

A STUDY ON DIGITAL LITERACY AMONG STUDENTS AND RESEARCH SCHOLARS OF FACULTY OF SCIENCE IN BANGALORE UNIVERSITY

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Abstract

The study was carried out at Bangalore University Faculty of Science and Research Scholar University in Bangalore. The studies aim to utilization of electronic information resources and services, the study purpose of use, benefits of using e-resources, web browsers, search engines, file formats. problem faced while accessing information through online search mode and to find out the extent of usage of field based and advance search options in many ways. For this purpose, the researchers prepared a well-structured questionnaires and interview schedule as a tool for data collections and same was analyzed and presented with useful percentage analysis and suitable table for presentation of data. The article summarizes the result highlighting the major findings. suggestions and conclusion.

Bangalore University of higher education are responsible for preparing well-informed, skilled and globally competent workforce. They have adopted information and communication technologies (ICT) to impart digital literacy skills to their students and Research scholar. an understanding of the use of Electronic Resources by the students helps in study and curriculum for the digital literacy course.

Key word: Digital Literacy, Electronic Resources, ICT.

1.0 Introduction

The ability to access, evaluate and use of information is a prerequisite for lifelong learning, and a basic requirement for the information society. At the University level, students are expected to contact independent exploration in diverse disciplines and topics and therefore, irrespective of their areas of study they need to use information effectively. The rapid growth of ICT (Information and Communication Technologies) has given rise to the several, Electronic resources, portal / gateway and global digital library. Digital literacy is a more recent concept than information literacy and can relate to multiple categories of library users in multiple types of libraries. Digital literacy has been defined in various ways (Bawden, 2008) since the term was first introduced by Glister (1997). The term digital literacy refers to the ability to use ICT tools, and internet to access, manage, integrate, evaluate, create and communicate information in order to function in a knowledge society.

In this context, attempt is made to understand the status of digital literacy among social science faculty of Bangalore University, Bangalore. Digital literacy skills are particularly important in work-based learning programmes leading to professional qualifications. Digital literacy skills are required not just for professional qualifications and graduations but also for more general use in study, at home and at work. Information technology has thrown new challenges to the libraries and had a great impact on the services of the library. In today's context, all the type libraries like academic, public and special are not only providing printed resources to their library users rather they provide printed, electronic as well as other internet resources like e-books and databases for fulfilling the day to day academic and research requirements of the library users. Electronic resources for its collection developments to fulfill the requirements of different category of library users in a better way. The electronic resource refers to those

materials that require computer access. Past few years, a number of techniques and related standards have been developed which allow documents to be created and distributed in electronic form.

The cultural, educational and demographic depth of Asian civilizations is immense. In line with such development, empowering human capital through high level of education is increasingly seen as being vital towards achieving better economic growth through the impact of research in driving innovation and competitiveness for any country in today's competitive world, including India. This title approaches digital illiteracies for learning the concept of the personal learning environment (PLE). This concept was used as both a practice oriented description of the digital environment students use and may use for learning purpose, and as an ideological concept that entails and presumes certain pedagogical choices.

These choices involve ideas such as student involvement in the design of learning, building a learning community or affinity space in which people gather around a common interest and which allows for various level of participation, expertise and involvement. They also include premises inherent to the idea of connectives and the presumption that learning these skills should happen in relation to identity building and wider personal goals.

Digital literacy skills are particularly important in work-based learning programmes leading to professional qualification. As learning designers we need to understand how to engage students in learning material so that they will meet their qualification requirements.

However, digital literacy skills are also widely required in other degrees, not just for professional qualification and graduations but also for more general use in study, at home and at work. But learners, especially those that are work based, may find it difficult to make connections between the different areas of their lives in relation to digital literacy.

2.0 Research Design

The Research Design is the conceptual structure within which researches conducted. It constitutes the blue print for collection, measurement and analysis of data. A research design is a basic plan, which guides the data collection and analysis the phases of the project. It is frame work which specifies the type of information to collect the sources of data and data collection procedure.

“A Research Design is the arrangement of conditions for collections and analysis of data in a manner that aims to combine relevance to the research purpose of Digitization Methods of Study.”

This chapter brings out the design of the study specifying the title of the study and then advances on to explain the objectives, need, methodology, tools for data collection, geographical area, period of the study.

2.1. Title of the problem

“Digital Literacy among Students and Research Scholars of Faculty of Science in Bangalore University”

2.2. Need for the study

Digital literacy initially focused on digital skills and stand-alone computers, but the focus has moved from stand-alone to network devices. Digital literacy is distinct from [computer literacy](#) and digital skills. The ability to use digital technology, communication tools or networks to locate, evaluate, use and create information. The ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers. A person's ability to perform tasks effectively in a digital environment... Literacy includes the ability to read and interpret media, to reproduce data and images through digital manipulation, and to evaluate and apply new knowledge gained from digital environments.

- Evaluate the results of information searchers.
- Become a lifelong independent learner.
- The digital divide as a simple dichotomous phenomenon: The role of IT literacy.
- The digital divide as a multi-dimensional phenomenon: The role of IT literacy.
- Internet access, internet use, and IT literacy.

2.3. Objectives

The following are the objectives of the study.

1. To know the frequency of visiting Library.
2. To know the awareness and use of different types of electronic resources
3. To find out the satisfaction level of user with the present collection resources.
4. To uncover the problems faced by users while accessing the electronic resource.

2.4. Scope

The study was limited to the Research Scholars and Post Graduate students of the Science faculty, in Bangalore University, Bangalore.

2.5. Research methodology

Research methodology is defined as a sequential process involving several clearly defined steps involving in order to provide information to guide a decision variations are suggested for different situations but there is much similarity among the sequence proposed.

2.5.1. Sampling

The study of the Digital Literacy among the Bangalore University Faculty of Science Students. The Students and Research Scholar in this University department constitute sample respondents. The sample size of the study is to the sampling technique used for the study is random sampling.

2.5.2. Plan of analysis:

The collected data have been analyzed with the help of statistical tools and techniques like averages and percentages, etc. To make the data in a presentable manner, wherever necessary tables, graphs and charts. etc. have been relied on.

REVIEW OF LITERATURE

As the subject under study is main the Study on Digital Literacy among in Bangalore University Faculty of Science Students, the main sources of information are taken from Documentary and Non Documentary sources for the purpose of Literature Review.

3.1. Source of collection

3.1.1 Documentary sources The students approached several documents like Annual reports, Dissertation, books and Journals (National and International Journals).

- 1) Journal of learning science.
- 2) American educational research journal.
- 3) Journal of college reading and learning.
- 4) Canadian journal of learning and technology.

