

CHAPTER 6

Major Findings & Discussions

6.1 Major Findings

6.1.1 Findings of the Responses Received from Scientific Community

Evaluation of the findings of any research study is always advisable to generalize the same. In this concluding part of the work, the general findings have been taken into account to see whether the set objectives have been achieved, the formulated hypotheses are proved to be valid, etc. The following are the important findings of the study which needs to be highlighted here:

A. General Characteristic/ Demographic Profile of the Respondents

- The response rate of the returned questionnaire of this study has been recorded as 86.8 percent;
- The study consists of three distinct categories of library users; which consist of students, research scholars and faculty members. The category wise responses show that majority of the respondents (36.7%) belong to “Students” category which is followed by “Research Scholars” category (32.2%) whereas rest of the respondents belong to “Faculty Members” category (31.1%);
- Gender-wise distribution shows that the percentage of male respondents (53.6%) is more than that of percentage of female respondents (46.4%);
- Educational qualification-wise distribution of student category shows that majority of students (70.7%) enrolled themselves in “Post Graduate”

study whereas; majority research scholars (49.4%) enrolled themselves in “Ph. D.” research study. Moreover, within faculty member category majority respondents (59.9%) are “Ph. D.” qualified.

B. Age-Wise Distribution of Respondents

- Most of the respondents fall under the category “below 21-25 years”; out of which majority of them are student. Further classification has shown that respondents belong to age group of “26-35 years”; out of which majority belong to age group of “research scholars”. Again, remaining respondents belong to “36 years above category” who mainly belong to “faculty members”. Thus, majority respondents belong to younger age group which is due to large numbers of students and research scholar’s participation in this study.

C. Category of faculty members

- Out of total respondents, 31.1% respondents belong to faculty members among which majority of the faculty members (53.7%) belong to Assistant Professor category, which is followed by 30.2% respondents who belong to Associate Professor whereas remaining faculty members (16.1%) belong to Professor category.

D. Income Group wise Distribution of the Respondents

- It is evident from the survey finding that the income group from 25001 to more than 1 lakh belongs to faculty members whereas students and research scholars belong to comparatively lesser income groups from range between less than 10000 to 50000 rupees; which reveals that the majority students and research scholar’s family income of is below 50000 rupees per month.

E. Life Style/ Personal Character of the Respondents

- The finding of the study reveals that respondents belong to scientific community, generally think themselves as cold, creative and kind person. Further, they also feel themselves as slightly systematic and bold in nature. The study also shows that the respondents do not feel themselves as disorganized and complex in nature. But, the respondents are found to be confused while rating with philosophical characteristic.

F. Library Visit Pattern of the Respondents

- It is also found that all the respondents visit their respective central or departmental library of their own university for accessing their required information;
- Further, most of the respondents (33.2%) visit library on daily basis whereas almost same numbers of respondents (23.6%) and (14.2%) does not visit library regularly and/or once in a month. Thus, it shows that there are two distinct opposite groups, some respondents are visiting library to meet their requirement whereas some respondents are entirely dependent upon other external sources;
- It is also found that frequency of library visits by the faculty members is very less in comparison to students or research scholars. Further, frequency of library visit is much higher among Tezpur University Library users in comparison to other university library users;
- The analysis of result shows that faculty members generally use various types of library resources efficiently by visiting different libraries apart

from their own university library for accessing their required information whereas it is not evident in research scholars/ students category;

- It is interesting to note that respondents are not dependent on their university library; rather a substantial numbers of respondents visit other libraries also to seek desired information. British Library, District Library, American Central Library, National Library of India are most popular libraries visited by the scientific communities of Assam.

G. Use of E-Resource by the Respondents

- Further, from the study it also clears that majority of the library users do not access Internet/ e-resources from library building. The reason for not accessing Internet/ e-resources from library building may be due to the availability of Intranet services (eg. LAN, Wi-Fi) within university campus; which leads to access required e-resources from anywhere/ directly from the university departments.

H. Purpose of Library Visit by the Respondents

- The study also shows that most of the respondents used library to consult reference/ printed books, printed journal or database, issue and return of the book and to get up-to-date information in general;
- Further, the most common other purposes of library visit stated by few respondents includes “writing article/ paper”, “delivering talks”, “to give demand for required books”, “to get reports”, “reading printed journals”, “accessing print facility” etc.

I. Search Strategies Adopted by the Respondents

- The study also shows that the most of the respondents (44.9%) search information by using library OPAC which is followed by the respondents

(23.8%) directly approaching to the book shelves for required material; whereas some respondents (21.5%) search information by taking help from LIS professional for accessing document;

- Since, all university libraries under the study are having of LAN/ Wi-Fi facility, so respondents sometime prefer to search information by accessing library database from their department or university. Further, few library users also search information by consulting printed indexing and abstracting journals, which are available within the library.
- Further, some other strategies adopted by few respondents for information search from library includes “by discussing with peers/ friends about the location of required material”, “sending request to library”, etc.

J. Satisfaction Levels of Library Users towards the Library Collection

- While rating about the satisfaction level of library collection most of the respondents believe that documents such as “Text Book”, “Reference Book”, “Theses/ Dissertation”, “Journals”, “E-Resources”, “Online Resources”; are partially adequate to meet the requirements. Thus, they are not fully satisfied with the library collections;
- It is also found that scientific community belong to Tezpur University, seem to believe that they are almost satisfied with the journal collections of their university library. While, scientific community belongs to Assam University, seem to believe that they are very much dissatisfied with journal collections of their university library. Whereas, scientific community belongs to Gauhati University and Dibrugarh University; seem to believe that they are partially satisfied with journal collections of their university library; but there are very urgent requirement for addition

of more journals. Respondents of Gauhati University; also mentioned as they need CAS to know usage pattern of journal from the library;

- Moreover, from the analysis of the results, it is found that the overall collections of all university libraries are not up to the mark. But, most of the time scientific community is providing requisition for various resources to the library as per their requirements.

