Chapter II

REVIEW OF LITERATURE

The chapter review of literature is having direct or indirect bearing on the present study. Apart from giving literature, it provides an insight into the method and procedures, which suggests operational definitions of relevant concepts and provides a basis of interpretation of the findings. The entire review has been presented below according to the objectives of the study. The review has been divided under the following heads according to the objectives:

2.1 Socio-personal profile of the research scholars.
2.2 Availability of various types of e-resources at selected agricultural educational Institutes.
2.3 Usage of e-resources by the research scholars.
2.4 Relationship of usage of e-resources with selected Independent variables.
2.5 Problems encountered by the research scholars while accessing the e-resources.

2.1 Socio-personal profile of the research scholars

2.1.1 Sex

Thanuskodi (2010) reported that out of 110 responses 69.09 per cent of the respondents are 21-25 age groups, remaining 30.91 per cent belong to 26-30 age groups, where 74.54 per cent of respondents were male while 25.46 per cent were female. Author has also revealed that (75.46 per cent) majority of the students does not have own personal computer or laptop. Only 24.54 per cent of the students under study have their own personal computer or laptops.

Thanuskodi (2012) found that 71.11% of population studied were males and only 28.89% of total were females, who can use e-resources available through library for different purposes.

Chandran (2013) found that 76 (61.78%) respondents were male and 47 (38.22%) were female.

Mtega et al. (2014) found that majority of the respondents (73, 68.2%) were male while relatively few (34, 31.8%) were female.
Islam and Habiba (2015) reported that majority of male faculty members utilized e-resources for research purpose while the majority of female faculty members used e-resources for learning purpose. E-journals were found to be the most preferred source of information for female faculty members however, in case of male faculty members the highest number of responses were shared by two e-resources that is e-journals and library catalogues.

2.1.2 Age

Kemp (2007) found in a study among US social network users that youths aged between 16-26 years are the most avid users.

Santhi et al. (2010) examined “the relationship between computer literacy of academic staff and their use of electronic information resources” and investigated “The impact of other factors such as age, gender and educational background on the use of electronic information resources”.

Chandran (2013) found that 63 (51.22%) respondents were in the age group of 21-30, followed by 28 (22.76%) respondents 20 years old or younger, 25 (20.33%) in the age group of 31-40, and then 7 (5.69%) older than 40 years.

Mtega et al. (2014) reported that respondents had different educational levels ranging from Diploma to Doctorate degrees and they were between 25 to 60 years of age.

2.1.3 OGPA obtained in PG

Zhang et al. (2011) in their study surveyed 1187 users of the 211 Project (of seven universities in China). They examined the relationship between educational levels of users and their use of e-resources. They found that 93.8% of the users evaluate the academic value of an e-resource through its abstract or table of contents, 47% consider the author as a criteria before refereeing needed information and 26.2% use a review of the literature before making use of any e-resource. They further highlighted that 88.2% of the users use e-resources to conduct research and 64.85% use e-resources for self-development.
2.3 Usage

a. Knowledge about e-resources

Kaur and Verma (2006) stated about the use of library service and awareness of electronic resources. This paper also examined the interest of the users about internet, infonet, CD-ROM databases and other services provided by the library. It observed that users use fewer amount of e-resources due to lack of awareness of various electronic sources and suggested that library should provide user education / awareness programe for the users of e-resources.

Raza and Upadhyay (2006) found that that all the researchers were aware of e-journals in Aligarh Muslim University.

Chopra (2008) stated that the survey of faculty members, research scholars and students regarding use of e-resources is very encouraging. Awareness of e-resources is must for the users of any university library. He also stated that manuscript writing continued for thousands of years. Invention of printing press was considered a great revolution but advent of information technology has absolutely changed the working of all spheres within a decade and libraries are no exception. Libraries of India have accepted the new role. Gaur Nanak Dev University, Amritsar is trying its best to use the e-resources.

Upadhyay and Chakrabarty (2008) described the use of online journals and databases and their awareness among researchers of IT- BHU. It examined the awareness of researchers and use of online journals databases available through UGC-INFONET, INDEST consortia. They also highlights some suggestions given by the users for improvement of online resources like some more awareness and training campaign programme is required with the help of experts from the online publishing agency; time of using to access the e-resources of the library should be increased and; some required e-journals must be subscribed by the library those are much more useful for the users.

Madhusudan (2010) has reported high degree of awareness about the e-resources among the researchers, where all of the respondents were aware about the e-resources and majority of them used e-resources every day.