3.1.2 Non- Documentary sources

- 1) International journal of education and development using (ICT). (<http://ijedict.dec.uwi.edu>)
- 2) WWW.eiel.org.
- 3) Emerald Data Base.
- 4) Web of Science.
- 5) J – Gate.

- 6) J-Store.
- 7) Wikipedia.

3.2. Literature Review

Pegeen, Jensen et.al. (2010) described on detail on Digital literacy's and the NYSRA charlotte Award. Successful podcasting and wiki project conducted with NYSRA Award Charlotte Award nominated books. And also explore additional detail literacy project that teachers can use in their literature programs.

Kaur, Sidhu guruam et.al. (2015) made a study on Postgraduate student's level of dependence on supervisors in coping with academic matters and using digital tools. In this articles among the factors that have contributed to this are postgraduate student's supervisory practices and student limitations in terms of knowledge, and 21st century skills such as critical thinking, autonomy and lifelong learning.

Abrizah, Abdullah and Zainab, A N (2008) suggests that the Digital Library can contribute to student's empowerment in information literacy practices while searching, using and collaboratively building the digital library resources. To illustrate this, the authors have been experimenting with the implementation of an integrated information literacy model based on Eisenberg and Berkowitz Big 6 model and describes the CDL features in association with the information literacy dimension in this model.

Marie, Cordell Rosanne (2013) focused on this development in digitization in the information in a library to the information literacy and digital literacy is a more recent concept than information literacy and cad relate to multiple categories of library users in multiple types of libraries. Determining the relationship between information literacy and digital literacy is essential before revision of the ACRL Standards can proceed.

Kathryn, Paige and Stephen, Dobson (2016) developed Digital Literacy Teaching and Learning Tool. This teaching and learning tool has been incorporated as an assessment strategy in the curriculum area of science and mathematics with pre-service teacher (PSTs). This paper explores two themes developing twenty first century digital literacy skill and modeling best practice assessment tools in the growing debate about the impact of multi-model representation, researchers such as Hoban and Nielsen, and brown, Murcia and Hacking emphasis' the development of conceptual understandings and semiotics.

Alesia, Zuccala (2010) refers to scientific or scholarly research literature available on the web to scholars and the general public in free online journals and institutional repositories. In this mouthed followed by all were invited to complete a brief Digital Literacy and Information Literacy Questionnaire, and contribute to a set of ranking and vignette exercises designed to encourage discussion.

Marion, Hall et.al. (2013) define the developed of the current digital environment, it is vital for learners to develop Digital Literacy skill. The India quality assurance agency for higher education requires graduates to demonstrate Digital Literacy. Employers consider these skills essential. We aim to identify good practice in learning design and what demographic factors need to be considered to support individual learners appropriately, and so optimize engagement.

Laakkonnen, I (2015) argues that through the personalized, dialogic and networked and skill can explore practices and learn Digital Literacy's that help them progress toward their professional.

Kaur, Satjit and Kuar, Sidhu Gurnam (2015) observes Digital Literacy supervisory in postgraduate students. While a majority of the supervisors made use of digital tool in their supervision process, the interview sessions with six supervisors revealed that some of them reported being reactant to make use of digital tools to check their students draft chapters.

Alaattin , Parlakkilic (2013) explains role of E-learning technologies entirely dependent students. The research are constantly reporting that many e-learning projects are falling short of their objectives due to many reasons but on the top is the user resistance to change according to the digital requirements of new ear.

Christina, De Coursey and Nadine, Dandashly (2015) focused on Digital Literacy and Changes in generational micro-cultures. Analysis of feedback quality was undertaken. Results showed students responded positively,

instructor negatively to e-mail feedback. Instructors perceived students positive response, but reasserted traditional understanding of teacher roles, reflecting a lack of understanding of the role of emotion in acquiring form.

Melissa, Burgess (2012) surveyed on Digital Literacy in multiuser virtual environments among college level developmental reads. Participants in the experimental group demonstrated Digital Literacy through reading activities and observation in the MULE, second life, and made higher reading achievement gains over the control group.

Kathleen, Gurley (2007) explained that the Digital Literacy can be successfully integrated into lessons designed to help struggling learners in after school programs, and the lessons examined here offer example of how this can be accomplished.

Anlante, Galante (2014) designed the Digital Literacy project is proposed as a short potential tool for integrating intercultural sensitivity into EAL programs and engaging leaders in discussion about diversity in cultural values beliefs ,and behaviors as a way to affirm their culture and inter cultural identities.

Karin, Tweddell Levensen (2011) described the network society and also E-learning are characterized by fluidity and the key competence for social actors in this ever changing E-permitted environment is the ability to cope with change or conceptualization self programming.

As define by **Robyn, Henderson and Eileen, Honan (2008)** the teaching of Digital Literacy is regarded as an important facet of literacy teaching in the 21st century. This is particularly important in height of the considerable evidence that has demonstrated how important home school connections are in ensuring improved traditional literacy outcome for student from low socioeconomics background.

Thomas, Cochrane and Antonczak, Laurent (2015) explore a case study consisting of the development of a six week elective course that aims to develop student professional digital identity, by leveraging a community of practice network of global educators modeling the educational and critical use of mobile social media.

Kumar, K (1997) attempts to examine the distribution of articles, authorship patterning, subject, language, and geographical distribution. International information and library review have published greater number of articles on digital literacy.

Anna, Gruszczynska (2013) successfully developed digital feature in teacher education. In term of a digital feature for teacher education the paper highlight the need for practices learning packages and tool to continue to evolve co-operation with their potential users and linked directly to class-room and schools has the site of this production.

4.0 Data Analysis and Interpretation

4.1. Introduction:

In this chapter an attempt has been made to know the awareness on Digital Information of the P.G. Students and Research Scholars various science Departments of Bangalore University. For this purpose a brief field survey method was employed to collect primary data from different science departments such as Math's, Physics, Geology, Biological Science, Chemistry, Botany, Bio-chemistry, Mater of computer application etc. The study populations have been chosen randomly from different science Departments of Bangalore University. The analysis of data requires a number of closely related operations such as establishment of categories, applications of these categories to raw data through coding, tabulation and drawing, statistical inferences and summarizing of data to obtain answers to the problem of research. Total 80 questionnaires were distributed out of 60 were responded. The investigator took total 60 questionnaires for the analysis. The independent variables selected for the study is various Science Departments of Bangalore University. After analyzing the data the investigator test the hypothesis and arrives at generalizations and builds a theory. This process is known as interpretation. The data collected and analyzed with the help of various statistical measures.

