

CONTRIBUTION TO NATIONAL REPOSITORY OF ELECTRONIC THESES AND DISSERTATIONS BY THE UNIVERSITIES OF KARNATAKA: A CASE STUDY OF SHODHGANGA

Sachin Katagi and B.D. Kumbar

Mr. Sachin Katagi

Research Scholar
Department of Library and
Information Science
Karnatak University, Dharwad –
580 003
Email: sachinskatagi@gmail.com
Corresponding Author

Dr. B.D Kumbar

Professor (Retd.)
Department of Library and
Information Science
Karnatak University, Dharwad –
580 003
Email: bdkumbar@yahoo.com

ETDs were considered as the rich and unique primary sources of information and they play a vital role in the development of academic community. This Paper attempts to provide an overview of the contribution made by the universities of Karnataka to National Repository of Electronic Theses and Dissertations namely Shodhganga. An intensive study is also made on the Theses contribution by department wise from different Universities in Karnataka. This study shows that despite the involvement of universities of Karnataka in uploading scholarly work to Shodhganga, some universities are lagging behind up to expected standard benchmark. So, more universities are expected to actively participate in this mission to run this mission successfully.

Keywords: Electronic Theses and Dissertations, ETDs, Karnataka State Universities, National Repository, Shodhganga

INTRODUCTION

Access to authentic information is the need of the hour and it is crucial for the development of human beings in the present age of knowledge society. The principle of free and universal access to knowledge as well as freedom in the creation, treatment and dissemination are the global common good of humanity. In the higher education system, Academic researches especially doctoral research plays a significant role in the creation and extension of knowledge and also fostering the intellectual heritage of our society. Academic research provides a strong foundation for furthering future investigation in any field. Meanwhile, Doctoral research is not disseminated in public platform because of some restrictions like Intellectual Property Right (IPR), copyright, publication procedures etc. With the advent of Information and communication technologies (ICT), it is playing a significant role in the academics and scholarly communication during the last decade especially in creation, access and dissemination of information. Presently we are living in an electronic world where all human beings were surrounded by e- business, e-learning, e-government

etc. Lamba & Madhusudhan, (2018). This e-world has not left the libraries also. In Library Premises e-resources, e-services, e-theses and dissertations gaining prominence day by day. According to online dictionary of library and information science ETDs were defined as “Ph.D. theses submitted to university in the digital form instead of conventional hard copies.

Doctoral research programmes are seen as critical to the advancement of higher education around the world, with universities playing a significant role in shaping researchers. Electronic theses and Dissertations (ETDs) were considered as backbone of Graduate Education Sivasubramanian, (2018). As ETDs were considered as primary source of education. They were also considered as rich and unique source of information. Most of the time ETDs will not go to any of the publication channels. So, the ETDs were kept unused in libraries. The best way to bring this research work to the public is to publish it electronically and provide open access to these documents via the internet so that they can be accessed and retrieved at any time from any location in the world, which helps to raise the visibility of individual researchers as well as universities involved in research.

Accordingly, good number of academic and research institutions all over the world are coming with their individual Institutional Repositories (IRs), and in these repositories, they are hosting their ETDs and giving access to their institutional patrons at free of cost. Ramesh & Singh (2017). In India good number of institutions across the country have started to work on the establishment of their IRs, some of them are VidyaNidhi, IISc Bangalore, IIT Delhi etc but there was no single repository where in a single place all the ETDs were made available, so the Government of India came up with national level project i.e. Shodhganga which is a reservoir of Indian Theses and Dissertations.

SHODHGANGA

Shodhganga, a centralized ETD Repository of Indian Repositories maintained by INFLIBNET, an Inter University Centre of the UGC at Gandhinagar, Gujarat (Ramesh Pandita). The word “Shodh” originates from Sanskrit which denotes discovery. The “Ganga” is the holiest, largest and longest of all rivers in Indian subcontinent. The Ganga is the symbol of India’s long age culture and civilisation which is ever flowing and ever loved by people of India. Kumar & Arora (2015). The Shodhganga INFLIBNET is set-up by using in open-source digital repository software called DSpace which is Developed by Massachusetts Institute of Technology (MIT) in collaboration with Hewlett-Packard (HP). The main reason for selecting DSpace software is it uses internationally recognized protocols and interoperability Standards, also supports “Open Archives Initiative Protocol for Metadata Harvesting” (OAI-PMH) and uses a qualified version of the Dublin core schema for its Metadata.

Plagiarism is a major concern and may results in the poor quality of research process. By Increasing the visibility of theses and dissertations in open access repositories would also further act as a deterrent to plagiarism. In order to bring the Indian theses to the open access platform UGC has made the Notification regarding the award of M.Phil. / Ph.D. Degrees dated on 1st June 2009 which clearly mentions that it is mandatory for academic universities to sign MoU with the INFLIBNET Centre and submit the electronic version of their theses to Shodhganga. After signing the MoU, universities will also get financial assistance from the UGC for digitizing their back-files of Theses. Furthermore, Furthermore, the INFLIBNET Centre would be able to start launch alerting and analytical services deploying data mining and other technology tools

if a large number of theses were available in a single repository. Moreover, it will also attract other institutes and organisations in India and abroad to work collaboratively on topics of mutual interests with the Indian universities. Balasubramani et al, (2017).

REVIEW OF LITERATURE

The concept of open access to ETDs started long back. Open access ETDs provide access to older ETDs by open access repository software's. Jhamband Samim (2017) in their article entitled as contribution to Shodhganga Repository by the central universities of India they conducted a study using content analysis method of Shodhganga website. In their study, they have found that Aligarh Muslim University is the top contributing university to Shodhganga repository and within the Aligarh Muslim University faculty of science has more number of theses contributed to Shodhganga.