Natrajan et al. (2010) showed that the majority of faculty members were aware of e-journals (71.79 percent), e-newspapers (58.12 percent), and e-books (41.88 percent).
majority of research scholars were also aware of e-journals (82.41 percent), e-newspapers (67.59 percent), e-theses (66.67 percent), and online databases (59.26 percent).

Walmiki et al. (2010) found that 39.79% of faculty members are aware of and use the UGC-Infonet Digital Library Consortium resources, whereas 35.99% are aware of but do not use and 24.22% are not aware at all of the availability of these resources under consortium funding. They noted that a majority of the non-users belong to social sciences and humanities and have not undergone any formal computer training.

Shukla and Mishra (2011) revealed that all the researchers of BHU IT are aware of e-resources and are using it for research work, preferred place of access being the department, while low internet connectivity was identified as the major obstacle in the e-resources access

Musthafa (2012) found that majority of research scholars from the department of English accessed the web daily on contrary, the lowest percentage of research scholar from the Persian department accessed web daily. A higher percentage of research scholars departments of English and Arabic made use of e-journals than the research scholars from departments of Urdu, Hindi, and Persian. Moreover, it was observed that research scholars of languages and literature agreed that use of e-resources have improved the search process.

Thanuskodi (2012) find out that the majority of users are aware about the availability of e-resources. The result reveals that 47.78 % of respondents wanted to access only electronic version whereas only 32.78% users wanted to read the printed journals but 19.44% respondents wanted to use both electronic and printed version. Majority of the respondents 76.66% used e-resources for writing papers. The analysis reveals that many of the respondents searched e-resources through linking facility available on the library website. Moreover, many of the respondents are unaware and have not used On-line thesis/dissertations, abstracts/indexes, OPAC, on-line databases, which are very relevant for their study and research. The researcher has further reported that 90.62 % of the male users were aware about the e-resources whereas only 80.76 % of female respondents were aware about the availability of e-resources. It can be seen that male respondents are more aware about e-resources than females.

Sankaranarayanan and Nagarajan (2012) observed that 349 (47.81%) respondents have used Google, 106 (14.52%) respondents have used Altavista, 192 (26.30%) respondents have used Yahoo, 63 (8.63%) respondents have used MSN and 20 (2.74%) respondents have
used others. It is clearly observed from the above discussion that majority of the respondents have used Google.

Chandran (2013) reported that 117 (95.12%) respondents were aware of the electronic resources available from the library and only 6 (4.88%) were not aware of it. It is a positive sign towards the use of the electronic resources by the SIFT user community.

Nagesh and Neela (2013) focused on the study of usage of e-resources available through UGCINFONET Digital Library Consortium by University of Pune users. The objective was to find trends in usage of e-resources and which e-resources were used to the maximum and the study revealed that usage of e-resources is increasing and more users were getting awareness of e-resources and using e-databases.

Chauhan and Mahajan (2014) found that 195 (62.5%) respondents were aware of such programs and have also participated in the user awareness programs for using e-resources. However, a good number of respondents (117, 37.5%) were not aware of such programs for using the e-resources.

b. Sources of accessing E-resources

Sharma (2009) revealed that use of e-resources at Guru Gobind Singh Indraprastha University is very common among the teachers and research scholars in the university and majority of teachers and research scholars are dependent on e-resources to get the desired and relevant information.

Natrajan et al. (2010) reported that 33 faculty members (28.21 percent) and 46 research scholars (42.59 percent) were aware of e-resources through their colleagues whereas 22 faculty members (18.80 percent) and 16 research scholars (14.81 percent) became aware through the library website; and 27 faculty members (23.08 percent) and 16 research scholars (14.81 percent) came to know about the e-resources from the library staff and other sources.

Sankaranarayanan and Nagarajan (2012) found that 240 (32.88%) Faculty members accessed e-resources available at the department, 199 (27.26%) Faculty members accessed e-resources at the library, 189 (25.89%) Faculty members accessed through at home, 59 (8.08%) Faculty members accessed e-resources commercially available at Café and 43 (5.89%) Faculty members accessed e-resources at any other places.
Thanuskodi (2012) found that 73.88% of the respondents chose the central library, about 50.55% accessed at the department library, 37.77% accessed at the computer center and 25% accessed from other place where they got facility to access e-resources.

Thomas et al. (2012) found that 68.75% of the users use e-resources from off-campus, 19.05% access e-resources from an on-campus location but outside the library and only 12.2% of them use e-resources from the library premises. They further explored that 68.73% of the undergraduate students, 18% of the post-graduate (graduate/professionals) students and only 2.5% of the faculty use e-resources from within the library. They noted that the off-campus use of e-resources increased from 45.14% in 2004–2005 to 68.74% during 2010–2011.