4.2. Analysis and Interpretation Data:

Information thus obtained was carefully edited before taking data entry into computer. Once satisfied with the filled-in information in the questionnaires, the data were entered into computer and analyzed using the MS Excel. The observations and interpretation were carefully tabulated and supplemented with graphical presentation to allow clear understanding of the respondent's views.

4.3. Distribution of Respondents and Rate of Response

In total researcher randomly distributed 80 Questionnaires to P.G. Students, Research Scholars and Faculty Members of various Science Departments of Bangalore University. The respondents include 58 students and 2 research scholars. The rate of response is 60 (75%).

Table-1 Distribution of Respondents and Rate of Response

Respondents	No. of Questionnaire Distributed	No. of Questionnaire Received back	Rate of Response
P.G. Students	70	58	72.5%
Research Scholars	10	02	2.5%
Total	80	60	75%

Questionnaires Respondent of the PG Students 58 and Research Scholars 02 totally we have 80 out of 75% members of the Bangalore University Faculty of Science Students.

Table-2 Students and research scholars

Variable	Scaled responses	Number	Percentage
Category	Students	58	96.66%
	Research scholars	02	33.33%
	Total	60	100%

The Total number of respondents was 60 and out of which 96.66% were students (i.e., 58 respondents) and 33.33% were Researchers (i.e, 02 responded)

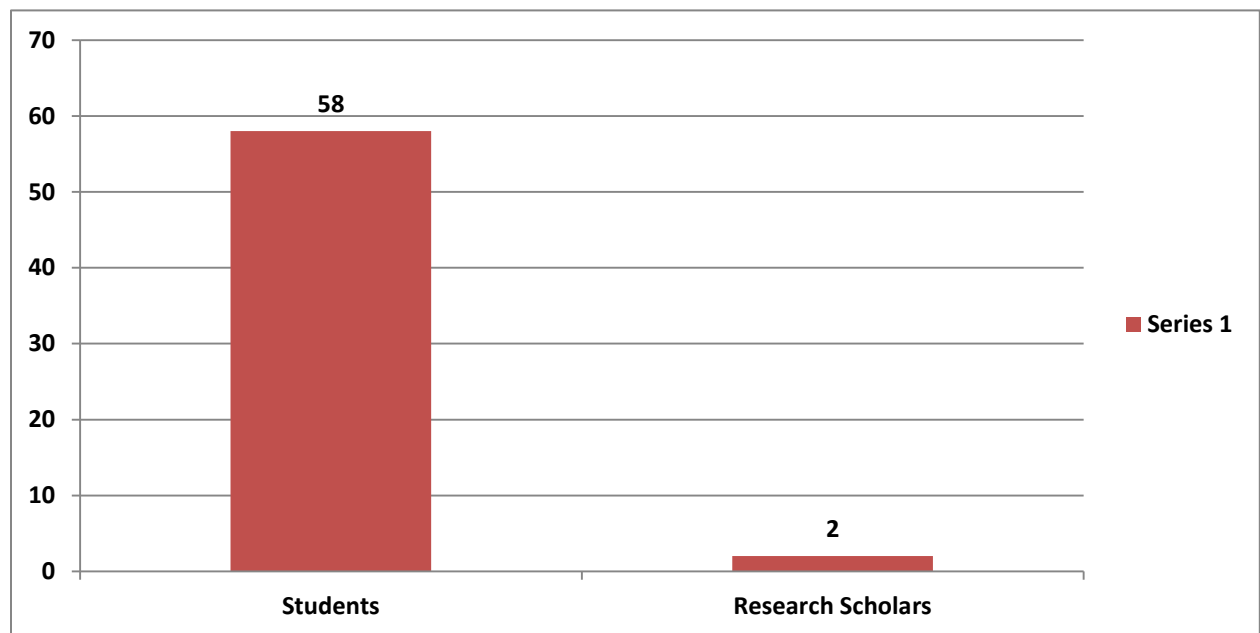
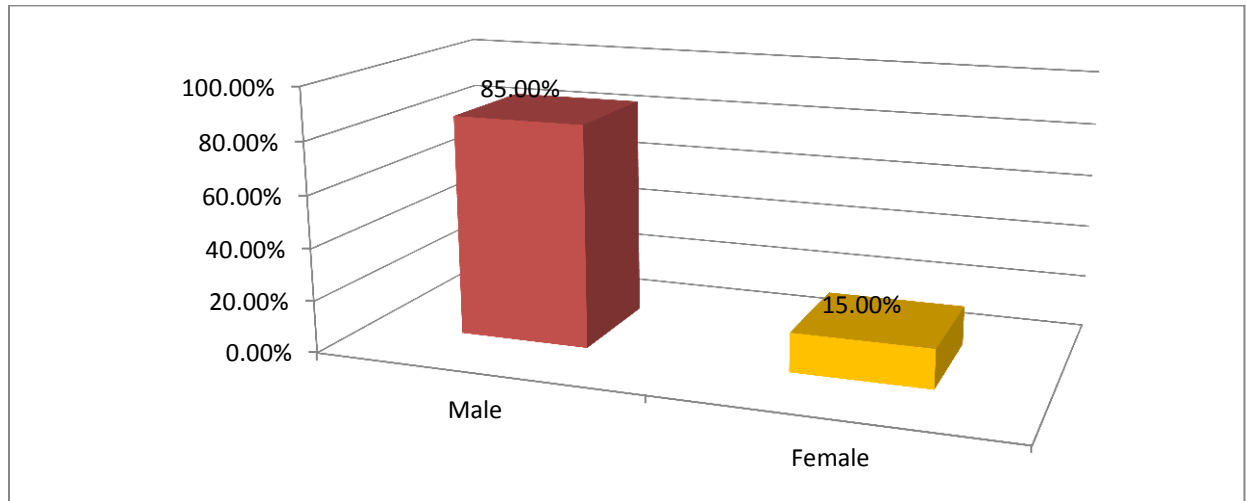


Figure 1

Table-3 Distribution of Respondents by Gender

Sl. No.	Gender	Respondents	Percentage
Gender	Male	51	85%
	Female	09	15%
	Total	60	100%

The Total number of respondents was 60 and out of which 85% were Male (i.e., 51 respondents) and 15% were Female (i.e.09 respondents).

**Figure 2****Table-4 Distribution of Respondents by Age**

Sr. No	Age	Respondent	Percentage
1.	18-25	59	98.33%
2.	26-35	01	1.66%
3.	36-45	-	-
4.	46 and above	-	-
Total		60	100%

The above table indicates that 98.33% of respondents (i.e. 59 respondents) are between 18- 25 years old, 01.66% of respondents (i.e. 01 respondents) are in between 26-35 years, whereas 36-45 and above age group is 0%.From this observation it can be found that more 70.3% of the respondents (i.e.38 respondents) are in the age group of 18-25 years.

