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# Measuring Impact of 'E-Shodh Sindhu' in Scholarly Publications

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# Measuring Impact of 'E-Shodh Sindhu' in Scholarly Publications

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**Abstract**

*Publication quantity and quality are regarded as a measure of the success of individual scientists, researchers, academic institutes or any universities in general. Therefore, 'Publish or Perish' pressure is seen among scientists and academicians. They prefer to publish their research in reputed journals. The main purpose of this study is to determine the usage of e-resources, to find out the contribution of the universities to academic community. E-resources play the valued role in research activity and it has quicken growth in usage of the research items in academic libraries. This study focuses on the usage and the impact of the E-Resources accessible through E-Shodh Sindhu Consortium in Universities of Gujarat. For this study, the usage of universities of Gujarat from the E-Shodh Sindhu Consortium taken out during the period 2012 to 2017 and to measure the impact of usage the publication number of the universities has been studied.*

**Keywords:** E-resources, E-Shodh Sindhu Consortium, Electronic media, Academic libraries

## 1. Introduction

The production and transmission of information and knowledge through research have long been identified as a necessary element for a nation's long-term development and competitiveness as well as for generating the capacity to resolve social problems. The quality and number of published research articles are regarded as a measure of the success of individual scientists, researchers, academic institutes or any universities in general. Therefore, Scientists and researchers publish research articles in reputed journals. In qualitative terms, accessibility and availability of those resources impact the nature of education and research, publications. In quantitative terms, the research output of an institute and universities can be measured in based on research publications in prestigious journals, its citations, number of patents, number of research reports, number of honors and awards to faculty and researchers, number of research students (Arora, Trivedi & Kembhavi, 2013).

The research output of universities, institutes of higher learning, technical institutes and R & D institutions in India, in terms of research articles published by, has raised

extensively in the past few years significantly just because of access to scholarly content improvised made possible with the help of consortia initiatives such as INDEST-AICTE Consortium, UGC-INFONET Digital Library Consortium, National Knowledge Resource Consortium (NKRC) and DAE Consortium (Arora, Trivedi & Kembhavi, 2013). In this informative era generally it is managed by the principles of accountability, ROI, cost-benefit analysis, and actual benefits, libraries and library consortia all over the world face the challenge of describing and quantifying their benefit to their funding agencies (Tenopir, 2010).

Therefore, libraries and library consortia have noticed a move to contain the value of their services and subscribed resources. Although there are various sources of bibliographic information, like Scopus and Web of Science but commonly used is the Web of Knowledge that hosts the Science Citation Index (SCI), Social Sciences Citation Index (SSCI) and the Arts and Humanities Citation Index (A&HCI). The three citation indexes are globally acknowledged databases that work as a filtering mechanism for determining the quality and impact of research papers based on citations received by them. These indices can be examined to ascertain the qualitative productivity of institutes. Unlike other indexing and abstracting services that are restricted to several disciplines, Web of Knowledge covers almost all disciplines: Science Citation Index Expanded covers 8,850 scientific journals in about 150 disciplines, Social Sciences Citation Index covers 3,200 journals in 55 social science disciplines and Arts & Humanities Citation Index covers 1,700 journals in 28 disciplines. As according this number of journals the three indices cover 13,750 journals accessible on the Web of the Knowledge platform (Web of Science Databases, n.d.).

In this information era, libraries lead us to visualize the "virtual library," where information is provided to our elements rather than expecting them to come to us, but many of them still thinking of libraries as warehouses of information, and of librarians as the gatekeepers of those resources. While it is a responsibility of librarians from the beginning of the old approach of libraries, many factors, including the democratize of access to education, the importance of lifelong learning, has to move towards the teaching and e-learning, should pushed libraries to influence beyond the caretaker role (Lingaiah, 2018).

These are popular e-journal Consortia established in India are The National Knowledge Resource Consortium-NKRC, Forum For Resource Sharing In Astronomy And Astrophysics-FORSA, Indian National Digital Library in Engineering Sciences and Technology-INDEST, E-ShodhSindhu, National Medical Library's Electronic Resources in Medicine Consortium-ERMED, DBT e-Library Consortium-DeLCON, IIM Consortium and DRDO E-Journal Consortium. They have mainly centered on e-resources sharing through e-journal consortium amongst the universities, institutions and organisations (Senthil & Madhusudhan, 2018 and Moorthy & Pant, 2012).