Chakravarty (2019) considers ETDs to be a technologically enhanced medium for communicating an author's thoughts, and defines ETDs as a digital copy of theses accessible to the general public via the internet. Their research primarily focuses on the study of the web by using Webometrics through which one can analyse the number, type, structure, usage and effectiveness of hyperlinks along with exploring the software used for Indian ETD Repositories. Further they assess the performance of online portal of the national ETD repository of India by using Web Analyzer Test Score (WATS). Mishra (2016) has made an attempt to study the various characteristics of PhD theses uploaded to Shodhganga repository. He conducted both qualitative and quantitative analysis of PhD theses and they have observed that some universities are lagging behind in uploading theses in Shodhganga repository. So motivation is needed at the university level, the study

further state that Shodhganga reduces the chance of duplication of research and also act as a deterrent in malpractice of awarding fake doctoral degrees by the universities across India. Dhanavanda (2013) explains in his article that theses and dissertations are an important part of information resource. The author briefly mentions about the different ETD Repositories in India and discusses the benefits of ETDs. Further he strongly argues that library professionals need to take the initiative to create access and awareness of ETD to the user community.

Indian Universities play a major role in the creation and dissemination knowledge by conducting research work but by using traditional method it is difficult to get access to these research works but if the same research work is in digitised form, then it will be very easy to get access to by creating an online database in the world wide web. Sankar and Kavitha (2015). Electronic theses and Dissertations (ETDs) have made a considerable impact on research scholars of various universities supplementing this view Panneerselvam (2015) in his article explains how Shodhganga has made a huge contribution among the academic community people. Further, they state that there is a gradual increase in the number of theses uploaded to Shodhganga, every year and even the users from outside the country also using Shodhganga, further they highlight about the need of awareness programme for the university students to run this mission successfully.

Esh (2015) conducted a study on the development of Shodhganga Repository for e theses in West Bengal. The author reported that only 15 universities have registered on Shodhganga of 22 universities in West Bengal state. This shows that the lack of interest, non-awareness among the research scholars/guides in contributing Theses to Shodhganga Repository. Further,

the author suggests that more workshops and training programmes need to be conducted on Shodhganga. Reflecting upon the need and development of Shodhganga Repository Kumar and Arora (2015) discusses the model designed and developed for the creation of a national repository of electronic theses and also the initiative taken for plagiarism detection and their study shows that Turnitin is the best software for detecting the plagiarism in the universities.

Veer and Khiste (2016) says that in India Shodhganga has become the biggest repository of electronic theses and dissertations and a greater number of universities joining Shodhganga day by day. They have conducted a comparative study with special reference to Dr Babasaheb Ambedkar Marathwada University, Aurangabad, their study reveals that the Dr Babasaheb Ambedkar Marathwada University is in the 1st position in Maharashtra State by contributing a greater number of theses to Shodhganga Repository. Panda (2016) in his article discusses the current status of Shodhganga – a national level open access ETD repository of Indian electronic Theses. Their study shows that highest number of Theses are submitted in Shodhganga in the area of Management followed by economics and education. further their study also proves that a number of users and searches performed in Shodhganga are increasing year. They also strongly recommend that IITs, NITs and IISERs should also deposit their theses in Shodhganga repository. Adetoro Salau et al., (2020) Conducted a Study to investigate the performance of electronic Theses and Dissertations initiatives in federal universities of Nigeria, the study reported that federal universities have not made remarkable Progress in terms of policy, content and System architecture and also ill - management is the major reason for the poor global visibility and accessibility of ETDs in the African countries. Further

authors recommend that Adoption of OAI-PMH and other value-added services will help to increase visibility of ETD Repositories of African Countries.

Fox(2021) Describes about the Building and Use of ETDs and mentions that, though Electronic Theses and Dissertations have shown high value to user community but they have not used effectively. Author highlights about the history, role, Open Access Initiatives, user experiences of ETDs and focuses on the advanced Digital Libraries which are helpful to both institutions and users. Further author concludes study by stating that Use of OCR is growing Technology which helps in extraction of characters from document and future also helps in effective building of Digital Libraries.

OBJECTIVES OF THE STUDY

1. To find the Universities in Karnataka which have signed MoU with Shodhganga and the total number of theses contributed by these Universities.
2. To find out and rank the top ten universities of Karnataka state in according to the number of theses contributed by them to Shodhganga.
3. To find the number of theses contributed by the top ten departments of each university and rank them accordingly
4. To find out the leading departments of the respective universities of Karnataka on the basis of their contribution.

METHODOLOGY

To meet the above objectives of the study an in-depth study of the Shodhganga repository was carried out by selecting the universities in Karnataka. The data was collected from the Shodhganga website according to university and department wise till

02.10.2021, represented in the form of tables, figures and analysed using simple percentages. Top 10 universities in Karnataka were selected out of 61 State universities which have signed MoU with Shodhganga.

SCOPE AND LIMITATIONS

The scope of the study is limited to exploring and analysing Only top 10 universities in Karnataka on the basis of total number of contributions which have signed MOU with Shodhganga Project and these includes 7 state universities and 3 deemed to be universities.

SIGNIFICANCE OF THE STUDY

This Paper attempts to provide an overview of the contribution made by the universities of Karnataka, many of the previous studies were carried out only on contribution by individual universities, none of the studies were carried out from whole state wise perspective so, to bridge this gap and also to know the ground reality this study has been carried out.

DATA ANALYSIS

The UGC has recognised 65 universities in Karnataka. As of 03.10.2021. Out of these only 22

universities have signed a Memorandum of Understanding with Shodhganga to offer their research output and these 22 universities had submitted a total of 13,832 theses as on 02 October 2021.