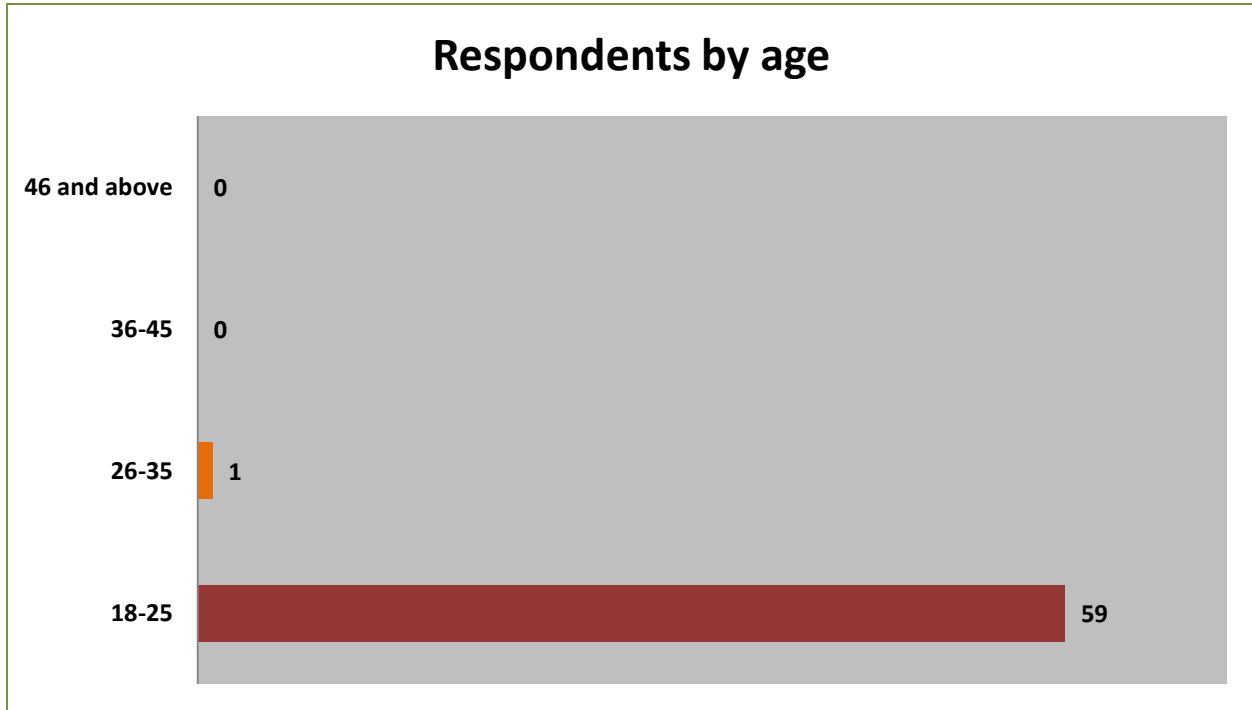


Figure 3

Table-5 Department wise distribution of Respondents

Departments	Respondents	Percentage
Mathematics	11	18.33%
Physics	15	25%
Geology	04	6.66%
Zoology	07	11.66%
Biological scienc	01	1.66%
MCA	06	10%
Bio-chemistry	02	3.33%
Botany	05	8.33%
Environmental Science	01	1.66%
Electronic media	03	5%
Chemistry	05	8.33%
Total	60	100.0 %

The sample under study includes Department-wise distribution of students and the Research scholars. From the total sample, the Department-wise breakup of the respondents is presented in the above table. 18.33% of respondents (i.e. 11 respondents) were Math's, 25% of respondents (i.e. 15 respondents) were Physics, 6.66% of respondents (i.e. 04 respondents) are from Geology department, 1.66% of respondents (i.e. 01 respondent) were Zoology, 11.66% of

respondents (i.e. 07 respondents) from Biological science development, 10% of respondents (i.e. 6 respondents) were MCA, 3.33% of respondents (i.e. 05 respondents) were Botany and 8.33% of respondents (i.e. 01 respondents) were EVS, 1.66% of respondents (i.e.03 respondents) were Electronic media and 5% of respondents (i.e. 05 respondents)were Chemistry.

