Chapter - 6
SUMMARY OF FINDINGS AND RECOMMENDATIONS

Visvesvaraya Technological University has taken initiative to start research activities in the 69 engineering colleges in Karnataka. These colleges are called the Recognized Research Centres. Altogether, as of 2009, 23 subjects areas have been identified for research programmes. For the convenience of identification and allocation of resources and facilities, 23 subjects have been brought under the cluster of 9 broader disciplines: Civil Engineering, Mechanical Engineering, Electrical and Electronics Engineering, Electronics and Communication Engineering, Computer Science and Engineering, Chemical Engineering, Textile and Silk Technology and General Science / Basic Sciences.

Among the 69 colleges recognized for research programmes 7 colleges belong to the Government establishments, 9 colleges come under the category of the colleges getting Government aid and 53 colleges are the private establishment not getting aid from the government.

While categorizing colleges according to the year of establishment, it is also pertinent to note that 50% (3) of the government colleges, 100% (9) of the aided colleges and 32% (16) of the private colleges were established before 1981. Further, 50% (3) of the remaining government colleges, and 28% (14) of the private colleges were started during the period 1981 and 2000. Finally, 20 out of 50 private engineering colleges recognised as research centres, comprising 40% were established quite recently, during 2001 and 2009.

In the present study, as the users of GL, 340 faculty members who are engaged in supervising the research programmes, and 930 research scholars who have registered for doctoral programmes under VTU have been covered as respondents to analyse the use pattern of GL. The percentage of respondents
covered in the present study is 84.6. Among the faculty guides, 76.2% and within the category of researches 88.0% have been covered as respondents.

Among the 340 faculty members who are recognized as guides for supervising the research programmes leading to the award of doctoral degree, 71.8% are Professors, 20.6% are Associate and Assistant Professors and finally, 7.6% of the faculty are the lecturers. The major segment representing 71.8% of the faculty guides as respondents in the present study are Professors. A large segment of the faculty belongs to the disciples of Civil Engineering (23.3%), Mechanical Engineering (25.9%) and General Science (24.1%) out of the 9 major clusters of disciplines. While considering the number of engineering colleges recognized for the conduct research programmes, 26 colleges representing 19.5% have been recognized for research in Civil Engineering, 31 colleges for research in the area of Mechanical Engineering which account for 23.3% and 18 colleges for research in the discipline of Electronics and Communication Engineering. These three disciplines have been identified for research in large number of colleges when compared to the other disciplines among the 9 research areas. Research in Textile and Silk Technology has been taken up only in 3 of the colleges representing just 2.3%, being the lowest percentage among the subject areas recognized for research.

While categorizing the respondent users as per the gender, 45 were female faculty guides and 295 were male faculty guides, representing 13.2% and 86.8% respectively. While, considering the category of research scholars, 263 (28.3%) were female and 667 (71.7%) were male respondents. Among the entire population of respondents in the present study, 308 (24.2%) were female respondents and 962 (75.8%) were male respondents.

6.1 GL Collection in the Libraries

To have a clear picture about the availability of GL collection in the recognized research centres of VTU, the investigator personally visited the 65
libraries and observed the collection, ways of organising the collection and the pattern of the use. Among 65 libraries of the engineering colleges, 18 libraries representing 27.7% possess less than 500 volumes of GL collection. Further, another 14 libraries comprising 21.5% possess 501-1000 volumes of GL collection. However, in 20 engineering college libraries the GL collection exceeds 2000 volumes. This clearly indicates that the GL collection in 30.7% of the engineering college libraries is to a considerable extent. It is only in 8 libraries representing 12.3%, the GL collection is strong, exceeding 4000 volumes. While considering the holdings of GL from the 65 libraries, the total collection stands at 131795 volumes of as April 2009.

In the present research, six types of GL are considered. As regards the category-wise availability of GL in terms of number of volumes, there are 79845 dissertations, 9499 institutional publications, 22181 technical reports and 16456 proceedings of conferences, seminars and workshops. These four types of GL are in significant numbers in the recognised centre libraries. However, the collection of 3021 trade literature and 793 Ph.D., theses volumes represent considerably a small collection.

While analysing the GL collection according to the year of establishment of the research centres, it is important to note that out of 28 old college libraries, 13 libraries comprising 40.3% possess considerable number of GL collection exceeding 2000 volumes. Therefore, it can be deduced that the libraries established prior to 1981 possess sizable collection of GL. It is also pertinent to note here that 13 libraries established after the year 2000, possess meager collection of GL not exceeding 1000 volumes. Since, the research leading to the award of doctoral degree was started by VTU quite recently, in the year 2002-03, the development of GL collection was not given due priority till this period. In the next few years, the growth of GL collection will be significant and to a considerable extent.
Among the libraries of the recognized research centres, 7 libraries representing 10.8% do not possess significant GL collection. The number of volumes is said to be insignificant. It is pertinent to know that 6 out of the 7 libraries belong to the category of private colleges. The librarians of these 7 colleges quote two main reasons for the insignificant collection of GL. First, the recent establishment and the second, lack of professional staff.

It is clear that none of them has pointed out the reason that the GL is not an important source of information. Further, no one has expressed that the users rarely need GL in engineering college. From this it is evident that GL has higher value for the users of engineering colleges. However, 6 respondents quote the reason that there is no specific acquisition programme for building GL collection in libraries. Another respondent from aided college opines that the faculty members do not recommend GL for procurement and hence the collection is insignificant. It is therefore recommended that libraries should have policy to include GL in their programme of acquiring information sources to the libraries. The recently established colleges have been concentrating on building text book collection and subscribing to core journals for research. It is also the responsibility of the faculty members to regularly identify and recommend recent releases of trade literature, technical reports and the proceedings of the conferences, seminars and workshops as they go out of stock soon.

It is recommended that the libraries of the engineering colleges recognised for research activities have to overcome the constraint of inadequacy of GL through periodical feed-back analysis and revision of the acquisition policy so that, faculty and researchers will get access to latest and needed GL for their professional tasks. It is also suggested to build essential GL collections in the areas identified for research instead of relying upon other libraries to a great extent even for basic grey sources. Basically, a survey of
the users as to the need of GL has to be conducted from time to time in order to determine the GL to be procured and to develop strong need-based GL collection.

6.2 Library Working Hours

All the libraries attached to the government colleges/institutions work only during the office hours of 10AM to 5.30PM or 9AM to 6PM. A large number of libraries of aided colleges and private colleges work during early morning, as well as, in the evening till 9PM to 10PM. 7 (77.9%) aided college libraries, and 24 (48%) private college libraries work in the morning as well as, evening, apart from their office hours. It is only 2 (22.2%) aided and 26 (52%) private college libraries which extend service only during the office hours of 10AM to 5.30PM or 9AM to 6PM.