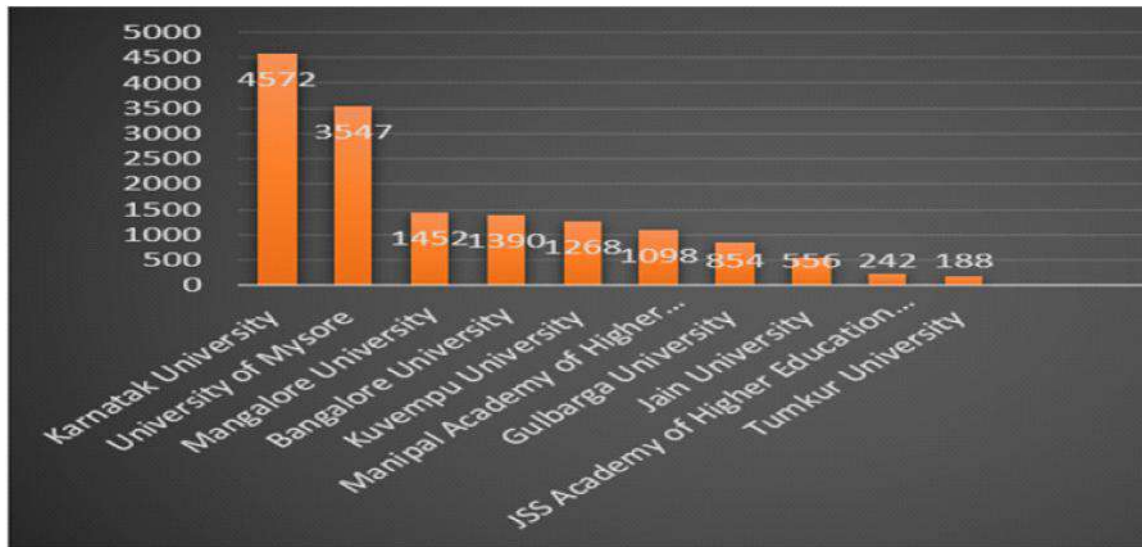
Contribution of Top Ten Universities

The Table 1 examines the ten most contributing universities in Karnataka along with number of Theses and percentage of contribution. Total contribution made by the following ten universities is 15,939 which accounts for 95.16% of the total contribution made from these 22 universities.

The Table 1 and Figure 1 shows that Karnatak University was placed first because it has contributed the maximum number theses (4572, or 30.14 %) in Shodhganga, followed by University of Mysore, which contributed 3547 (23.38 %). Mangalore University is ranked third with a contribution of 1452 (9.57%), Bangalore University is fourth with 1390 (9.16%), followed by Kuvempu University is fifth with contributing 1268 (8.36%) theses. The table also indicates that next highest contributing universities among 22 universities in Karnataka are Manipal Academy of Higher Education

Table 1: Top ten Theses contributing universities in Karnataka

Sl. No.	Name of the University	Number of theses submitted	Percentage (%)
1	Karnatak University	4572	30.14
2	University of Mysore	3547	23.38
4	Mangalore University	1452	9.57
3	Bangalore University	1390	9.16
5	Kuvempu University	1268	8.36
6	Manipal Academy of Higher Education	1098	7.23
7	Gulbarga University	854	5.63
8	Jain University	556	3.66
9	JSS Academy of Higher Education & Research	242	1.59
10	Tumkur University	188	1.23



1098 (7.23%), Gulbarga University 854 (5.63%), Jain University 556 (3.66%), JSS Academy of Higher Education & Research 242 (1.59%), Tumkur University 188 (1.23%).

Figure 1: Top contributions in Shodhganga

Sl. No.	Department	Number of Theses
1	Department of Kannada	514
2	Department of Chemistry	392
3	Department of Economics	267
4	Department of Zoology	222
5	Department of Botany	204
6	Department of Education	200
7	Department of Commerce	197
8	Department of Mathematics	183
9	Department of Hindi	178
10	Department of Physics	174

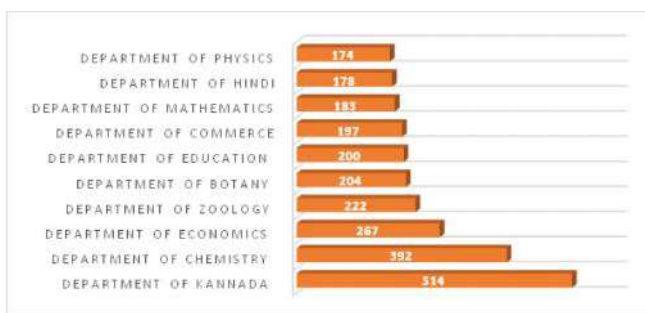


Figure 2: Department wise contribution by Karnatak University

Contribution by University of Mysore

The Table 3 shows the contributions from various departments of University of Mysore. It can be seen that out of the 71 Departments, Department of Economics and Cooperation has contributed the maximum number of theses followed by the Department of Chemistry, Department of Biotechnology and Department of Biochemistry. There is no contribution from the department of Linguistics.

Table 3: Department wise contribution by University of Mysore

Sl. No.	Department	Number of Thesis
1	Economics and Cooperation	271
2	Chemistry	258
3	Biotechnology	186
4	Biochemistry	178
5	Education	165
6	Commerce	164
7	Kannada	120
8	Management Sciences	115
9	History	96
10	Zoology	96

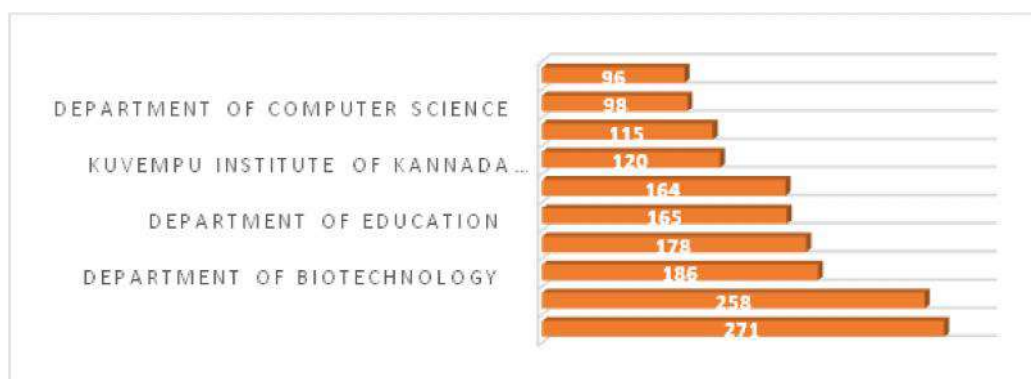


Figure 3: Department wise contribution by University of Mysore

Contribution by Mangalore University

The Table 5 shows the contributions from various departments of Mangalore University. It can be seen that out of the 53 Departments, Department of Chemistry has contributed the maximum number of theses followed by the Department of Bio-Sciences, Department of Physics and Department of Economics. All the departments belonging to this university are contributing to Shodhganga.

