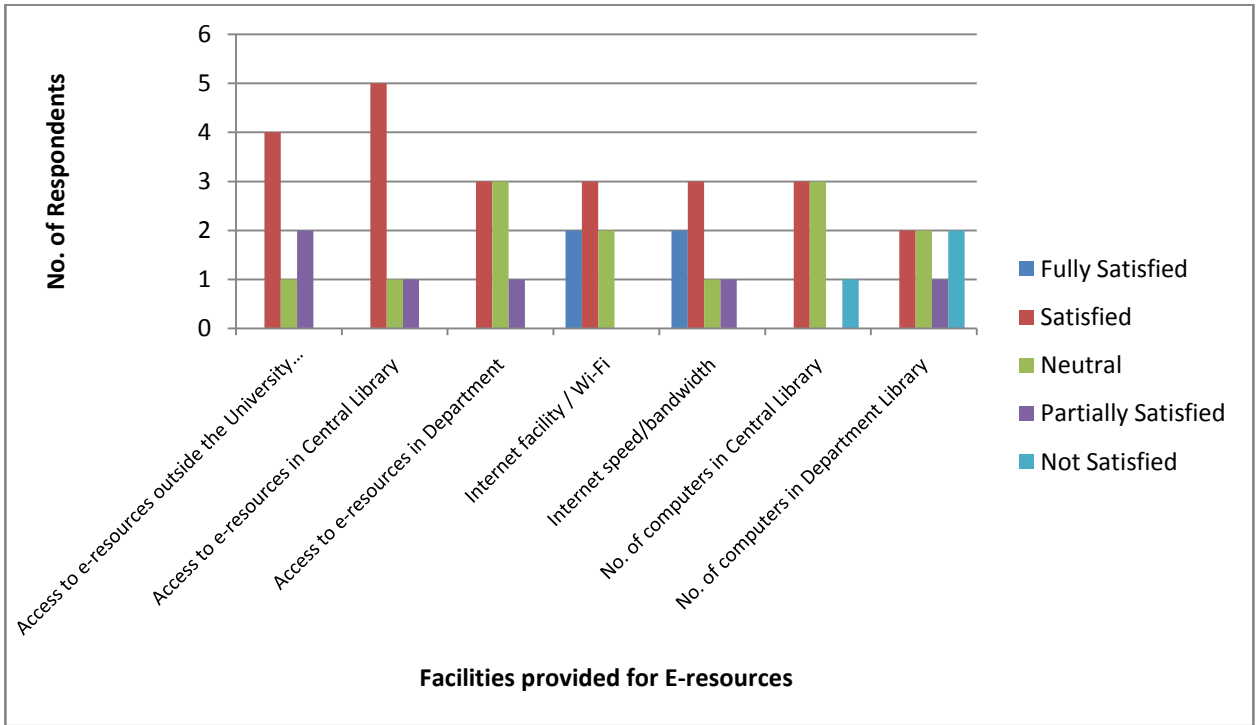
Figure 4.131: Facilities provided for E-resources to Associate Professors in Faculty of Science
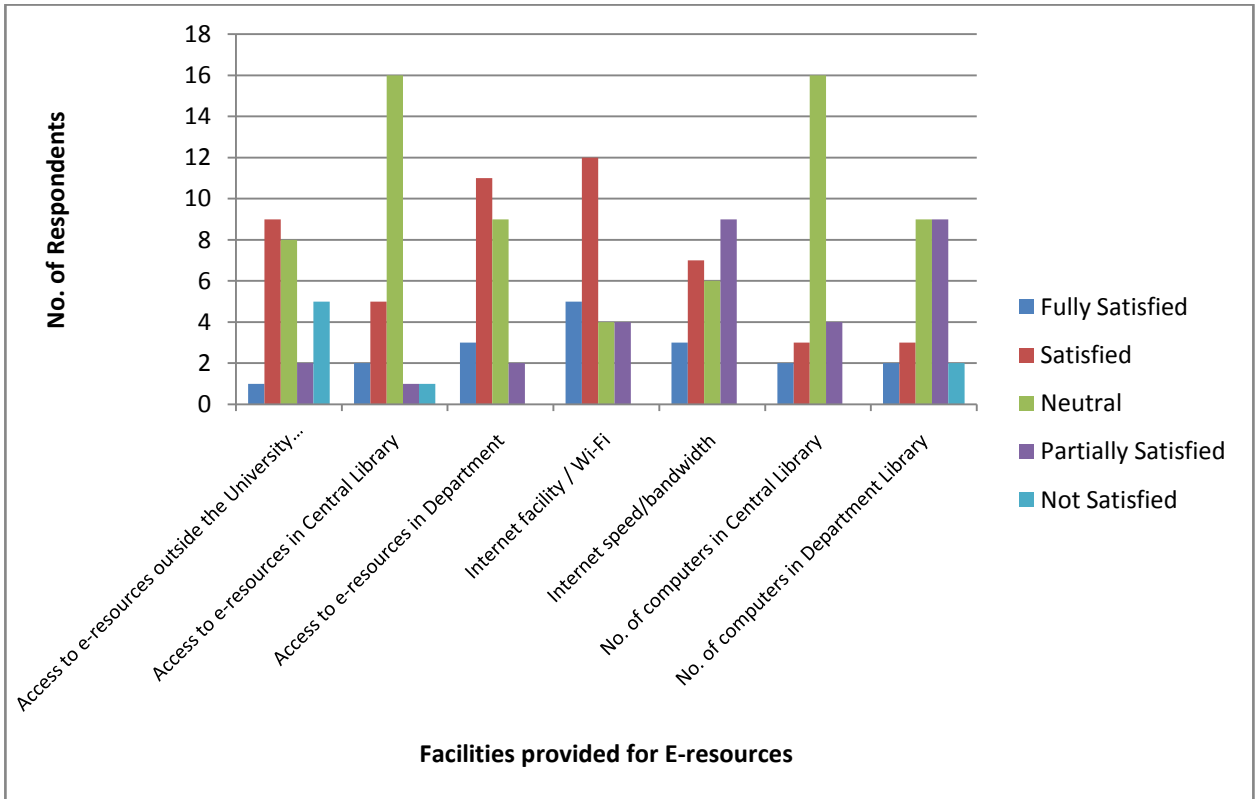
Figure 4.132: Facilities provided for E-resources to Professors in Faculty of Science

Figure 4.132 shows the facilities provided for E-resources to Professors in Faculty of Science. The figure reflects that most of the respondents are satisfied on the access to e-resources outside the University campus (remote access), access to e-resources in Department and internet facility/Wi-Fi. Most of the respondents remain neutral on access to e-resources in Central Library and the no. of Computers in Central Library. The equal numbers of respondents either remain neutral or partially satisfied on the no. of computers in Department Library.

Figure 4.130, 4.131 and 4.132 reflects that the Assistant Professors, Associate Professors and Professors in Faculty of Science are commonly satisfied on the internet facility/Wi-Fi. The Associate Professors and Professors are satisfied with the access to e-resources outside the University Campus (remote access) but the Assistant Professors remain neutral.

Figure 4.133 shows the facilities provided for E-resources to Assistant Professors in Faculty of Engineering and Technology. The figure denotes that the maximum number of respondents is satisfied on access to e-resources in Central Library. They are also satisfied on access to e-resources in Department, internet facility/Wi-Fi and internet speed/bandwidth. Most of the respondents remain neutral access to e-resources outside the University, no. of computers in Central Library and no. of computers in Departmental Library.
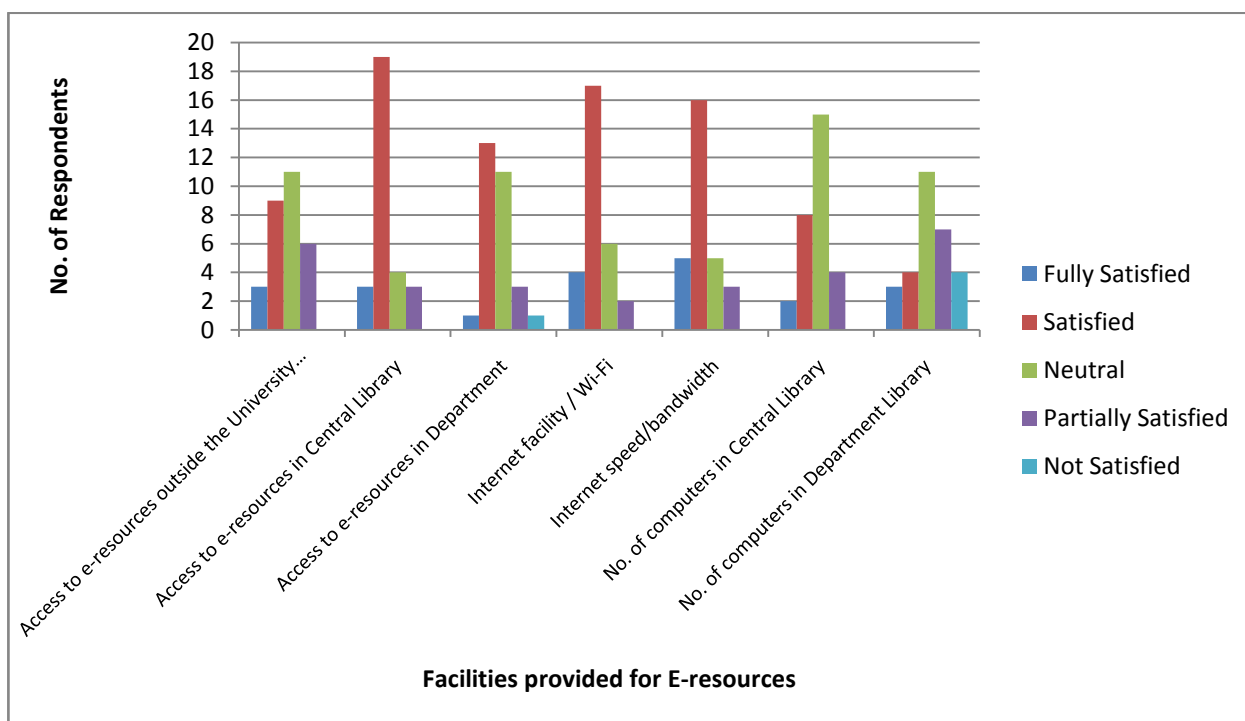
Figure 4.133: Facilities provided for E-resources to Assistant Professors in Faculty of Engineering and Technology

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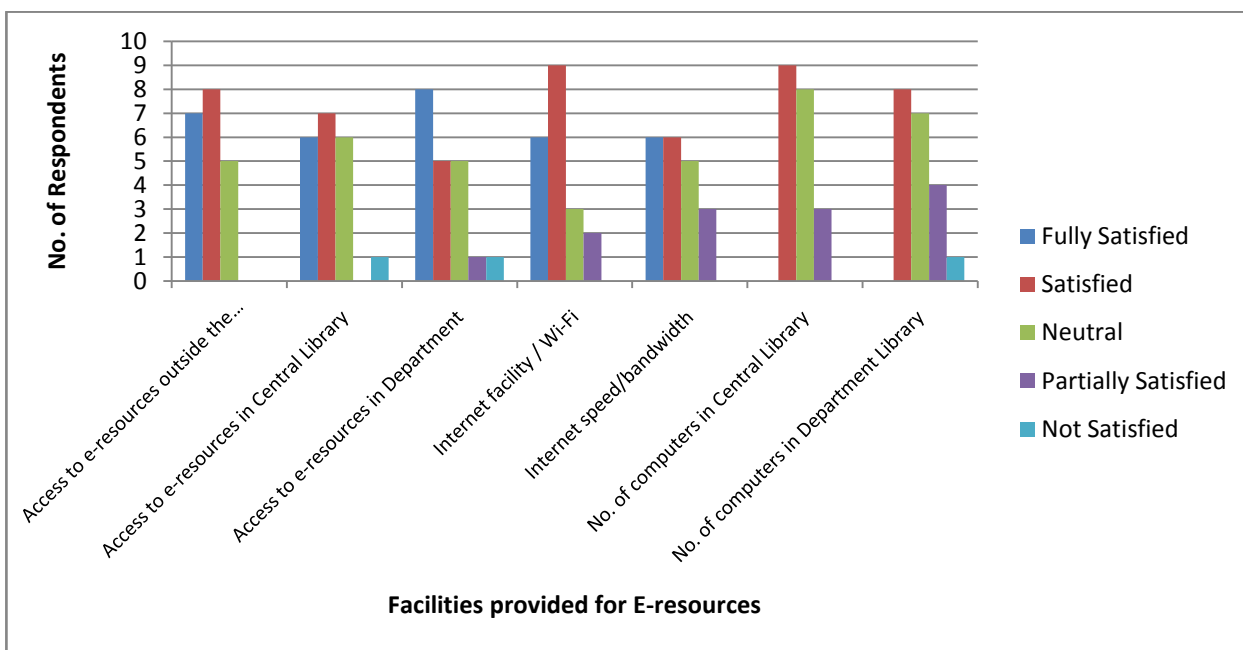
Figure 4.134: Facilities provided for E-resources to Associate Professors in Faculty of Engineering and Technology

Figure 4.134 shows the facilities provided for E-resources to Associate Professors in Faculty of Engineering and Technology. The figure shows that most of the respondents are fully satisfied on the access to e-resources in Department whereas they are satisfied on access to e-resources outside the University campus, access to e-resources in Central Library, internet facilities/Wi-Fi, no. of computers in Central Library and no. of computers in Departmental Library. The equal numbers of respondents are either fully satisfied or satisfied on the facility of internet speed/bandwidth.