K. Provision of User Education/ User Awareness / Orientation Programme

- Majority of the respondents (71.0%) agree that their university library provide/ or they are aware of user education/ orientation program while only few (29.0%) respondents are not aware of user education/ orientation program provided by the university libraries;
- Again, majority of the respondents (58.0%) feel that there is an urgent need of user education/ orientation program while remaining respondents (42.0%) do not require such orientation or educational program. Those respondents who feel there is an urgent need for user education/ orientation program, they have also responded about the topic on which they generally required those users' awareness/ orientation programs.

L. Modes of Searching Information of the Respondents

- Majority of them have stated that they required information related to new arrived journals or books. In case web resources, they generally require information related to authentic website and the way how to retrieved information from those. It is evident from the study that the university library users need CAS (Current Awareness Service) and that should be made mandatory and if possible SDI (Selective Dissemination of Information) services should be introduced;

- It is also reveals from the study that respondents from four universities of Assam under the study seem to behave almost similarly while searching desired information whereas category wise usage pattern of the respondents varies; i.e. students, research scholar and faculty members generally preferred different way while searching information;
- Majority of the respondents (42.4%) preferred to search mostly over web/ Internet which is followed by some respondents (26.9%) who preferred to search by discussing the topics with friends/ peers/ colleagues/ teachers whereas few respondents (16.9%) start search from their library services. Further, sometime respondents (13.6%) also preferred to search by visiting from the local/ online book shop;
- It is also found that majority respondents (92.3%) search/ seek information on study/ research related topic at regularly, which is followed by some respondents (61.8%) search on new development/ challenges related topics. Moreover, respondents (55.3%) also search on general knowledge/ current awareness related topic. Further, a large numbers of respondents search on various others issues such as business related, political issue, job or carrier related, environmental, human resources, astronomies, wild life, paintings, geography, pollution, technological services, shopping, new services etc.;
- Since, in this study a large population has been taken under consideration, thus information searching topic of the respondents also varies in various pattern from person to person. Further, as all of them belong to academic scientific community, so some common trends was observed in this study;

such as study/ research related topic or new challenge towards each respective fields.

M. Preference of Documents for Consultation by the Respondents

- It is also observed from the study that most of the respondents generally use various documents such as “Online Resources”/ or “E-Resources” extremely. Further, majority of the respondents also use various documents such as “Text books”, “Reference books” and “Newspapers” very frequently. These leads to conclude that most of the respondents mainly either search by online/ e-resources and/ or they depend on text/ reference books to meet their required information;
- Further, in case of “Journals”, the responses seem to be polarized, this might may be due to student’s community, who generally use journal very less, while research scholar or faculty members category frequently use journals to be up-to-date;
- Again, in case of “Theses/ Dissertation” and “Abstracts & Indexes”, the use patterns seem to be very less. Moreover, most of the respondents generally do not use documents such as “CD/ DVD Databases” and “Govt. Reports” frequently;
- Thus, it has been observed that these printed or offline resources are not used by substantial numbers of users which might be on account of their ignorance or not placed at convenient location. Therefore, library users should need to make aware and orient them to use such resources for their research and academic activities.

N. Preference of Channel of Information Search by the Respondents

- It is further observed that scientific community is very confused about the channels of information sources and they are using various technique and channels to seek their desired information;
- Moreover, it is observed that majority of the respondents generally use most of the time various channels such as “Internet/ Online Resource”, “Personal collection” and “Cable/ TV channels” very frequently for information search. Further, majority of the respondents also use channel such as “Social Networking Site” most of the time for gather the required information.
- In case of own university library, the responses is seem to be polarized, some respondents (18.1%) did not used “library” as channels of information whereas other respondents use very often “library” as channel of information source. The findings reveals that libraries are not used by scientific community as main channel of information source. They are depended on other channels to get information for their day to day needs;
- While channel such as “Information networks like INFLIBNET /DELNET etc.”, “District Information Centre”, “State Information Centre” and “Community Information Centres” are also used very rarely by scientific community.

O. Behavioral Trails to Assess Information by the Respondents

- It is found from the study that majority of the scientific communities (54.1%) feel themselves as very much confident whereas some respondents (38.8%) feel themselves as somehow confident and very few respondents (7.1%) feel as they are not confident at all while searching

information. This is also found that most of the students feel less confidence while searching information whereas faculty members feel very much confident to search desired information for their library;

- Moreover, scientific community with extremely bold, creative and practical in nature feel more confident while searching information than those who are weak in nature.
- Further, it has also been found from the study that most of the respondents (40.1%) somehow satisfied with the information they retrieved whereas (34.2%) respondents dissatisfied at most of the time and only few respondents (25.3%) are fully satisfied with their retrieved information most of the time.