Table 4: Department wise contribution by Mangalore University

Sl. No.	Department	Number of Theses
1	Chemistry	188
2	Bio-Sciences	170
3	Physics	140
4	Economics	88
5	Applied Botany	70
6	Commerce	66
7	Marine Geology	58
8	Kannada	56
9	Applied Zoology	52
10	Business Administration	47

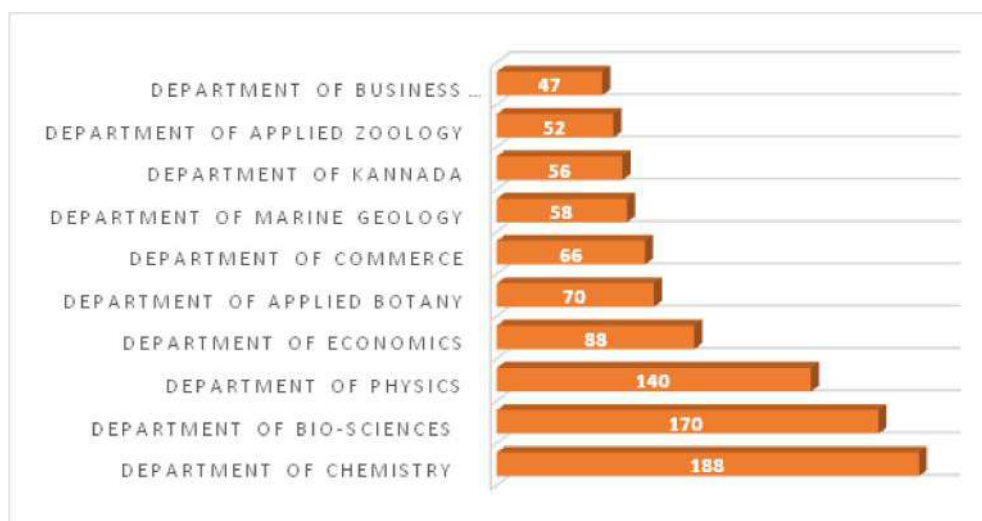


Figure 4: Department wise contribution by Mangalore University

Contribution by Bangalore University

The Table 5 shows the contributions from various departments of Bangalore University. It can be seen that out of the 45 Departments, Department of Zoology has contributed the maximum number of theses followed by the Department of Botany, Department of Physics and Department of Psychology. All the departments belonging to this university are contributing to Shodhganga.

Table 5: Department wise contribution by Bangalore University

Sl. No.	Department	Number of Theses
1	Zoology	187
2	Botany	183
3	Physics	166
4	Psychology	118
5	Economics	104
6	Chemistry	63
7	English	43
8	Mathematics	41
9	Microbiology / Biotechnology	35
10	Physical Education	30

Contribution by Kuvempu University

The Table 6 shows the contributions from various departments of Kuvempu University. It can be seen that out of the 36 Departments, Department of Chemistry has contributed the maximum number of theses followed by the Department of Industrial Chemistry, Department of Biotechnology and Department of Kannada. All the departments belonging to this university are contributing to Shodhganga.

Table 6: Department wise contribution by Kuvempu University

Sl. No.	Department	Number of Theses
1	Chemistry	131
2	Industrial Chemistry	109
3	Biotechnology	104
4	Kannada	90
5	Environmental Science	82
6	Economics	59
7	Applied Botany	58
8	Sociology	55
9	Mathematics	49
10	Commerce	42

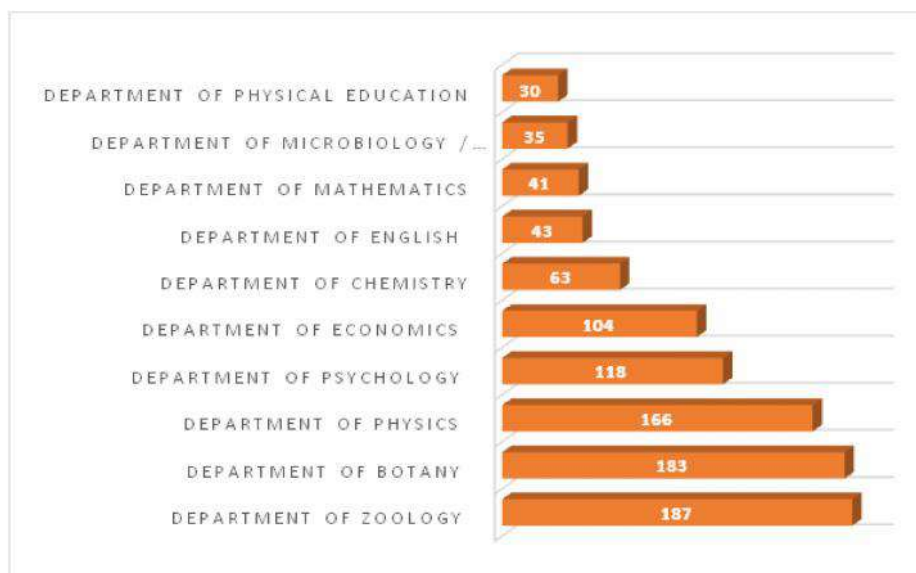


Figure 5: Department wise contribution by Bangalore University

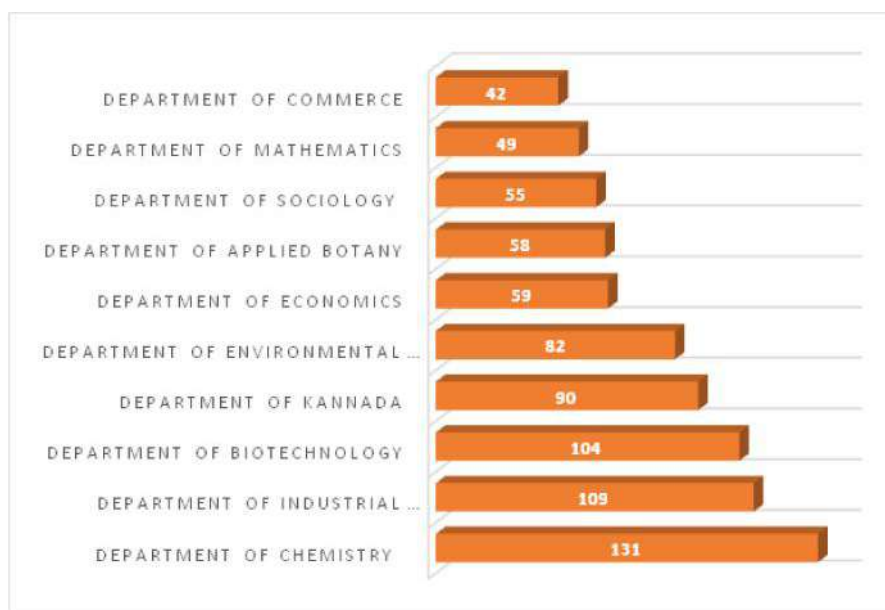


Figure 6: Department wise contribution by Kuvempu University

Contribution by Manipal Academy of Higher Education

The Table 7 shows the contributions from various departments of Manipal Academy of Higher Education. It can be seen that out of the 94 Departments, Centre for DNA Fingerprinting and Diagnostics has contributed the maximum