Figure 4.135 shows the facilities provided for E-resources to Professors in Faculty of Engineering and Technology. The figure depicts that most of the respondents are satisfied on the access to e-resources outside the University campus, access to e-resources in Central Library, access to e-resources in Department, internet facility/Wi-Fi and internet speed/bandwidth. The highest number of respondents is satisfied on internet facility/Wi-Fi. The respondents remain neutral on the no. of computers in Central Library and Departmental Library.
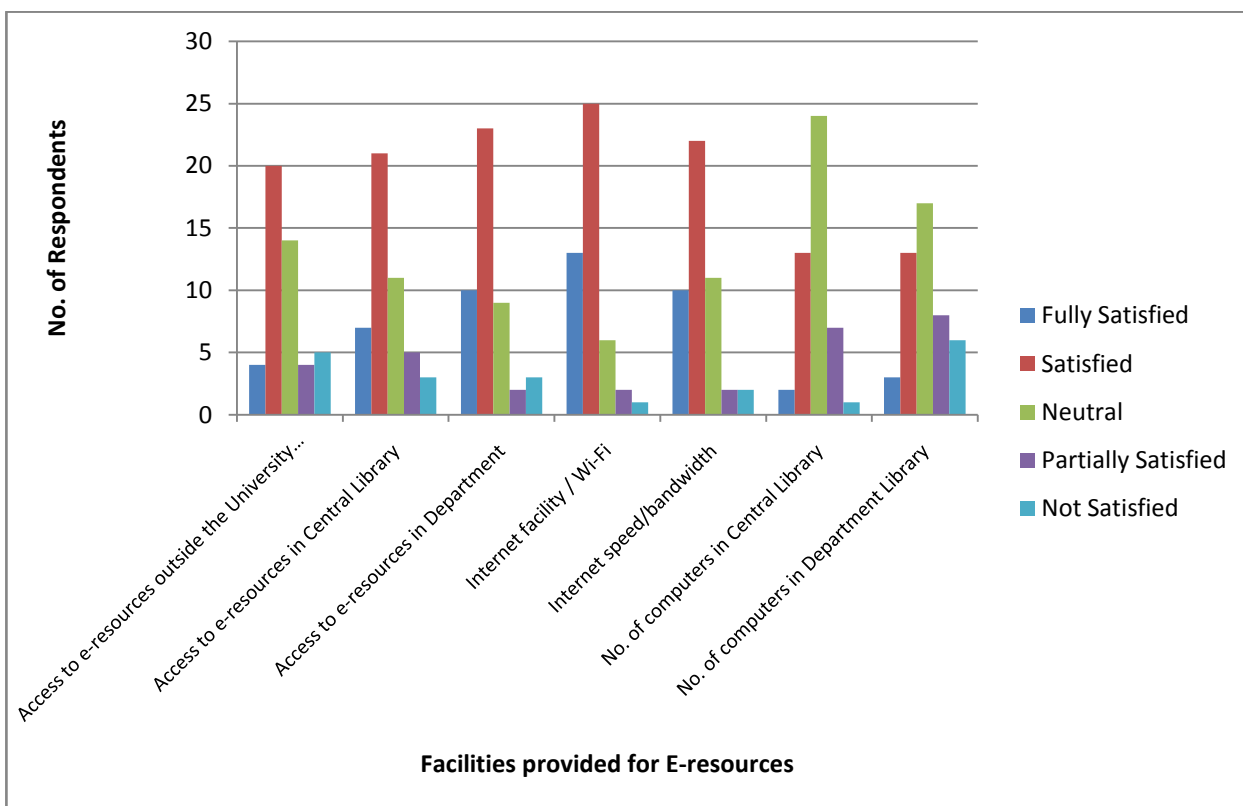
Figure 4.135: Facilities provided for E-resources to Professors in Faculty of
Engineering and Technology

Figure 4.133, 4.134 and 4.135 reflects that the Assistant Professors, Associate Professors and Professors in Faculty of Engineering and Technology are either fully satisfied or satisfied on access to e-resources in Central Library, access to e-resources in Department, internet facility/Wi-Fi and internet speed/bandwidth.

4.3.3.17 Awareness on Legal Problems

The study reflects the awareness on legal problems in using e-resources among the Assistant Professors, Associate Professors and Professors in Faculty of Arts, Faculty of Science and Faculty of Engineering.

Figure 4.136 shows the awareness on legal problems in Assistant Professors in Faculty of Arts. The figure reflects that most of the respondents are fully aware of copyright violation while using e-resources. The equal numbers of respondents are either fully aware or substantially

aware about intellectual property rights. They are substantially aware on internet usage policies and the stringency and internet monitoring and content filtering.
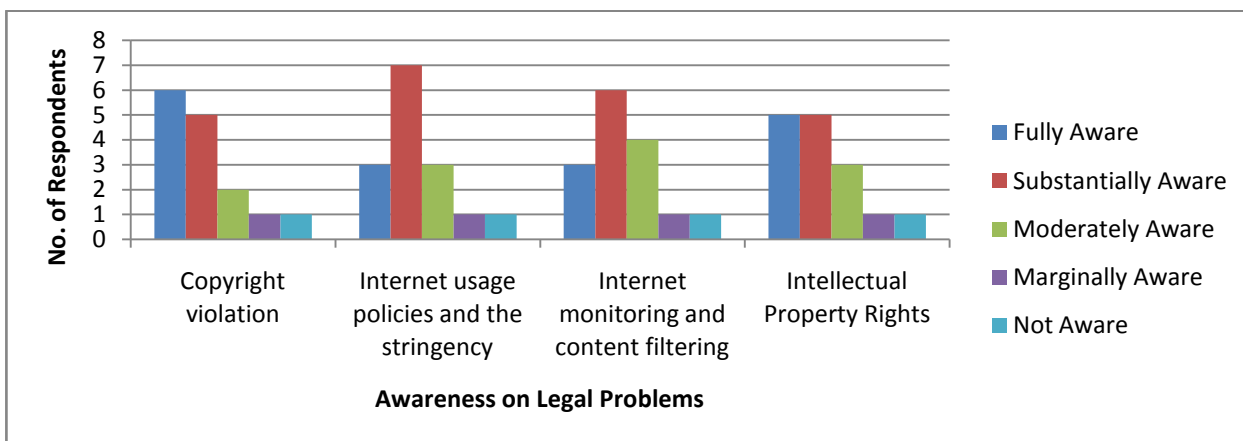
Figure 4.136: Awareness on legal problems in Assistant Professors in Faculty of Arts

Figure 4.137 shows the awareness on legal problems in Associate Professors in Faculty of Arts. The figure depicts that most of the respondents are substantially aware on the copyright violation, internet usage policies and the stringency and internet monitoring and content filtering. The equal number of respondents either fully aware or substantially aware on intellectual property rights.
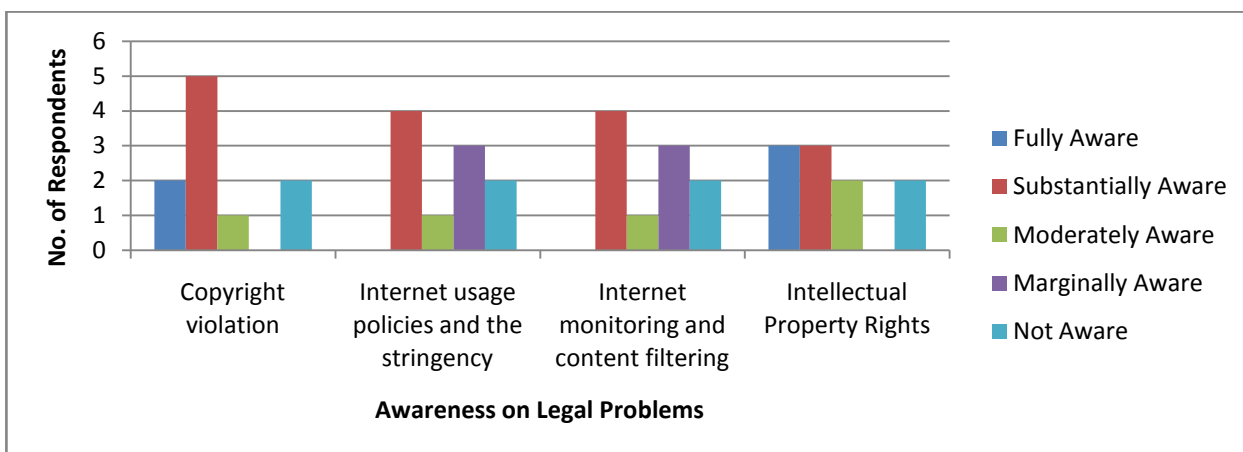
Figure 4.137: Awareness on legal problems in Associate Professors in Faculty of Arts

Figure 4.138 deals with the awareness on legal problems in Professors in Faculty of Arts. The figure reflects that most of the respondents are fully aware about the copyright violation. The equal number of respondents either fully aware, moderately aware or not aware of the internet usage policy and the stringency. The equal numbers of respondents are either fully aware or

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moderately aware on the intellectual property rights. Most of the respondents are not aware about the internet monitoring and content filtering while using e-resources.
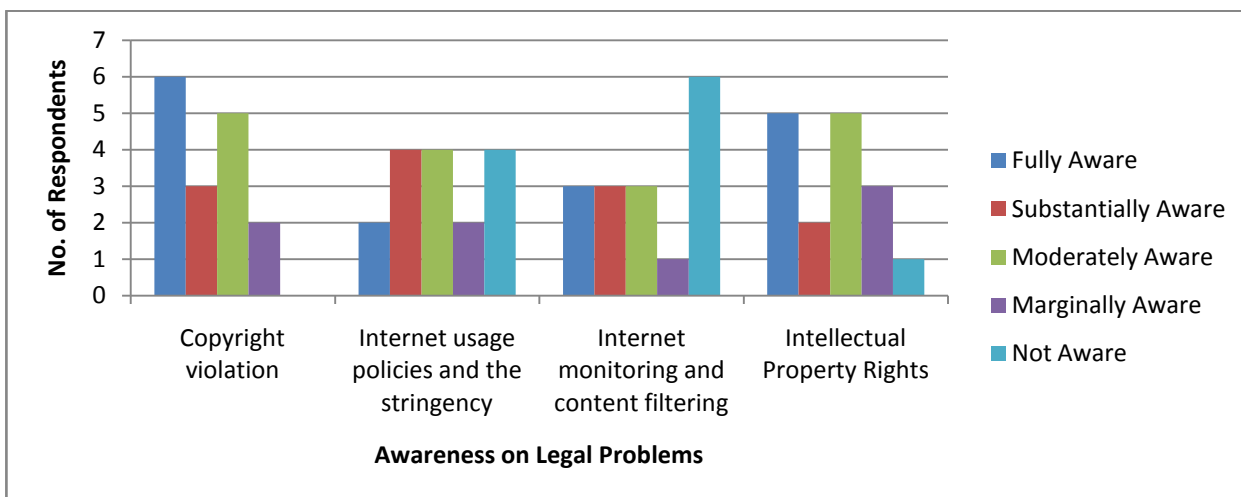
Figure 4.138: Awareness on legal problems in Professors in Faculty of Arts

Figure 4.136, 4.137 and 4.138 reflects that most of the Assistant Professors and Professors in Faculty of Arts are fully aware about copyright violation whereas the Associate Professors substantially aware about copyright violation. Most of the respondents are substantially aware about internet usage policies and the stringency.