Chandran (2013) found that 54 (43.91%) respondents learned about the electronic resources available at the Central Library from library professionals, followed by 32 (26.01%) from the library notice board, and 28 (22.76%) from the institute website. Only 9 (7.32%) respondents learned about the electronic resources available at the Central Library from the official circular.

Chauhan and Mahajan (2014) found that majority of respondents 201 (46.64%) accessed electronic resources from their departments, 84 (19.49%) from home and 73 (16.94%) from the library. However, 73 (16.94%) respondents accessed electronic resources from all three locations.

Manhas and Rani (2015) reported that majority of the respondents accessed electronic resources at their homes.

Bhat and Ganaie (2016) revealed that the departments or the office chambers were found to be the most popular place for accessing and using the e-resources as majority of the respondents affirmed it as their preferred place of access on the contrary, library was deemed as the least popular place the lowest percentage of users accepted it as their preferred place for accessing e-resources.
b.1. Linking Pattern of E-resources (how respondents search e-resources)

Thanuskodi (2012) reported that many of the respondents search e-resources through linking facility available on the library website as well as many through e-resources websites followed by search engines. Some of them also link through publisher’s website.

Mtega et al. (2015) revealed that though majority of respondents accessed e-resources through search engines, however accessing e-resources on CDROMs followed next among the agricultural researchers and related staff in Tanzania.

b.2. Use Pattern of E-resources

Thanuskodi (2012) revealed that the majority 70.55% download the content in storage devices. 54.44% of respondents take printout form e-resources and 48.33% of respondents use on the computer screen.

b.3. Formats of E-resources

Thanuskodi (2012) found that 64.44% of respondents preferred PDF format for using e-resources, whereas 25.00 % of respondents preferred HTML format; and 10.56% have no preference.

c. Types of E-resources accessed

Vishala and Bhandi (2008) stated that electronic publishing is an important media of the new Information Technology. E-journals are attracting readers’ attention in today’s networked environment. These e-resources are main vehicles used by researchers for scholarly communication. The present study revealed that there is increased acceptance of e-journals by the university academicians and also by the information centre. The study also demonstrated that all the librarians are fully acquainted with the benefits of e-journals and agreed that the electronic journals have and will continue to have an impact on the library services, library staff and on the information services. They concluded that e-resources have changed the way of research is done and the information obtained through electronic form has greatly improved the results of the research.
Deng (2009) revealed that the usage of electronic resources is common in university environment with the rapid advance of information and communication technologies. The findings showed that the most frequently used electronic resources were library catalogue followed by online journals, web site information, and online newspapers.

Sharma (2009) found that the second highest preference in terms of e-resources usage after e-journals is the Web and e-mail with 30 (57.69%) and 41 (78.84%) among teachers, whereas 23 (76.66%) and 18 (60.00%) among research scholars use them, respectively.

Madhusudan (2010 a) found that 90 percent of research scholars used e-journals, followed by web sites (48%), search engines (38%), and online databases (30%). Only 2 percent of respondents had preference for CD-ROM databases.

Sankaranarayanan and Nagarajan (2012) reported that e-journals (23.29%) were the most used items followed by on line data base (16.30%), e-books (10.00%), Website information (9.59%), online news papers (9.18%), on line Thesis (9.04%), Online Magazine (8.22%), CD-Rom data base (8.08%), other items (3.84%) and library catalogue (2.47%).

Kalbande, Shinde, and Ingle (2013) surveyed 108 faculty members at the Mahatma Phule Agricultural University, India and observed that “The impact of e-resources was visible from the decrease in number of printed documents in comparison to the increase in number of electronic resources”.

Ahmed (2013) found that 94.06% of the faculty members use e-journals, 57.38% use e-books and 22.13% use bibliographical databases.

Chandran (2013) found that E-Journals and E-Databases were the most used electronic resources by the respondents (32, 26.01%) and (30, 24.39%) respectively, followed by E-Thesis and Dissertations (25, 20.32%), E-Prints (19, 15.45%), E-Books (11, 8.95%), and All types of electronic resources (6, 4.88%).

Chauhan and Mahajan (2014) found that 176 (56.4%) respondents reported that they were not getting access to all the resources needed by them through the consortium, whereas 107 (34.3%) respondents were happy with the number of e-resources they had access to. 29 (9.3%) of the social science faculty members did not reply. That means that a majority of the respondents are not happy with the number of social science e-resources they are
accessing through the UGC-Infonet Consortium. It may be due to the fact that the UGC-Infonet Digital Library Consortium is still not subscribing to electronic resources from various prominent publishers and societies who have a good number of quality resources, e.g. Sage publications, etc.