P. Awareness and Use of Internet by the Respondents

- Again, the scientific community university library users are well aware of Internet and extensively using Internet to access e-resource and others facilities. Most of the respondents (44.9%) claimed themselves as an expert of using Internet, whereas almost equal numbers of respondents (43.2%) feel they are intermediate and only few respondents (11.9%) feel they are novice in using ICT and Internet. This result might be due to the fact that respondents are using Internet or E-resource very frequently and they like to retrieved document from OPAC or in digitized form. Further, it was also found that majority of Assistant Professor may feel themselves as Internet expert than Professor as they belong to the younger generation senior people feel shy to use computer and Internet in this study;
- Again, most of the respondents (54.5 %) access Internet on daily basis, whereas only few respondents (12.8 %) access Internet very often. It is

interesting to note that a substantial number of scientific community library users access Internet on daily basis which shows that Internet has become indispensable tool for them to keep them abreast about the recent development in the concerned subject field;

- Further, majority of the respondents (34.4%), remain connected throughout the day with Internet which is followed by some respondents (21.5%) prefer to use Internet at “Evening” whereas few respondents (19.8%) prefer to use Internet at “Night”.
- Majority of the respondents (30.7%), use Internet for more than 6 hours a day; which shows that they are extremely using Internet in a day as they always remain connected with Internet and use when they feel to access the required information. This is followed by (27.4%) respondents who use Internet “1-2” hour in a day whereas few (18.2%) respondents use Internet for “2-4” hour in a day.

Q. Interface used for Internet/ Access to E-Resources by the Respondents

- Majority of the respondents (52.4%), use “Laptop” at most of the time for accessing Internet/ E-resources which is followed by (47.5%) respondents use “Desktop” whereas (45.3.8%) respondents use “Smart Phone” and (28.9%) respondents use “Tab” as the interface for accessing Internet/ e-resource;
- The study also reveals that now LED TV is being used as a means of interface to access Internet. The finding shows that people are now shifted from desktop to laptop, smart phone, LED TV and tabs.

R. Place of Internet Access by the Respondents

- Further, majority of the respondents (60.6%), access Internet/ E-resources at most of the time from “home” which is followed by (44.3%) respondents access Internet/ e-resources from “their respective department” whereas (25.1%) respondents access Internet/ E-resources from “hostel/ quarter” and (22.2%) respondents access Internet/ E-resources from “Computer Center”.

S. Strategies to Access E-Resource by the Respondents

- E-resource searching pattern over web/ Internet has shown that majority of the respondents (48.0%), carried out search most of the time by “specific term/ Pin-point search” which is followed by (30.1%) respondents carried out search by “broad term” at most of the time whereas only few (18.2%) respondents carried out search by using “special characters”. This may be due to the fact that majority students (41.9%) start searching by using broad term first; whereas faculty members (74.5%) generally use both special characteristic or pin-pointed search and research scholar (70.1%) starts search by pin-pointed or specific term; and
- Majority of the respondents (90.6%), carried out search by “Simple Search” technique which is followed by 40.5% respondents who carried out search by “Boolean Search” technique whereas 37.4% respondents carried out search by “Phrase Search” technique. Moreover, few respondents (32.4%) use “Truncation Search” technique and (28.8%) “Field Search” technique. This result might be due to the fact that the

respondents might not be having information regarding the search strategies to search relevant information.

T. User Orientation Programme

- In this case, librarian plays a vital role by providing user's awareness programme to the scientific community library users for effective utilization of resources at less possible time.

U. Preference of the Website Evaluation by the Respondents

- The evaluation frequency of website used by scientific community has shown that majority of the respondents (43.7%) sometime evaluate the website which is followed by the 40.8% respondents who never evaluate the website before they start search. Those who are regularly visiting websites might have developed the various searching strategies to find out their desired information in less possible time after evaluating the authentic website properly;
- The respondents who generally evaluate the website, out of them majority of the respondents (67.3%) evaluate the website by "Content/Knowledge" which is followed by the 59.5% respondents who evaluate the websites by "find-ability of its information" whereas some of the respondents (58.1%) evaluate by "Current-ness/ up-to-date information". Moreover, few respondents also evaluate the website by "Domain name"; "Authority/ creator of the page" and "Biasness towards a particular issue" respectively.

V. Usefulness of E-Resource Available under Library Consortia by the Respondents

- The usefulness of e-resource available in the university library has shown that majority of the respondents (56.2%) feel that the e-resource available

in the university libraries are “Useful” which is followed by 16.5% respondents who feel that the e-resources available in the university library are “Highly Useful” whereas only few respondents (9.8%) feel that the e-resource available in the university libraries are “Not useful”. Thus, the survey finding indicates that the usefulness of e-resources among the scientific community library users could be converted into highly useful by giving maximum numbers of orientation of e-resources usage pattern.

W. Problem in Searching/ Accessing Information by the Respondents

- It is found from the study that most of the respondents faced extreme problem due to “lack of relevant document/ information over web”, “less no of subscribed journals in relevant field”, “non-availability of adequate material within library”, “inability to search document from library” and “lack of current awareness services”. These lead to conclude that most of the respondent mainly face problem due to improper collection development policy which leads to dissatisfaction toward library users. Again, since all the library users of this study belong to scientific community, so the needs of current trends/ information is highly essential for them. Moreover, searching the required document within library is also major problem face by them;
- Most of the respondents also feel “due to no new/ attractive service” from the library; which leads to create dissatisfaction among scientific community. But, the response received in this case seems to be little polarized. This might be due to the fact that scientific community belong to the Tezpur University, seem to be little satisfied with the library services than rest other universities.

- But, most of the respondents (58.8%) also faced problem for “no resources sharing facility with nearest library” and “lack of awareness of e-resource”. This is might be due to the fact that the scientific community sometime gets their relevant document to their nearest library. Again, scientific community belongs to student category, face lack of awareness towards e-resources. Further, scientific community also faced sometime very much problem for “non-cooperation from library staff”. But, the responses received in this case seem to be little polarized. This is might be due to the misbehavior from library professional or non-availability of relevant document within library leads to dissatisfaction among users. Moreover, few respondents also faced problems for “slow speed of Internet at university” and “lack of time to visit the library”.