Figure 4.139 reflects the awareness on legal problems in Assistant Professors in Faculty of Science. The figure reflects that most of the respondents are fully aware about copyright violation. Most of the respondents are moderately aware about internet monitoring and content filtering.
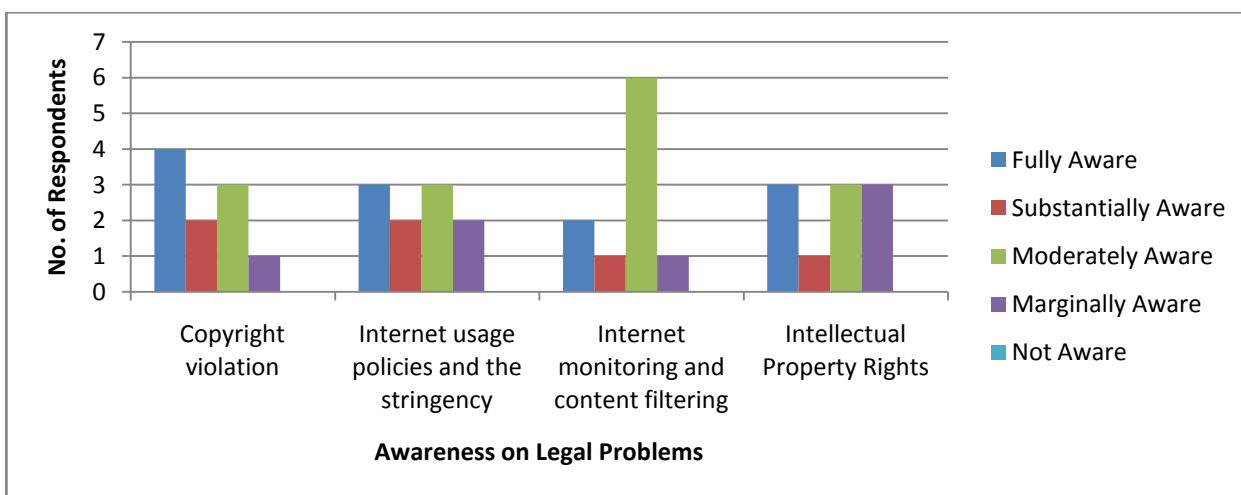
Figure 4.139: Awareness on legal problems in Assistant Professors in Faculty of Science
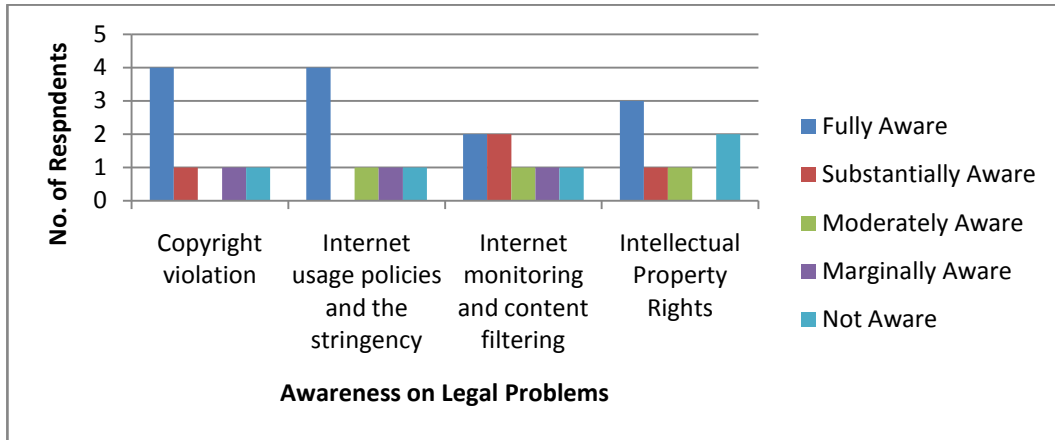
Figure 4.140: Awareness on legal problems in Associate Professors in Faculty of Science

Figure 4.140 reflects the awareness on legal problems in Associate Professors in Faculty of Science. The figure shows that most of the respondents are fully aware about copyright violation, internet usage policies and the stringency and intellectual property rights.

Figure 4.141 shows the awareness on legal problems in Professors in Faculty of Science. The figure shows that most of the respondents are fully aware about copyright violation and internet monitoring and content filtering. Most of the respondents are substantially aware about intellectual property rights. In case of internet usage policies and the stringency the maximum number of respondents is moderately aware.
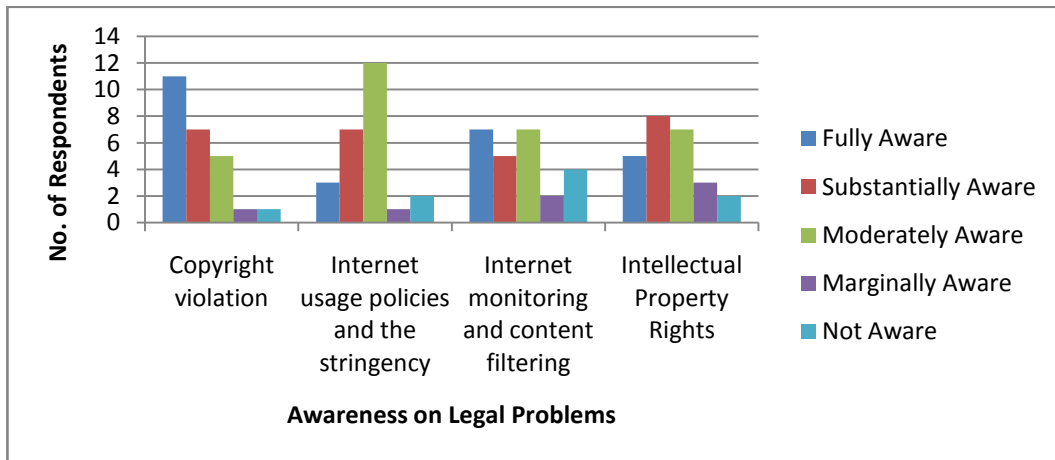
Figure 4.141: Awareness on legal problems in Professors in Faculty of Science

Figure 4.139, 4.140 and 4.141 reflects that most of the Assistant Professors and Associate Professors in Faculty of Science are fully aware about copyright violation and internet usage policies and the stringency but the Professors are fully aware of copyright violation only.

Figure 4.142 shows the awareness on legal problems among Assistant Professors in Faculty of Engineering and Technology. The figure reflects that most of the respondents are fully aware about copyright violation in using e-resources. In case of internet usage policies and the stringency the equal numbers of respondents are fully aware and substantially aware in using e-resources. In case of internet monitoring and content filtering and intellectual property rights most of the respondents are substantially aware while using e-resources.
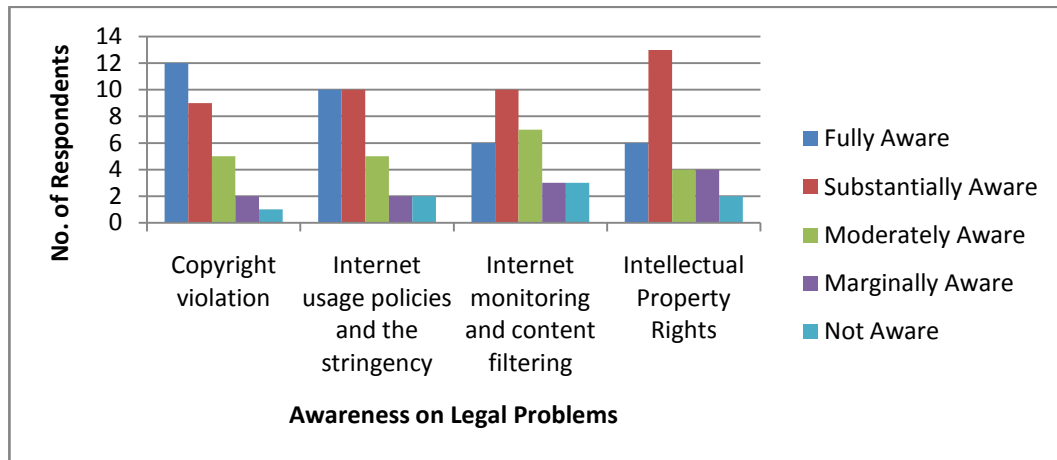
Figure 4.142: Awareness on legal problems in Assistant Professors in Faculty of Engineering and Technology

Figure 4.143 shows awareness on legal problems in Associate Professors in Faculty of Engineering and Technology. Most of the respondents are fully aware of copyright violation and internet usage policies and the stringency. In case of internet monitoring and content filtering and intellectual property rights most of the respondents are substantially aware while using e-resources.
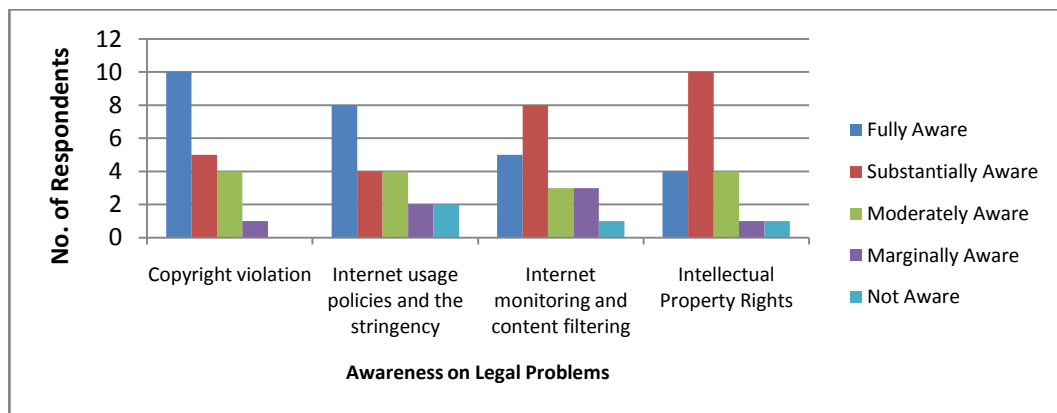
Figure 4.143: Awareness on legal problems in Associate Professors in Faculty of Engineering and Technology

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Figure 4.144 depicts the awareness on legal problems in Professors in Faculty of Engineering and Technology. Most of the respondents are fully aware about copyright violation whereas most of the respondents are substantially aware about internet usage policies and the stringency. In case of internet monitoring and content filtering most of the respondents are marginally aware. Most of the respondents are fully aware about intellectual property rights while using e-resources.
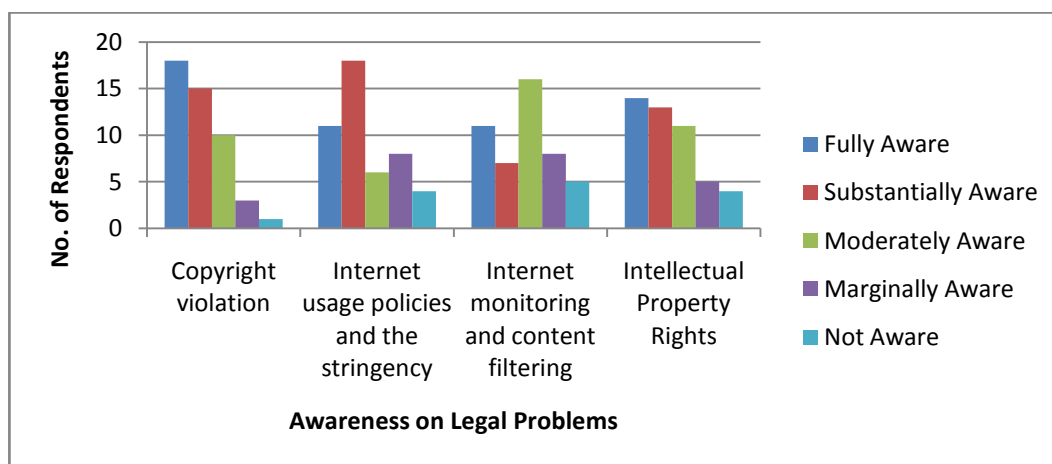
Figure 4.144: Awareness on legal problems in Professors in Faculty of Engineering and Technology

Figure 4.142, 4.143 and 4.144 illustrates that the Assistant Professors, Associate Professors are fully aware about copyright violation and internet usage policies and the stringency whereas the Professors are fully aware of copyright violation but substantially aware of internet usage policies and the stringency. The Professors are fully aware of intellectual property rights whereas the Assistant Professors and Associate Professor are substantially aware of intellectual property rights.