number of theses followed by the Pharmaceutical Sciences, Center for Biological Sciences and Department of Chemistry. There is no contribution from the departments such as Computer Science & Engineering, Microbiology, Statistics, Bioinformatics and Regenerative Medicine.

Table 7: Department wise contribution by Manipal Academy of Higher Education

Sl. No.	Department	Number of Theses
1	Centre for DNA Fingerprinting and Diagnostics	107
2	Pharmaceutical Sciences	52
3	Center for Biological Sciences	35
4	Department of Chemistry	31
5	Department of Pharmaceutical Science	27
6	Research in Ecology and the Environment	26
7	Bioinformatics	24
8	Nursing	21
9	Department of Life Science	17
10	Advanced Studies	17

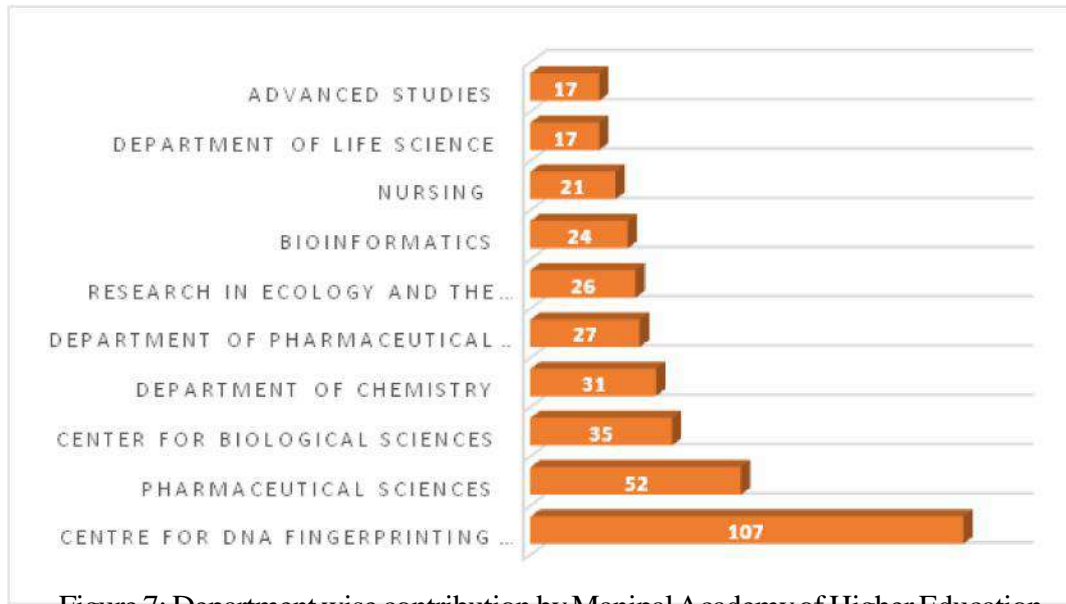


Figure 7: Department wise contribution by Manipal Academy of Higher Education

Contribution by Gulbarga University

The Table 8 shows the contributions from various departments of Gulbarga University. It can be seen that out of the 37 Departments, Department of Sociology has contributed the maximum number of theses followed by the Department of Kannada, Department of Mathematics and Department of Commerce. All the departments belonging to this university are contributing to Shodhganga.

Table 8: Department wise contribution by Gulbarga University

Sl. No.	Department	Number of Theses
1	Sociology	80
2	Kannada	68
3	Mathematics	58
4	Commerce	49
5	History	46
6	Economics	41
7	Microbiology	37
8	Political Science	36
9	English	33
10	Library & Information Science	30

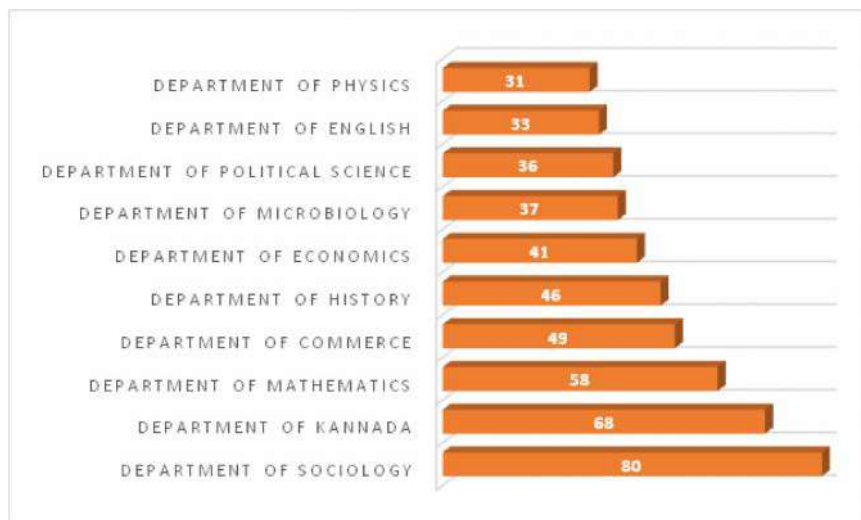


Figure 8: Department wise contribution by Gulbarga University

Contribution by Jain University

The Table 9 shows the contributions from various departments of Jain University. It can be seen that out of the 31 Departments, Department of Management has contributed the maximum

number of theses followed by the Department of Biotechnology, Computer Science Engineering and Electronics Engineering. All the departments belonging to this university are contributing to Shodhganga.