X. Suggestions Provided by the Respondents

- While suggesting for solutions of the problems, majority of the respondent (77.9%) suggests “to build adequate collection” as per their need which is followed by some (64.8%) of the respondents suggest to “introduce innovative practices in library services”, whereas almost equal (63.5%) numbers of respondents suggest to start “e-mail/ mobile alerts to provide information about new arrival” would leads to create awareness about a particular information;
- Further, while responding with solutions of the problems; majority respondents also suggest “to organized user education program”, “to organized e-resources training program”, “current awareness services should be provided”, “resource sharing facilities should be provided”, etc.;

- Again, 32.8% respondents also suggest “library should be keep open after the class hour” which is followed by 31.0% respondents suggests “more no. of Internet terminal should be added to each department”; whereas 28.2% respondents suggest “while access Internet privacy of user must be taken care” and 20.2% respondents suggest “reading room capacity should be increased”;
- Thus, it is observed from the problem faced and provided suggestion that the majority of the respondents believe to develop adequate collection development policy as per the need of scientific community. More numbers of journals must be subscribed for them as per their respective subjects;
- Most of the respondents also suggest to introduce innovative services by library such as e-mail alert, mobile alert, CAS, information on new arrivals, comfortable seat capacity, etc. Further, library should take an initiative to organize awareness towards growth of information and relevant website for getting required information;
- Further, as due to regular class routine, scientific community mainly students; did not get time to visit library, so, it is necessary for library to remain opened after the regular class periods. Sometime among student community, those who stay far away from university, they have to leave university after the class get over. So, university authority should take necessary steps or action to arrange transportation services for them.
- The other suggestions made by the scientific community users are included as “Need for developing study material”, “Resource sharing between library must be increase”, “Adequate research journals, mainly e-

journals should be provided”, “Library services should be more friendly”, “Library professional should provide response to the scientist for their query”, etc.

6.1.2 Findings of the Responses Received from the Librarian

A. Collection Details of University Libraries

- It reveals that all university libraries have huge collections of traditional as well as e-resource documents such as text books, advance level books, reference books, journals, newspapers, theses, CD/ DVD ROM, govt. reports and other special types of collections;
- Further; it also shows that Gauhati University Library has the highest collections of text books/ reference books which is more than 2.5; which is followed by Dibrugarh University Library collections ranging from 1.5 lakhs to 2 lakhs numbers; whereas Assam University Library collections ranging from 1 lakh to 1.5 lakhs numbers and Tezpur University Library collections ranging from 50001 to 1 lakh numbers;
- In case of Journals; Dibrugarh University Library has the highest collections of Journals 151-200 numbers which is followed by Assam University, Tezpur University and Gauhati University libraries have collections from 100 to 150 numbers each;
- Further, for newspapers; it is found that Assam University and Gauhati University library generally procure 16-20 different types of newspapers each; which is followed by Dibrugarh University Library procures more than 21 numbers different types of newspapers; whereas, Tezpur

University Library procure very less i. e. below 10 numbers of newspapers;

- In case of thesis, Gauhati University library has the highest collections of thesis with more than 3001 numbers; which is followed by Dibrugarh University Library has the collections ranging from 2001 to 3000 numbers; whereas Assam University Library has the collections ranging from 1001-2000 numbers and Tezpur University Library has very less collections of thesis i. e. below 1000 numbers;
- Moreover, all these university libraries (100.0%) also have some common types of collections such as government reports, dissertations, CD-ROM, etc. Further, Gauhati University library has special collections such as manuscripts, and Bhupen Hazarika Collections; whereas Dibrugarh University library has huge numbers of back volume collections which is more than 17000 numbers. Similarly, Tezpur University library has huge numbers of back volume collections which is more than 7500 numbers;
- It is interesting to note that most of the University Libraries of Assam procuring e-journals or accessing e-journals available by either under consortia or procuring individually; which leads to decrease the numbers of printed journals subscriptions by almost all libraries. In this way universities are encouraging the use of e-resource available under consortia. It is also found from the study that almost all libraries have started to take initiative to develop collections such as books, e-journals, etc.

B. Status of Technical House Keeping Operations

- It is also found that all four university libraries (100.0%) using DDC as classification scheme for arrangement/ classify the document as per subject;
- Further, it is very interesting to find out that at present all four libraries under the study (100.0%) already created their own database of collections. So, all of these libraries stop making of card catalogue; though the earlier card catalogues can be visible in the card cabinet. All university libraries under the study also have put a good numbers of OPAC terminals which are extensively used by the library users;
- Again, all four university libraries (100.0%) using AACR II as cataloguing code while making the entry. Moreover, about charging system, different universities used to have different charging system. Tezpur University and Dibrugarh University used to have Single Card System; whereas Assam University used to have Two Cards System and Gauhati University used to have Browne Charging system.

C. Status of Library Automation/ Computerization

- SOUL is used by majority of the libraries (50%) viz. Gauhati University and Dibrugarh University library; whereas KOHA and LIBSYS is used by only in Assam University library (25%) and Tezpur University library (25%) respectively;
- Further, it is also found that except Assam University library; remaining all 3 (75.0%) libraries are fully automated. Assam University has started their automation process and it is providing partially automated service mainly in cataloguing/ circulation section;

- It is also observed that two university libraries (50%) viz. Assam University and Tezpur University libraries are providing Web-OPAC facility for cataloguing search; whereas rest two university libraries (50%) viz. Gauhati University and Dibrugarh University libraries are providing OPAC facility to their users;
- The study also shows that except Tezpur University no other universities installed any “Digital Library Software” to build their institutional repository. Tezpur University is using Dspace Digital Library Software;
- It further reveals from the study that though all university libraries started providing services to the users through automated library management system, but it is essential to add new technology to provide effective library services such as to build instructional repository, installation of RFID Technology, development of content management systems, etc.