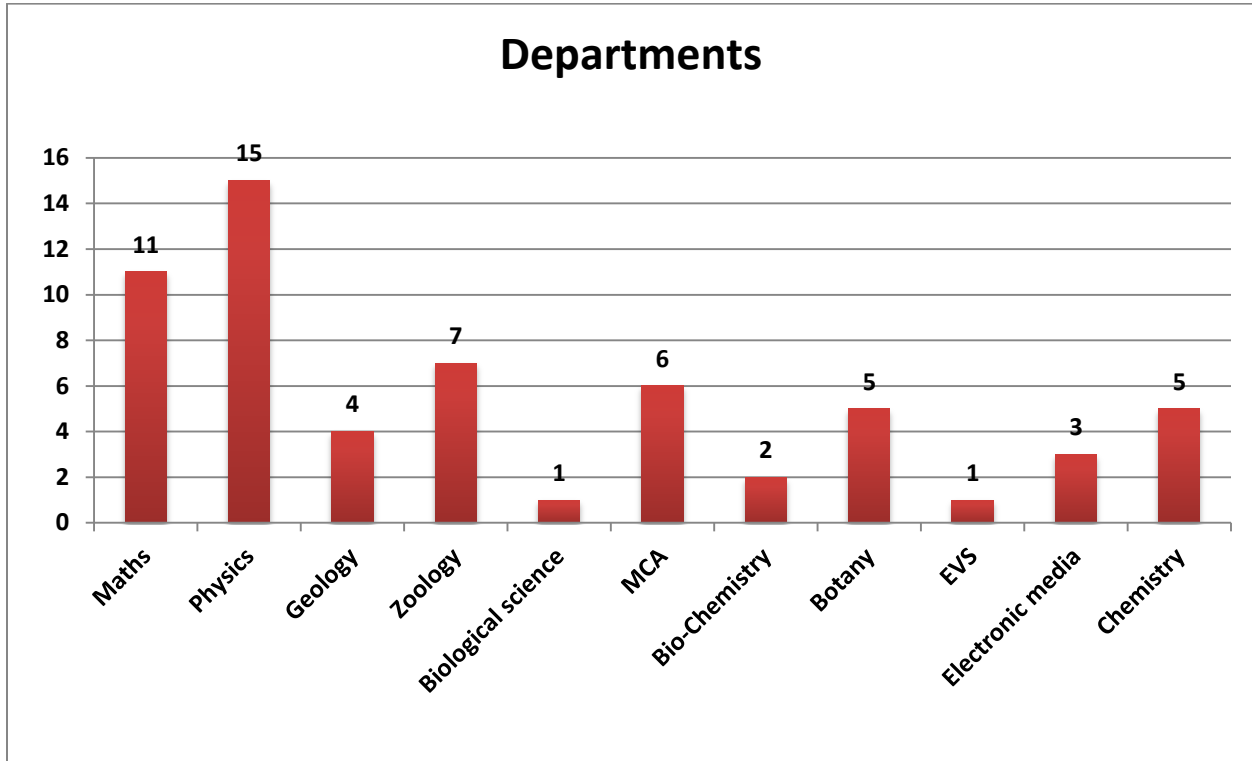


Figure 4

Table-6 Awareness of library Resources

Sr. No	Category	Yes		No		Total	
		Numbers	Percentage	Numbers	Percentage	Numbers	%
1	Students	53	88.33%	05	8.33%	58	96.66
2	Scholars	02	3.33%	-	-	02	3.33
3	Grand total	54	91.66%	05	8.33	60	100

The above table-6 indicates that mostly out of 60 respondents 55 were aware about Library resources. In students table out of 53 all the students were aware about the library resources and 5 students were unaware about library resources. And 02 Researchers were aware about resources.

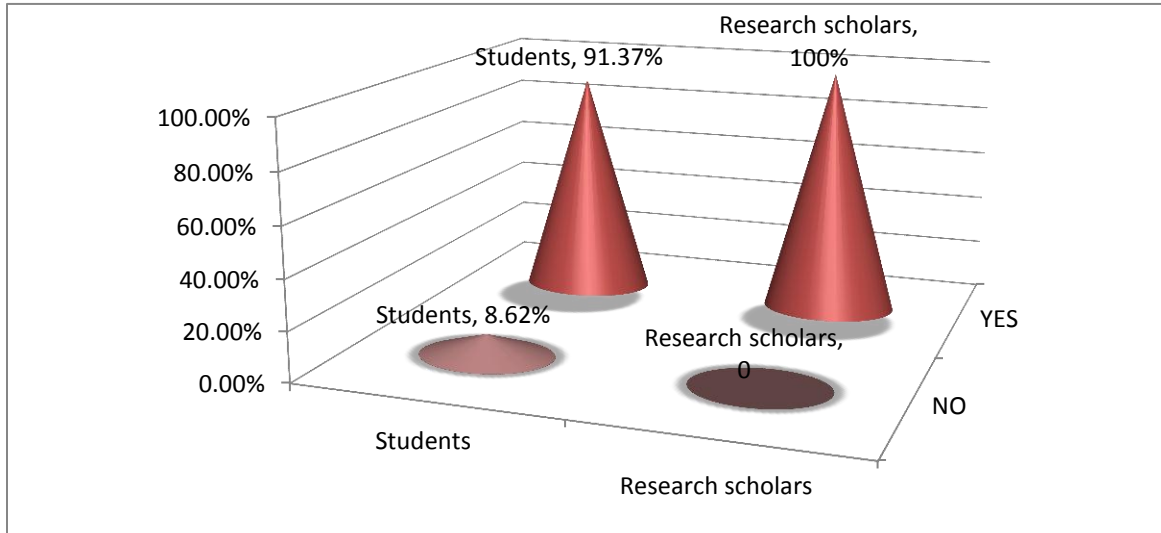


Figure 5

Table-7 Perception of the importance of library resources

Sr. No	Perception	Respondents	Percentage
1.	Essential	20	33.33%
2.	Very important	11	18.33%
3.	Important	18	30%
4.	Somewhat important	11	18.33%
5.	Not important	-	-
Total		60	100%

The analysis of table-7 depicts that most of the respondents think library resources are very important for their academic studies (i.e.11 respondents), while some other think that is important (i.e. 18 respondents), and some other think that is Essential (i.e. 20 respondents), while least percent of respondents think that it is not important for their academic studies.

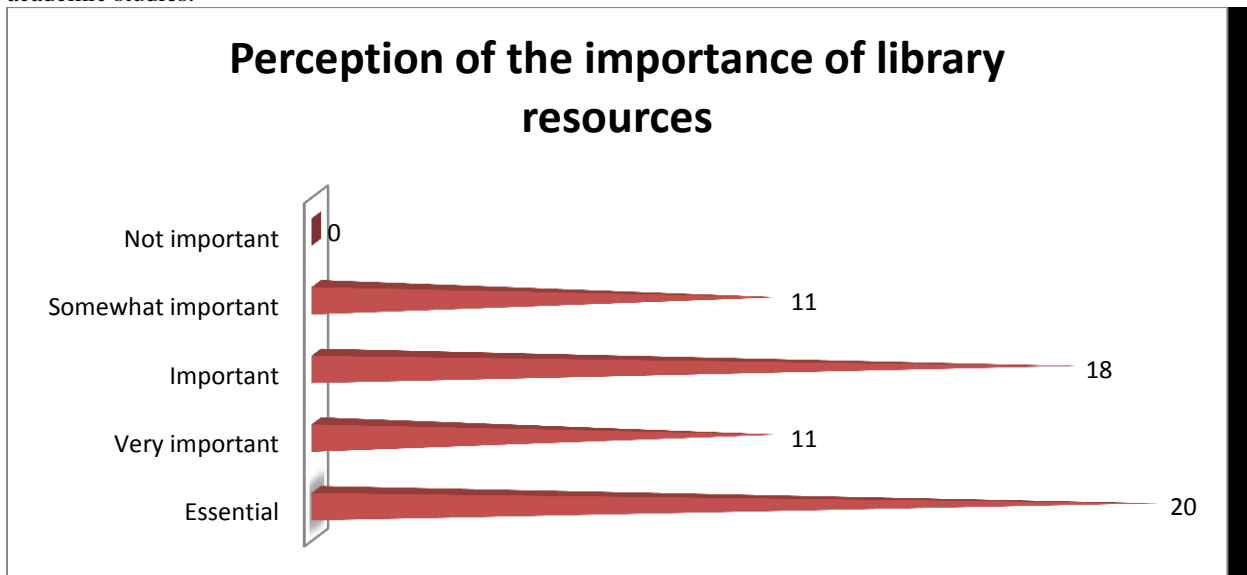


Figure 6

Table-8
Awareness of E-resources

Sl.no	Category	Respondents	Percentage
1	Yes	46	76.66%
2	No	14	23.33%
Total		60	100%

The above table-8 shows the awareness of e-resources among respondents. It is seen that most respondents were aware about electronic resources i.e. here 76.66% of respondents (i.e. 46 respondents) were aware about electronic resources and the 23.33% of respondents (i.e. 14 respondents) were unaware about electronic resources.