## 2. Objectives

The present study was carried out to measure the research output of various Universities of Gujarat with special focus to the impact of E-Shodh Sindhu Consortium. Following objectives were set for the study.

- The main objective of the study is to assess the impact of e-resources on University libraries of Gujarat.
- To study the purpose and utilization of E-Shodh Sindhu Consortium e-resources by Universities of Gujarat.
- To find out the usage of E-Shodh Sindhu Consortium in State universities of Gujarat.
- Identify performance gaps of University libraries in usage of E-Shodh Sindhu e-journals and to recommend suggestions to make improvements in the performance areas with large gaps.
- To find out the impact and growth in the publication of universities of Gujarat.

## 3. Scope of the study

The present study investigate the availability of the electronic resources provided by E-Shodh Sindhu and its impact on Universities of Gujarat. It has been observed that the research output has increased among the Indian Universities and CFTIs by using scholarly journals and databases through E-Shodh Sindhu Consortium. So, this study focus on usage and research output of Universities of Gujarat state namely Gujarat

University (GU); Maharaja Sayajirao University (MSU); Sardar Patel University (SPU); Saurashtra University (SU) and Veer Narmad South Gujarat University (VNSGU).

## 4. Research Methodology

The consortium assesses and observes the usage of subscribed e-resources. The INFLIBNET has developed a portal called InfiStats, for monitoring the usage statistics of various e-resources made accessible to the member institutions and universities. The InfiStats uses SUSHI Protocol (Standardized Usage Statistics Harvesting Initiatives) that specifies an automated request and response model for the harvesting of usage data for e-resources using Web services framework. The InfiStats portal imports the usage data from the publisher's website automatically and store it is a database on InfiStats. The InfiStats interface provides title-level counter reports to its member institutions and universities. The member institutions can also login to this portal for observing the usage of their respective e-resources. So the data has been collected from the Infistat Portal. The data shows the usage of universities of the Gujarat (as listed above) from the period of 2012 to 2017.

After analyzing the usage data from Infistats of E-Shodh Sindhu resources by the universities of Gujarat in different ways, to found the impact of access to those e-resources by the number of publications of the universities from the Scopus and web of science database.

## 5. E-Shodh Sindhu Consortia

The programme was comprised into a new Consortium formed by MHRD named E-Shodh Sindhu: Consortium for Higher Education Electronic Resources dated 1st December, 2015 and the access to the existing resources are being provided to the universities under the new consortium from January/April 2016 onwards. It has recommended by the Expert Committee, the MHRD has formed e-Shodh Sindhu merges three Consortia initiatives, namely UGC-INFONET Digital library Consortium, NLIST and INDEST-AICTE Consortium. The e-Shodh Sindhu will continue to provide current as well as archival access to more than 15000 core and peer reviewed journals and a number of bibliographic, citation and factual databases in different disciplines from a large number of publishers and aggregators to its member institutions including Centrally-

funded technical institutions, Universities and colleges that are covered under 2F and 12B sections of UGC Act. Previously it was known as UGC-INFONET Digital Library. The UGC-Infonet Digital Library Consortium was started in December 2003, by Dr. A.P.J. Abdul Kalam, the President of India.

The total of 217 Universities, 97 CFTIs and 75 Technical Institutes were the member of E-Shodh Sindhu including 12 National Law School and 6 IUCs of the UGC, provided differential access to subscribed e-resources by this programme throughout the year 2019. These e-resources cover almost all subject including arts, humanities, social sciences, physical sciences, chemical sciences, life sciences, computer sciences, mathematics, and statistics, etc. The INFLIBNET Centre has also started the Inter-Library Loan (ILL) service through J-Gate Plus by E-Shodh Sindhu. The JGate Plus supply article-level access to all articles which is published in journals subscribed by the E-Shodh Sindhu Consortium and also included the content of journals subscribed by 26 university libraries appointed as ILL Centres of the INFLIBNET Centre. The 26 Universities are working as the ILL centres to provide ILL service with the INFLIBNET Centre to Indian Universities.

**6. Review of Literature**

Lingaiah (2018) discussed about the electronic resources performing an important role in teaching and learning processing in educational organizations. The government of India has adopted several steps to introduce e-resources facility in the educational system for the privilege of Research Scholars. He studied the usage of UGC Infonet Digital library Consortium in the Osmania University. He also found in his study that purpose of endeavoring information is the majority of respondents for improving research quality 24.3%, developing technical skills 17.8%, and improving reading and searching skills 10.5% improving teaching skills 13.8% and improving knowledge 5.6% low frequency of percentage is improving academic performance. With the help of this study, it can be concluded that nearly all the Respondents under study simply indicate the value and the importance of UGC-Infonet Consortium E-Resources at different levels as a helpful source for their education and research.