Moreover, 4 aided college libraries representing 44.4% and 18 private college libraries comprising 36% keep open the library extending services on holidays. No government college library works on general holidays. As 33.8% of the libraries keep open on holidays and 47.8% of the libraries extend their working hours in the morning as well as, evening till 10AM, it is recommended to house the entire collection of theses, dissertations, trade literature and institutional publications in the library, instead of maintaining them in the college departments or office. Facilitating access to comprehensive and up-to-date collection of GL at one place in the library will be helpful to the users. Even they can make use of the holdings after college hours as well as, on holidays because, many of the libraries keep open for reading and reference. Therefore, it is recommended to systematically procure and build GL of all types by the libraries instead of the departments. Hence, the libraries which have collocated GL collections and facilitating access during extended library hours and on holidays have to be appreciated.
6.3 Libraries Hosting Information on the Web

It is really encouraging to note that 56 engineering colleges representing 86.2% are having their own websites for hosting information. Among the 65 libraries, 23 representing 35.4% are hosting library details on the web, libraries that do not host any kind of library facilities or services on the web account for 64.6%. As a matter of fact, in the present day digital environment, researchers and faculty expect their libraries to host the details of holdings, new arrivals, content page services, special collections and information services on the web. It is suggested to host the details of new arrivals of GL on the web so that, users can decide before they start accessing the sources available elsewhere or within the college campus. Of late, 23 libraries have the habit of informing the users through web alerts. The trend is going to increase gradually as engineering college teachers and research scholars have inclination to browse the web sitting at the departments.

6.4 Notifying of New Arrivals of GL on Website

It is encouraging to note that 90.4% of the respondents from both the categories of users, faculty guides and research scholars, argue in favour of notifying new arrivals of GL on the library/institution website. This clearly indicates the extent of inclination the faculty and researchers have to browse the latest releases on the web. By hosting the details of GL on the web, not only the users will come to know of the recent additions to the library but, the community of faculty and research scholars working in various engineering colleges will keep themselves aware of the recent source of GL acquired to various libraries.

6.5 Automation of Library Functions and Services

It is interesting to note that 45 private college libraries representing 90% have automated their basic library functions/services. 66.7% of the libraries in each of the category of government and aided colleges have automated the basic functions/services. From among the 65 engineering college libraries 55
colleges amounting to 84.6% have automated their basic library functions and services.

It is high time that the engineering college libraries recognised for research programme have to automate their functions and services. Automation is the first step towards co-operation and resources sharing programmes. Therefore, it is recommend that the 10 libraries comprising 15.4% have to automate the activities on top priority. In this direction, the university, including the government, college management, quality performance monitoring cell have to provide necessary support and resources to accomplish the task of pending work of the library automation. Automation is the preliminary step, on which the digitization of information sources, networking of libraries, facility of on line access and resource sharing activities are going to be planned and executed.

The working librarians as respondents in the present study have quoted four major reasons for not automating their library functions and services. Among the 10 libraries which have not automated, 2 librarians quote the reason of lack of funds. 3 librarians point to the reason of recent establishments and they need time to catch up with rest of the developed libraries. Yet another 3 librarians state the reason that the library is not treated as an important service centre in the college set up. Finally, another 2 librarians hold the view that they do not have trained staff to take-up the work of library automation. Hence, in order to overcome the constraints, it is suggested to initiate steps on top priority by,

- Recognizing the importance of the library and extending all support.
- Allocating adequate funds, and
- Providing orientation and training to the library staff for professional skill development.
The newly established colleges have to assign top priority to the library development and see the functions and services are automated at the earliest as there is need to improve by creating a research environment in the recognised research centre libraries.

6.6 Organization of GL Collection

As regards organisation of GL collection at vantage points to facilitate easy identification and access, in 83% of the government college libraries, the GL collection is most easily accessible, and in one government college library, the arrangement is said to be comfortable and easily accessible without any difficulty.

GL collection even in aided college libraries is kept at vantage points and easily accessible. 88.9% of the librarians argue in favour of this contention. 88% of the private college libraries have also organised GL collection in such a manner that they are easily accessible. Above all, considering the entire group of 65 libraries, a large majority representing 89.2% of the libraries have organised GL collection at vantage points facilitating easy access. It is encouraging to learn that in 52.3% of the libraries, the GL collection is most easily accessible. It is only in one private college library the GL is said to be slightly difficult to access.

While referring the item-wise organisation of GL collection in the 65 libraries, it is still encouraging to note that all the GL collections are kept at vantage points and easy to access. A small segment of respondents representing 20% hold the view that the trade literature kept at their libraries is easy to a moderate extent to identify and access.

Some of the technical libraries have the practice of colour coding to GL collection for easy identification. Among the libraries of the recognised
research centres, only 2 libraries of government institutions/colleges follow this pattern of colour coding for easy identification and retrieval. It is also suggested to use colour box files for the purpose of preserving institutional publications, trade literature, year-wise so that, the identification and access/retrieval becomes easy and time saving device.

6.7 Organization of GL by Classification and Cataloguing

It is encouraging to note that 90.8% of the engineering college libraries have organised GL collection with classification and cataloguing. All the aided college libraries have organised collection with technical processing and cataloguing. Only 5 private college and one government college libraries have not processed the GL collection. These 5 private college libraries have not processed the GL collection because they are new establishments, and above all, the collection is very small and due to inadequate technical staff the GL collection is yet to be organised systematically with technical processing.

It is also interesting to note that 57 libraries have computarised catalogue and the documents can be searched by using terminals or stand alone computer system. Possessing the catalogue entries in digital format helps the university to have a common union catalogue of specific holdings of the libraries for resource sharing purpose. Therefore, as a first step towards library cooperation and mutual dependency for GL, engineering college libraries should go for computerized cataloguing system.

It is also evident that 67.9% of the libraries belonging to old colleges established before 1981, depend on other libraries for GL. 64.7% of the aided college and 69% of the private college librarians rely upon other libraries for GL. Above all, it is a good habit that 66.2% of the librarians have developed the habit of relying upon other libraries for GL. On the other hand, 33.8% of the librarians have offered negative response. They do not have the practice of depending on other libraries for GL. This segment of librarians need orientation to come out of the situation of working in isolation.
6.8 Adequacy of Bay Guides and Shelf Labels

The situation in respect of organization of GL is bright as 89.2% of the libraries have bay guides and shelf labels at appropriate locations in order to facilitate easy identification and access. All the aided college libraries have organized GL collection with guides and labels at appropriate locations.

Among the private colleges, 6 libraries representing 12% do not have adequate guides and labels. At appropriate locations, such guides are absent, and there are inadequate labeling to know the subject contents of documents on shelves. It is suggested to post bay guides and shelf labels in adequate numbers at appropriate locations.

6.9 GL Collection in Foreign Languages

As regards the collection of GL in foreign languages, 2 government college/institution and 9 private college libraries possess GL in foreign languages. Altogether, 11 libraries representing 16.9% among the 65 libraries possess GL in foreign languages.

Among these 11 libraries which possess GL in foreign languages, 7 libraries possess technical report literature, 5 libraries possess proceedings of CSW, and 4 libraries possess trade literature in foreign languages. It is also important to note that 2 of the government institute libraries that possess trade literature in foreign languages, have the regular programme of acquiring report literature noticing the demand of the users and the ongoing research programmes.

While considering the systematic organisation of GL in foreign languages, the two government institute libraries have offered positive response stating that they have systematically organised the collection with technical processing of classification and cataloguing because acquisition of GL in those
libraries is on regular basis. Among the private college libraries, only 2 with considerable number of GL have systematically organised the collection facilitating easy identification and access. In rest of the 7 libraries representing 77.8%, the collection is in very small number and not technically processed.

As the VTU has ventured to encourage and support doctoral research in the 65 engineering colleges, it is essential to identify important professional organizations, societies and research institutions abroad which bring out technical reports, trade literature and proceedings of CSW in various disciplines of engineering and technology and build up strong GL collection noticing the demand and response of the users.