4.3.3.18 Opinion on Printed Resources vs. E-resources

Figure 4.145 shows opinion on Printed Resources vs. E-resources by Assistant Professors in Faculty of Arts. The figure reflects that most of the respondents strongly agree that they prefer to read on paper than on screen. Most of the respondents agree that they prefer e-resources than printed resources, e-resources are more up-to-date, e-resources are easy to access, easy to search, helps in speeding up work and have multiple user facility. They disagree that e-resources are costly that printed resources and can replace printed resources.
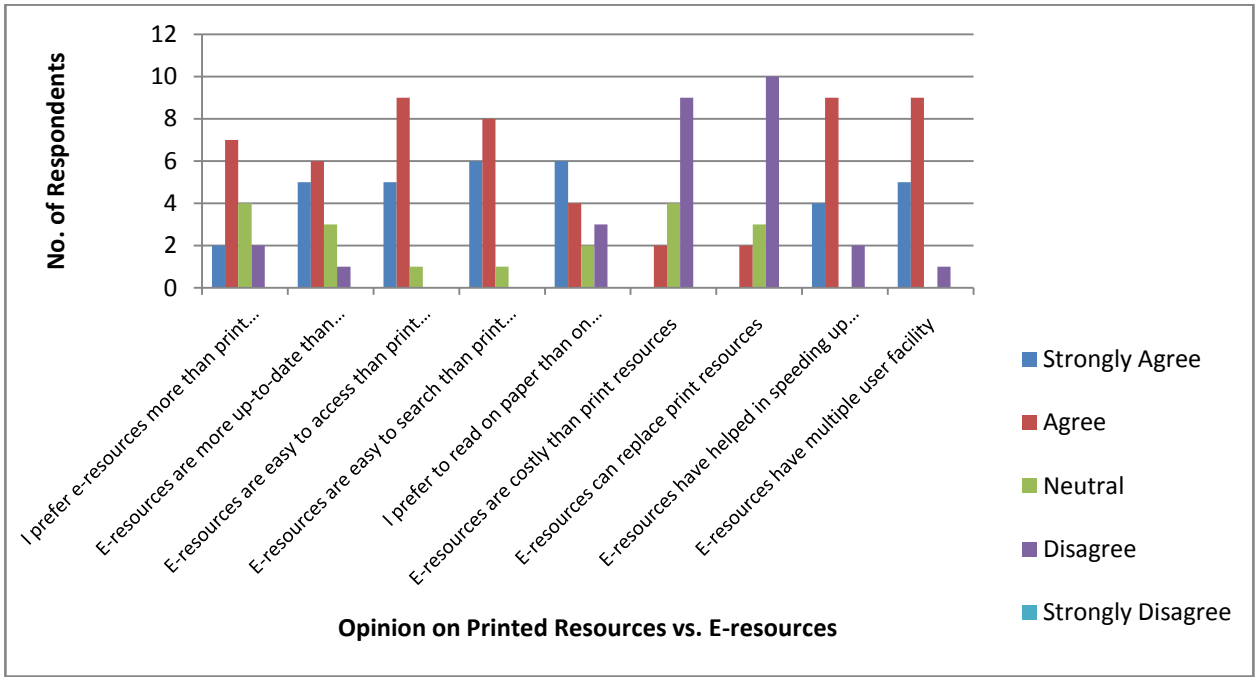
Figure 4.145: Opinion on Printed Resources vs. E-resources by Assistant Professors in Faculty of Arts
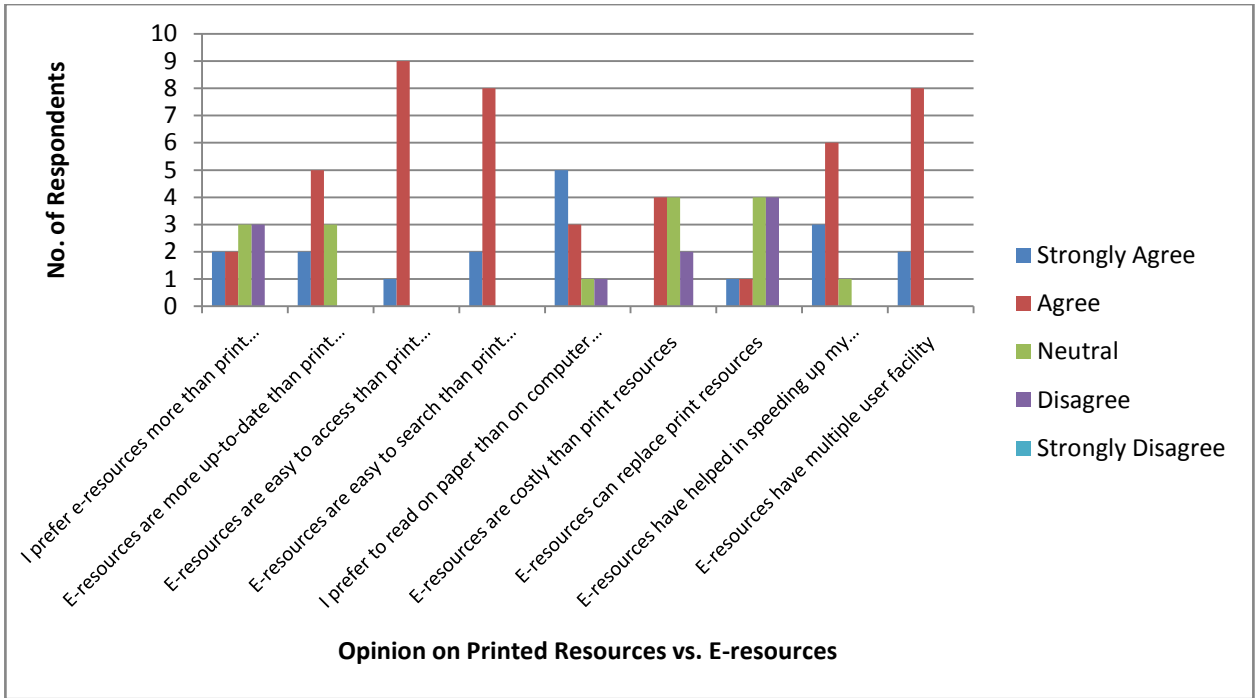
Figure 4.146: Opinion on Printed Resources vs. E-resources by Associate Professors in Faculty of Arts

Figure 4.146 shows the opinion on Printed Resources vs. E-resources by Associate Professors in Faculty of Arts. The figure reflects that most of the respondents strongly agree that they prefer to

read on paper than on computer screen. They also agree that e-resources are more up-to-date, easy to access, easy to search, helps in speeding up work and have multiple user facility.

Figure 4.147 shows the opinion on Printed Resources vs. E-resources by Professors in Faculty of Arts. Most of the respondents agree that the e-resources are more up-to-date, easy to access, easy to search and have multiple user facility than printed resources. They also agree to read on paper than computer screen. They remain neutral to the statements that e-resources are costly than printed resources and prefer e-resources than print resources. Most of the respondents disagree that e-resources can replace printed resources.
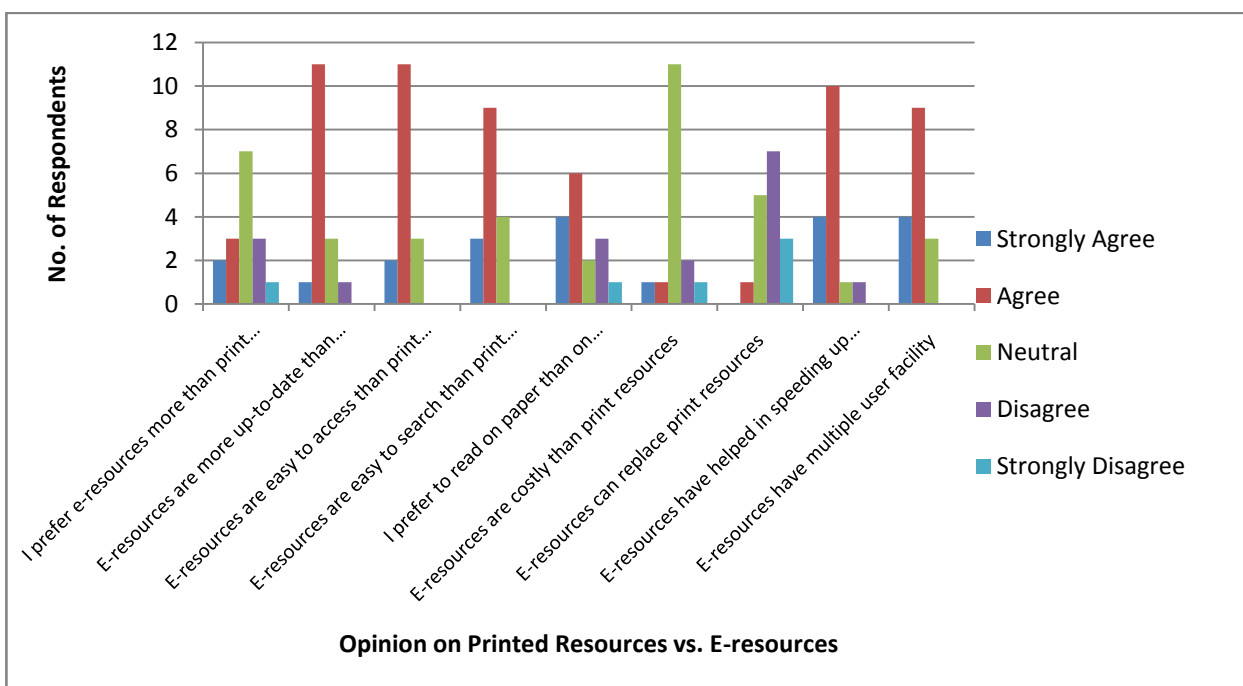
Figure 4.147: Opinion on Printed Resources vs. E-resources by Professors in Faculty of Arts

Figure 4.145, 4.146 and 4.147 reflects that all the three categories of respondents in Faculty of Arts strongly agree or agree that they prefer to read on paper than on computer screen. They also agree that e-resources are more up-to date, easy to access, easy to search, helps in speeding up the work and multiple user facility in comparison to printed resources but the respondents disagree that e-resources can replace printed resources. This denotes that though e-resources have certain advantages to make the work easier and faster but they cannot replace the printed resources.

Figure 4.148 shows the opinion on Printed Resources vs. E-resources by Assistant Professors in Faculty of Science. The figure reflects that most of the respondents agree to read on paper than

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on computer screen. They also agree that e-resources are more up-to-date, easy to access, easy to search, helps in speeding up the work and have multiple user facility. They remain neutral on preferring e-resources than printed resources and e-resources are costly than printed resources. The equal numbers of respondents strongly disagree and remain neutral on the opinion that e-resources can replace printed resources.
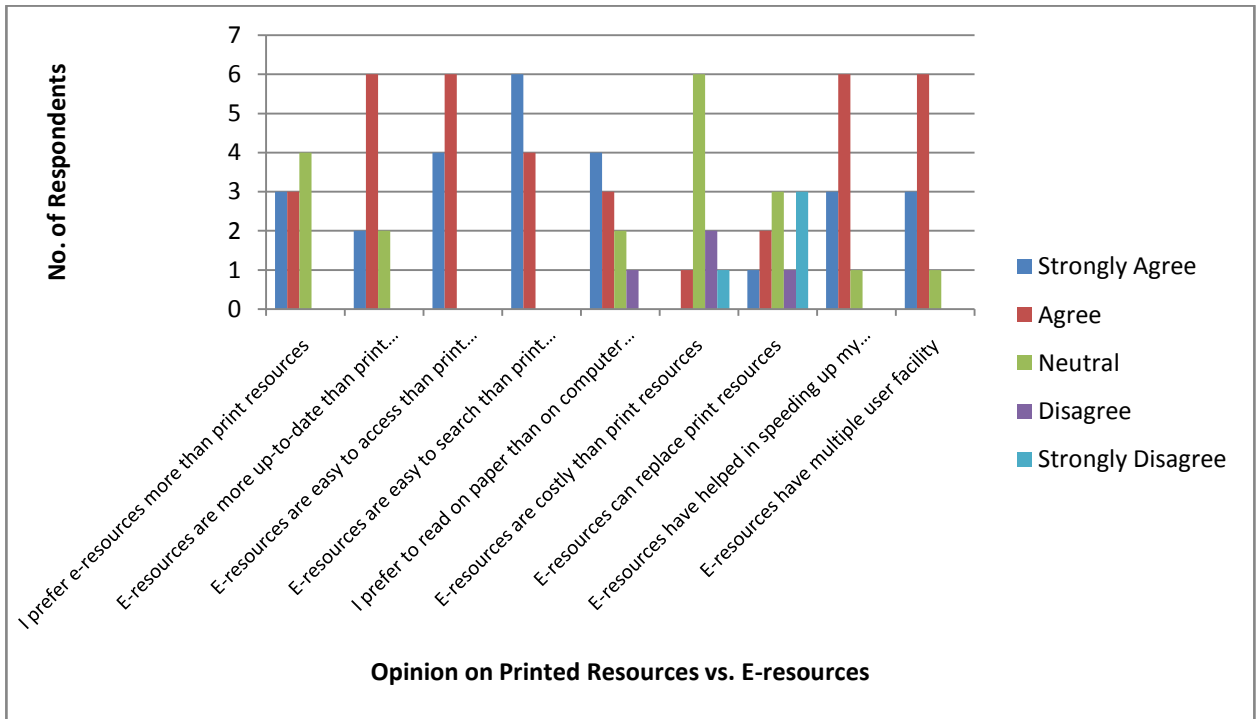
Figure 4.148: Opinion on Printed Resources vs. E-resources by Assistant Professors in Faculty of Science
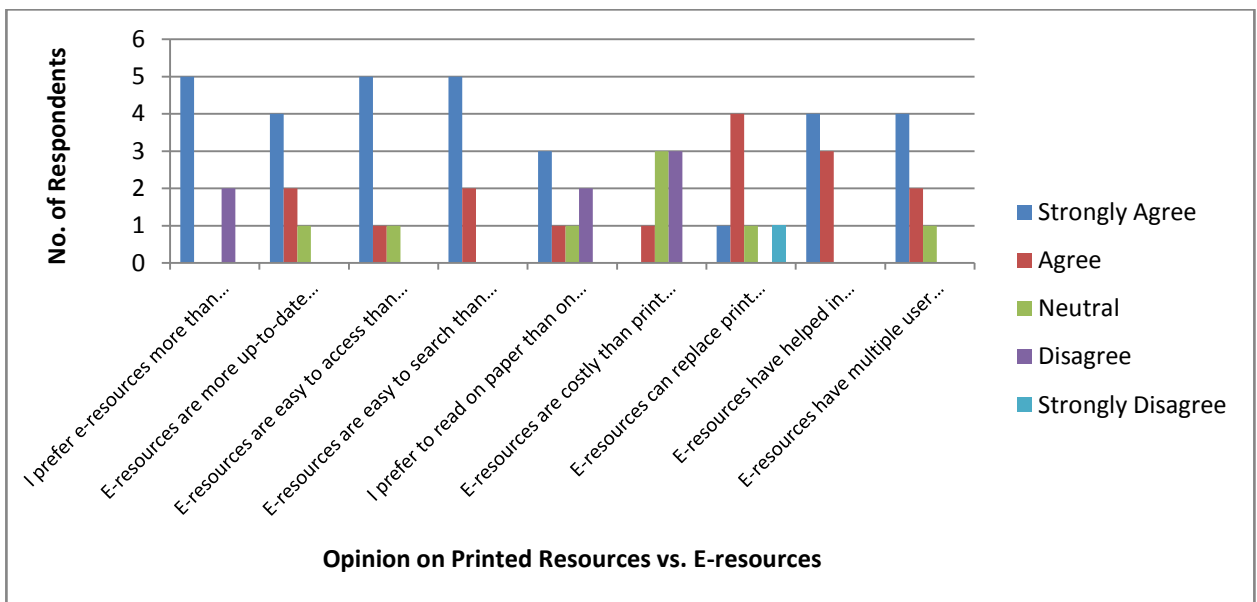
Figure 4.149: Opinion on Printed Resources vs. E-resources by Associate Professors in Faculty of Science