Table 9: Department wise contribution by Jain University

Sl. No.	Department	Number of Theses
1	Management	99
2	Biotechnology	56
3	Computer Science Engineering	32
4	Electronics Engineering	44
5	Chemistry	32
6	Microbiology	26
7	Electrical Engineering	22
8	Cultural studies and Performing arts	18
9	Department of Civil Engineering	15
10	Department of Psychology	15

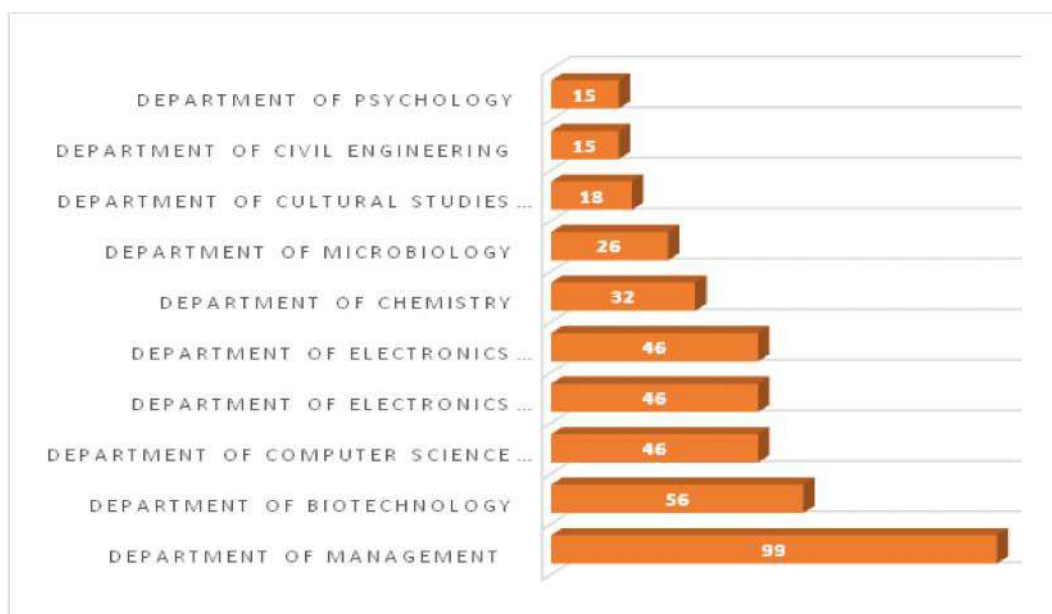


Figure 9: Department wise contribution by Jain University

Contribution by JSS Academy of Higher Education & Research

The Table 10 shows the contributions from various departments of JSS Academy of Higher

Education & Research. It can be seen that out of the 6 Departments, Department of Pharmacy has contributed the maximum number of theses followed by the Department of Life Sciences,

Department of Medical and Department of Biomedical Sciences. All the departments belonging to this university are contributing to Shodhganga.

Table 10: Department wise contribution by JSS Academy of Higher Education & Research

Sl. No.	Department	Number of Theses
1	Pharmacy	181
2	Life Sciences	22
3	Medical	20
4	Biomedical Sciences	8
5	Dental	8
6	Management Studies	3

Contribution by Tumkur University

The Table 11 shows the contributions from various departments of Tumkur University. It can be seen that out of the 22 Departments, Department of Chemistry has contributed the maximum number of theses followed by the Department of Studies and Research in Commerce, Department of Physics and Department of Studies and Research in Business Administration. All the departments belonging to this university are contributing to Shodhganga.

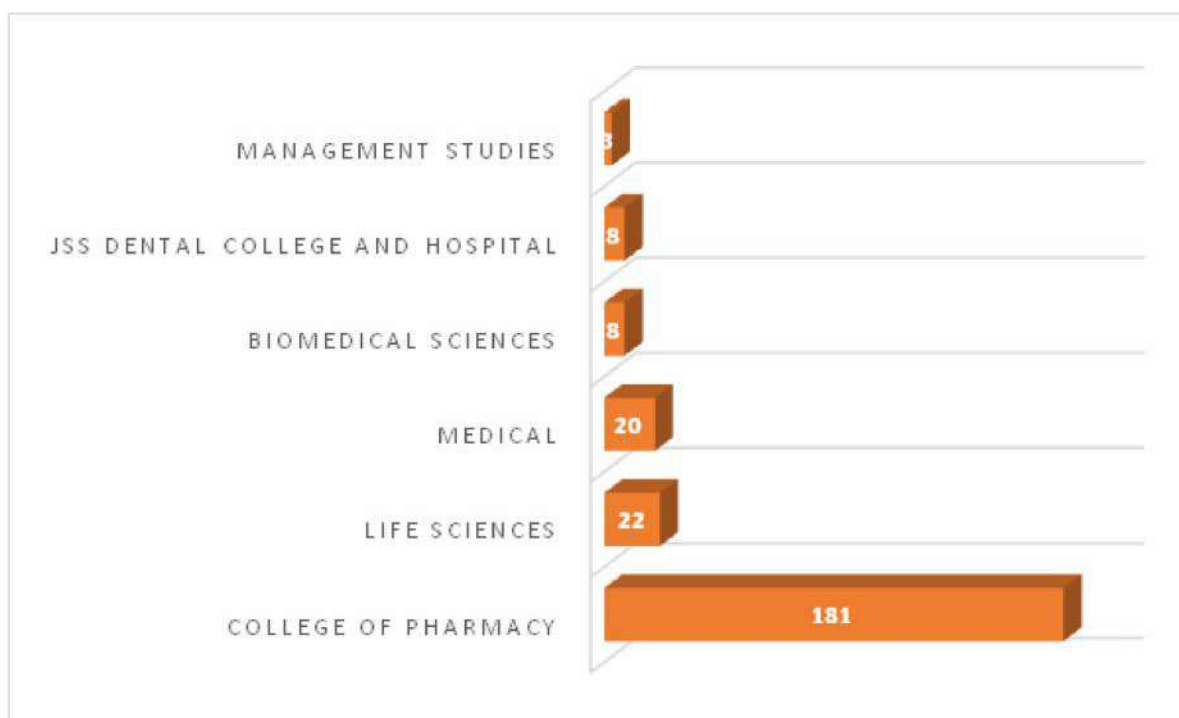
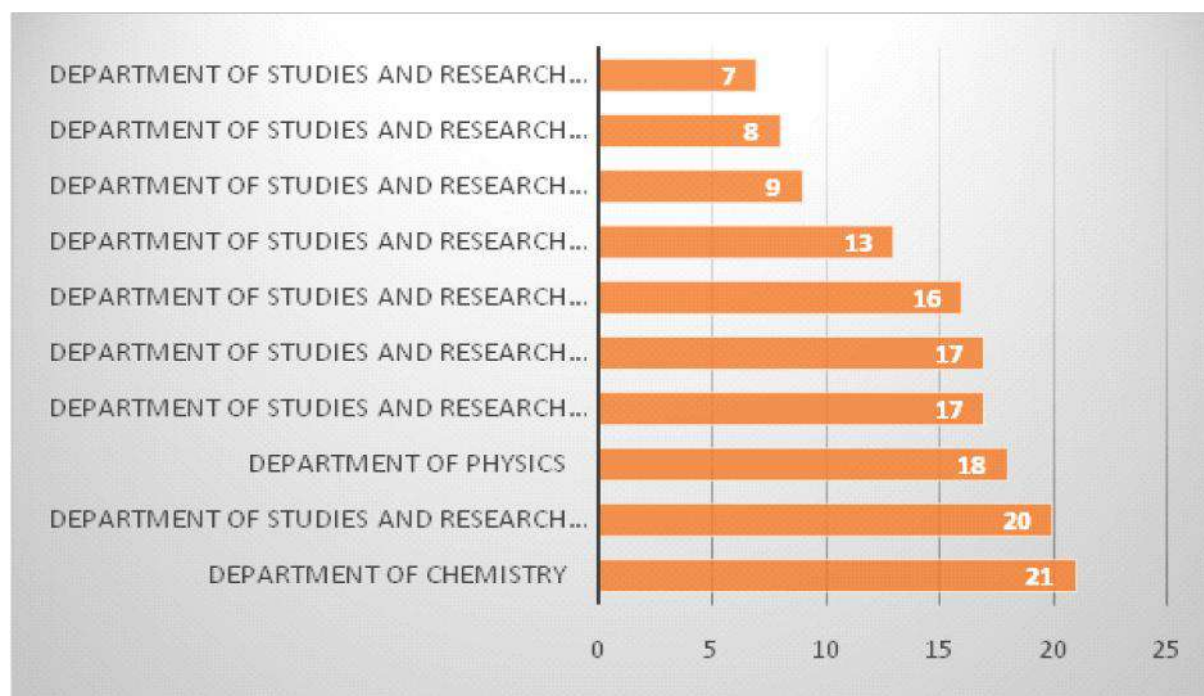