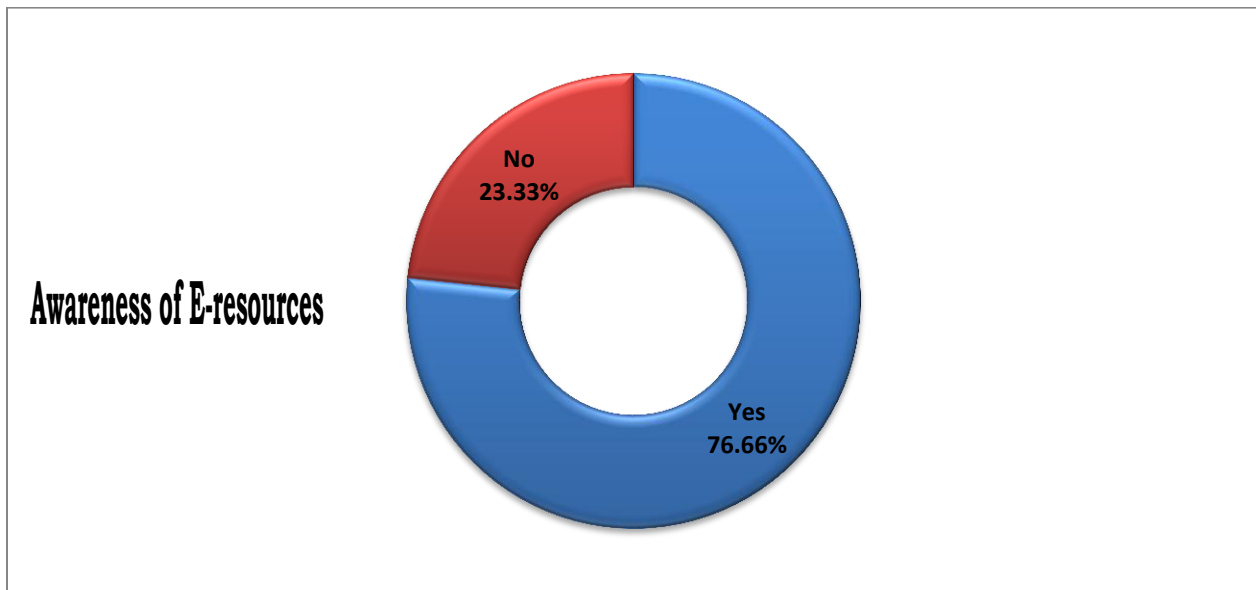


Figure 7

Table-9 Types of E-resources

Type	Respondents	Percentage
CD- Rom databases	08	13.33%
Online databases	19	31.66%
E-Books	29	48.33%
E-Newspapers	16	26.66%
E-Journals	16	26.66%
E- Mail	25	41.66%
Websites	23	38.33%
Total	60	100%

Multiple responses receive

The multiple answer table-9 indicates the type of e-resources used by respondents. Most of the respondents prefer websites (i.e. 38.33%), E-newspapers (i.e. 26.66%), e-mail (i.e. 41.66%), online databases (i.e. 31.66%) and e-books (i.e. 48.33%), less percentage of preference were given to CD-ROM (i.e. 13.33%) and E-journals (i.e. 26.66%).

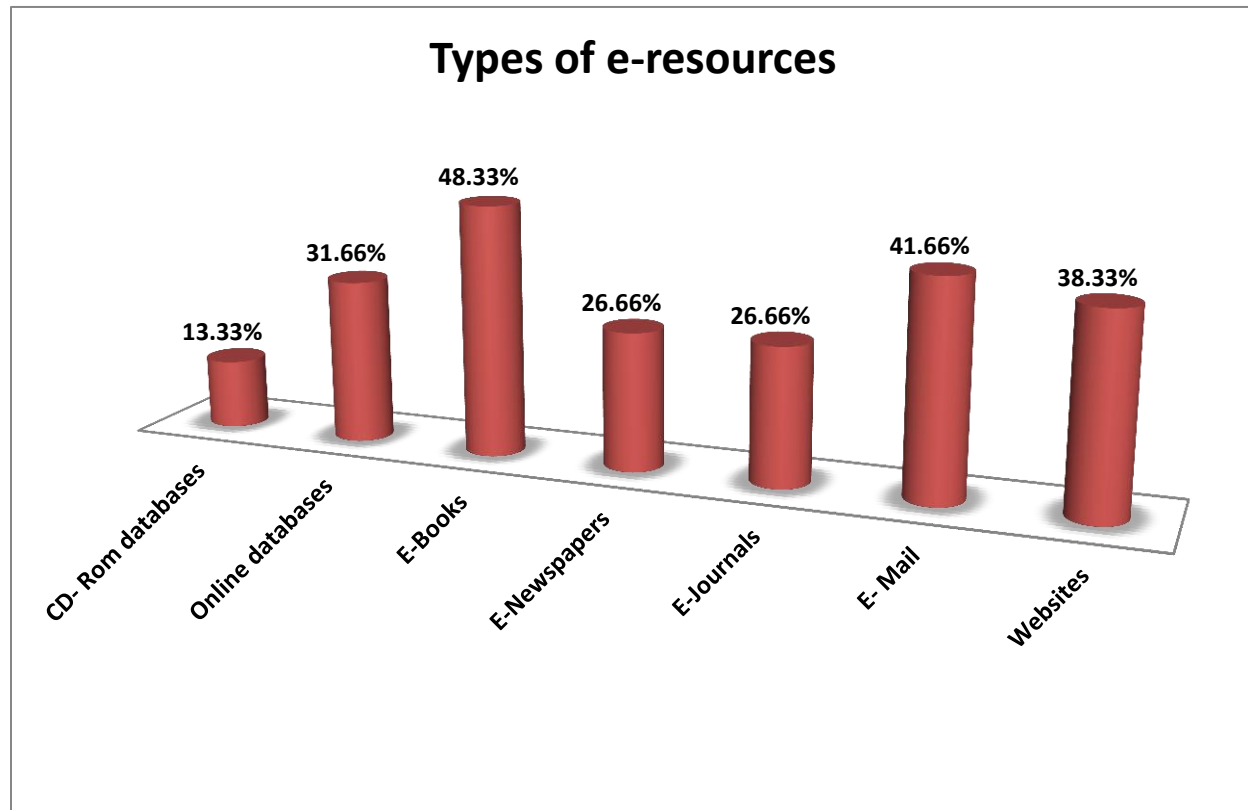


Figure 8

Table-10 Frequency of use of E-resource

Sl.No	Frequency of visit to Library	Respondent	Percentage
1.	Daily	17	28.33%
2.	Once in a week	17	28.33%
3.	Twice in a week	15	25%
4.	Rarely	10	16.66%
5.	Never	01	1.66%
Total		60	100%