Figure 4.149 shows the opinion on Printed Resources vs. E-resources by Associate Professors in Faculty of Science. The figure reflects that most of the respondents strongly agree that they prefer e-resources than printed resources, e-resources are more up-to-date , easy to access, easy to search, helps in speeding up the work, have multiple user facility. They strongly prefer to read on paper than on computer screen. Most of the respondents agree that e-resources can replace printed resources.
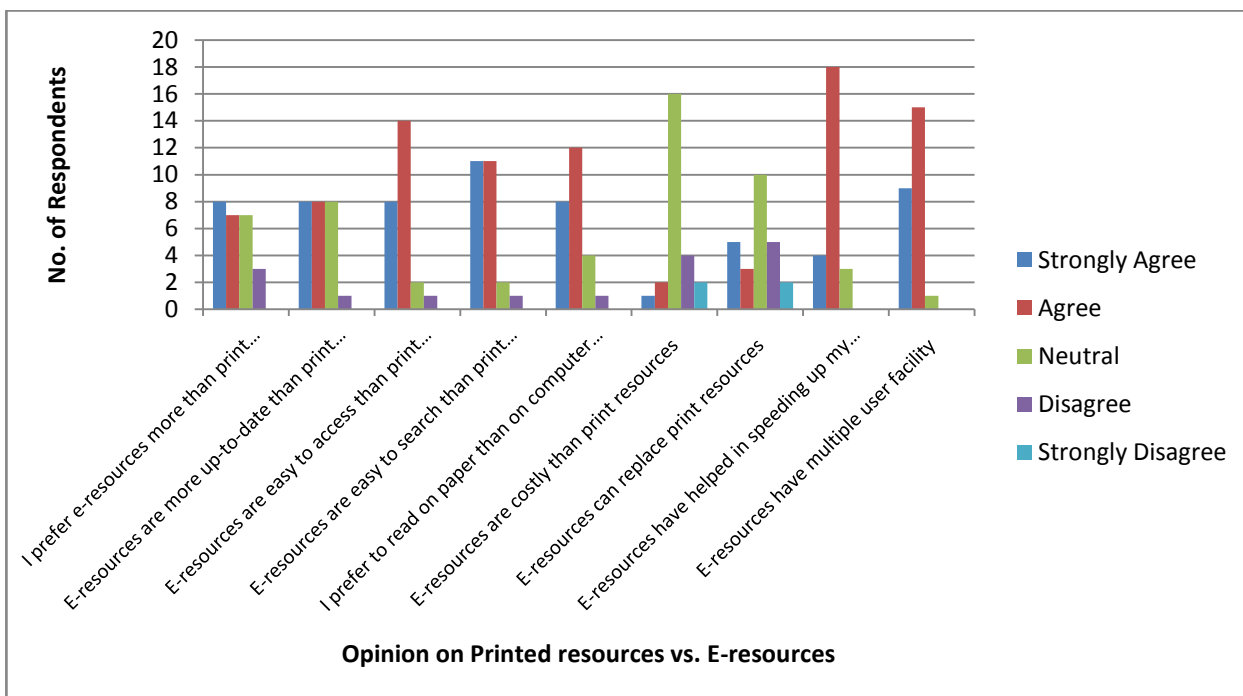
Figure 4.150: Opinion on Printed Resources vs. E-resources by Professors in Faculty of Science

Figure 4.150 shows the opinion on Printed Resources vs. E-resources by Professors in Faculty of Science. The figure depicts that most of the respondents agree that e-resources are easy to access, easy to search, helps in speeding up the work and have multiple user facility. They also agree to read on paper than on screen. They remain neutral on the opinion that e-resources are costly than printed resources and e-resources can replace printed resources.

Figure 4.148, 4.149 and 4.150 reflects that The Assistant Professors, Associate Professors and Professors in Faculty of Science agree that e-resources are easy to access, easy to search, helps to speed up the work and have multiple user access, They strongly agree that they prefer to read on paper than on screen. The Assistant Professors and Professors remain neutral on the opinion that e-resources can replace printed resources but the associate Professors agreed with the opinion.

Figure 4.151 shows the opinion on Printed Resources vs. E-resources by Assistant Professors in Faculty of Engineering and Technology. The figure reflects that most of the respondents strongly agree that e-resources are more preferred that printed resources, e-resources are up to date and easy to search. The respondents also agree that the e-resources are easy to access, can replace print resources, help in speeding up the work and have multiple user facility. Most of the resources remain neutral in the statements that they prefer to read on paper than computer screen and e-resources are costly than printed one.
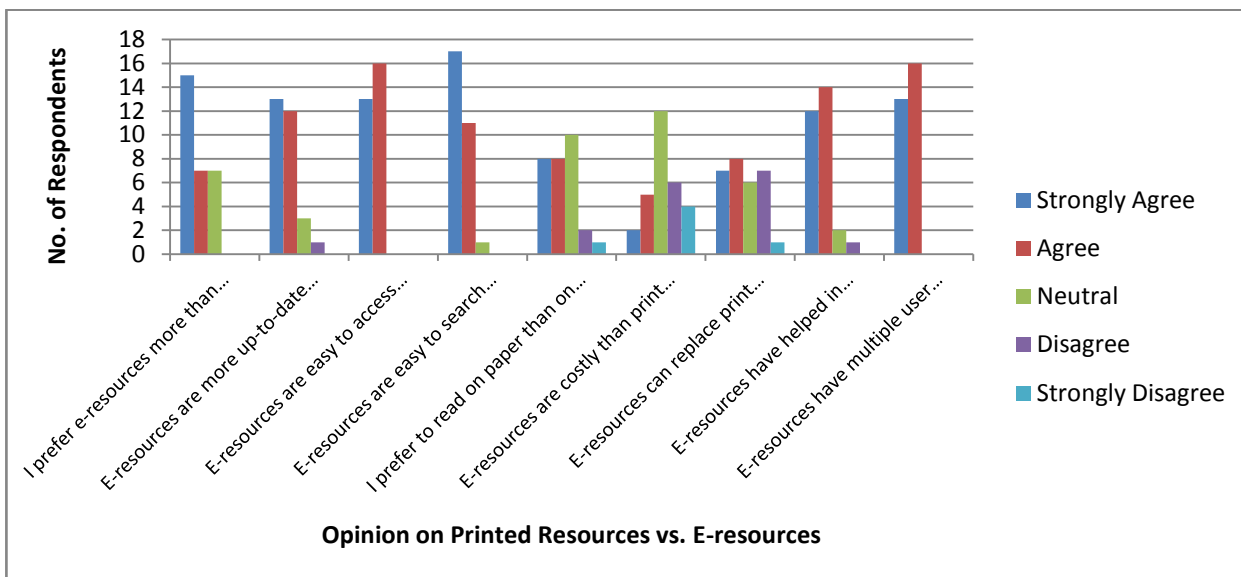
Figure 4.151: Opinion on Printed Resources vs. E-resources by Assistant Professors in Faculty of Engineering and Technology

Figure 4.152 shows that the opinion on Printed Resources vs. E-resources by Associate Professors in Faculty of Engineering and Technology. The figure depicts that most of the respondents strongly agree that they prefer e-resources than printed resources, e-resources are more up to date, easy to access and easy to search. Most of the respondents agree that e-resources help in speeding up the work and e-resources have multiple user access. Most of the respondents remain neutral to the statement that they prefer to read on paper than on computer screen, e-resources are costly than printed resources and e-resources can replace print resources.
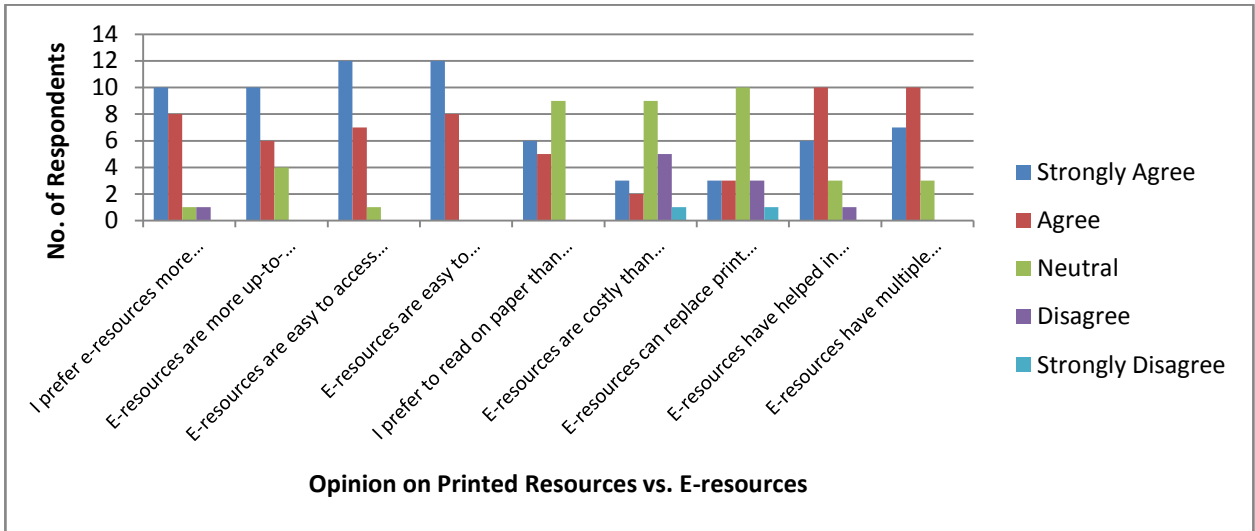
Figure 4.152: Opinion on Printed Resources vs. E-resources by Associate Professors in Faculty of Engineering and Technology
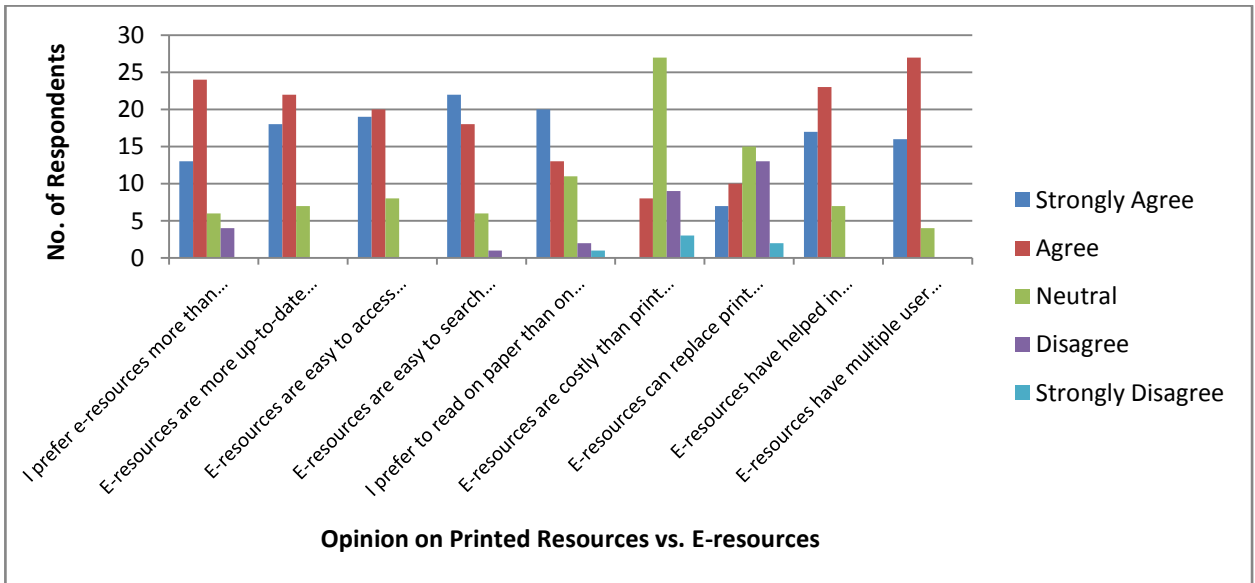
Figure 4.153: Opinion on Printed Resources vs. E-resources by Professors in Faculty of Engineering and Technology

Figure 4.153 shows the opinion on Printed Resources vs. E-resources by Professors in Faculty of Engineering and Technology. The figure reflects that most of the respondents strongly agree that e-resources are easy to search and they prefer to read on paper than on computer screen. Most of the respondents agree that they prefer e-resources than printed resources, e-resources are more up to date, e-resources are easy to access, help in speeding up the work and e-resources have multiple user facility.