6.10 Maintenance of GL under Closed Access

It is evident that 47 libraries representing 72.3% maintain theses volumes under closed access. Further, 40% of the libraries keep the dissertations and technical reports under closed access. The rest of the GL collections are maintained on open shelves in majority of the libraries. Even the proceedings of CSW are maintained under closed access in 26 libraries representing 38.5%. Noticing the extent of use and demand, the specific type of GL are being maintained under closed access. It is advisable to maintain GL under closed access as the practice ensures orderliness and quick retrieval, avoiding misplacement, so thinks the working librarians during the interaction. This has reference to important and valuable sources.

6.11 Recommendation of GL for Procurement

As regards bringing recently released GL to the attention of library staff for procurement, in 66.7% of the government college/institution, 22.2% of the aided colleges and 28% of the private colleges faculty members regularly bring the recently released GL to the notice of the librarians for procurement. Further, in 16.7% of the government colleges, 77.8% of the aided colleges and 56% of the private colleges the faculty members occasionally bring the recent
releases of GL to the attention of the librarians for acquisition. Considering the responses from all the 65 engineering college libraries, 30.8% regularly bring the recent releases to the attention of the librarians. In 55.4% of the colleges, faculty occasionally inform about the recent releases and in 13.8% of the colleges, the faculty members do not have the habit of informing the librarians about the recent releases of the GL.

In order to build strong and need-based GL collection in engineering college libraries, faculty members and the library advisory committee have to develop the practice of regularly informing the recent releases of GL for procurement as the GL go out of stock soon. Here the faculty and the researchers need orientation in order to develop the habit of regularly tracking the new releases of report literature, proceedings of CSW and trade literature in their specific disciplines.

**6.12 Knowledge about the Availability of GL**

The librarians have expressed various alternatives as to the ways of knowing the availability of GL, especially the technical reports, trade literature and the proceedings of CSW. A large majority of the librarians comprising 87.7% state that they come to know the availability of recent releases through brochures, notifications and announcements of professional organisations and research institutes, including the information on the web.

To the extent of 24.6% comprising 16 librarians opine that they come to know through their colleagues, subject experts, teachers including the contributors of papers to the proceedings. Amongst the 65 librarians, one librarian feels that the acquisitions of local libraries and engineering college libraries will keep him informed about the latest GL. Still 5 of the librarians representing 7.7% express that they come to know the availability through the references/citations quoted in various primary publications. As the grey sources go out of stock soon, relying upon notifications, web alerts and
brochures, including the information obtained from colleagues and teachers are to be treated as the best means of knowing the availability of latest releases. The working library staff need orientation and training on the ways of keeping tract of recent releases of GL. Similar study conducted and reported in the MAGIC Report also subscribes to the contention that scholars come to know the availability of GL through notifications, catalogues and web alerts. The MAGIC Project also organised a one-day seminar on ways of accessing and using GL in the British Library, London. 38 library professional participated in the deliberations (Needham,et.al.,2002,pp.113-116).

6.13 Authority to Recommend GL

The study showed that according to librarians in 56.9% of the libraries, the Library Committee is the authority to a moderate extent. In 41.5% of the libraries, the concerned heads of the departments are the authority to recommend in the highest range of 75% to 100%. Recommendations from individual faculty showed lower extent of 25% to 50%. However, it is conspicuous and significant to know that the researches in many of the libraries recommend GL for procurement in the higher range of 50% to 75%. Hence, the research scholars in engineering colleges play a grater role in procurement of GL through recommendations, according to the perspectives of the chief librarians.

Though the concerned heads of the departments and the library committees are the authorities to finalise the acquisitions of GL, it is recommend that opportunity be extended to individual faculty guides as well as, researchers to freely recommend recent releases of GL for acquisition. This way engineering college libraries identified for research activities can build need based GL collections.

6.14 Acquisition of GL to Libraries

Some of the engineering college libraries where there is intensive research, the libraries are procuring GL on regular basis, specially the technical
report literature, trade literature and proceedings of CSW. In the present study, 41 libraries representing 63% have responded positively stating that they regularly look for procuring GL. Standing instructions or direction have been given by the college authorities to order and procure necessary and essential GL. Based on the directions, libraries give standing instructions to certain professional organizations and associations to supply whatever sources brought out recently. A large majority of the government colleges / institutions to the extent of 83.4% procure reports, trade literature and proceedings from time to time based on standing instructions.

To a moderate extent of 38% to 45%, the aided colleges and private college libraries do not have any standing instructions nor follow regular pattern of acquiring GL. Their acquisition pattern is not therefore regular and hence, the collection is with gaps and not up-to-date. It is recommended that the faculty and the librarians of engineering colleges have to be in touch with professional associations and organizations, including distribution agencies for systematic building up of strong GL collections without gaps, here and there. This will definitely help the process of systematic and qualitative research output. Pertaining to the means of acquiring various grey sources, 38.5% of the librarians express that they rely upon distributors and agencies popularly known in the disciplines. Another 46.2% of the librarians feel that they depend upon professional organizations known in the specific disciplines for procurement of GL, including procurement by means of ‘exchange’.

The acquisition of GL is a continuous process. The librarians, teachers, researchers and distributors / organizations have to join hands for building the collection. Identification which is popularly known ‘visualization’ in MAGIC Project, requires skill and attention. Immediate procurement is a necessity as the copies run out of stock. To develop the necessary skills and right knowledge, orientation / training for librarians is recommended. Librarians within the organizations are working in isolation. They require bringing these
organizations together to work in an information grid for common goals and mutual benefits.

6.15 On-line Access to Institutional Publications

Institutional publications play a vital role in preparing papers and reports concerning the institution. 24 engineering colleges representing 36.9% facilitate access to digital version of institutional publications such as annual reports, developmental reports, budget reports and in-house publications, including news-letters. These colleges have developed LAN for accessing information stored in the servers. 63.1% of the engineering colleges have still to extend this facility to the faculty and researchers. In case the colleges possess LAN facility, quite a number of library databases can be accessed by the users.

6.16 Lending of Grey Literature

It is evident from the study that 53.2% of the engineering college libraries lend GL to the faculty and researchers. Only 46.8% of the libraries do not issue the GL out of the library. While referring to various types of GL, 31 libraries representing 47.7% do not lend theses volumes to the members. As regards rest of the types of GL, to a moderate extent libraries issues the volumes for reading / reference at home. The study also revealed that with special permission, 52.3% of the engineering college libraries lend any type of GL for home reading. However, in principle, 46.8% of the libraries are having rules of not lending the GL.

6.17 Lending of GL on Inter Library Loan

The study revealed that 58.5% of the engineering colleges libraries have responded positively stating that they lend GL on inter-library loan scheme. Such a resource sharing programme has to be augmented in a networked environment so that, researchers will get access to vast information which is relevant and recent. The resource sharing will reduce the burden of cost and
efforts of individual libraries. Hence, initiating step towards forming a “Grey Grid” is recommended for mutual and reciprocal benefits, and augmenting the conservation of GL available in every engineering college library. Under the VTU, there are 27 libraries representing 41.5% which do not lend GL on interlibrary loan. These engineering college libraries have to change their attitude of working in isolation and restricting the services within the limits of the individual colleges.

The survey in this regard also depicted the extent of dependency on other libraries for GL. A large percentage of librarians depends on other libraries for GL to a moderate extent of 50%. Librarians rely upon other libraries, local engineering colleges and research establishments mainly for theses, dissertations, technical reports and proceedings of CSW. However, the degree of dependency is to a moderate extent.