D. Status of Networking/ Resource Sharing Facility of the Library

- The study also shows that all university libraries (100%) are providing resource sharing facility to their users by mutual sharing basis. Moreover, all university libraries (100%) have their own server and Internet connectivity. All university libraries (100%) are also members of INFLIBNET library network. Further all four university library are members of UGC-INFONET Consortia. Moreover, except Dibrugarh University all universities (75%) are also members of DELCON Consortia.

E. Status of Human Resource Strength in Library

- The results of the study further show that majority of the library 75% filled up the post Librarian and Deputy Librarian.

- Whereas, all the university libraries (100%) under the study have the post Assistant Librarian; out of which majority of Assistant Librarian (50.0%) belong to Gauhati University; which is followed by Assam University (30.0%) and only 10.0% in each Tezpur University and Dibrugarh University respectively.
- Again, from the study it reveals that Information Scientists is present only in central university libraries of Assam (50%). Further, it is also found that majority of Professional Assistant belong to Gauhati University; which is followed by Dibrugarh University (29.4%). Moreover, Semi-professional Assistant, Library Assistant, Non-professionals are also presents in all those university libraries.

F. Library Usage Statistics on Daily Basis

- The study has shown that majority of the library users (35%) access the circulation section from Tezpur University daily which is followed by Gauhati University library users (26%). Whereas usage pattern of circulation section from Assam University (22%) and Dibrugarh University (18%) comparatively low.
- But, majority of the library users (37%) visit general textbook section from Gauhati University which is followed by Tezpur University library users (25%). Whereas usage pattern of general textbook section from Assam University (21%) and Dibrugarh University (19%) comparatively low. Further, library users visit pattern towards periodical section and reference section almost equally on daily basis from all four libraries under the study.

- It also shows that library usage number is continuously decreasing; which is not a good sign of educational institutes. Library has to develop a proper mechanism to attract its users.

G. Provision of User Orientation Program in University Library of Assam

- Out of four universities; most of the university provides orientation program annually (75%); whereas only Tezpur University provide orientation program bi-annually (25%).

H. Opinion of Librarian Regarding the Purpose of Library Use by the Library Users

- The study has shown that all Librarians (100%) feel that issue and return of the book (lending services) is the main purpose of library visit by the library users; which is placed at 1st rank which is followed by reading book/ newspapers etc. and placed at the 2nd rank order whereas to access Internet/ e-resource from the library services is placed at the 3rd rank order. Further, preparation to make note for examination/ class by the student, to get up-to-date with current information and for reference search/ consultation is placed as 4th, 5th and 6th rank order respectively. This result shows that as per librarian, users are mainly coming to the library for issue and return of the books at all university libraries under the study at Assam.

I. E-resource Usage Pattern by the Respondents

- The study has shown that; scientific community library users belong to Tezpur University library users has download more than 1 lakh e-journals at maximum extent at above cited period; which is followed by Gauhati University and Dibrugarh University library users has download 75001-

1lakh of e-journals each; whereas Assam University library users has download 50001-75000 numbers of e-journals.

J. Opinion of Librarian with Regards to Most Needed Improvement Required for Library

- The study has shown that almost all librarians are trying to solve the problem faced by the library users by taking various initiatives such as developing content management; by introducing new innovative technology; introducing RFID technology; increasing of reading room seating capacity with ergo-metric design furniture; by creating conducive environment of reading ambience in library for making optimum utilization of resources; by importing effective users orientation program/ user's educational program for effective use of library services.

6.2 Summary of the Results of the Hypothesis Tested

- There is a significant difference between different categories of users with frequency of their library visit;
- There is a significant difference between users from different universities under the study with frequency of library visit;
- There is a significant difference between different categories of users with their libraries visit pattern;
- There is a significant difference between different income groups of users with other library visit pattern except own university library;
- There is a significant difference between different categories of users with overall satisfaction levels of library collections;

- There is a significant difference between different categories of users with preferred way of desired information search;
- There is no significant difference between the different categories of scientific users with preferred ways of desired information search;
- There is a significant difference between different categories of scientific community library users with level of their confidence while searching information;
- There is a significant relationship between scientific community belong to different universities with level of their confidence while searching information;
- There is no significant difference between gender and level of confidence while searching information;
- There are no significant difference between gender and level of satisfaction with retrieved documents while searching information;
- There is no significant differences between different universities and level of satisfaction with retrieved documents while search information;
- There is a significant difference between different categories of scientific community and level of their satisfaction with retrieved documents;
- There is a significant difference between different categories of scientific community and extent to Internet literacy;
- There is a significant difference between different universities and extent to Internet literacy;
- There is no significant difference between gender and extent to Internet literacy;

- There is a significant difference between different categories of scientific community library users and e-resource searching pattern;
- There is no significant difference between gender and e-resource searching pattern;
- There is a significant difference between different categories of scientific community and usefulness of e-resource available under university library service; and
- There is no significant difference between different universities with usefulness of e-resource availability.