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Figure 4.151, 4.152 and 4.153 reflects that the Assistant Professors, Associate Professors and Professors in Faculty of Engineering and Technology strongly agree that e-resources are easy to search than print resources. They agree that e-resources help in speeding up the work and e-resources have multiple user facility. Most of the respondents remain neutral to the statement that e-resources are costly than printed resources.

4.3.3.19 Suggestions

The opinions and suggestions on using of printed and e-resources were asked from Assistant Professors, Associate Professors and Professors in Faculty of Arts, Faculty of Science and Faculty of Engineering. Following section lists faculty wise opinions and suggestions.

Table 4.16 lists the opinions and suggestions of Assistant Professors, Associate Professors and Professors in Faculty of Arts. The table shows that total 5 responses came from Assistant Professors, 3 responses from Associate Professors and 2 responses from Professors. Faculty members of the Faculty of Arts opined that availability of up-to-date and quality resources and training to use e-resources are required most.

Table 4.16: Opinions and Suggestions by Faculty Members of Faculty of Arts

Assistant Professors (5 responses)
Institution should purchase and subscribe the major journals and research gateways. JU is very poor in terms of e-resources
Print resources and e-resources must be interchangeably used, neither of it can replace other. But due to space constraint, e-resources should be promoted which can reduce the deforestation for supply of raw materials for printing.
E-resources and printed resources are important as per requirement.
There should be further training with regard to e-resource among students and teachers at the University.
The University should consider expanding its institutional subscriptions to more relevant journals and online portals.
Associate Professors (3 responses)
More up-to-date resources required.
Availability of economic editions of print resources (particularly foreign publications) would be useful for students of South Asian region. Such editions could be purchased in more quantities whenever available.
Subscribe to more academic portals, archival repositories.
Faculty of Arts - Professors (2 responses)
Strengthening the University Archive at par to the top ranking universities and accessibility of the facility for all types of users.
The DL authorities should upgrade about service and held orientation programmes for better utilization of library resources.

Table 4.17 lists the opinions and suggestions of Assistant Professors, Associate Professors and Professors in Faculty of Science. The table shows that total 1 response came from Assistant Professors and 4 responses from Professors, no response came from Associate Professors of Faculty of Science. Faculty members of the Faculty of Science opined that more funds for purchasing printed books and easy access to e-resources to use e-resources are required most. They also urged for the communication from the library after procurement of new e-resource.

Table 4.17: Opinions and Suggestions by Faculty Members of Faculty of Science

Assistant Professor (1 response)
More funds can be allotted for purchasing printed books especially for UG and PG students in the Departmental Library.
Associate Professors (No responses)
Professors (4 responses)
We sometimes are not aware of newly acquired e-resources in the central library. This gap of information should be bridged.
Database of E-resources should be comprehensive and up to date. For teachers and students reading printed books helps.
Prefer printed resources for books but prefer e-resources for journals.
We should have easy access to the data usage of different resources of JU to justify future subscription.

Table 4.18 lists the opinions and suggestions of Assistant Professors, Associate Professors and Professors in Faculty of Engineering and Technology. The table shows that total 3 responses came from Assistant Professors, 3 responses from Associate Professors and 6 responses from Professors. Faculty members of the Faculty of Engineering and Technology opined that a balance between printed and e-resources and proper communication after procurement of new e-resource are required most.

Table 4.18: Opinions and Suggestions by Faculty Members of Faculty of Engineering and Technology

Assistant Professors (3 responses)
Library facilities on e-resources should be enhanced and properly communicated to teacher and student community.
If e-books number increased will be more helpful.
Most of the researchers use e-resources now. After COVID it has been increased with multiple user facility. Printed books are issued by one, costlier and difficult to carry.
Associate Professors (3 responses)
E-resources are good but can't always read as it affects eyes. So, printed resources are much more acceptable.
E-books should be purchased and materials should be accessible easily.

More users friendly and easily available.
Professors(6 responses)
Both are necessary. So a balance between them is helpful.
A balance between the printed and e-resources can be more effective. One cannot be the replacement of others.
Greater access to journal database, feedback on purchase and usage of journals are recommended which is lacking.
The information procurement of new e-resources is not properly communicated to individual faculties in an organized way.
Printed resources are helpful for reading purpose but e-resources are helpful for searching purpose.
There must be a balance between these two resources.

From the overall interpretations the pros and cons of using printed resources and electronic resources by the faculty members of Jadavpur University has been revealed. The figures revealed that though the e-resources are easy to search and access, the printed resources are easy to read. Thus, both of the resources have importance in serving the academic community. No one can replace the other in supporting the academic community. The detail findings and conclusions have been discussed in the next chapter**.**

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Yang, W., Lin, C., & Hu, P. (2020). Willingness and obstacles of Food and Farming Education in Leisure Farm Management: Viewpoint of experience activities. *Open Access Library Journal*, 7(6), 1-14. DOI: https://doi.org/10.4236/oalib.1106485

Chapter 5.

Findings and Conclusions

CHAPTER 5: FINDINGS AND CONCLUSIONS

5.1 Introduction

Jadavpur University Library System possesses a huge collection covering various interdisciplinary subjects to accomplish the academic requirements of the users and acts as a knowledge hub to disseminate information for various research purposes. The knowledge hub depicts a wide range of collections with its qualitative services to its users. Having a distinctive origin to establish a national education system under national control, Jadavpur University Central Library with all the departmental libraries and campus library is continuously serving its users to fulfill their needs. The demand for electronic information is increasing every day and the University library is constantly balancing the collection in both printed and electronic formats. In the university library system acquiring and processing quality information plays an important role in collection development. But a total consistency and uniformity for developing a collection, maintenance, evaluation and users' services are necessary to guide the present and future generation professionals associated with this library system. Another important area is balancing printed and electronic resources by proper distribution of funds keeping in mind the demand of the users as information technology has given rise to new kinds of information and their selection, maintenance and evaluation methods are different. The research work addresses some issues on development of collection ane use of library resources in Jadavpur University Library System. The main focus of the research is to study and understand the procedures followed to develop the collection and the role and impact of Jadavpur University library resources among the faculty members of the University. This chapter summarizes the findings and conclusions of the research work undertaken. Also mentioned in this chapter the specific contributions of research work, and the areas wherein future research needs to be carried out.

5.2 Findings

This research work is based on data collection from records, questionnaires, interviews and surveys. The strength of the Jadavpur University Library System lies in acquiring a wide range of collections in different formats serving a variety of users. There are certain observations in developing the collection in the University. In this thesis, it is observed that Jadavpur University Library System follows collection development methods that are developed for their use through University Library Committee's resolutions in a fragmented way. The policy, in this case, had been recorded in the form of resolutions of the University Library Committee in written form

which is passed by the Executive Council (EC) of Jadavpur University. Then the resolutions taken, are distributed in the form of circulars among the departments from time to time for smooth functioning of the library. But the system lacks a structured collection development policy in written form which can act as a code in the decision-making process minimizing the difficulties and guiding the personnel associated with the collection development activity of the University library.

5.2.1 Allocation of Funds

The first thing to develop a good collection is adequate supply and proper distribution of the fund. In Jadavpur University Library System the balancing of allocation is observed by separately allocating funds for books and e-resources. Books are getting grants from various Government funding agencies including various research projects whereas e-resources are mostly funded by the university budget. Jadavpur University is spending the university budget on purchasing e-books and e-journals in the last few years and the University is depending on Central and State Government grants for the purchase of printed books. But in the last few years, UGC and other Government agencies have not provided any funds for printed book purchases other than project funds. The trend shows a shifting in forms of resources from print to electronic one. Consistent guidance is provided by the University Librarian along with the University Library Committee to allocate the fund. Flexible allocation of funds is observed depending on the University on the courses run, new establishment of departments, price of documents and efficacy of departments in the utilization of funds. Reallocation and re-appropriation of funds have been observed in various departments. Guidelines for judicious allocation of funds as per the prior requirement of the users with proper justification criteria like the review of subjects, format, strength of the community served, publishing output, price and efficacy in the utilization of funds should be incorporated into the policy statement.

5.2.2 Selection of Materials

Selection of both print and electronic resources can be managed judiciously by assessing the user needs by encouraging the participation of all types of users in recommending resources and utilization study of the collection. The University library system observes the spontaneous participation of the faculties in recommending documents as they are the experts in their subjects whereas the direct participation of students and librarians is not prominent. Here collection

development policy of the library can help to mark the weak areas and provide guidelines to strengthen them.

5.2.3 Evaluation of Materials

Development of collection based on continuous utilization study of the collection makes the collection relevant and useful. It is observed that Jadavpur University Library maintains the information on the attendance of users in various departments but there is no concrete evidence of user opinion or feedback at regular intervals, no circulation record analysis, no Inter-Library Loan statistics and no in-house use study analysis is maintained in records. No discarding method is popular in this library system.

An user survey was conducted among the faculty members of Jadavpur University to understand the role of printed resources and e-resources in the university library. An attempt has been made to summize the findings of the study.

5.2.3.1 Personal Information

5.2.3.1.1 Distribution of Respondents According to Gender

The findings of the survey on the distribution of the respondent according to gender shows that majority of the respondents are male (140) compared to female (39) candidates. No responses are found from the third gender. Thus, it is concluded that male faculties are dominated by number.

5.2.3.1.2 Distribution of Respondents According to Age

It is evident from the study that Assistant Professors of all the three faculties are from the age group of 31-40 years, Associate Professors are from 41-50 years and Professors are from 51-60 years.

5.2.3.2 Use of Printed Resources

5.2.3.2.1 Frequency of use of Printed Resources

It is identified from the study that maximum (74) respondents use the printed resources daily followed by (55) respondents 2-3 times a week among the faculty members of the university. Faculty members of Arts and Engineering and Technology use the printed resources mostly in daily basis whereas the faculty members of Science use the printed resources mostly 2-3 times a week.

5.2.3.2.2 Sources to update about new Printed Resources

It is found from the study that all categories of three faculties mostly update them about printed resources by browsing or search internet/online bookstores. Only exception is the Associate Professors in Faculty of Science who get the update about printed resources from publishers catalogue/email alerts from publishers, distributors etc. This reveals that most of the respondents depend on online for searching printed resources which determines that searching is comfortable in online mode.

5.2.3.2.3 Location to access Printed Resources

The study reveals that majority of the faculty members of all categories use Departmental Library to access printed resources. This reflects that the university has Departmental Library with a good collection that can fulfil the demand of the users**.**

5.2.3.2.4 Types of Printed Resources used

It is evident from the study that Books and Current Issue Journals are most frequently or frequently used printed resources among all the three categories of respondents in Faculty of Arts, Science and Engineering and Technology. Standards/Patents/Specifications are never used by the faculty members of Arts. M.Phil. Dissertations are never used by faculty members of Science. M.Phil. Dissertations are rarely or never used by the faculty members of Engineering and Technology.

There is no significant difference is observed in the use pattern of printed resources but the demand of books and current issue journals are identified.

5.2.3.2.5 Purpose of using Printed Resources

The findings of the study on the purpose of using printed resources show that the all the categories of Faculty of Arts strongly agreed that the printed resources are used for research purpose, for writing research paper, for guiding researchers and for teaching/lecture purpose. All the categories of Faculty of Science strongly agreed that the printed resources are used to know current developments, for research purpose and for teaching/lecture purpose. The three categories of Faculty of Engineering and Technology strongly agreed on the purpose to know current development but for teaching/lecture purpose most of the Associate Professors and Professors strongly agree whereas Assistant Professors agree on the purpose.

It may be concluded that Faculty of Arts use the printed resources for research purpose and teaching/learning process. The Faculty of Science use printed resources to know current development, for research purpose and for teaching/learning where Faculty of Engineering and Technology use printed resources for updating current developments and teaching/learning process.

5.2.3.2.6 Activities after finding Printed Resources

The study reveals that in Faculty of Arts of most of the Assistant Professors rarely photocopy the entire document, Associate Professors and Professors most frequently photocopy only the required portion. In Faculty of Science, the maximum number of Assistant Professors most frequently and Associate Professors rarely scan and save the document whereas the Professors frequently photocopy only the required portion of the document. In Faculty of Engineering and Technology, the maximum number of Assistant Professors occasionally photocopy the entire document, Associate Professors most frequently photocopy only the required portion and the Professors frequently read and return the document. A variety of activities are observed among all the three faculties.

In this study photocopy the entire document reflects lack of awareness about copyright violation issues and other legal conditions. Scanning and saving the printed resources reflects the dependency on technology to preserve the hard copy.

5.2.3.2.7 Advantages of using Printed Resources

The study reveals that the faculty members of Arts agree that the printed resources are available easily, does not require any medium to access, does not require separate IT knowledge/training, easy to make notes or highlight and no fear of interruption in reading. The faculty members of Science agree that the printed resources can be owned by anyone, does not require any medium to access and easy to make notes or highlight. The faculty members of Engineering and Technology agree that printed resources does not require any search technique, does not require any medium to access and are easy to make notes or highlight.

It is evident from the study that printed resources are comfortable for the purpose of reading.