Bhatt and Joshi (2009) explained about the usage of e-resources covered under UGC Infonet Consortium by students and research scholars in MSU during the year 2004-

2008. They asserted it with the resource wise usage and number of articles downloaded throughout the years of this study included in the UGC Infonet Consortium. According to their study, research output has almost doubled in India since the e-resources are easily accessible in Web of Science. They also studied that with the help of Consortia it is more useful for access to the newest research article published in peer-reviewed journals in easy reach for researchers. They found that for improve the usage of e-resources, more awareness programmes should be created to influence the researchers and students about the ease and advantages available with electronic form as compared to print and good infrastructure prevails to be a supportive part for the application of e-resources.

Kumbar, Lamani and Gourikeremath (2014) explained the utilization and cost-effectiveness of the resources. Their study based on the measurement and impact of e-resources on Research Scholars of Karnatak University. They observed that the availability of e-resources in the university is not enough for all the existing disciplines. They found in their study while communicating informally with the research scholars that they are expecting not only required current e-resources but also need back issues. It has recommended that the staff who are working in the library and other staff must take minimum interest in creating awareness about the availability of e-resources, and their value and interest in enhancing the quality of the research. With the help of this study, it is very helpful to recognize the awareness in students, usage of e-resources as well as in developing e-resources collection in the university library. They found in their study that 54.3% of the respondents strongly agree that their quality of the study is increased after using electronic information resources, 39% agree to that point and 2.17% states that they disagree about it.

Arora, Trivedi and Kembhavi (2013) explained about the UGC INFONET Digital Library Consortium has been providing the number of national and international scholarly journals to Indian universities. These journals are covering wide areas of the subject disciplines arts, humanities, social sciences, physical sciences, chemical sciences, life sciences, computer sciences, management, mathematics and statistics and direct a long time requirement of the university community for access to scholarly publications. They explain some features of this programme and measure the impact it has produced on research and development activity in the universities. The research output data

from three citation indices, i.e Science Citation Index, Social Sciences Citation Index and Arts and Humanities Citation Index for the first 50 universities to be assigned part of the programme have shown that the number of research articles produced by these 50 universities has grown by more than 75% in past 5 years, i.e. 2005-2009 with the comparison of the last 5 years, i.e. 2000-2004. It found the efforts made by Indian libraries towards the creation of consortia of libraries for buying access to electronic resources. Cooperation amongst institutions for sharing their library resources has been functioned for decades. Consortia-based subscriptions" to journals throughout in the world, Assigned subscriptions to electronic resources through consortia of libraries is a reasonable approach to meet the demands such as reducing budgets, enhanced user demands, and growing costs of journals. The libraries and information centers, with their diminishing monetary allocations, have to study new ways to streamline global resources in order to maximize their inadequate financial resources. They mentioned in their study that healthy and positive relationship is found between the number of articles downloaded by these 50 Indian universities from e-resources accessible to them through the Consortium and research articles published by them.

Haridasan and Khan (2009) identified that the acceptance of e-resources in the NASSDOC library in New Delhi, India and discover their usage, production, a degree of user satisfaction, and hurdles faced in the access of e-resources. They explained in their paper that e-resources in special libraries are getting vital growth as part of the library collection and a large amount is spent on the expansion of e-resources in the libraries. For this analyze study, they have distributed total 80 questionnaires to the faculties and the research scholars of NASSDOC and 58 of them returned and fulfilled by them. They conclude that research scholars were using Google, Google Scholar, and Yahoo for literature queries while scientists were using Google, Google Scholar, Ask.com and Khoj.com. This study showed its impact in terms of recognition and productive use of the resources with a several restrictions by the social scientists.