6.3 Summary of the Results of Correlation between Variable

- Correlation coefficient analysis has shown that there is a moderate negative relationship between different age groups with various libraries visit;
- Further, correlation coefficient analysis has shown positive relationship between categories of scientific communities with level of their confident while search information;
- Again, correlation coefficient analysis has shown moderate positive relationship between different age groups of scientific community and level of their confident while search information. These correlations indicate that most of the students feel less confidents while search information whereas faculty members feel very much confidents to search information;
- Moreover, to know how personal characteristic have an impact on confidence levels of information searching, more co-relation analysis has

carried out. These have shown that scientific communities with extremely bold, creative and practical personality are more confident while searching information than those who are weak in nature;

- Again, correlation coefficient analysis has shown the positive relationship between categories of scientific communities with level of their satisfaction while searching information;
- Further, correlation coefficient analysis has shown the positive relationship between different age groups of scientific community and level of their satisfaction while search information. These correlations indicate that most of the student communities are less satisfied with the retrieved information while search information;
- Correlation coefficient analysis has shown the strong positive relationship between categories of scientific communities and extent to Internet literacy;
- Again, correlation coefficient analysis has shown the positive relationship between different education levels of scientific community and extent to Internet literacy;
- But, correlation coefficient analysis between faculty members with their designation and extent to Internet literacy has shown that there is moderate negative relationship; which might be due to the fact that Assistant Professors feel themselves as Internet expert than Professors;
- Further, correlation coefficient analysis has shown the strong negative relationship between different age groups with Internet usage pattern throughout the day. i. e. younger age groups, especially students remain

connected with Internet throughout the day and access Internet anytime;
and

- Moreover, correlation coefficient analysis between different age groups with frequency of website evaluation has shown the strong positive relationship. i. e. younger age groups, especially student community evaluate website is very less while search for an information.

6.4 Discussions Between Previous Studies and Present Study

Various literatures related to the information needs and information seeking behaviour was found. These literatures give rise to general opinion regarding what problems university library users face while accessing information from library in rapid changing environment mainly due to lacking of relevant document as per their needs (Kanungo, 1997; Fidzani, 1998; Laloo, 2002; Patitungkho & Deshpande, 2005; Sinha, 2012; Catalano, 2013; Kumar & Sanaman, 2015). Further, different studies also carried out between post graduate and under graduate students of various colleges of South Assam to know their information needs and information seeking pattern. These had shown that majority of library users were facing problem due to inadequate library collections (Biswas & Choudhury, 2011; Bhattacharjee, Sinha, & Bhattacharjee, 2014). *Whereas, from this study it is found that most of the respondents faced extreme problem due to “lack of relevant document/ information over web”, “less no of subscribed journals in relevant field”, “non-availability of adequate material within library”, “inability to search document from library” and “lack of current awareness services”.*

Some other review of literature also suggested that the different behaviour pattern among library users belong to different colleges in India on account of own implementation of resources sharing facility with other library (Fatima and Ahmad,

2008; Veeranjanyulu & Lakshmi, 2009; Bhatia & Rao, 2011). An analytical study also carried out between users of college libraries at Cachar District, Assam which shows that majority library users were not aware of e-resource services being provided by the college libraries (Bhattacharjee, Bhattacharjee & Sharma; 2012). Various other studies related to information seeking behaviour of college library users in India were carried out in the last ten years. Majority of the studies focuses on the limited access of e-resources, externally usage of other resource and changing information seeking behavior, etc. (Sasikala, 1994; Veeranjanyulu & Lakshmi, 2009; Bhatia & Rao, 2011). *Whereas, from this study it is found that most of the respondents also faced problem for non-availability of resources sharing facility with nearest library and lack of awareness of e-resource usage particularly among student community.*

Few more studies were also conducted to know the usage patterns of a university library website, which shows that majority of the users used the Internet for information seeking purpose on daily basis atleast one time (Bruce, 1998; Arshad & Ameen, 2015; Pant, 2015). *Whereas, from this study it is found that most of the respondents access Internet on daily basis, whereas only few respondents access Internet irregularly, which cross-borate the finding of previous study.*

Hsieh-Yee studied the influence of domain knowledge experience in searching of novice and experienced user's search strategies. The result of the study indicated that search experience influenced search strategies and more experimented users apply more tactics (Hsieh-Yee, 1993). *Whereas, from this study; it is found that most of the respondents are well aware of Internet and extensively using Internet to access e-resources and others facilities. Most of the respondents claimed themselves as an expert or intermediate as they know how to use Internet and only few respondents (11.9%) feel they are novice in using ICT/ Internet.*

On the other hand, the use and subsequent study of CD-ROM databases in areas like Africa or India by end-users in libraries were relatively very rare at that time (Hsieh-Yee, 1993; Okpala & Igbeka, 2005). *Whereas, from this study; it is also found almost similar types of result. The usage pattern of most of the respondent's for CD-ROM databases is very less. Now people are shifting from offline database to online database and access to web resources.*

Moreover, various studies were carried out to analyze the web searching behaviour of different communities, which has shown that users are not aware of the address of authentic website (Fidel & et. al., 1999; Hsieh-Yee, 2001; Kellar, 2006; Wales & Robertson, 2008). Some of studies also reveal that respondents enjoyed searching the web because it had a variety of formats and most of time used Google as search engine (Wales & Robertson, 2008; Kumar, 2012). *Whereas, from this study; it is found some different types of results. Scientific community generally required information related to authenticate websites. But, they might not have information regarding the search strategies to search relevant websites.*

In 2013, Catalano analyzed the patterns of information seeking behavior of graduate students, which revealed that graduate students begin their research on Internet almost like any other information seeker (Catalano, 2013). *Whereas, from this study; it is found some different types of results. Student community generally starts their search by using broad term; whereas faculty members generally use either special characteristic or pin-pointed search, which indicates that the library users who belonged to scientific community find themselves confidence to use web resources and have idea to search pin-point information; whereas younger generation use broad terms to search information.*

Further, many studies related to information needs, information seeking patterns were carried out outside India; some of very important findings were described in studies

related to the development of information searching pattern in US (Fabritius, 1999), Singapore (Majid & Tan, 2002), Bangkok (Patitungkho & Deshpande, 2005), Namibia (Chiwari & Dick, 2008), Nigeri (Eze, 2015), European Union(Tanackovic, Horvatic & Badurina, 2015). But, till date no common conclusion can be drawn from those studies. *Whereas, from the present study; it reveals that a common trends of information needs or information seeking patterns have been emerged; which is basically study/ research related or new challenge related topic of each respective fields. In view of this the researcher suggested a information seeking/ retrieval model to address the issues of the scientific community which has been described separately in the next chapter as recommendation of the study.*