### 6.18 Relegation / Weeding out of Obsolete GL

Government college / institution libraries do not have the weeding out process of obsolete GL. Among aided college libraries, 4 libraries periodically weed out old and outdated GL collection. This segment of aided colleges represents 44.4%. Among the private college libraries 18% weed out or relegate obsolete GL. Altogether, out of 65 libraries, 20% of the libraries have the practice of weeding out of old GL collections.

While considering the periodicity, a large segment comprising 46.1% (6 libraries) relegate or weed out obsolete GL once in 10 years, 23.1% (3 libraries) of the libraries weed out once in 5 years. Yet another 23.1% (3 libraries) of the libraries weed out once in 3 years.

As regards the reasons for weeding out of GL, 92.3% of the librarians quote the reason of lack of space in the library, 30.7% state the reason that the old collection is seldom used. Further, 23% of the librarians opine that the contents have become outdated and therefore to be weeded out periodically.
Considering the year of establishment of colleges, 9 libraries out of 13 which follow the weeding out process belong to the segment of old colleges, established before 1981. These old college libraries find it difficult to make adequate space provision for new arrivals on one hand, and they possess GL procured more than several decades ago which have become obsolete as far as contents are concerned. Hence, the practice of weeding out is seen more in case of colleges established before 1981.

Weeding out or relegation from the active area will facilitate easy access to current literature retained on the shelves. Hence, weeding out or process or relegation and compact storage at secondary storage area is recommended in order to make adequate space in the library for active collection and space for reference.

6.19 Demand and Use of GL

According to the response of working librarians, there is more demand for dissertations and project works. 61.5% of the librarians express that the extent of demand for theses is in the higher range of 50% to 75%. Institutional publications and trade literature according to them is useful in the lower range of 25% to 50%. However, technical reports and proceedings of CSW are in demand and use to a moderate extent of 50%. Majority of the working librarians comprising of 58.4% feel that dissertations are in great demand and the extent is indicated in the highest range of 75% to 100%.

6.20 Extending Reference Service Using GL

It is encouraging to note that 83.1% of the librarians working in engineering colleges use theses and dissertations while rendering reference service. 76.9% rely upon institutional publications, 70.8% use technical reports and 83.1% access the proceedings of CSW for rendering reference service. The librarians have to be appreciated because on average, 75% of them use GL for extending information service. More than anything the major segment
representing 56% of faculty and researchers have expressed that the librarians are highly helpful and cooperative while getting access to GL.

6.21 Training Requirement of Librarians

The highlighting fact in this regard is that 57 librarians representing 87.7% have expressed that they need training to improve their knowledge and skills in tracing and acquiring GL on one hand, and facilitating access to GL on the other. It is only 8 librarians who account for 12.3% do not feel the need of any such orientation or training to update their knowledge and skills. It is also interesting to learn that all the librarians from aided colleges are inclined to undergo training. Therefore, training or orientation for library staff is essential for developing need based quality GL collection in libraries and also to organize and facilitate access under resource sharing environment.

In respect of the issue concerned with the extent of training requirement, it is evident from the research that 71.9% of the librarians opine that they need training to a higher extent. Further, 24.6% need training to a moderate extent. Only 3.5% feel that the need of training is to a little extent. It is also worth highlighting that 66.7% of government college libraries and 77.8% of aided college librarians do not possess adequate ICT skills. Hence, the training is recommended as an essentiality.

A similar study on the use of GL especially, technical report literature conducted by Paul Needham(2002) has revealed that orientation is essential for professionals who acquire and manage access to GL. Hence, a seminar was organized in the year 2002 at the British Library, London to educate the participants on these lines.

It is recommended to organize orientation or workshop for engineering college librarians under the aegis of VTU / AICTE or the professional association of engineering college librarians called AKELPA for a period of 2 to 3 days covering the themes of;
• Identification of recent releases of GL
• Exploiting the GL collection of other libraries
• Augmenting resource sharing activities
• Cooperation in a networked environment
• Digitizing bibliographic records and facilitating online access
• Creation of blogs and digital libraries of grey sources
• Organising extension programmes to promote use of GL at large

Workshop is also intended to cover extension programmes of display of current GL in engineering disciplines and special lectures.

6.22 Frequency of Visit to Libraries

Amongst the library users, 52.6% frequently visit the library for academic and research purpose. Further, 32.1% visit once in a week. Only a small group of respondents representing just 2.5% express that they go to the library rarely. Thus, it is evident that in the engineering college environment, faculty guides and research scholars visit the library regularly.

Referring to the college wise visit of the users, a large majority of the users representing 69% from the government colleges visit their libraries frequently, at least on alternate days. The dependency of users on the government college library is observed more when compared to the aided and private colleges. It is because that some of the organizations recognized as research centres by VTU happen to be the popular research establishments.

Amongst the category of users, faculty guides representing 48.3% and 52.6% of the research scholars visit the libraries at least on alternate days. It is only 4.6% of faculty guides and 1.9% of research scholars visit the library occasionally. Even the faculty guides and researchers belonging to all the 9 disciplines of research visit the libraries regularly. Therefore, it is conducted
that a large segment of the users from both the categories visit the libraries frequently for various academic and research needs.

6.23 Use of Bay Guides and Shelf Labels

Systematic arrangement of GL and facilitating easy access essentially need posting of bay guides and shelf labels. Among the users, 79.6% feel that the guides and labels posted are at appropriate locations facilitating easy access to GL and the users are comfortable with the guides and labels used. In 20.4% of the libraries users express it is easy to follow to a little extent and needs improvement. Further, just 1.7% of the users from both the categories opine that the guides and labels used in their libraries are insufficient and also not at all easy to follow. Therefore, it is recommended that bay guides and shelf labels used in few of the libraries need to be rectified and more member of guides be affixed at appropriate locations for assisting the users.

6.24 Comfortableness with Classification Scheme

It is encouraging to note that 75.9% of the users from government colleges, 75.8% from aided colleges and 84.7% of users from private colleges offer positive responses, expressing that the classification scheme used in their libraries is easy to follow and comfortable. The organization of sources in private colleges are comparatively better than the other two category of colleges. Considering the entire population of respondents, 81.9% are happy with the organization of GL using classification system and the user really feel comfortable. It is only in 1.4% of the libraries, the methodology adopted for organization is not at all comfortable and needs to be reconsidered for reorganization of sources using proper classification scheme.

6.25 Comfortableness with Cataloguing System

Here also the situation is bright considering the catalogue provided to search the collections. Among the users, 77% feel comfortable with the library
catalogue and have no difficulty in browsing. While considering responses according to the colleges, large majority have expressed that it is comfortable to follow the catalogue. Only a small segment of users from both the categories and form all the three types of colleges feel it is not at all comfortable to use catalogue in their libraries. Therefore, these libraries have to use standard library automation software providing adequate number of systems for browsing.

6.26 Means of Locating GL

The users have responded to various means of locating or knowing the GL available in the library. 36.17% browse the library catalogue. 27.3% refer to new arrivals lists compiled by the library, 5.3% depend upon web notices or alerts. Further, 31.35 of the users browse at the book racks where the GL collection are arranged.

It is also pertinent to note here that the faculty guides and research scholars also refer to the list of holdings hosted on the web sites of some of the engineering colleges, as well as, research institutions.