Kaur and Verma (2009) stated that use of electronic resources and services implemented at the library of the Indian Institute of Technology, Delhi. It has been found that usage of e-journals is rising; this is expected to awareness amongst the users regarding the library e-resources and services. They also explained that simple access available at several places in the institute, users are obtaining these resources at

hostels and departments also as compared to the library. They distributed some of the questionnaire to the UG/PG students, research scholars and faculty members to survey which extent they are using their libraries' electronic library resources and services. They mentioned that the institute provides access of electronic resources by the INDEST Consortium and DELNET, and also examined that 100 percent faculty, 98.45 percent research scholars, 80.43 percent postgraduates, and hardly 33.03 percent undergraduates were using these e-resources of INDEST and DELNET. It noted in this paper that the usage of IEL online, ASME, Science Direct, ABI/Inform, and Capitalize has improved but the usage of ASCE, EBSCO and Emerald becomes reduced.

**7. Usage of E-resources**

This paper evaluates the usage of e-resources available under E-Shodh Sindhu Consortium accessible by the Universities of Gujarat like GU, MSU, SPU, SU, VNSGU and its impact on research output.

Internet is extensively used in all platforms and Electronic Information resources have a specific value in today's generation of information. UGC contributes a huge amount on obtaining the e-resources and distributing them to the academic community through E-Shodh Sindhu Consortium or many more. It is very genuine on the part of the librarians to know whether the academic community is using these e-resources perfectly.

The below mentioned table no. 1 depicts total no. of journal articles downloaded from various publishers' site from the year 2012 to 2017 by the universities. The data shows the usage in terms of downloads. These are the common publishers which are taken out to analyse the usage of which are subscribed by all the universities.

There are ACS, AIP, Annual Reviews, APS, CUP, IOP, OUP, Project Muse, RSC, Springer and Taylor & Francis e-resources subscribed from E-Shodh Sindhu consortium by all the selected universities of Gujarat, whereas Emerald Publishing, JSTOR and Wiley Blackwell were subscribed by the four universities except Gujarat University. The Nature and Science Direct subscribed by GU, MSU, SPU and SU during the period 2012 to 2017. MSU and SPU has also subscribed include Portland Press, Project Euclid and SIAM; and American Society of Civil Engineers, ASME, and Palgrave Journals these resources only subscribed by the MSU.

| RESOURCE NAME | NAME OF THE UNIVERSITY | | | | |
|---|---|---|---|---|---|
| | GU | MSU | SPU | SU | VNSGU |
| American Chemical Society | 66781 | 114736 | 54680 | 30831 | 12560 |
| American Institute of Physics | 4110 | 6044 | 4159 | 6460 | 635 |
| Annual Reviews | 916 | 8948 | 2271 | 1519 | 547 |
| APS | 4173 | 9301 | 8433 | 4340 | 1668 |
| Cambridge Univ Press | 766 | 3167 | 1903 | 641 | 331 |
| Institute of Physics | 4844 | 12675 | 9862 | 6728 | 1483 |
| Oxford University Press | 9948 | 33613 | 7674 | 3400 | 4508 |
| Project Muse | 778 | 6842 | 692 | 352 | 332 |
| Royal Society of Chemistry | 44773 | 42772 | 29712 | 10223 | 4732 |
| Springer Link | 60838 | 105288 | 65455 | 43263 | 27873 |
| Taylor & Francis | 26950 | 36477 | 17864 | 13938 | 19785 |
| Emerald Publishing | 0 | 3209 | 3661 | 288 | 8852 |
| JSTOR | 0 | 117320 | 15910 | 9052 | 16782 |
| Wiley-Blackwell | 0 | 78666 | 24817 | 26165 | 8764 |
| Nature | 3289 | 48097 | 6645 | 2017 | 0 |
| ScienceDirect | 285760 | 485193 | 312093 | 182602 | 0 |

**Table 1. No. of downloaded articles by the universities of Gujarat**

The above table 1 shows the publisher wise usage from E-Shodh Sindhu Consortium by universities of Gujarat. It reveals that the usage of Science Direct is remarkable in universities except SU as the university has not subscribed this resource. The number of downloads of Science Direct are in MSU (4, 85,193); GU (2, 85,760); SPU (3, 12,093) and SU (1, 82,602).

## 8. Impact of e-resources on Research output

Consortium has changed drastically the access of scholarly information in form of e-resources to all without any prejudice. Availabity of E-resources have played major role in increase in research output globally. According to the study of Web of Science and Scopus, research output has been increasing tremendously in India.