Table-10 give information about the frequency of use of e-resources among the respondents says that Daily 18 (30%), once in week 18(30%), Twice in a week 16 (26.66%), Rarely 11 (18.33%). Out of 60 respondents only 1(1.66%) never use e-resource

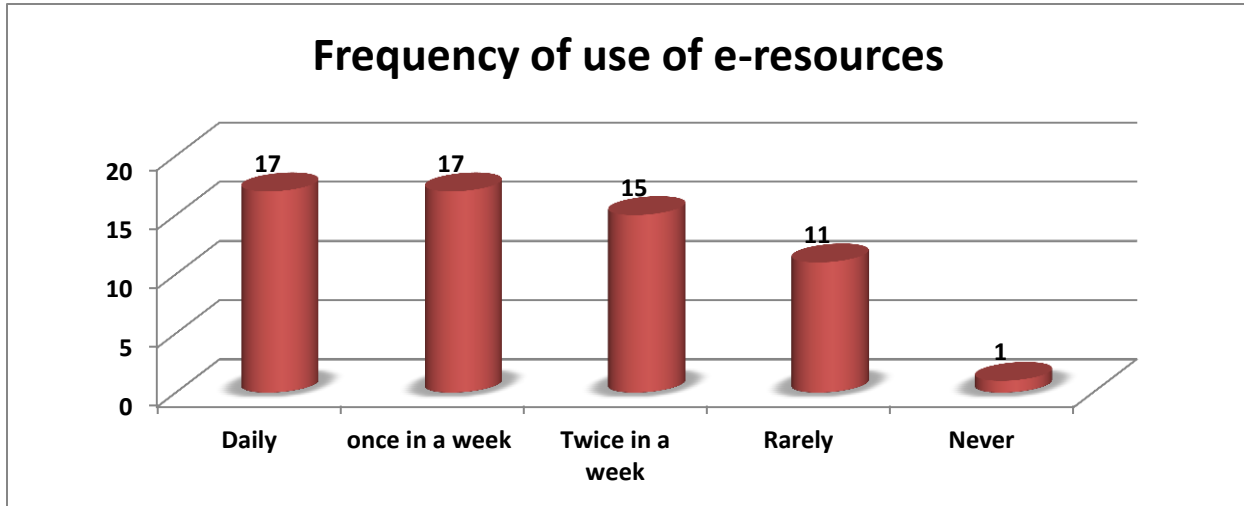


Figure 9

Table-11 Purpose of using E-resources

Sl. No	Purpose of using E-resources	Respondent	Percentage
1.	To Update Knowledge	28	46.66%
2.	For Study	26	43.33%
3.	To Prepare Assignments	01	1.66%
4.	For Career Development	14	23.33%
5.	For all purpose	01	1.66%

Multiple responses received.

The above table-11 shows that respondents use e-resources for various purposes, majority is using it to update knowledge 28 (i.e.46.66%), while some use it for study 26 (43.33%) and for preparing assignments 01 (1.66%). For the purpose of career development it was mostly used by the research scholars.

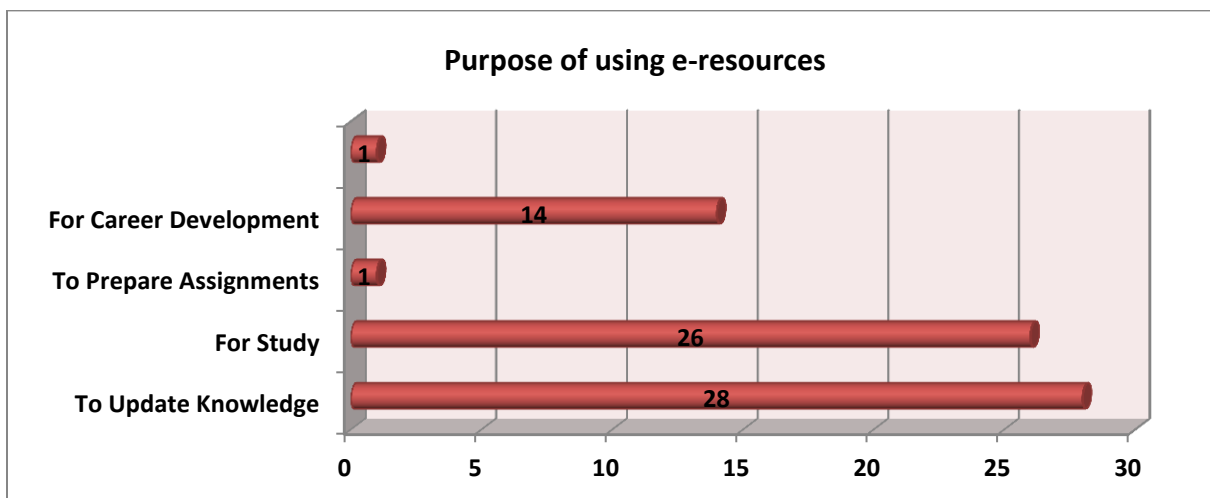


Figure 10

Table-12 Problem's in Using Internet

SL.NO	Difficulties	Respondents			Percentage		
		NO	A LITTLE	POOR	NO	A little	Poor
1.	Obtaining connection	23	23	14	38.33%	38.33%	23.33%
2.	Opening WebPages	20	29	11	33.33%	48.33%	18.33%
3.	Browsing	23	26	11	38.33%	43.33%	18.33%
4	Downloading	17	22	21	28.33%	36.33%	35%
5	Slow accessibility	17	33	10	28.33%	55%	16.66%

The above table shows the problem faced by respondents when using Internet. Many of them face problems of Downloading and slow accessibility, based on this table most of the respondents satisfy with internet connectivity. Some of them also face problem of opening of web pages. Totally table shows that the respondents are a little satisfied with the Internet using. Many of the users face problem of lack of training in using Internet.

Table-13 Regularly used search engines

SL. NO	Search Engine	Respondent	Percentage
1.	Yahoo	18	30%
2.	Google	48	80%
3.	AltaVista	04	6.66%
4.	Bing	03	5%
5.	Hot Boot	01	1.66%

The table 13 shows that the Google is mostly used Search engine, out of 60 respondents 60 were using Google search engine, here the multiple answers are received from the respondents, yahoo also using by some respondents (i.e. 8 respondents), and there is no usage for AltaVista.