De Groote et al. (2014) reported that medical science faculty members started searching for the scholarly articles on MEDLINE (81%) rather than on a general purpose search engine such as Google though, Google Scholar was used by 16.9% of the users on a daily basis. Although the majority of respondents (69%) use library’s web page for accessing e-resources, a noteworthy finding of the study is that a good number of them (41.5%) also accessed it through personal bookmarks on Internet browsers. It was also noted that a very few faculty members made use of social media technologies such as RSS or Twitter, blogs and wikis for keeping up with current development in their field while a majority of them (84%) never utilized any one of these services.

Tamrakar and Garg (2016) revealed that majority of respondents preferred e-journals to gratify their research needs.

Prabhjot Kaur (2017) found that researchers are aware and use web resources but they are not fully satisfied. Therefore, there is a need of regular orientation/training programs for the effective use of web resources that should be organized by the library. To maximize optimum utilization of web resources, researchers’ requirements should be taken into consideration while subscribing to web resources. The concerned departments too should on regular basis, organize workshops on various web resources related to their subjects. Application of ICT ought to be important part and parcel of course work which is taught at the beginning of the PhD courses. There is urgent need to conduct more awareness programmes about use of web resources by university. More high speed computer terminals with broadband connectivity should be installed in each department, departmental libraries and at Bhai Gurdas Library. Library must introduce the Internet based services such as article alert service, content alert and mailing lists for the users. The Wi-Fi connectivity in the campus will provide anywhere, anytime access and improve the habits of using web resources among the researchers.
d. Preference

Ani (2008) states that “the transition from print to electronic medium apart from resulting in a growth of electronic information, has provided users with new tools and applications for information seeking and retrieval. Electronic resources are invaluable research tools that complement the print-based resources in a traditional library setting.

Veenapani et al. (2008) observed that e-resources are highly useful for the research and academic community in the present environment.

Vishala and Bhandi (2009) shared findings of a survey and highlighted that majority of the respondents (55.1%) preferred print and electronic versions equally.

Chirra and Madhusudhan (2009) found that UGC-Infonet Digital Library Consortium has had a very positive impact in meeting the needs of research scholars at Goa University.

Madhusudhan (2010) found that electronic resources have become an integral part of the information needs of research scholars at Kurukshetra University. He also revealed that e-resources can be a good substitute for conventional resources, if the access is fast, and more computer terminals are installed to provide fast access to e-resources. Hence, a positive shift from print resources to electronic resources has been observed.

Habiba and Chowdhury (2012) found that majority of users i.e. 62.0 percent stating it as a preferred choice, while second highest percentage of users 21.0 percent used electronic books.

Thanuskodi (2012) revealed that 47.78 % of respondents want to access only electronic version of information whereas only 32.78 % users want to read the printed version of information but 19.44% respondents want to use both electronic and printed information.

Chopra and Kaur (2013) found that majority of research scholars preferred to use e-journals for their research work. Study also reported that a considerable percentage of users made use of e-thesis. Study further revealed that majority of research scholars stated that e-resources do not diminish the importance of traditional print resources.
Chauhan and Mahajan (2014) indicated that 23 (7.4%) respondents preferred accessing information in print format, whereas 35 (11.2%) favored electronic access. Keeping in view the hybrid nature of libraries and the information, 254 (81.4%) Indian social science academicians preferred both print and electronic medium of information access.

e. Frequency of using E-resources

Swain and Panda (2009) in their study Google and Yahoo were revealed to be the most frequently used search engines.

Natrajan et al. (2010) observed that e-journals were used extensively by faculty members (49.57 percent) and research scholars (37.96 percent). E-newspapers were utilized by faculty members (31.62 percent) much more than research scholars (13.89 percent). The least frequently used e-resources were e-dictionaries and e-encyclopaedia.

Omotayo (2010) reported that 22 (8.98%), 67 (37.35%), 102 (41.63%), 34 (13.88%) and 20 (8.16%) of the total population of 245 used electronic journals daily, weekly, monthly, bi-monthly and occasionally respectively.

Nallathamb and Kanakaraj (2012) found that the “majority of the respondent in the engineering colleges have used electronic resources daily.’’

Sankaranarayanan and Nagarajan (2012) found that 58.63 percent of the Faculty members are using the e-resources more than once in a week, 20.41 percent once in a week, 11.51 percent once in a month, 5.89 percent less than once in a month and the remaining 3.56 percent once in a fortnight.

Thanuskodi (2012) found that majority of respondents used e-resources weekly (48.88%), daily (23.34%) and weekly twice (21.12%). Only few respondents (6.66) used e-resources monthly.