### 8.1 Research output of Universities of Gujarat

The below table 2 depicts the number of publications and their citations from the Web of Science database of the universities of Gujarat during the period 2012 to 2017. It shows that MSU has published maximum publication and followed by SPU and GU. It is observed that impact on their research output after using scholarly e-resources from E-Shodh Sindhu Consortium. According to Web of Science database during the period

2012 to 2017, MSU has published highest number of publication 2,004 and their number of citations were 19,454 ; followed by SPU has published 1,017 publications and 10,361 citations received, then GU's total number citations were 7,255 received by 797 publications. The number of publications of SU were 618 and 4,868 citations received in block years 2012-2017 whereas VNSGU 2,555 citations were received by 321 publication.

**Table 2. Research publications and citations of the universities from WOS**

| Name of Uni. | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pub | Cit | Pub | Cit | Pub | Cit | Pub | Cit | Pub | Cit | Pub | Cit | Pub | Cit |
| GU | 102 | 1522 | 112 | 964 | 129 | 1634 | 111 | 815 | 169 | 1315 | 174 | 1005 | 797 | 7255 |
| MSU | 317 | 4212 | 337 | 4318 | 339 | 4068 | 336 | 2704 | 336 | 2297 | 339 | 1855 | 2004 | 19454 |
| SU | 64 | 993 | 94 | 1084 | 112 | 830 | 132 | 1018 | 106 | 442 | 110 | 501 | 618 | 4868 |
| VNSGU | 69 | 851 | 62 | 430 | 40 | 305 | 45 | 386 | 60 | 339 | 45 | 244 | 321 | 2555 |
| SPU | 177 | 2178 | 211 | 1910 | 178 | 2209 | 134 | 1803 | 163 | 1130 | 154 | 1131 | 1017 | 10361 |

**Table 3. Research publications and citations of the universities from Scopus**

| Name of Uni. | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pub | Cit | Pub | Cit | Pub | Cit | Pub | Cit | Pub | Cit | Pub | Cit | Pub | Cit |
| GU | 127 | 1806 | 124 | 1047 | 147 | 1875 | 136 | 1092 | 177 | 1443 | 192 | 1062 | 903 | 8325 |
| MSU | 379 | 4737 | 360 | 4690 | 322 | 4368 | 333 | 3027 | 314 | 2490 | 304 | 2028 | 2012 | 21340 |
| SU | 103 | 1267 | 109 | 1248 | 143 | 1042 | 135 | 1136 | 114 | 538 | 119 | 580 | 723 | 5811 |
| VNSGU | 78 | 945 | 65 | 459 | 42 | 357 | 50 | 423 | 65 | 399 | 47 | 307 | 347 | 2890 |
| SPU | 176 | 2409 | 235 | 2303 | 190 | 2274 | 152 | 2058 | 168 | 1451 | 161 | 1258 | 1082 | 11753 |

The table 3 depicts the number of publications from the Scopus database of the universities of Gujarat during the period 2012 to 2017. It also shows that MSU has published maximum publication and followed by SPU and GU like in Web of science database, but the number of publications are different. In Scopus database, during the period 2012 to 2017, MSU occupies the first position. Its number of citations were 21,340 received by 2,012 publications. SPU has published 1082 publications and its citation were 11,753; whereas GU has published 903 publications and 8,325 citations were received. The total number of citations 5,811 of SU obtained by 723 publications, whereas VNSGU 2,890 citations were received by 347 publications.

**Figure 2** depicts that the total number of publications in Web of Science and Scopus by universities of Gujarat during the period 2012 to 2017. It is shows that the number of publications in Scopus is higher than the number of publications in Web of Science.