Various studies were conducted earlier to know the usage patterns of electronic and printed documents provided by university library at India which reveals that the library users are not fully satisfied with the document available in the library. Moreover it was also found that library users had less awareness towards the availability of resources within library (Sinha, 2004; Gupta, 2011; Sinha, Bhattacharjee & Bhattacharjee, 2013). *Whereas, this study; it is found almost similar types of results, which indicates that most of the respondents also feel that library collections are not sufficient to meet their requirements. Thus, to meet their required information, they have to depend on some external sources of information. Moreover, student community seems to less aware towards the availability of resources within library; which might be due to lack of training/ awareness programme for library users.*

However, many studies were also conducted to know the usage patterns of electronic and printed documents provided by university library outside India; which shows that library users were aware of available e-resources and using these resources at maximum extents (Eason, Richardson & Yu, 2000; Hwang et. al., 2014). Further few

similar kind of studies were conducted on networked electronic services usage patterns in various countries such as in the USA (Franklin & Plum, 2002) and British University library (Gardiner, McMenemy & Chowdhury, 2006) which shows encouraging finding of frequently usage of e-resource with highly level of satisfaction. *Whereas, from this study; it is also found almost similar types of results. Majority of the library users are partially or fully satisfied with the “E-Resources” and “Online Resources” collections. It is observed that on an average all university libraries are procuring e-resources either under consortia or subscribed almost adequately. Users are almost seemed to be satisfied with such collections. But tills some more requirements also noticed in this study especially in case of e-journals.*

Pors (2008) also conducted a study on the traditional use patterns of high school students’ use of libraries and information resources. The findings indicated that traditional demographic factors cannot explain all of the variability in the students’ information behaviour. *Whereas, present study reveals the different types of results which clearly indicates that information behaviour of the majority library users plays no significant differences between distantly located universities under the study.*

Zhang, Lee and You (2007) investigated the usage patterns of electronic theses and dissertations system in the Korea which indicated that electronic theses and dissertations system became widely used and now it is a part of the international network (Zhang, Lee & You, 2007; Renaud et. al., 2015). *Whereas, rating about library collection “Theses/ Dissertation”; majority of the respondents seem to believe partially adequate.*

The general objective of an information retrieval system is to minimize the time spent for user in locating the needed information (Kowalski & Maybury, 2002; Jackson & Moulinier, 2007; Pembe & Gungor, 2009). A numbers of studies were carried out to

investigate information seeking pattern and retrieving process. Most of those studies identified the nature, stages, types, and pattern of search that affect retrieving processes (Karamuftuoglu, 1999; Peters & Stock, 2010; Jackson & Smith, 2011; Yuan & Belkin, 2014). Few more studies investigated how people engaged in search tasks which define their decisions and behaviors in the IR process and personal information retrieval patterns (Jeribi, Rumpler & Pinon, 2000; Xie, 2009). *Whereas, from this study; it is found that most of the respondents somehow satisfied with the information they retrieved whereas some other respondents dissatisfied with the information they retrieved most of the time. There are no significant differences between genders or different universities and level of satisfaction with retrieved documents while searching information. Further, analysis has shown positive relationship between different age groups of scientific community and level of their satisfaction while searching for information. Aged person shows more satisfaction after retrieving information compared to younger respondents.*

Social networking also plays an important role in retrieval process of information. Internet, Intranet, taggers, sites etc. was used to retrieve required information (Enakrire & Baro, 2008; Bankole, 2013; Chen & Ke, 2013). To explore the usages of social networking sites by different university library users indicated that the users demonstrated distinct patterns of social networking site usage (Spink, Jansen & Ozmultu, 2000); Park, 2010; Wadell, Bjork & Magnusson, 2014) such as Facebook (Kurian, 2015). Some studies of human information behavior discuss the nature of task in information seeking and retrieval contexts of web 2.0 (Vakkari, 2003; Hussain, 2015; Park, 2015). *Whereas, from this study; it is found that social networking is also used as an important channel by scientific community very effectively to collect information of their day to day activities. But, social networking sites generally used by scientific community for making communication with peers. Blogs and wikis were also used by*

scientific community for research activities of communications between them in influential ways.

Various literatures were published during the commencement year of 21st century related to information literacy. These radically changing environments lead to develop the information literacy paradigm. Many studies were carried out to know central concept of digital information literacy (Ershova, 1998; Bawden, 2001; Kurbanoglu, 2003; Mutula, 2004; Spiranec & Zorica, 2010). Information literacy is thus very essential for living in the 21st century, and is equally relevance in any society through all over the world. Some similar types of studies were conducted throughout the world to identify the concept, issues related to the information literacy; which had shown new trends of Internet or E-resource usages (Hoare, 1998; Hernandez & Urena, 2003; Sinikara & Jarvelainen, 2003; Idiodi, 2005). *Whereas, it is observed from this study that 44.9% respondents claimed themselves as an expert of using Internet, while 43.2% respondents feel they are intermediate and only 11.9% respondents feel they are novice of using ICT or Internet. This result might be due to the respondents generally used Internet or E-resource very frequently and they like to retrieved document from OPAC/ online resources.*

Further, studies related to information literacy and roles of library and information professionals; shows changing roles of LIS professionals from intermediaries to facilitators and trainers (Torstensson, 2002; Owusu-Ansah, 2005; Wallis, 2005, Detmering et al., 2015). Information society further gives rise to new term as knowledge society. Many studies related to knowledge management were carried out which leads to the conclusion that the management of knowledge is an important and necessary factor for modern society by providing appropriate knowledge to the users (Martensson, 2000; Wiig, 2002). *Whereas, LIS professionals of university libraries starts*

providing services with automated library system. They are willing to introduce more new technologies for make library resource convenient for library users. Information/knowledge management is become main challenges for LIS professionals. From the study it is found that in order to cope-up with the situation LIS professionals started developing new skills along with various technologies.