Ahmed (2013) revealed that 94.39% of the faculty members were regular users of e-resources, whereas only 14.55% had access to the e-resources from their university libraries. Open source or freely available resources were found to be the most used, followed by resources subscribed by the university. Along with using open source resources and subscribed ones a considerable proportion of faculty members also paid for their sources of interest on their own.
Chandran (2013) found that the maximum 66 (53.65%) respondents accessed electronic resources twice a week, followed by 36 (29.26%) everyday, and 15 (12.21%) once a week. Only 6 (4.88%) respondents used electronic resources rarely.

f. purpose of using e-resources

Ali (2005) found out that 83% of students surveyed felt that using this source saved them time, and found it relatively easy to use. Two thirds of those surveyed stated that if the CD-ROM was busy, they would wait for it to become free rather than use the print tool.

Beard, Dale and Hutchins (2007) revealed that the users were satisfied with the different aspect of e-resources use such as they were satisfied with the ease of accessing of e-resources, ease of using of e-resources, the range of e-resources that are available.

Naidu (2007) found that speedy publication and availability on the desktop are the key advantages that attract research scholars.

Okello-Obura and Magara (2008) revealed that users derived a lot of benefits from electronic resources gaining access to a wider range of information and improved academic performance as a result of access to quality information.

Madhusudhan (2008) found that e-resources provided by the UGC-Infonet Consortium has a positive impact and are being utilized at an optimum level. In addition, 87% of the users use the UGC-Infonet e-journals through the guidance of faculty members/research supervisors, and a majority of the respondents (72%) access the e-journals from the department computer laboratories and DUCC. Sixty-seven percent use e-journals for research work, followed by 52% for keeping up-to-date subject information and for study. Boolean searching with 75% is the most favoured search technique.

Khan and Ahmad (2009) jointly had undertaken a study in order to find out the level of awareness and use of e-journals by the researchers at AMU and BHU in India, where the survey revealed that most of the research scholars are quite aware of the availability of e-journals and largely use them for reference purposes in their research and also have agreed that the usage of e-journals substantially improves the quality of their research work due to enrich contents and materials of appurtenance leading to high-quality manuscripts.
Haridasan and Khan (2009) revealed that the major purpose of using e-resources in case of faculty members was found to be for study and learning purposes while the majority of research scholars used e-resources for research work. It was also found that a higher percentage of faculty members used e-resources for updating knowledge as compared to the research scholars.

Deng (2010) found that 86.2 per cent of the respondents selected the “ease-of access” as the chief reason for using electronic resources. The major reason for not using electronic resources was that the respondents were not sure how to use the electronic resources. Other reasons were that they were not aware of e-resources; unable to access the resources was one of the other reasons. Author concluded that the overall attitude of respondents towards the use of electronic resources was found to be very positive. This was evident from the high frequency of use; the high percentage of users rated electronic resources useful and believed them to be invaluable and vital for work and study.

Madhusudan (2010) reported that major purpose of using e-resources by researchers’ was apparently for the research work (94 %). 54 percent respondents used them for finding relevant information in their area of specialization, and 42 percent for keeping themselves up-to-date in their subject field and getting current information.

Oskouei and Chaudhary (2010) reported in a study conducted at Motilal Nehru National Institute of Technology Allahabad regarding usage pattern of internet facilities by female students. Approximately 3000 websites were visited and majority of them were non-academic websites. Only 13 per cent of internet users are female students and out of which only 11 per cent use internet. Dominant use (63 per cent) of the internet is for Non-Academic purposes. This is true for students with excellent academic performance (CPI).

Singh and Tiwari (2010) found that all the agricultural university libraries are connected by networking system. While the under graduates are primarily using networks for communication purpose through social networking system group, the post graduate students are using for dissertations and other research assignments. Teachers are using Internet for support of their research work and preparing papers for journals. It is experienced that author and title searches are conducted on the web using Google and Google scholar.

Dhingra and Mahajan (2012) studied the level of awareness of users on the use of e-journals in university libraries. They found that 47.91% of the users have training on the use
of e-journals, whereas 52.09% of the users have not taken any training for making use of e-journals. As far as usage of e-journals is concerned, 44.58% of the users use e-journals for accomplishing their research works and 20.83% of the users use e-journals for writing articles. They further highlighted that 71.25% of the users like the advantage of easy accessibility of e-journals followed by 24/7 availability and easy search facility preferred equally by 70% of the users.

Habiba and Chowdhury (2012) found that majority (56%) of users agreed availability of up-to-date information as the most important feature, free availability of e-resources was deemed important by 21 percent of the users, other significant features included quick retrieval (12%), full-text searching (10%) and link to other resources (1%).