Awareness of the using Search engine

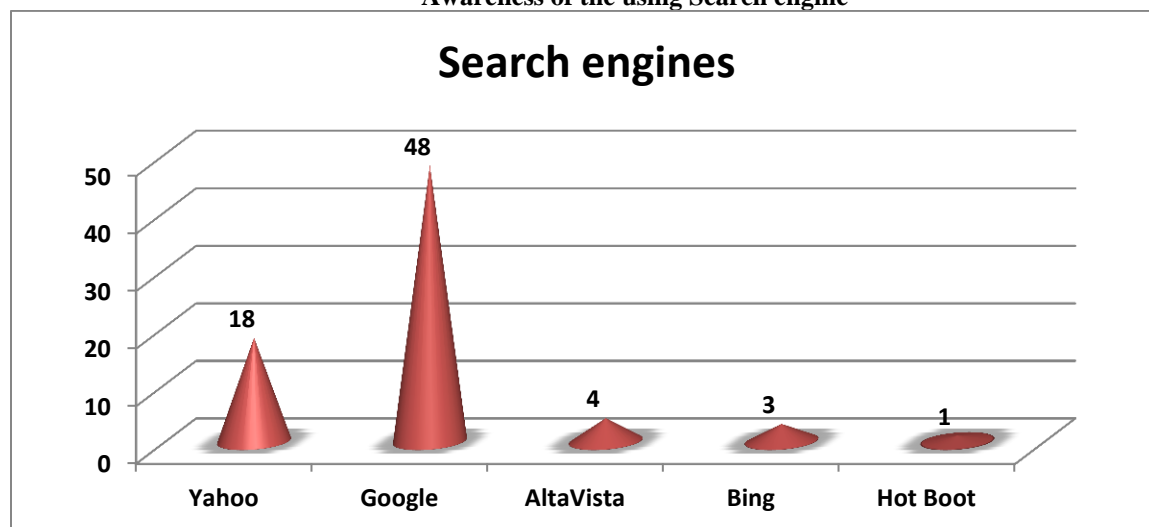


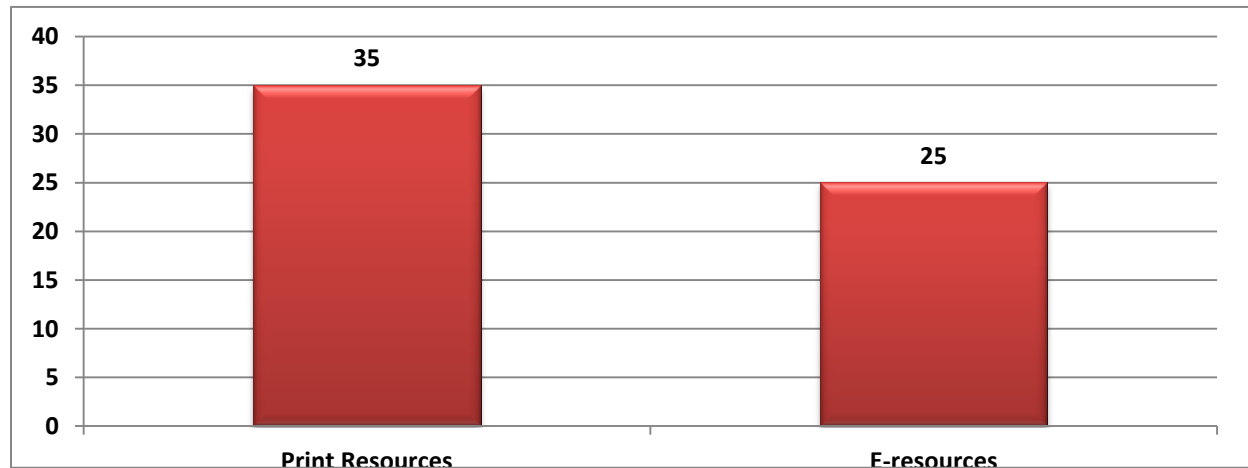
Figure 11

Table-14 Preference between Print and E-resources

Sr. No	Preference	Respondent	Percentage
1.	Print resources	35	58.33%
2.	Electronic resources	25	41.66%

Multiple responses received

The table 14 shows the respondents preference between print and electronic resources. Multiple responses were received from the respondents. The table shows that the respondents give the average preferences to both electronic and print resources. Majority of them preferred electronic resources 25(i.e. 41.66%), while some of them have given preference to print resources 35 (58.33%).

**Figure 12****5.0 Findings, Suggestions And Conclusion****5.1. Findings**

On the basis of analysis of and collected through the questionnaire from the students and researches at the Bangalore University. The suggestions are summarized below.

1. 75% of science students and research scholars' members who responded to the survey expressed their need for electronic information in addition to traditional print sources.
2. The study revealed that majority of respondents is aware about Digital Literacy.
3. A majority of science students use electronic information in order to update their knowledge in their respective subject area. More than 72.5% of students and research scholars' (2.5%) use of E resources for the purpose of study to prepare assignments and for career development.
4. The science students and research scholars use websites for collecting electronic information.
5. The science students and research scholars find a task to access information from the web.
6. Respondents find a Digital Literacy an imperative role to play in finding electronic information.
7. Almost all respondents of users to the use Google search engine 48 (80%) to search and 18 (30%) of respondents use yahoo search engine.
8. The major problems faced by science students and research scholars are lack of awareness, lack of assistance from the resource personal and library professional in the libraries.
9. Authenticity and reliability are the most important parameters for evaluation of online information.
10. All respondents expressed the wish that the library would take initiative in promoting information literacy at the university level.

5.2. Suggestions

1. The university Library should start a digital literacy program me to educate the faculty of science students.
2. The science Faculty of the university should teaching faculty how to search and browsing for E-resources, evaluate its validity and to make judicious use of it.
3. The user's administration should develop the necessary infrastructure for the promotion of E-resources.
4. Faculty should network with those who are already using E-resources to make use of their knowledge and skills.

5.3. Conclusion:

The Digital Literacy was demonstrated among Students and Research Scholars of Faculty of science Bangalore University. It is apparent that Digital Learning platforms are conducive to strengthening both academic and Digital Literacy skills. As more and more incoming freshmen require University Level Developmental reading classes, the need to support these skills with instruction that reflects intuitiveness and responsiveness to how they think, live and learn using Digital learning environments will be very important.

Digital technologies provide engagements that cross borders and time zones, therefore, using virtual environments such as digital as a distance delivery platform for university Level Developmental Students across the globe has great potential.

The information learned from this study will hopefully pave the way for fresh ideas on ways to incorporate teaching and learning opportunities in virtual environments among developmental reading educators and developmental university Students respectively.

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