6.27 Frequency of Access and Use of GL

GL collections is found to have been accessed and used quite often by the researchers and faculty guides. 62.6% frequently use the GL collections available in the holdings of engineering colleges. It is only a negligible percentage of (0.2%) of users opines that they do not need GL at all for their professional tasks. While referring to the category of the users, 61.5% of faculty guides and 63% of research scholars access and use GL collections frequently. Amongst the entire population, 29.7% of the users rely upon to a moderate extent. From this it is clear that a large majority of the users access the GL collections and use them either frequently or most frequently. This presupposes that there is felt need for developing strong GL collections for research in every engineering college library.
6.28 Scatter of GL: Difficult to Trace out

It is really a good response that 81.3% of the users from all the categories of colleges have opined that the GL in their libraries is systematically organized and not scattered. They find it easy to trace out the needed sources. On the other hand, 18.7% of the users have expressed that the GL collection in their libraries is scattered or not organized properly and hence difficult to trace. Therefore, it is suggested that these libraries have to organize their collections systematically on top priority with classification and catalogue to facilitate easy access. As there is great demand for GL for research purpose, it is essential that the sources have to be systematically organized.

6.29 Adequacy of Space and Furniture

Adequacy of space to browse and suitability of furniture for long hours of reading and referencing are important factors from the point of facilities for the users. It is encouraging to find that 42.1% of the users feel that the space and furniture are highly adequate. Another segment of users representing 48% opine that the furniture and browsing space are moderately adequate. It is only 1.9% of users from all the categories express that there is lack of browsing space and reading furniture in their libraries. However, all the respondents representing the government colleges have not offered negative response. It is only in very few private college libraries there is inadequacy of space and furniture. The management has to take proper steps to overcome the inadequacy because, these colleges have been identified for research programme by the VTU.

6.30 Use of GL by Faculty Guides for Teaching Purpose

A large majority of the faculty guides from all the disciplines comprising 60.9% opine that the doctoral theses are useful for teaching purpose in the lower range of 25% to 50%. The faculty members from the discipline of electronics and communication engineering representing 72.7% have indicated
the use of theses in the highest range of 75% to 100%. Therefore, for teaching tasks, the usefulness of doctoral theses is only to a lower extent.

As large majority of the faculty guides from all the disciplines representing 63.2% opine that the dissertations are useful for teaching purpose in the higher range of 50% to 75%. Further, a major segment of faculty from textile and silk technology discipline feels that the theses and dissertations are not useful for their teaching assignments.

While referring to the extent of the use of institutional publications for teaching, a fair percentage of users, to the extent of 55.6% covering all the 9 disciplines are of the opinion that the institutional publications are useful in the lower range of 25% to 50%. It is only the 66.7% of faculty guides representing textile and silk technology area feel that the institutional publications are useful in the higher degree of 75%.

As regards the trade literature, 65.6% of the faculty guides covering all 9 disciplines express that the trade literature is useful in the lower range of 25% to 50% for teaching assignments. The respondents from electronics and communication engineering and chemical engineering opine that the trade literature are useful in the higher range. The extent of usefulness is indicated to the extent of 75%.

Faculty guides representing 64.4% from all the 9 disciplines feel that the technical reports are useful for teaching in the higher range of 50% to 75%. It is also true that 37.6% of the faculty guides express that the value of technical reports is indisputable and the extent of use by them is indicated in the higher range of 75% to 100%. From this it is clear that the technical report literature carry vital statistics and information useful for teaching work when compared to other types of grey sources.
With reference to the proceedings of CSW, the faculty guides representing 61.4% from all the disciplines opine that they are useful in the higher range of 50% to 75% for teaching purpose. However, especially the respondents from electronics and communication engineering, as well as, business administration feel that the proceedings are useful for teaching in the highest range of 75% to 100%.

To conclude, it is clearly evident that the technical report literature and the proceedings of CSW are useful in the higher range of 50% to 75% for teaching purpose. However, the rest of the grey sources are useful in the lower range of 25% to 50%.

6.31 Use of GL by Faculty Guides for Research Purpose

Faculty guides representing all the 9 cluster of disciplines have expressed their opinion in respect of the extent of the use of various types of GL for research purposes. Here research purpose encompasses in its purview the delivery of expert lecturers, preparations of research papers for journals and proceedings of seminars and conferences and preparing research reports / theses.

Faculty representing all the 9 disciplines to the extent of 76.2% opines that the doctoral theses are useful for research tasks in the highest range of 75% to 100%. Hence, the theses volumes in all disciplines of engineering sciences and technology are found essential and highly useful for research assignments.

While referring to dissertations of master degree, the faculty guides from all 9 disciplines representing 71.2% feel that they are also useful for research in the highest range of 75% to 100%. However, the respondents from chemical engineering and business administration disciplines feel that the dissertations are useful only to a moderate extent of 50% for research purpose.
Among the faculty guides from all the 9 disciplines comprising 59.4% have stated that the institutional publications are useful for research in the higher range of 50% to 75%. However, faculty guides from the area of business administration (46.7%) opine that the institutional publications are of high value for research and the extent of use is indicated at 100%. Therefore, users belonging to business administration field normally need data on institutions and statistical details of developmental programmes. Hence, they rely much upon the publications of institutions such as annual reports, budget reports, quality assessment reports, and such other evaluation reports of the institutions.

Pertaining to the use of trade literature for research purpose, faculty guides representing 62.7% state that they are useful in the higher range of 50% to 75%. It is only the faculty guides belonging to the discipline of textile and silk technology feel that trade literature is useful only to the extent of 25% for research reference. For rest of the users, the use is indicated in the higher range.

As regards the extent of the use of technical report literature for research, a large majority of faculty guides from all the disciplines indicate the use in the highest range of 75% to 100%. 73.5% of faculty guides subscribes to this view. Only the faculty guides from the subject area of textile and silk technology feel that technical reports are useful for research to a moderate extent of 50%.

The faculty guides from all the disciplines comprising 75% opine that the proceedings of CSW are useful for various research purposes in the highest range of 75% to 100%. The users from all the disciplines, significantly a large segment of respondents comprising 75% hold the view that the proceedings are indisputably a valuable source of information for research in the highest range of 75% to 100%
To conclude, it is indisputably clear that all the grey sources are useful for research in the highest range of 75% to 100%. However, the extent of usefulness of trade literature and the institutional publications is indicated in the higher range of 50% to 75%. It is only the respondents from the field of business administration feel that the institutional publications are useful to the maximum extent of 100%.

6.32 Cadre-wise Response of Faculty on the Use of GL for Research and Publications

An attempt is made to comprehend the extent of use of various grey sources for research endeavour by the faculty guides. The responses have been analysed and presented according to the cadre of the faculty. In the present study, out of 340 faculty guides, 244 are professors, 70 are assistant and associate professors and the rest 26 are the lecturers. Responses are sought as to the extent of the use of grey literature for various research tasks.

A large majority of the professors representing 77.5% are found to have been relying upon theses for research purpose in the highest range of 75% to 100%, 77.2% of Assistant / Associate professors hold the same contention regarding the extent of the use of theses. However 61.6% the lecturers have indicated the extent of use in the highest range. Therefore, the percentage of professors, assistant and associate professors who reply upon theses for research work is found to be more when compared to the users who belong to the cadre of lecturers.

Further 72.1% of the professors and 74.3% of assistant and associate professors access and use dissertations for research purposes in the highest range of 75% to 100%. The users from the category of lecturers comprising 53.85% have indicated the extent of the use of dissertations in the highest range. Therefore, the percentage of lecturers who rely upon dissertations is low when compared to the other two categories of teachers. Even 34.6% of
lecturers opine that the extent of the use of dissertations is only to a moderate extent of 50%.