Thanuskodi (2012) reported that most of the respondents 76.66% use e-resources for writing papers. 62.22% of respondents use e-resources for studying their course work and 51.66% respondents use for research work. 45% of respondents use e-resources for update subject knowledge and 23.33% of users using e-resources for teaching and only 16.11% respondents use e-resources for other works like exams etc.

Sankaranarayanan and Nagarajan (2012) reported that 26.58 percent of the Faculty members have expressed that it is time saving, 30.96 percent have expressed that easy to use, 19.04 percent have reported that it is easy to use, 14.38 percent have expressed that it is more informative and the remaining 9.04 percent have expressed that it is more preferred.

Ahmed (2013) found that 94.47% of the faculty members use e-resources for research purposes, 83.63% for teaching and 64.96% for learning or updating themselves with the latest of what's happening in their respective areas.

Elavazhagan and Udayakumar (2013) “examined the exposure and measure the extent use of e-resources by the faculty members and research scholars of BITS, Pilani - Hyderabad Campus” and confirmed that “the e-resources are time saving, easy to use and handle, more informative, preferred, flexible and effective”.

Chandran (2013) found that 42 (34.14%) respondents used electronic resources to prepare for projects, followed by 31 (25.20%) to write articles, 17 (13.82%) to prepare for seminars or conferences, 15 (12.20%) to prepare study notes, and 10 (8.13%) to obtain
general knowledge. Only 8 (6.51%) of respondents used electronic resources to write book reviews.

Ravanann et al. (2013) found that one of the main purposes of using internet resources by majority (61.60%) of engineering college teachers was found to be for teaching and learning purposes. Other purposes which followed were for preparing notes, projects, seminars, and research.

Uwaifo and Eiriemiokhale (2013) revealed that Electronic Information Resources were predominantly used for research work (98%) the other benefits that followed were using e-resources for gaining subject knowledge (94%), for preparing lectures/teaching (87%), and for getting news (73%). More than half of the respondents also admitted using Electronic Information Resources for communication purposes.

Siddike and Islam (2014) reported that the attitude of the medical researchers was found to be very positive regarding the use of e-resources as majority of the researchers stated that e-resources are extremely useful for research purposes. Moreover a very high percentage of respondents agreed that e-resources are easy to use and save their valuable time, availability of search tools was also considered important by the users. While, the main purposes for using e-resources were to gather information on their related topic of interest, to get answers of some specific questions and to write research paper or article.

g. Usefulness

Sankaranarayan and Nagarajan (2012) revealed that 345 (47.26%) respondents were of the opinion that the e-resources are useful; 248 (33.97%) respondents were of the opinion that it is very useful; 100 (13.70%) respondents were of the opinion that it is average and 37 (5.07%) respondents were of the opinion that the e-resources are not useful in upgrading their research and teaching skills.

Mahapatra, Rabindra K (2017) Use of e-Resources among Social Scientists in Selected Institutes in Bhubaneswar: A study The paper is designed to reflect the use of electronic information among the social scientists in the city of Bhubaneswar. The investigator has attempted to collect information related to the preferences on electronic information resources, types of e-resources used, the use of statistical information in e-format, online databases in social science and satisfaction on the use of e-resources. The
information has been analysed in the light of data collected from 90 social scientists from research institutes and universities in the city of Bhubaneswar.

h. Satisfaction

Sevukan and Sivaraman (2008) revealed that with regard to the satisfaction of users on the adequacy of e-resources provided by Pondicherry University Library, 70.59% of users were satisfied while 29.41% were not.

Natrajan et al. (2010) found that 21 (17.95 percent) faculty members were very satisfied; 22 (18.80 percent) were satisfied; and 42 (35.90 percent) were somewhat satisfied whereas 21 (17.95 percent) faculty members were found to be dissatisfied and 11 (9.40 percent) were very dissatisfied. In case of research scholars, the satisfaction level in terms of relevance of e-resources was found to be as 13 (12.04 percent) research scholars were very satisfied; 21 (19.44 percent) were satisfied; and 47 (43.52 percent) were somewhat satisfied whereas 18 (16.67 percent) research scholars were found to be dissatisfied and 9 (8.33 percent) were very dissatisfied. As a result, it was observed that more than 50 percent of the users were of the opinion that the relevance of the e-resources covered by e-journals consortium of Annamalai University was satisfactory.

Habiba and Chowdhury (2012) in their study overall picture of benefits from e-resources seemed to be satisfactory. 26.0 percent users accepted they derived excellent benefits from e-resources 27.0 percent agreed them to be good, 37.0 percent users stated benefits from electronic resources as average. A very less percentage of users i.e. 10% remarked benefits level as poor.