5.2.3.2.8 Disadvantages of using Printed Resources

It is found that all the three categories of Faculty of Arts agree that the printed resources are not up to date, require storage space, chances of physical damage, cannot have multiple access and

may not be always cost-effective. The faculty members of Science agree that printed resources have the chance of physical damage and cannot have multiple access. The faculty members of Engineering and Technology commonly agree that printed resources are not up to date, require storage space and chances of physical damage.

These are the genuine problems of using printed resources they are not regularly replaced with new editions, require storage space in case of physical copy and regular use may physically damage the resources. Thus, it may be concluded that monitoring of printed resources at regular intervals through stock verification is required to keep the collection up to date and identify the damaged documents and proper discarding or weeding policy may be introduced to overcome space shortage.

5.2.3.2.9 Facilities provided for using Printed Resources

The study reveals that all the three categories of respondents of Faculty of Arts are satisfied on library timings on weekdays and overall collection of Departmental Library. All the three categories of respondents of Faculty of Science are satisfied on access to Reference resources in CL/DL and library timing on weekdays. The faculty members of Engineering and Technology are commonly satisfied on number of books borrowed from Central Library, access to Reference sources in CL/DL, library timings on weekdays, overall collection of Central Library and Departmental Library. Among all the Faculties most of the respondents are satisfied on overall collection of Departmental Library except Faculty of Science which refers that the Departmental Libraries provide good support in teaching learning and research. All the categories of the three Faculties are satisfied on the library timing in weekdays.

It is the unique feature of this university that every department under each faculty have separate departmental libraries with qualified librarians to fulfill the requirements. The satisfaction for timing of library in weekdays refers that Central Library and many of the departments running evening courses reamin open in the evening hours which may be convenient by the respondents.

5.2.3.3 Use of E-resources

5.2.3.3.1 Period of using E-resources

It is found from the study that all categories of respondents of three faculties use the e-resources for more than 10 years. It is evident that e-resources are an necessary part of teaching learning process.

5.2.3.3.2 Frequency of using E-resources

It is evident from the study that maximum(135) respondents use the e-resources daily. This reflects that e-resources are used more than the printed resources for daily use.

5.2.3.3.3 Sources to know about E-resources

It is found that the all categories of respondents of three faculties come to know about e-resources by browsing and searching from internet. The respondents also get the information from the citations in reports, journals or conference papers.

It can be concluded that the most comfortable search platform is internet.

5.2.3.3.4 Way of learning to use E-resources

It is evident from the study that most of the respondents from all the three categories of faculties follow self learning method to use the e-resources. Some respondents learn to use the e-resources by attending courses, trainings, workshops and seminars. Very few respondents rely on the library staff to use the e-resources.

It can be concluded that university library should take proper initiative to provide training to use the e-resources.

5.2.3.3.5 Consultation for problems in using E-resources

It is found that most of the faculty members search online for solution regarding the problem faced in using e-resources. A good number of faculties take help from colleagues to solve the problems.

It can be concluded that library can provide a help desk to solve the problems regarding use of e-resources. This can optimize the use of e-resources in the university library.

5.2.3.3.6 Location of access to E- resources

It is found that most of the faculties use remote access (beyond campus) facility provide by the university to the faculties and research scholars. This reflects that the remote access facility is popular as the respondents can get any types of e-resources anytime and from anywhere.

5.2.3.3.7 Library support for using E-resources

The study finds that the all categories in Faculty of Arts and Faculty of Engineering and Technology either rarely or never get awareness about legal issues. In case of Faculty of Science

all categories never get awareness about legal issue. All the categories of three Faculties are most frequently or frequently provided Wi-Fi connections except the Professors of Faculty of Arts who get the facility occasionally. The other library support facilities vary within all categories of three faculties.

It can be concluded that libraries should conduct workshop on legal issues on using e-resources at regular intervals. The variety of responses on library support among the faculties perhaps depends on the efficiency of the departmental librarian and the relation between the libarian and the faculties. A periodic training for the librarians and library staffs are also necessary to optimize the library support.

5.2.3.3.8 Methods of Searching E-resources

It is found from the study that using search engine is the most frequently used method among all categories of the Faculties. Links from bibliographic databases are used most frequently or frequently except among the Associate Professors in Faculty of Arts and Assistant Professors in Faculty of Science who use the links occasionally. Subject gateways/portals in the internet are also used most frequently or frequently except among the Assistant Professors in Faculty of Science who use it rarely. University/Library websites are used occasionally or rarely except among the Assistant Professors in Faculty of Engineering and Technology who use it frequently. Publisher/vendor website are least used for searching e-resources**.**

It may be concluded that promotion and awareness should be made to increase the use of University or Library website which can help in effective utilization of University subscribed library resources.

5.2.3.3.9 Search Strategy for finding E-resources

The study finds that Author, Title of the article, Subject, Keyword and DOI are the most frequently or frequently used search strategy among all categories of Faculties. Exception is seen among the Professors of Faculty of Arts who use DOI occasionally. Proximity operator and truncation are rarely or never used by all categories of Faculties for searching e-resources.

Workshop on various search techniques can be organized by the library to optimize the use of e-resources.

5.2.3.3.10 Types of E-resources used

It is found from the study that all categories of Faculty of Arts most frequently or frequently use E-journals and E-newspapers whereas Standards/Patents/Specifications are never used by them. The faculty members of Faculty of Science use E-journals and E-newspapers either most frequently or frequently. The faculty members of Engineering and Technology most frequently or frequently used E-books, E-journals, E-conference proceedings, E-newspapers, Open Educational Resources and Open access resources. E-journals are commonly used e-resource among the three faculties of the University.

5.2.3.3.11 Use of Popular E-resources

It is found from the study that maximum (23) respondents of Faculty of Arts ranked JSTOR first. In Faculty of Science maximum respondents (23) respondents ranked first Science Direct. Springer Link is ranked second by maximum (22) respondents of Faculty of Science. In Faculty of Engineering and Technology maximum (49) respondents ranked Science Direct first. Springer Link is ranked second by maximum (33) respondents of Faculty of Engineering and Technology. IEEE Explore is also popular in the Faculty of Engineering and Technology, 21 respondents ranked it first.

It is observed that JSTOR is the most popular e-resource among Faculty of Arts whereas Science Direct and Springer Link are most the popular e-resources among Faculty of Science and Faculty of Engineering and Technology.

5.2.3.3.12 Purpose of using E-resources

The study finds that faculty members of Faculty of Arts, Faculty of Science and Faculty of Engineering and Technology strongly agree or agree that they use e-resources to know current developments, for research purpose, for writing research paper, for guiding researchers, for reading articles, for seminar/conference/workshop and for teaching /lecture purpose**.**

It can be concluded that e-resources are used to aware about the current developments in their field of study, for research related activities from review of the literature to publication of research papers and preparartion for teaching-learning activities. It refers that e-resources are essential resources in the higher education and research.

5.2.3.3.13 Activities after finding E-resources

The study finds that all the three categories of Faculty of Arts, Faculty of Science and Faculty of Engineering and Technology most frequently save the e-resources by downloading. They frequently e-mail the e-resources to themselves.

It can be concluded that the respondents download or e-mail the e-resources to preserve it in secured storage for easy availability. Nowadays Google drive is one of the commonly used storage for soft copy resources.

5.2.3.3.14 Advantages of using E-resources

The study finds that the advantages of using e-resources strongly agreed by most of the respondents of all categories of the three Faculties are time saving/24*7 accessibility, space saving, easy to handle, easy to access, universal/multiple access, file sharing, portable/accessible from anywhere, up to date and cost saving.

5.2.3.3.15 Problems of using E-resources

It is found from the study that the Faculty of Arts strongly agree that problems of using e-resources are subscription based access, problems to access back issues and discomfort in online reading. In case of Faculty of Science and Faculty of Engineering and Technology the problems of using e-resources are availability of limited materials, subscription based access and information overload/junk information.

It can be concluded that subscription based access is the main problem in using e resources.

5.2.3.3.16 Infrastructure facilities for using E-resources

The study finds that the all the categories in Faculty of Arts and Faculty of Engineering and Technology are satisfied on access to e-resources in Central Library, access to e-resources in Departmental Library, internet facility/Wi-Fi and internet speed/bandwidth. In case of Faculty of Science, all categories are satisfied on the internet facility/Wi-Fi. The Associate Professors and Professors in Faculty of Science are satisfied with the access to e-resources outside the Univesity Campus(remote access) but the Assistant Professors remain neutral.

It may be concluded that the University provides good connectivity of internet but the level of satisfaction varies on the access to e-resources and other infrastructure facilities.

5.2.3.3.17 Awareness on legal problems

It is found from the study that all categories of faculty member of Arts fully aware or substantially aware about copyright violation and internet usage policies and the stringency. In case of the all categories of faculty members of Science they are fully aware of copyright violation but fully aware or substantially aware of intellectual property rights. All the categories of faculty members of Engineering and Technology are fully aware of copyright violation whereas fully aware or substantially aware of internet usage policy and the stringency and intellectual property rights.

5.2.3.3.18 Opinion on Printed Resources vs. E-resources

The study finds that all the categories of Faculty of Arts strongly agree that they prefer to read on paper than on screen. They agree that e-resources are more up-to-date, easy to access, easy to search, help in speeding up the work and have multiple user access whereas they disagree that e-resources can replace printed resources. All categories of Faculty of Science either strongly agree or agree that e-resources are more up-to-date, easy to access, easy to search, help in speeding up the work and have multiple access. They strongly agree or agree that they prefer to read on paper than on computer screen. All categories of Faculty of Engineering and Technology either strongly agree or agree that they prefer e-resources than printed resources and e-resources are up-to-date, easy to access, easy to search, help in speeding up the work and have multiple user access. Most of the respondents remain neutral on the statement that e-resources are costly than printed resources and e-resources can replace printed resources.

It can be concluded that all the Faculties supported the advantages of e-resources but Faculty of Arts and Science agree to read on paper than on computer screen. Faculty of Engineering and Technology prefer e-resources than printed resources but remain neutral that e-resources can replace printed resources.

5.3 Conclusions

This is an issue of concern in the present days that E-resources are considered as an enormously important tool for efficient teaching learning and research. They also help to gather knowledge on current developments in the society. The faculty members are confined in use of books and current issue of journals in printed form whereas they access to wide range of e- resources like e-books, e-journals, e-thesis, e-databases, e-newspapers, e-magazines, e-archives etc. Both the

printed resources and e-resources are used to update about current developments, for research purpose and for teaching learning process where it is necessary to keep the resources update in their subjects. The advantages of e-resources are the multiple and remote accessibility saving time and space whereas the printed resources have the advantage on using it comfortably. Thus proper balance is required in the procurement of both the resources which can only be achieved with judicious selection and proper evaluation of the collection.

The procurement of resources in each year should be communicated in the form of alert services to the users to inform them about the huge procurements. It helps in future selection of resources. Frequent orientation programmes on the use of e-resources and workshop on awareness about the legal issues in using printed resources and e-resources should be conducted by the University library for the optimum utilization of the resources. Open educational resources and open access resources can be promoted to fulfill the information needs of the users and overcome the financial limitations. The use statistics of both printed resources and e-resources should be communicated to each department for the judicious selection for the future. In case of printed resources proper discarding methods should be taken to avoid space shortage. Lastly, a structured written collection development policy is necessary to maintain a standardized format that can provide proper guidance to develop the collection to fulfill the library objectives as well as institutional objectives.

5.4 Scope for Further Research

The finding of the study gives scope for further research:

1. Evaluation of use statistics of different resources of Jadavpur University.

2. Designing a model collection development policy for Jadavpur University Library System.

3. Analysis of the research publications of the faculty members to trace the trends and development in the collection of Jadavpur University.

Appendix

QUESTIONNAIRE FOR THE FACULTY MEMBERS OF JADAVPUR UNIVERSITY

To

Respected Sir/Madam,

It is to state that I am doing Ph.D. from Department of Library and Information Science, Jadavpur University on the topic related to collection development and use of library resources in Jadavpur University Library System under the supervision of Prof. (Dr.) Udayan Bhattachayya of Department of Library and Information Science, Jadavpur University.

For my research work, I require to collect data with regard to the use of library resources by the faculty members of Jadavpur University through the Questionnaire.

You are requested to kindly spare your precious time to fill up the questionnaire. The information provided in the Questionnaire will be kept confidential and will be used only for academic purposes.

Thanking you.

Yours faithfully,

[SUSMITA SARKAR BASU]

Research Scholar

Department of Library & Information Science

Jadavpur University

Kolkata

Email: basusarkar.susmita@gmail.com

Mobile: 8017108345, 9432339033

PART I. PERSONAL INFORMATION

1. **Name:** …………………………………………………..

2. **(a) E-mail:** ……………………………………(b) Mobile ………………………

3. **Designation** *(Please put ✓ mark in the appropriate box)***:**

       (a) Assistant Professor ☐

       (b) Associate Professor ☐

       (c) Professor ☐

4. **Name of the Faculty associated with** *(Please put ✓ mark in the appropriate box):*

       (a) Arts ☐

       (b) Science ☐

       (c) Engineering and Technology ☐

       (d) ISLM ☐

5. **Name of the Department associated with**: …………………………………………….