While coming to the issue on the extent of the use of institutional publications, comparatively lesser percentage of faculty access for research purpose. 59.4% of the professors, 57.1% of the assistant and associate professors and 65.4% of lecturers use institutional publications in the range of 50% to 75%. Covering all the category of faculty users representing 59.4% the extent of use is depicted in the higher range of 50% to 75%.

In respect of the use of trade literature for research purpose, 64.3% of professors, 62.9% of assistant and associate professors rely to the higher extent of 50% to 75%. Among lecturers the extent of use is in the lower range for research tasks. 57.7% of the lecturers access and use in the lower range of 25% to 50%. Considering the entire population of faculty, the use of trade literature is comparatively low.

Among the faculty guides, 76.5% of professors and 75% of assistant and associate professors use technical report literature in the highest range of 75% to 100%. While coming to the category of lecturers, 61.5% use in the highest range. This percentage of lecturers who rely on the highest range is comparatively less than the other two categories of teaching faculty. This clearly vindicates that a large majority of professors, assistant professors and associate professors are actively engaged in various research activities of publications and doctoral programmes when compared to the lecturers.

Among the professors, 76.7% access and use the proceedings of CSW, including 77.7% of assistant and associate professors for various research tasks, including publications, in the highest range of 75% to 100%. While referring to lecturers, only 57.7% use the proceedings in the highest range of 75% to
100%. This shows the real involvement of professors and assistant and associate professors in research tasks. This testifies to the active research and library work of faculty guides in engineering colleges. Therefore, there is innate need to develop GL collections to support the research programmes.

While considering the use pattern of GL by faculty for research purpose, it is evident that all types of GL, except institutional publications and trade literature are in use in the highest range of 75% to 100%. A large majority of the faculty from all the cadres supported the contention. In respect of institutional publications and trade literature, the extent of use by the majority of the faculty guides is indicated in the range of 50% to 75%. From this it is evident that the GL is vital for research in engineering colleges under the study.

6.33 Use of GL by Research Scholars for Research Endeavour

Responses have been sought here from 930 research scholars, representing 88% of the total population. The researchers representing 75.2% opine that the theses volumes available in the engineering college libraries are useful in the highest range of 75% to 100% for research and publication purposes. However, the researchers representing 36.8% from the discipline of textile and silk technology have started that the extent of use is in the moderate extent of 50%.

Among the researchers representing 71.1% are of the opinion that the dissertations are useful in the highest range of 75% to 100%. However, respondents from the field of general science (42.1%) and textile and silk technology (37.7%) hold the view that the dissertations are useful in the lower range of 25% to 50%. Therefore it is certain that for a large percentage of researchers, the extent of use is found in the highest range of 75% to 100%.
As regards institutional publications for research, 60.8% of the respondents feel that the extent of use is in the highest range of 50% to 75%. As usual, scholars in the discipline of business administration access institutional publications more frequently for various statistical data pertaining to the engineering colleges. Hence, the usefulness is to the highest extent of 100%.

Referring to trade literature, 66.9% of the research scholars are found to have been relying upon for research in the higher range of 50% to 75%. It is also evident here that researchers from chemical engineering and business administration disciplines rely to the highest extent of 100% for research purpose. To know the availability and various details of chemicals, scholars refer to trade literature in this specific subject field. Similarly, scholars belonging to business administration access trade literature to get details and price lists, models of various industrial products. Thus, the dependency is found to be to a maximum extent. A large percentage of research scholars feel that the use of trade literature is in the range of 50% to 75% for research.

It is evident that a large segment of research scholars representing 74% have indicated the use of technical reports in the highest range of 75% to 100%. Undoubtedly, the usefulness of technical report literature is found to be in the highest range as they carry technical details and solution to many of the technical problems faced by the researchers. Moreover, technical reports carry large statistical data and practical application hence found vital especially for research scholars.

As regards, the proceedings of CSW for research purposes, 73.4% of the respondents hold the view that the proceedings are really vital and useful in the highest range of 75% to 100%. It is only the scholars from general science disciplines are of the contention that these proceedings are of less importance to them and the extent of use is indicated in the lower range of 25% to 50%. However, a large majority feel the usefulness in the highest range.
Thus, it is concluded that the GL of all kinds are useful for research in the highest range of 75% to 100%, except institutional publications and trade literature. Above all, a large percentage of scholars from business administration access and use institutional publications and trade literature to a maximum extent of 100%.

While considering the overall percentage of dependency of research scholars on various types of GL, it is really encouraging to note that a large percentage are found to have been using GL in the highest range of 75% to 100%. Therefore, considering this trend of increase in access and use, there is need to build up strong and comprehensive collection of GL in engineering colleges and augment sharing of resources through cooperation and mutual assistance. Digitisation of database and core grey information source and training for facilitating access to GL are also some of the core recommendations of this study.

6.34 Cooperation and Assistance of Library Staff

With reference to the cooperation and assistance being extend by the library staff of engineering colleges, the faculty guides and research scholars have felt that the staff is highly cooperative. 59.2% of the users from private colleges, 55.2% of the users from government colleges and 48.5% of the users from aided colleges are of the opinion that the library staff is highly cooperative and helpful while availing facilities and information services from the library. The library staff of private colleges have to be congratulated for their better performance, when compared to the library staff of the other two categories of colleges. It is also significant to pay attention to the fact that 0.5% of the users are of the view that their library staff is not all cooperative and helpful while seeking resources and service of the library. It is also a noteworthy fact that no respondent from government college / institution is unhappy about the performance of the library staff. Therefore, the staff which is more positive and helpful has to be motivated and trained on proper lines for
building strong GL collections, creating digital databases and facilitating access
in a networked environment.

6.35 Use of Old Collection of GL

Respondents have reacted positively regarding the value of old collection
of GL. 73.9% of the respondents opine that the old collection of GL need to be
retained in the active stacks as they carry useful data and information. Only
26.1% is of the users opinion that the old collection loses value as the contents
became obsolete. Among the faculty guides, 81.5% express that they would like
to refer and hence necessary to retain in the library active stacks.

6.36 Weeding out / Relegation of Old GL

As regards relegation or weeding out of old collection of GL, it is
highlighting fact that 67% of the users from all the categories of colleges have
offered negative response, stating that the old collection has reference value
and need to be retained in the active stacks.

Further, 41.4% of the respondents from the government colleges opine
that weeding out have to be done periodically making provision for current GL
on the shelves. Old collection, especially trade literature and dissertation
volumes need to be weeded out as the contents have become out dated and of
no use for research.

6.37 Keeping Track of Recently Released GL

In order to procure recently released GL to the library, the faculty and
researchers have to constantly keep tracking the recent releases of GL. This
contention has reference to trade literature and proceedings of CSW. However,
the users also keep track of recent additions of various technical libraries in the
region. Here, 79.2% of the faculty and researchers keep track of recently
released GL. They have developed the habit of regularly keeping themselves
aware of the recent releases. 82.1% of the faculty guides express that they have
this habit of tracking latest releases. Only 20.8% have offered negative response. It is for this segment, there is need for orientation as to the identification and access to recent releases of GL useful for academic and research tasks in their subject areas. There is also the need of introducing new arrival lists, display of latest GL procured from the point of the users.