Sankaranarayanan and Nagarajan (2012) reported that 135 (18.49%) respondents are highly satisfied, 263 (36.03%) respondents are satisfied, 184 (25.21%) respondents are some what satisfied, 98 (13.42%) respondents are dissatisfied and 50 (6.85%) respondents are very dissatisfied.

Thanuskodi (2012) observed that majority 50.56% of respondents are highly satisfied with the infrastructure provided by the library for accessing e-resources at different levels whereas only 10% of respondents are not satisfied with the same.
Ahmed (2013) observed lack of satisfaction among faculty members regarding electronic resources subscribed by the universities.

Chandran (2013) found that the majority 84 (68.29%) respondents were satisfied with the relevance of the electronic resources, followed by 22 (17.89%) partially satisfied. Only 17 (13.82%) respondents were not satisfied.

Bhat and Ganaie (2017) found that majority of users made use of search engines for searching and accessing e-resources followed by the university’s website. A great majority of respondents are satisfied about the availability of e-abstract databases (87.92%) and e-journals (89.67%). Despite the fact that only three of the surveyed libraries are found to subscribe to a single e-book collection of 600 titles, surprisingly a good percentage of the library users (69.08%) are satisfied with the availability of e-books. Same is the case with e-theses, whereof the majority of respondents (60.33%) are satisfied, despite the fact that only one e-theses database that too only of Indian coverage i.e., KrishiPrabha is made available to users.

2.4 Relationship between usage of e-resources and problems encountered with selected Independent variables

Zhang (2001) examined effect of variables such as age and gender and revealed that younger respondents tended to use Internet search engines more frequently than older respondents. Moreover, from gender’s perspective it was reported by the study that female researchers tended to use on-line databases more frequently than male researchers.

Ozoemelem (2009) reported that usage of electronic resources by the students is quite high, moreover gender difference in use of electronic resource is quite negligible i.e. both male and female postgraduate students are using e-resources very frequently. Majority of the respondent accessed electronic resources from the cybercafé followed by using them in the department.

Baro et al. (2011) revealed that higher percentage of male medical students made use of online information resources for retrieving the related medical literature than the female students. The study concluded that this difference could be due to the variation in level of awareness and skills necessary for the effective use of the e-resources.
Maxwell and Maxwell (2014) revealed that a higher percentage of male 72.05% believed that their literacy level enhance use of digital resources and e-library in comparison of females (42.03%). 68.01% males 35.05% females were able to use the Internet and the digital resources with their existing level of computer literacy. Study concluded that there existed gender differences between male and female respondents, where males exhibiting better computer literacy and e-resources usage among the undergraduate students.

Mtega et al. (2015) revealed that access and usage of e-resources was influenced by individual factors such as age, occupational category and the educational level.

Bhat et al. (2015) revealed that though majority (54.93%) of respondents preferred to access the e-resources from their ‘Department/Division’ however, not much difference was observed in the percentage of user who used e-resources from home (53.52%).

Ani et al. (2015) explored the perceived effect of accessibility and utilization of electronic resources on research productivity at Nigerian universities. On analyzing the perceived effect of accessibility and utilization of electronic resources on research productivity from gender perspective it was found that perceived effect of electronic resources on research productivity was gender neutral. However, the study reported a significant perceived positive effect of accessibility and use of electronic resources on research productivity among the respondents of the surveyed Nigerian universities.

2.5 Problems

a. Difficulties

Ali (2005) conducted a study of online searching of scientific information in science and technology libraries of Delhi reveals a sizeable number of users (almost 60%) are facing numerous problems while browsing electronic information, such as lack of knowledge about the resources, lack of trained staff and inadequate terminals.

Ojo and Akande (2005) stated about a survey of 350 respondents examined students’ access, usage and awareness of electronic information resources at the University College Hospital (UCH) Ibadan, Nigeria. The study revealed that the level of usage of the electronic information resources is not high. A major problem however identified is lack of information retrieval skills for exploiting electronic resources, thus making the level of usage of resources by medical students very low.
Nisha and Ara (2008) highlighted the problems of the UGC-Infonet and INDEST consortia like slow downloading, lack of maintenance, lack of training, lack of infrastructure, etc., which are discouraging users from accessing e-resources.

Tripathi and Jeevan (2008) discussed the different barriers to provide electronic resources and services to the distance learners and also gave some valuable suggestion to overcome on those barriers like implementation of resources and services; promotion of resources and services; infrastructure at the study centers; and orientation and user education programs.