6. **Gender** *(Please put ✓ mark in the appropriate box):*

       (a) Male ☐

       (b) Female ☐

       (c) Third Gender ☐

7. **Age** *(Please put ✓ mark in the appropriate box):*

       (a) Below 30 years ☐

       (b) 30 –40 years ☐

       (c) 41 – 50 years ☐

       (d) 51-60 years ☐

       (e) Above 60 years ☐

8. **Educational Qualification**

    (Please state latest educational qualification): ………………………………………

9. **Teaching Experience** *(in years):* ……………………………………….

PART II. USE OF PRINTED RESOURCES

1. **At what frequency do you use printed resources?** *(Please put ✓ mark in whichever is applicable)*
    - (a) Daily ☐
    - (b) 2-3 times a week ☐
    - (c) Once in a week ☐
    - (d) Once in a month ☐
    - (e) Never ☐

2. **From which sources do you come to know about updated/new printed resources?**

   (You may ✓ mark in more than one)
    - (a) From the reference given by my librarian ☐
    - (b) By browsing or searching internet/ online bookstores ☐
    - (c) By recommendations from subject experts ☐
    - (d) Announcements in journals ☐
    - (e) Publisher catalogues/ E-mail alerts from publishers, distributors, etc. ☐
    - (f) Cited in report/ journals/ conference papers ☐
    - (g) Through communication with friends/ colleagues ☐

3. **From where do you access the printed resources?** *(You may put ✓ mark in more than one)*
    - (a) From Central Library ☐
    - (b) From Departmental Library ☐
    - (c) From other libraries of which you are member ☐
    - (d) Personal Purchase ☐
    - (e) From Colleagues/ Friends ☐
    - (a) Others (if any) _____

4. **Which types of the following printed resources do you use? Mention the frequency of use.** *(Please put ✓ mark as per your preference)*

Sl. No.	Printed Resources	Use Scale				
		Most Frequently	Frequently	Occasionally	Rarely	Never
(a)	Books					
(b)	Journals					
	(i) Current Issue					
	(ii) Bound Volume					
(c)	Ph. D. Thesis					
(d)	M. Phil. Dissertations					
(e)	Conference/ Seminar Proceedings					
(f)	Standards/ Patents/ Specifications					
(g)	Manuscripts					
(h)	Rare Books					
(i)	Newspapers					
(j)	Special Collection					
(k)	Reference Sources (Dictionary, Encyclopedia, etc)					
(l)	Any Other (please specify)					

5. Mention your purposes of using the printed resources? *(Please put ✓ mark as per your preference)*

Sl. No.	Purpose	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(a)	To know current developments					
(b)	For general information					
(c)	For research purpose					
(d)	For writing research paper					
(e)	For guiding researchers					
(f)	For reading articles					
(g)	For seminar/ conference/workshop					
(h)	For scientific news					
(i)	For statistical information					
(j)	For new standards/patents related news					
(k)	For teaching/ lecture purpose					
(l)	Designing curriculum					
(m)	Any other (please specify)					

6. What do you prefer to do after finding the necessary printed resources? *(Please put ✓ mark as per your preference)*

Sl. No.	Activity	Most Frequently	Frequently	Occasionally	Rarely	Never
(a)	Only read and return					
(b)	Photocopy only the required portion					
(c)	Photocopy the entire document					
(d)	Scan and save it					
(e)	Purchase it if necessary					

7. Do you consider the following as advantages in use of printed resources? *(Please put ✓ mark in whichever is applicable)*

Sl. No.	Advantages	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(a)	Availability is easier					
(b)	Can be carried anywhere					
(c)	Can be owned by anyone					
(d)	Does not require any medium to access					
(e)	Does not require any search technique					
(f)	Does not require separate IT knowledge/ training					
(g)	Does not require separate subscriptions					
(h)	Easy to make notes or highlight					
(i)	Is not internet based					
(j)	More sustainable					
(k)	No fear of interruption in reading					
(l)	Does not require staff assistance in handling					
(m)	Sources are reliable and authentic					

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8. Do you consider the following as problems in the effective use of printed resources?
(Please put ✓ mark in whichever is applicable)

Sl. No.	Disadvantages	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(a)	Not up to date					
(b)	Require storage space					
(c)	Document size may be difficult to handle					
(d)	Chances of physical damage					
(e)	Cannot have multiple access					
(f)	May not be always cost – effective					
(g)	Difficult to locate/ access					
(h)	Is not time-saving					

9. Mention your level of satisfaction about the services of your library *(Please put ✓ mark as per your preference)*

Sl. No	Infrastructure Facilities	Fully Satisfied	Satisfied	Neutral	Partially Satisfied	Not Satisfied
(a)	No. of Books you can borrow from Central Library					
(b)	No. of Journals you can borrow from Central Library					
(c)	Access to Bound Volumes					
(d)	Access to Rare Books					
(e)	Access to Newspapers					
(f)	Access to Reference Resources in CL/DL					
(g)	Library Timings on weekdays					
(h)	Library Timings on weekends					
(i)	Overall collection of Central Library					
(j)	Overall collection of Departmental Library					

PART III. USE OF E-RESOURCES

10. **How long are you using e-resources?** *(Please put ✓ mark in whichever is applicable)*

    (a) Below 1 year ☐
    (b) 1-5 years ☐
    (c) 6-10 years ☐
    (d) More than 10 years ☐

11. **At what frequency do you use e-resources?** *(Please put ✓ mark in whichever is applicable)*

    (a) Daily ☐
    (b) 2-3 times a week ☐
    (c) Once in a week ☐
    (d) Once in a month ☐
    (e) Never ☐

12. **From which source do you come to know about e-resources?** *(You may ✓ mark in more than one)*

    (a) From the reference given by my librarian ☐
    (b) By browsing or searching from internet ☐
    (c) Through database searching ☐
    (d) By recommendations from subject experts ☐
    (e) Announcements in journals ☐
    (f) E-mail alerts from publishers/ distributors, etc. ☐

    (g) Cited in report/ journals/ conference papers ☐
    (h) Through communication with friends/colleagues ☐
    (i) Library Orientation Program / workshop ☐

13. **What was your way of learning to use e-resources?** *(You may put ✓ mark in more than one)*

    (a) With help from library staff ☐
    (b) With help from computing staff/technicians ☐
    (c) With help from other colleagues ☐
    (d) Attending courses, trainings, workshops and seminars ☐
    ☐
    (e) Self-learning
    (f) Trial and error ☐
    (g) Any other (please specify) _____

14. **Where/ with whom do you consult in case of experience any issues while using e-resources?**
(You may put ✓ mark in more than one)

    (a) Librarian ☐
    (b) Colleagues ☐
    (c) Search online for solutions ☐
    (d) Database vendor ☐
    (e) Others ☐

15. From where do you access the e-resources? *(You may put ✓mark in more than one)*

    (a) From Central Library ☐

    (b) From Departmental Library ☐

    (c) Personal Purchase/ Subscription ☐

    (d) Remote Access (Beyond Campus) ☐

    (e) Others (if any) _____

    (f)

16. What kind of support or facilities are you getting from library towards using E-Resources?

(Please put ✓mark as per your preference)

Sl. No.	Support/Facilities	Most Frequently	Frequently	Occasionally	Rarely	Never
(a)	Regularly updating of new technologies					
(b)	Periodical training					
(c)	Providing guidance to use e-resources					
(d)	Awareness about legal issues					
(e)	Providing Wi-Fi connections					

17. From where do you search the e-resources? *(Please put ✓mark as per your preference)*

Sl. No.	Method	Most Frequently	Frequently	Occasionally	Rarely	Never
(a)	Using search engines					
(b)	Using links from bibliographic databases					
(c)	Through University/Library website					
(d)	Subject gateways/portals on the Internet					
(e)	Directly through publisher/vendor website					
(f)	Other (please specify)					

18. What is the frequency of use of the following search strategy for finding information?

(Please put ✓mark as per your preference)

Sl. No.	Search Strategy	Most Frequently	Frequently	Occasionally	Rarely	Never
(a)	Author					
(b)	Title of the article					
(c)	Journal title					
(d)	Subject					
(e)	Keyword					
(f)	Year/Date					
(g)	Abstract					
(h)	Publisher					
(i)	DOI					
(j)	Boolean Search					
(k)	Phrase search					
(l)	Proximity operator					
(m)	Truncation (# or$)					

19. Which types of the following e-resources do you use? Mention the frequency of use.
(Please put ✓ mark as per your preference)

Sl. No.	Electronic Resources	Use Scale				
		Most Frequently	Frequently	Occasionally	Rarely	Never
(a)	E-books					
(b)	E-journals					
(c)	E-theses/dissertations					
(d)	E-conference proceedings					
(e)	E-Standards /Patents/ Specifications					
(f)	E-research reports					
(g)	E-newspapers					
(h)	E-magazines					
(i)	E-bibliographic databases					
(j)	E-reference sources					
(k)	E-archives					
(l)	Indexing abstracting databases					
(m)	Open educational resources					
(n)	Open access resources					
(o)	Institutional repositories					

20. Rank the following e-resources as per your preference of use. (1= 1st… n=last)

Sl. No.	Name of Database/ Resource	Ranking as per preference of use
(a)	EBSCO Research Databases	
(b)	Emerald Insight	
(c)	IEEE Xplore	
(d)	JSTOR	
(e)	Oxford University Press	
(f)	ProQuest	
(g)	Sage Journals Online	
(h)	Science Direct	
(i)	Scopus	
(j)	Springer Link	
(k)	Taylor and Francis	
(l)	Web of Science	
(m)	Wiley Blackwell	
(n)		

21. Mention your purposes of using the e-resources? *(Please put ✓ mark as per your preference)*

Sl. No.	Purpose	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(a)	To know current developments					
(b)	For general information					
(c)	For research purpose					
(d)	For writing research paper					
(e)	For guiding researchers					
(f)	For reading articles					
(g)	For seminar/ conference/workshop					
(h)	For scientific news					
(i)	For statistical information					
(j)	For new standards/patents related news					
(k)	For teaching/ lecture purpose					
(l)	Designing curriculum					
(m)	Any other (please specify)					

22. What do you prefer to do after finding the necessary e-resource. *(Please put ✓ mark as per your preference)*

Sl. No.	Activity	Most Frequently	Frequently	Occasionally	Rarely	Never
(a)	Bookmark it					
(b)	Save it by downloading					
(c)	Saving it by copy-paste					
(d)	Email it to yourself					
(e)	Take print out					
(f)	Purchase (if needed)					
(g)	Read it online					
(h)	Save the URL					

23. Do you consider the following as advantages in use of e-resources? *(Please put ✓ mark in whichever is applicable)*

Sl. No.	Advantages	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(a)	Time saving / 24*7 accessibility					
(b)	Space saving					
(c)	Easy to handle/ Search					
(d)	Ease of access					
(e)	Universal/ Multiple access					
(f)	File sharing					
(g)	Portable/accessible from anywhere					
(h)	Up to date					
(i)	Cost-saving					

24. Do you consider the following as problems in the effective use of e-resources?*(Please put ✓mark in whichever is applicable)*

Sl. No.	Hindrances	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(a)	Availability of limited materials					
(b)	Subscription based access					
(c)	Slow download					
(d)	Information overload / Junk Information					
(e)	Problems to access back issues					
(f)	Copyright issue					
(g)	Quality or authenticity issue					
(h)	Diverse format of electronic resources					
(i)	Requires remote access facility					
(j)	Limited access to computers					
(k)	Difficulty in searching					
(l)	Can be lost/volatile access					
(m)	Internet issue / Slow download speed					
(n)	Lack of assistance from library staff					
(o)	Discomfort in online reading					
(p)	Lack of IT knowledge/ training					

25. Mention your level of satisfaction about the infrastructure facilities of your library *(Please put ✓mark as per your preference)*

Sl. No.	Infrastructure Facilities	Fully Satisfied	Satisfied	Neutral	Partially Satisfied	Not Satisfied
(a)	Access to e-resources outside the University campus(remote access)					
(b)	Access to e-resources in Central Library					
(c)	Access to e-resources in Department					
(d)	Internet facility / Wi-Fi					
(e)	Internet speed/bandwidth					
(f)	No. of computers in Central Library					
(g)	No. of computers in Department Library					

26. Awareness on the legal problems while using the e- resources *(Please put ✓mark as per your preference)*

Sl. No	Awareness on Legal problems	Fully Aware	Substantially Aware	Moderately Aware	Marginally Aware	Not Aware
(a)	Copyright violation					
(b)	Internet usage policies and the stringency					
(c)	Protection of intellectual assets					
(d)	Awareness of internet usage polic					
(e)	Internet monitoring and content filtering					
(f)	Intellectual Property Rights					

27. Give your opinion about the following *(Please put ✓mark as per your preference)*

Sl. No.	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
(a)	I prefer e-resources more than print resources					
(b)	E-resources are more up-to-date than print resources					
(c)	E-resources are easy to access than print resources					
(d)	E-resources are easy to search than print resources					
(e)	I prefer to read on paper than on computer Screen					
(f)	E-resources are costly than print resources					
(g)	E-resources can replace print resources					
(h)	E-resources have helped in speeding up my work					
(i)	E-resources have multiple user facility					

28. Any further suggestions/opinions on using of either printed or e-resources.

Signature with Date

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