The faculty guides and research scholars have also stated various way of keeping track of the recently released GL. 54.9% of the users are of the opinion that they regularly attend conferences and seminars and visit research organization and thereby, come to know the latest releases. 38.7% opine that they regularly browse the web to know the latest programmes and the GL brought out. 9.7% of the respondents state that they visit local libraries to keep track of new releases or new additions of GL. The library staff can assist the users in this direction of tracking new additions in various technical and research libraries of the region. The faculty guides and research scholars are seen to have been using IISc library, IIM-B library, NAL library, CMTI library, ISRO library, IE library to a great extent for getting GL. Therefore, it is true that a large group of faculty guides comprising 65% regularly keep themselves abreast of latest additions of the libraries.

6.38 Recommendations of GL for Procurement

It is highlighting and worth placing on record that 92.1% of the faculty guides and 94% of the research scholars have reacted positively, stating that they recommend GL for procurement to their libraries. Only a small segment of 6.5% of the users, comprising 7.9% of the faculty guides and 6.0% of the research scholars have expressed negatively. They do not recommend on account of various administrative constraints. According to them they are not authorized to recommend GL in their colleges. The concerned heads of the departments are the authority to recommend sources for acquisition.
From the point of building need based collection and also considering on going research programmes, all the faculty and research scholars from all the disciplines be encouraged to route the recommendations through the concerned heads of the department or the library committees. Keeping track of recent releases of GL and encouraging to recommend the GL for procurement will help the system to build comprehensive and quality resources on one hand, and the users will get access to whatever relevant sources there are in their disciplines. It is really the researchers who help the system to build strong qualitative library collection as they regularly keep track of various current literature in their disciplines of research activity.

6.39 Extent of Procurement of Recommend GL

The faculty guides and research scholars have responded regarding the extent of procurement of the recommended GL to the libraries. 9.4% of the faculty guides and 21.6% of research scholars opine that their libraries procure all of the recommended GL. This clearly evidences that the research scholars keep track of their recommendations and insist libraries to procure by making prompt attempt. 73.4% of the users express that some of the recommended GL are procured to the library. Only 3.3% of the respondents state that the libraries procure none of the recommended GL. The library staff and the library committee have to pay attention to this negative response and find out the root cause of not procuring any sources. The problem has to be resolved positively. The most important aspect here is to encourage every researcher and faculty to keep track of GL and recommend for building strong GL collections. It is suggested finally that every scholar and teacher, irrespective of the colleges, be encouraged to recommend GL worth procuring to the library.

6.40 Response on Up-to-date Collection of GL

It is evident that the theses, dissertations and institutions publications in some of the college libraries are not up-to-date. The reason being is that the
sources are scattered. Some of the collections are held in the departments and college office. This presupposes that there is need to evolve a policy so that, all the grey sources be sent to the library for systematic organization. This will facilitate access to complete collections without gaps, at one place in the library. In case the institution desires a copy to be retained in the college office or department, the second copy of such of these grey sources be sent to the library without fail.

The present study revealed that the extent of up-to-dateness is in the higher range of 50% to 75% according to a large percentage of users. However, fair percentage of respondents opine that the extent of up-to-dateness of institutional publications and trade literature is only to a moderate extent. In many of the engineering college libraries, the procurement of trade literature is not regular. Therefore, the collection is not up-to-date. Secondly, the institutional publications are not being regularly sent to the library and hence, even this is not seen up to date in 56.3% of the libraries.

Finally, it is recommended to evolve a policy placing before the Library Advisory Committee that the;
• Proceedings of CSW and trade literature be updated with due priority
• Copies of theses, dissertations and institutional publications be sent to the library as and when released, as a matter of policy.

6.41 Response on Comprehensive and Adequacy of GL Collection

A large majority of respondents have indicated the adequacy and comprehensive of GL collection in the range of 50% to 75%. However, 66.2% of the library users in the present study express that the adequacy of trade literature collection is below average. The extent is indicated in the range of 25% to 50%. The same argument is put forth by the respondents in respect of institutional publications. 60.2% of the respondents subscribe to this view of inadequate and non-comprehensive collection of trade literature and
institutional publication. Finally, the inference that is drawn in this context is that the libraries have to regularly collect institutional publications as when released. The library committee has to resolve positively on this issue of collecting institutional publications and the library staff has to take initiative to collect with special drive.

6.42 Home Lending of GL

To a moderate extent, the engineering college libraries are permitting to borrow all kinds of GL. 41% to 49% of the respondents are of the opinion that their libraries lend GL for home reading. On the other hand, 35% to 45% of the users express that their libraries as per set rules do not lend GL. A small percentage of respondents on average, comprising 13.7% opine that they can borrow GL with special permission of the librarians. While referring to data in the present study, higher percentage of researchers than faculty guides opine that the libraries permit them to borrow GL. It is clear that researchers convince the library staff quoting the necessity of the situation and borrow the GL of all types to an higher extent than the faculty guides. Considering college wise responses, the aided college libraries restrict on the issue of GL when compared to the government and private college libraries.

While concluding, it is fairly good to lend the GL for home reading and recall over phone whenever there is demand. Further, theses have to be preserved with the institution as they form unpublished source of primary information. Normally, it is a good practice to keep theses for reference in the library. However, the digital version of the theses may be allowed to access widely because of late, universities with non-exclusive rights make theses available for public and wider distribution.

6.43 Use of GL Available in Other Libraries

The trend of relying upon many libraries is increasing in every academic and research field. Users over a period of experience, gradually gain
knowledge of various library collections and develop skills in using them for professional growth. In the present survey, 43.6% of the faculty guides and researchers express that they have knowledge of the GL collection available in other libraries. Other libraries constitute local libraries and engineering college libraries. However, a large percentage of users comprising 56.2% have no knowledge of the resources available in other libraries.

There is need to concentrate on the respondents who have no knowledge of other library holdings. Creation of database of holdings and union lists will help them to know the availability.

Among the respondents who have the knowledge of other library collections, 47.3% are male and 32.8% are female. It is pertinent to note here that a major segment representing 67.2% of female respondents consisting of faculty guides and research scholars are ignorant of the holdings of other libraries.

While considering the faculty guides alone on the issue of using other library holdings, here also, 64.4% of the female faculty guides are ignorant of other library collections. Among the research scholars, 67.7% of the ladies have expressed that they have no knowledge of other library holdings.

For the female users of the libraries, distance and time act as barriers. They cannot conveniently travel alone and enter various libraries for random search for GL. Therefore, the database of holdings or the union lists of holdings will facilitate them to plan and specifically access the needed collection or procure on inter library lending scheme.

6.45 Procuring GL of other Libraries

For female research scholars and faculty guides, inter library lending scheme will fairly help to lay their hands on essential grey sources. Among the female faculty guides, 65.9% of users and among the research scholars, 78.7%
of the female respondents state that their libraries do not procure required GL from other libraries on inter library lending scheme. While 71.6% of the faculty and 73.3% of the researchers who are male respondents have also expressed negatively. From among the entire population of the users, 26.1% have responded positively. However, it is also noteworthy that 62% of the government college library users get needed GL from other libraries. Therefore, there is need to analyse and initiate appropriate steps to augment borrowing of GL from other libraries.

Many engineering college libraries do not lend sources to outside institutions. On the other hand, many institutions do not borrow source from other libraries too. This in fact is a conservative attitude and needs to be changed with broader outlook and open mind. The information sources before go out dated have to be accessed, shared and used at large. Facilitating wider access for scholars at large is the order of the day. Therefore, to the support of the professional staff there are projects of library automation, creation of digital libraries and online access to digital databases.