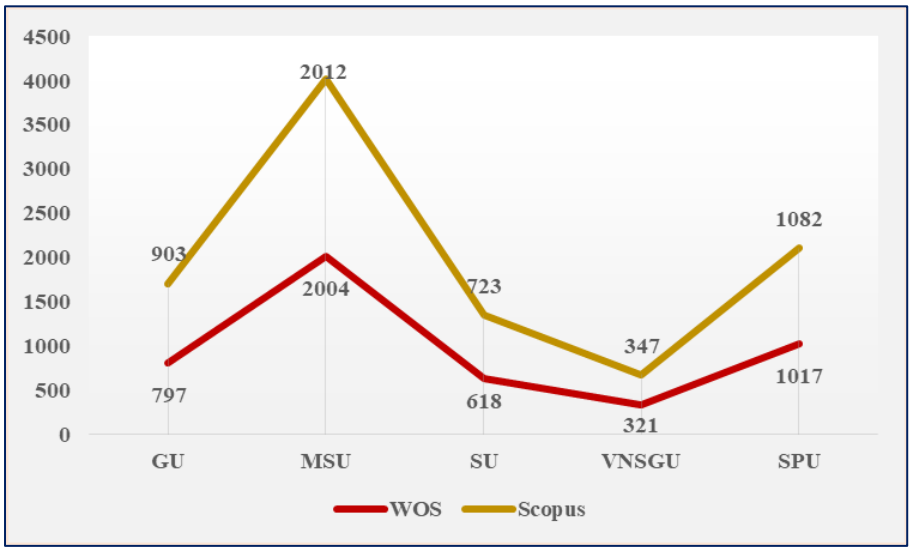


**Figure 2. Year wise growth of universities in publications of WOS and Scopus**

### 8.2 Annual Growth Report in Universities of Gujarat

As per the publications of the universities which are published in Web of Science database during the period 2012 - 2017, the annual growth rate has been counted for each year. Table 4 depicts the average growth rate and annual average growth rate of each universities. Maximum number of AAGR is of Saurashtra University (13.59%); followed by Gujarat University (13.25%) and Maharaja Sayajirao University (1.38%). The AAGR has been decreased of Sardar Patel University and Veer Narmad South Gujarat University is (-1.01%) and (-4.96%) respectively. The reason behind the fluctuation is that there is no stable growth of publications every year.

| Name of University | AGR (%) | | | | | AAGR |
|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | |
| Gujarat University | 9.80% | 15.18% | -13.95% | 52.25% | 2.96% | 13.25% |
| Maharaja Sayajirao University | 6.31% | 0.59% | -0.88% | 0.00% | 0.89% | 1.38% |
| Saurashtra University | 46.88% | 19.15% | 17.86% | -19.70% | 3.77% | 13.59% |
| Veer Narmad South Gujarat University | -10.14% | -35.48% | 12.50% | 33.33% | -25.00% | -4.96% |
| Sardar Patel University | 19.21% | -15.64% | -24.72% | 21.64% | -5.52% | -1.01% |

**Table 4. Year wise Annual Growth Report in Universities of Gujarat from Web of Science**

Table 5 depicts the average growth rate and annual average growth rate of each universities of publications which are published in Scopus Database. Maximum number of AAGR is of Gujarat University (9.46%); followed by Saurashtra University (4.05%) and Sardar University (0.15%). The AAGR has been decreased of Maharaja Sayajirao University and Veer Narmad South Gujarat University is (-4.21%) and (-6.14%) respectively.

| Name of University | AGR (%) | | | | | AAGR |
|---|---|---|---|---|---|---|
| | 2013 | 2014 | 2015 | 2016 | 2017 | |
| Gujarat University | -2.36% | 18.55% | -7.48% | 30.15% | 8.47% | 9.46% |
| Maharaja Sayajirao University | -5.01% | -10.56% | 3.42% | -5.71% | -3.18% | -4.21% |
| Saurashtra University | 5.83% | 31.19% | -5.59% | -15.56% | 4.39% | 4.05% |
| Veer Narmad South Gujarat University | -16.67% | -35.38% | 19.05% | 30.00% | -27.69% | -6.14% |
| Sardar Patel University | 33.52% | -19.15% | -20.00% | 10.53% | -4.17% | 0.15% |

**Table 5. Year wise Annual Growth Report in Universities of Gujarat from Scopus**

The average annual growth rate of Web of Science and Scopus as per the publications of the universities of Gujarat have been visualized in the below figure 3.