Figure 10: Department wise contribution by JSS Academy of Higher Education & Research

Table 11: Department wise contribution by Tumkur University

Sl. No.	Department	Number of Theses
1	Department of Chemistry	21
2	Department of Studies and Research in Commerce	20
3	Department of Physics	18
4	Department of Studies and Research in Business Administration	17
5	Department of Studies and Research in Economics	17
6	Department of Studies and Research in Kannada	16
7	Department of Studies and Research in Social Work	13
8	Department of Studies and Research in Sanskrit	9
9	Department of Studies and Research in Library and Information Science	8
10	Department of Studies and Research in History and Archaeology	7



Ranking of Most leading Departments of the respective Universities in Karnataka

The Table 12 lists out the most contributing departments from each of the top ten universities in Karnataka. It is found that Department of

Kannada, Karnatak University has the maximum 514 contribution among all the faculties belonging to the universities under study and hence ranked first. Also, the Department of Economics and Cooperation, University of

Mysore ranked second with 271 contributions. Department of Zoology of Bangalore University and Department of Chemistry of Mangalore University ranked third and fourth with 187 and 188 contributions respectively. Department of Chemistry, Kuvempu University rank fifth with 131 contributions followed by the Department of Centre for DNA Fingerprinting and Diagnostics Technology, Manipal Academy of Higher

Education securing sixth position. Department of Sociology, Gulbarga University and Department of Management, Jain University have got the seventh and eighth rank respectively on the basis of their contribution to Shodhganga. 9th rank is secured by the Department of Pharmacy, JSS Academy of Higher Education & Research and the tenth rank among universities in Karnataka is of Department of Chemistry, Tumkur University.

Table 12: Ranking of Most Contributing Departments of Universities in Karnataka

Sl. No.	University	Department	Contribution
1	Karnatak University	Kannada	514
2	University of Mysore	Department of Economics and Cooperation	271
3	Bangalore University	Zoology	187
4	Mangalore University	Chemistry	188
5	Kuvempu University	Chemistry	131
6	Manipal Academy of Higher Education	Centre for DNA Fingerprinting and Diagnostics Technology.	107
7	Gulbarga University	Sociology	80
8	Jain University	Management	99
9	JSS Academy of Higher Education & Research	Pharmacy	181
10	Tumkur University	Department of Chemistry	21

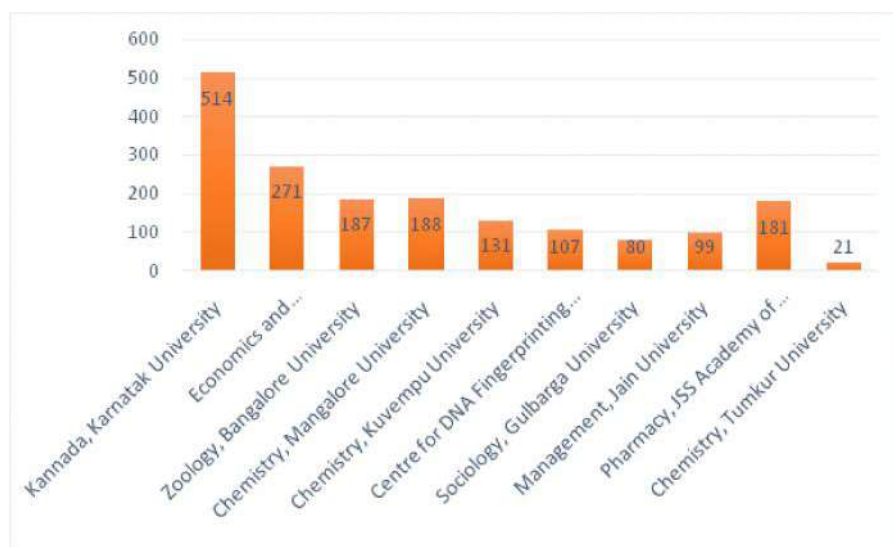


Fig 12: Ranking of Most Contributing Departments of Universities in Karnataka

SUGGESTIONS

Based on the Above Analysis some of the Suggestions to INFLIBNET Centre are:

1. There exists a large time gap between theses awarded by the university and the same theses uploaded to Shodhganga, so more efforts should be needed by the Shodhganga project team to minimise this time gap.
2. At present only PhD theses were uploaded to Shodhganga repository so efforts should be made to upload the master's degree Dissertations to Shodhganga.
3. There is a gap between the number of theses contributed to Central Library and the Same uploaded to Shodhganga Repository So more efforts were needed from the library staff in uploading all the theses to Shodhganga.
4. There is a need of ETD Awareness programmes, a greater number of research scholars should be encouraged to submit theses online to enhance an understanding of the issues and choices for the institutions planning to implement ETD Repositories.
5. Every year Best researcher award should be given to the researcher on the basis of quality theses uploaded to Shodhganga. this practice will not only help in giving credits to the researchers but also motivate other researchers to inculcate such practices in their Research Work.

CONCLUSION

Change is the law of nature and so holds true about publishing research results through non – print channels. It is fact that, rapidly developing networking and digital library initiatives are also

the reason for gaining ETD momentum around the world. ETDs help to eliminate limitations of theses print channels. Prior to the Shodhganga repository India did not have central repository in which electronic copy of the theses are stored from universities across the country. Shodhganga is one such channel which is designed and developed by INFLIBNET, which can be harnessed to publish doctoral research results through open access platform during the last ten years. The Shodhganga has made a huge impact and written its own success story. Every day the repository is receiving huge data where efforts should be made in properly organising this data so that the theses which were kept non utilised in library stacks were utilised properly and also helps in showcasing the intellectual output of a country to a wider audience.

The university education system deals with teaching, learning and research. Quality of teaching is directly related with quality of research and further it also helps in academic excellence of institutions. Digital information storage, delivery and access should be a motto of universities by keeping up with the cherished dream of Rabindranath Tagore for storing universal knowledge for the benefit of the students, researchers in particular and the community at large. On the basis of above analysis, it can be said that despite the involvement of universities of Karnataka in uploading scholarly work to Shodhganga, some universities are lagging behind up to expected standard benchmark. So, more universities are expected to actively participate in this mission

to run this mission successfully and more library professionals also need to be trained for creating and maintaining Shodhganga Repository.

REFERENCES

1. Adetoro, S. S., Oyedum, G.U., Abifarin, F.P., Udoudoh, S.J., & Alhassan, J.A. (2020). Performance assessment of electronic theses and dissertations initiatives in Nigeria. *Digital Library Perspectives*, 36 (2), 127-148. <https://doi.org/10.1108/DLP-01-2020-0001>
2. Balasubramani, J., Anbalagan, M., & Rajkumar, T. (2017). An Analysis of Shodhganga Electronic Theses and Dissertations Database. Proceedings of the National Conference on Role of Libraries in Making Digital India (SALIS 2017), Madurai, Tamil Nadu, India.
3. Chakravarty, R. (2019). National ETD Repository Evaluation Using Web Analyzer: A Webometric Analysis of Shodhganga, India. *International Journal of Web-Based Learning and Teaching Technologies (IJWLTT)*, 14(1), 54-68.
4. Dhanavandan, S. (2013). Development Of Shodhganga Repository For Electronic Theses And Dissertations In Tamil Nadu: A Study. 3(4), 648–658.
5. Esh, M. (2015). Development of Shodhganga Repository for e-theses in West Bengal: A Study. *International Research: Journal of Library and Information Science*, 5(2).
6. Fox, E. A. (2021). Building and Using Digital Libraries for ETDs,” *The Journal of Electronic Theses and Dissertations: Vol. 1, Article 5*. <https://scholarworks.uaeu.ac.ae/j-etd/vol1/iss1/5>
7. Jhamb, G., & Samim, A. (2017). Contribution to Open Access Repository by the Central Universities of India: A Case Study of Shodhganga. *Library Philosophy and Practice (e-journal)*
8. Kumar, M., & Arora, J. (2015). Shodhganga and Detering Plagiarism in Research Outputs in Indian Universities. *Proceeding Journal 10th International CALIBBER 2015 (in Print)*, 524-533.
9. Lamba, M., & Madhusudhan, M. (2018). Metadata Tagging of Library And Information Science Theses: Shodhganga (2013-2017). (September). <https://doi.org/10.5281/Zenodo.1475795>
10. Mishra, K. G. (2016). A Study Of Some Characteristics Of Phd Theses Uploaded On Shodhganga. *Ietd 2016 National Conference*, (January). Retrieved From <http://hdl.handle.net/1944/2062>
11. Panda, S. K. (2016). Shodhganga – A National Level Open Access Etd Repository Of Indian Electronic Theses: Current Status And Discussions. *Library Hi Tech News*, 33(1), 23–26. <https://doi.org/10.1108/Lhtn-09-2015-0062>
12. Pandita R., & Singh, S. (2017). Changing Dimensions Of Publishing Doctoral Research Results: An Introspection Of Shodhganga Electronic These And Dissertations’ Data Base. *University News*, 55(48), 53–62.
13. Panneerselvam, P. (2015). Indian Repository Services: A Study on Shodhganga. Proceedings of Advancement in Library and Information Science & Technology: Challenges and Opportunities

14. Sankar, P., & Kavitha, E. S. (2015). Asian Journal of Multidisciplinary Studies. *Asian Journal of Multidisciplinary Studies*, 3(12), 93.
15. Sivasubramanian, S. (2018). Contribution to Open Access Repository by The Tamil Nadu State Universities in India: A Case Study of Shodhganga. *Library Philosophy & Practice*.
16. Veer, D. K., & Khiste, G. P. (2016). Shodhganga Repository: A Comparative Study with Special Reference to Dr Babasaheb Ambedkar Marathwada University Aurangabad. *Proceeding iETD National Conference 2016*.