Again, studies were conducted to know the scientific information searching pattern on the Internet; which had shown that www was used frequently by scientists (Voorbgil, 1999). Similar kind of study also conducted to identify the ways in which the www used by the students as a part of learning process for information seeking (Dalglish & Hall, 2000). In some other study, it is found that the majority of the scientists generally start their literature searches especially by use search engine such as Google, even when they have free access to superior dedicated tools like Web of Knowledge, Scopus or SciFinder (Ware, 2009). *Whereas, it is observed from this study that scientific community also prefers to start their search by using search engine most of the time; instead of search by use tools such as Web of Knowledge, Scopus, etc. This is might be due to they feel searching is more easier in general search engine in compare to special tools such as Web of Knowledge, Scopus, etc.*

In 2005, Doldi & Bratengeyer, conducted various reviews related to the several studies of evaluating the web with comparisons of databases such as medicine (Williams et al., 2003), environmental science (Murphy, 2003), mathematics (De Carlo, 2003), toxicology (Wright, 2001), chemistry (Voigt and Welzl, 2002) and agriculture (Zhang and Lane, 2001). Furthermore, a list of sites was prepared by researcher, which was described the final furnish parameters to help users for deciding about the reliability of web sites (Voigt and Welzl, 2002; Doldi & Bratengeyer, 2005). *Whereas, it is further noticed from this study that scientific community faced various problem while accessing*

information from websites and majority of them are not fully satisfied or they are confused with the information generally they retrieved.

Other researchers also have paid attention from time to time about other aspects of scientific communication while accessing information; e.g. social and economic factors (Wilson, 1995), communication in science and technology (Fjallbrant, 2006), ICT, digital libraries (Borgman, 2000; Roosendaal, 2003), changes and evolutions (Case, 2002), collaboration paradox (Duque et al., 2005), infrastructures (Lynch, 2003), electronic journals (Rao, 2001), institutional repositories (Johnson, 2002; Lynch, 2003), philosophical aspects (Dascal, 2003), electronic digests (Ng, 1998), informal aspects of scholarly communication (Rowlands [et. al.], 2004), and scholarly communication in east and southeast Asia (Xia, 2006), development and context of scientific and technical communication (Vickery, (1999). *This current study also gives rise to evaluate the various kinds of problems or parameters scientific community faced/ used while retrieved their information for academic of general purpose.*

There are several kinds of conceptual models for information seeking behaviour. Generally, these models provide guidance in setting research questions, and formulation of hypotheses (Jarvelin & Wilson, 2003). Further, various studies were carried out to examine the advantages of developing a simulation model of the activities of a university library, in order to balance the available resources with demand for services (Whitmire, 2003; Khosrowjerdi & Alidousti, 2010; Ahmadi, Dileepan & Murgai, 2012), undergraduate's epistemological study (Walczak, 2002), information services study (Chowdhury, 2013). The literature search also suggests many task characteristics related to complexity, a priori determinability (Campbell, 1988; Daft et al., 1988), the number of alternative paths of task performance, outcome novelty (Fischer, 1979), number of goals and conflicting dependencies among them (Fiske & Maddi, 1961; Hart & Rice, 1991),

uncertainties between performance and goals, number of inputs (March & Simon, 1967; MacMullin & Taylor, 1984; Tiarniyu, 1992), cognitive and skill requirements, as well as the time-varying conditions of task performance (Jarvelin, 1986; Tushman, 1978; Van de Ven & Ferry, 1980; Wood, 1986; Zeffane & Gul, 1993), communication (Robson & Robinson, 2015). Current human information behavior models do not take the matter of human multiple information task interaction phenomena (e.g. Bates, 1989; Dervin, 1983; Ellis et al., 1993; Kuhlthau, 1993; Vakkari, 2001). Such models are limited to explaining the process of information access and use while carrying out a single task (Spink and Park, 2005; Park, 2015).

But from the current study, it is found that these models are not fit appropriately with the information seeking pattern of the scientific community belong to the universities under the study. Majority of the models developed earlier basically indicated traditional ways of information searching systems. In this digital era, the personal information behaviour of scientific community belong to the universities under the study has changed. There are tremendous demands, which can be observed from them for appropriate information at minimum possible time. So, there is an urgent need to develop a new model, which might fulfill their desired needs. Moreover, geographical location and wide cultural behaviour is also one important factor that influences community behaviour.

From the result of many studies, it is found that OPAC is used by library users as a primary channels of information search (Brown, 2004; Antelman et al., 2006; Emanuel, 2009; Yang and Wagner, 2010; Mettrop & Nieuwenhuysen, 2001). *Current study also shows similar kinds of results as OPAC had remained largely unchanged since the 1980s and consequently it has lagged behind modern internet search tools.*

Thus, discussion part is carried out as per the results of reviews of earlier studies by matching with finding of the current study. These studies help to identify the common factors mainly to understand the similarity; whereas mismatched earlier studies leads to identify the various factors mainly to understand the gaps or changing patterns of the scientific community. The general problems that scientific community encounter in seeking information as the study revealed; few of very important problems can be mentioned pin-pointed by as given below:

- the library users need specific information as per their requirements;
- they feel awareness towards authentic information is required for them;
- adequate collection of resources is required within library systems;
- to introduce new/ attractive services to the library.