6.46 Orientation / Training Requirement of the Users

An overwhelming majority of the respondents have identified the need of undergoing orientation (information literacy programmes) regarding building up of GL collection and effective use. It is highlighting to note that 93.2% of faculty guides and 90.7% of research scholars agree or strongly agree in favour of conducting orientation or training for faculty and researchers. Further, 42% of the respondents from both the categories strongly argue in favour of conducting orientation / training programme mainly covering the aspects of:

- Visualising the recent releases of GL
- Facilitating building up of strong and need based GL collection in libraries
- Exploiting the GL collection of other libraries
Training has to be looked after as an essential ingredient which keeps the faculty/researchers live, alert and skillful from time to time.

Among the respondents, it is only a negligible percentage of (1.1%) users opine that such a kind of orientation or training is not at all required. 1.5% of the faculty respondents and 0.8% of the research scholars subscribe to this negative view. Therefore, there is strong inclination amongst the users to attend orientation programme for better access and use of GL. The respondents belonging to all the categories of colleges desire to undergo training and attend orientation programme. This clearly vindicates that the faculty and researchers are not fully conversant with the identification, access and use of various kinds of GL scattered at several libraries and information centres.

6.47 Further Scope of Research

The use pattern of GL in the recognized research centres of VTU has been analysed in detail on the responses of the faculty guides and research scholars in the present research. However, further scope of research is noticed in the analytical study of the citations of doctoral theses submitted to VTU. The citations covering the GL will reveal what type of GL is used and to what extent by the research scholars of the engineering colleges. The results will supplement the perspective that GL is a vital source of information for research, especially in the disciplines of engineering sciences and technology.

An in-depth survey research is also envisaged to comprehend the extent of the use of various proceedings of the conferences, seminars and workshops existing in the holdings of the engineering college libraries. As of 2009, the total collection of the proceedings exceeds 16,450 and the users are found to have been accessing them in the highest range. Hence, this study in particular will help take decisions on what proceedings have to be taken up for digitization and eventually, for the creation of digital repository under the aegis of VTU. The coverage of the engineering disciplines initially may be restricted to the thrust areas of research.
6.48 CONCLUSIONS

The faculty and researchers who are actively engaged in research have felt the importance of GL. Having noticed the value of GL mainly for research, a large majority of them is found accessing and using GL collections existing in the holdings of the engineering college libraries as well as, local research libraries in the higher range. The working librarians in the recognised research centres have been experiencing increase in demand for GL, especially by the users engaged in research. Though there is gradual increase in demand for GL, the pragmatic lacunae in the library system are that,

- The use of institutional publications and trade literature is to a moderate extent (under-utilisation) because they are scattered in the college departments.
- A small segment of the libraries (representing 9.2% of the libraries) is yet to organize GL collections in order to facilitate easy access.
- The GL collections in some of the libraries (43.7% of the libraries) are not being regularly up-dated, and attempt is not being made to build GL collections systematically and comprehensively.

These libraries are not having the practice of cross checking from time to time, whether all the recommended GL has been procured. On account of the procedural lapses, many a time, the grey resources recommended for acquisition do not get procured or supplied. The library committee of the individual colleges has to trace the root cause of such lapses on the part of the library and suggest corrective measures to overcome the defective work flow.

The holdings of GL lack up-to-date collection in 43.7% of the libraries. However, it is encouraging to note that the majority of the libraries have systematically organised their GL collections with classification and cataloguing schemes. On account of this, the collections in most of the libraries are easy to access and use. Attempt has to be made to ensure
comprehensive collection of GL of all types without any gaps, here and there, in the collection. The institutional publications and trade literature are hereby recommended to maintain in coloured box files and arranged in the chronological order so that, identification and access becomes easy for the users on account of the uniformity and consistency in colour coding.

Another significant trend is that the faculties who are engaged in supervising the research work have the habit of regularly tracking the recently released GL. They are said to have been regularly attending the conferences and seminars being organised in their disciplines. But on the other hand, these proceedings are not being recommended to the libraries for procurement in some of the libraries. Therefore, the librarians, faculty members and the library committee have to come together for developing strong need based GL collection in every library. Irrespective of the cadre, every faculty and researcher has to be encouraged to recommend GL which they consider as vital for research. In this way, the collection can be strengthened in every engineer discipline.

The segregated collections of institutional publications, trade literature, dissertations have to be collected for centralized preservation and use, instead of maintaining them in the college office or individual departments. Further, the libraries have to take steps to identify and acquire GL of all varieties to the library. As the acquisition of GL is a continuous process, the librarians have to be alert and be in touch with faculty members on one hand, and professional organisations and associations on the other. For developing quality grey resources in libraries, orientation/training programmes be organised from time to time for librarians, as well as, faculty members and researchers. Such of these programmes are intended to educate the faculty and researches to identify, recommend and uninterruptedly access GL collections. Secondly, orientation is expected to develop knowledge and skills among working librarians for tracking, procuring, organising and facilitating better access to
GL collections in the networked environment. The drive is also intended to increase the ICT skills of professional staff. Engineering college librarians to a larger extent lack ICT skills. Therefore, training is looked after as an essential ingredient.

What is most important is augmenting the programme of sharing the resource of GL in the networked environment. The GL holdings of engineering college libraries and the technical libraries of the region have to be freely accessed and shared for mutual and reciprocal benefits. For the purpose of bringing the collection of GL together, there is need for developing the database of the holdings and facilitating on-line access. This venture in fact has to be encouraged and supported by all the concerned as this programme has to be developed and nurtured on co-operative basis, settling the issue of copyright.

While considering the GL by the category, VTU must insist research scholars to submit their doctoral theses and dissertations in soft copy so that, full-text of the digital version can be made accessible on LAN or web site. The INDEST of AICTE, New Delhi can consider the possibility of taking up this project and provide access to digital theses in engineering sciences and technology. Further, the proceedings of the conferences and seminars form valuable sources, projecting vast amount of data, including the trends in the field, useful for scholars. Creation of an open repository will be of immense help as the large segment of researchers has inclination to refer to these proceedings, time and again. The materials for digitization may be decided upon considering the below indicated alternatives as well as, on the feed-back of the user community.

- Digitise the entire collection of the proceedings.
- Digitise only the recent ones of 3 to 5 years
- Digitise only the active collection/those that are in demand.
• Digitise, considering the emerging new disciplines/areas of research interest (thrust areas of research).

Automation is the first step towards organization and resource sharing ventures. Libraries which have not digitised their catalogue entries or brought out new arrival lists so far, have to look in this direction on top priority. The university and the college management with due priority have to allocate adequate funds for automation of library functions and services. Creation of Local Area Network facility in the college campus will further facilitate access to various library databases.

The faculty and researchers to a considerable extent are found relying upon the local libraries, where the GL collections are comprehensive and up-to-date. However, it is highlighting that a large segment of female users though they have felt-need for grey literature, are ignorant of the collection of other libraries on one hand, and face practical difficulties to freely move out of their colleges and travel a long distance alone and get into the environment of other libraries. It is for these female users of GL, there is need for creating on-line database in order to know the availability of various GL collections of other engineering college libraries. Further, the libraries have to take initiative for getting the required GL on inter-library co-operation. It is also a good practice and professional skill if individual libraries develop library web sites/blogs providing information about library resources and services. Open digital repositories facilitating on-line access to GL collection is desired in this era of information revolution. The VTU has to venture in this direction to augment quality research and output of publications.