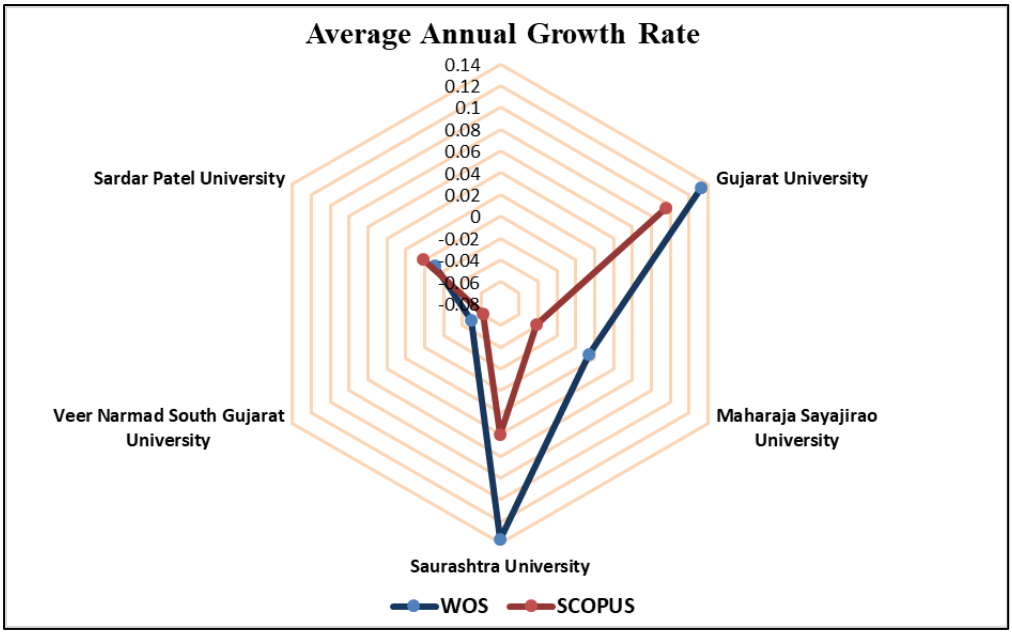


**Figure 3. Average Annual Growth Rate of WOS and Scopus**

## 8.3 Universities Publications in Scopus vs. Web of Science databases

The below figure 4 depicts the difference of publications in between the web of science and Scopus databases. It shows that SU has published 17% more publications in Scopus than WOS. Likewise GU 13%; VNSGU 8%; SPU 6% published more in Scopus than Web of Science. There is no change in Maharaja Sayajirao University's publication in both database as the result shows 0 in figure 4, but the publications of the universities in both the database are higher than other universities. It can be say that the reason is observed behind this difference is that the number of journals are highest in Scopus.

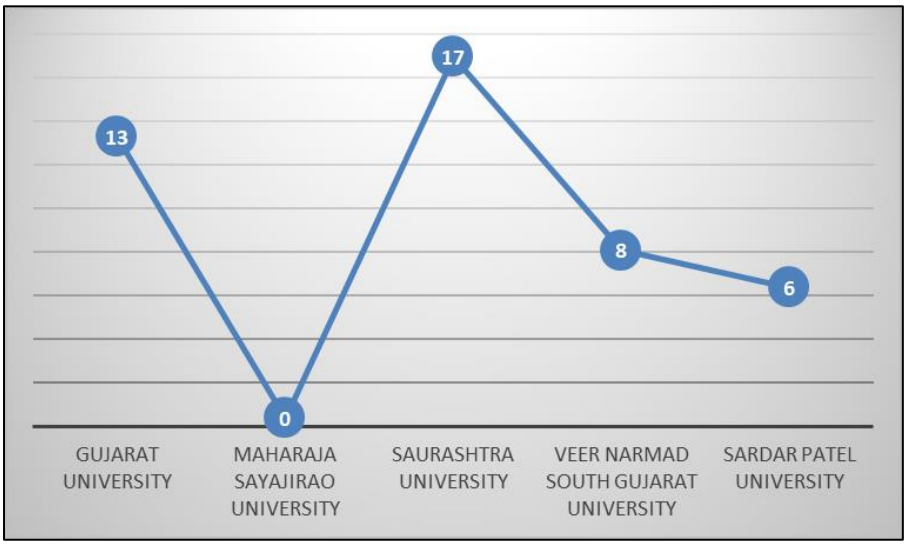


**Figure 4. Difference in publications of WOS and Scopus**

## Conclusion

This study refers that most of the universities and institutions are subscribing the e-resources from E-Shodh Sindhu for the betterment of their research students and faculty members to use it and improve their research output. It is also observed that subscribing Library Consortiums or any e-resources helps in research work. Access to print resources as well as electronic resources is associated to obtain a qualitative variation to research, learning, R&D activities of a university/institute. University Librarians should have to take initiatives to increase usage through conducting sessions in library for how to use e-resources and demonstrate resources to students as well as faculty members and take interest to know students interested subject areas and their research work. According to that, library professional should help and provide necessary training to explore e-resources and if needed articles are not available in e-Shodh Sindhu then try to get the article from ILL Centres which are available through J-GATE Plus. Library Professionals have to organize user awareness programs regularly intervals and guide to students for using user guides of publishers databases to get required articles in a short time. A good substructure is an encouraging element for the maximum use of e-resources.

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