Haridasan and Khan (2009) revealed that the social scientists strongly agreed to the need of computer/internet literacy for the better utilization of e-resources. Study concluded that there is a need to develop adequate computer literacy skills for the better utilization of e-resources.

Natrajan et al. (2010) showed that out of 48 faculty members who were not using e-resources, 4 (8.33 percent) were not able to use it due to non-familiarity with e-resources, 12 (25 percent) due to lack of subject coverage, 5 (10.42 percent) due to lack of training, 2 (4.17 percent) due to lack of confidence, 9 (18.75 percent) due to lack of time, and 16 (33.33 percent) were due to slow downloading. Of the 41 research scholars who gave a negative response to using e-resources gave the reason as not being familiar with e-resources, i.e., 5 (12.20 percent), whereas 9 (21.95 percent) opined that lack of subject coverage, 6 (14.63 percent) gave the reason as due to lack of training, 5 (12.20 percent) were due to lack of time, 3 (7.32 percent) were due to lack of confidence, and 13 (31.71 percent) responded to slow downloading. Thus, it is clear from the analysis that slow downloading was prime factor for less usage of e-resources.

Madhusudan (2010) revealed that the most common problem in accessing e-resources was that of slow access speed (62%), followed by download delays as 44 percent respondents stated that it takes too long to view/download pages, whereas 42 percent of them found it difficult to retrieve relevant information from the e-resources, 28 percent of the respondents regarded information overload as a problem while, lack of proper IT knowledge caused problem to 26 percent of the respondents.

Tahir and Shafique (2010) revealed that information being scattered in too many sources (90%), due to the information explosion (87%) made it difficult to search the
required information without assistance. Other common problems that the respondents stated were “electronic resources are too expensive” (87%), “lack of time for searching” (79%), “non availability of electronic resources” (74%), “lack of training to use the electronic resources/products” (71%), “lack of computer hardware or software” (71%), “lack of technical support” (68%) and “language barrier (most of the electronic material is in foreign languages)”. 

**Navalur et al. (2012)** revealed that lack of user training as a common problem among both the research scholars and PG students, while faculty identified less number of subscriptions of foreign journals as a limiting factor in the e-resource usage. Investigators suggested organization of orientation and training programs for better usage of the electronic resources.

**Sankaranarayanan and Nagarajan (2012)** observed that out of 298 Professors, 29.53 percent of them faced slow access and 4.03% percent of them faced other problems while accessing e-resources. Out of 150 Associate Professors, 38.00 percent of them faced slow access speed and 2.67 percent of them faced limited access terminal. Among the total number of 282 Assistant Professor, 19.86 percent of them faced finding relevant information and 5.67 percent of them faced limited access terminal as problem while accessing e-resources.

**Thanuskodi (2012)** observed that majority of respondents are not satisfied with availability of enough e-resources in their respective subject followed by coverage of e-resources is not suited to my research area, time consuming, no assistance provided by the information professionals and lack of training.

**Ahmed (2013)** revealed that a limited number of e-resources and a slow Internet bandwidth are the major problems being faced by the faculty members.

**Chandran (2013)** found that 52 (42.28%) respondents faced with the issue of timeliness of electronic resources, followed by 31 (25.20%) with the issue of insufficient training, and 26 (21.14%) with the issue of not having the electronic resources they needed. Only 14 (11.38%) respondents believed that the insufficient infrastructure was the issue.

**Ravanant et al. (2013)** revealed that Information overload was recognized as the major hindrance in use of digital information resources
Bhat and Mudhol (2014) found that presence of viruses caused major problems to the respondents other problems included difficulty in finding relevant information limited access to computers, lack of time and too much information retrieved.

Chauhan and Mahajan (2014) found that 149 (41.05%) of the respondents find slow connectivity (bandwidth) of the Internet as the major stumbling block in using the UGC-Infonet eresources, followed by 38 (10.47%) respondents who found it difficult to get information on subjects of their interest, whereas 35 (9.64%) opined lack of awareness about social science electronic resources. It further revealed that 18 (4.96%) faculty members complained that library staff is not competent to help them in locating their needed information from electronic resources. 16 (4.41%) respondents were not able to search electronic resources, whereas 98 (27%) respondents did not report any problem at all. It was also found that 5 (1.38%) respondents reported non-cooperativeness of library staff and about 4 (1.10%) respondents informed that they are unable to use computers.

b. Training

Natrajan et al. (2010) revealed that majority of the users agreed that training would lead to better utilization of e-resources.

Mtega et al. (2015) asserted on the need of information literacy training updates for the effectively exploiting the online information environment.