Evaluating Online Visibility of Library and Information Science Academia in Central Universities of North-East India: A Scientometric Study based on Google Scholar

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Abstract

The study analyses online visibility of LIS Academia of central universities of North-East India based on Google Scholar. The study included all the LIS faculties of five central universities. The study found 559 research publications and 790 citations through Google Scholar. The study measured the online visibility in terms of university-wise and faculty-wise publications and citations, year-wise growth, authorship and collaboration pattern, co-authorship pattern and strength. The study found that AUS and MZU are leading among other central universities in terms of various scientometricaspects. Individual faculty performances have been instrumental to increase the growth of the institutions in terms of publications and citations. Further faculty members have been suggested to publish quality research for increasing online visibility at the individual level as well as institutional level.

Keywords: LIS Research, Research Performance, Scientometric Analysis, North-East India, Google Scholar, Research Collaboration, Co-authorship, Degree of Collaboration

1. Introduction

Generally, for ranking of higher education institutions including universities, one of the parameter is on the basis of the quality of research work or online visibility of its individual faculty members.There is a direct relationship between faculty's quantitative as well as qualitative research performance and prestige of the university or its departments. A scientometric study offers insight into the dynamics of the subject area under study that may help to formulate science policy (Aswathy & Gopikuttan, 2013). Scientometric indicators help to determine the progress and achievements of the academician from publication perspectives.

Google Inc. provides a scholarly search engine named as Google Scholar which is a freely accessible. It indexes the full-text of scholarly literature across the world. Google Scholar algorithm calculates automatically the citations, h-index, and i10-index of research publications available online. More the qualitative research will have more citations and higher h-index as well as i10-index which increases the reputation of the researcher among peers individually and institution as a whole. The study measured research performance of LIS faculties belongs to central universities of North-East India. There are total 26 LIS faculties from 5 LIS Departments. Department wise list of faculty members is available as supplementary material to this paper.

2. Review of Related Literature

Noruzi (2005) analyzed the advantages of GS(Google Scholar)and found that it serves as a good complement to the commercial database in sense of citation indexing and multidisciplinary coverage which may help to study the epidemiology of knowledge and basis for bibliometric studies. Neuhaus et al. (2006) analyzed GS strength in coverage of science and medical database, open access databases and single publisher database while weakness in lack of coverage in social science & humanities databases. Meho & Yang (2007) examined 25 LIS faculty based on citation counts in WoS, Scopus, and GS and found GS indexed the wide variety of document type and its coverage is more for conference proceedings, non-English language journals. Harzing & van der Wal (2008) suggested GS as a new source of citation analysis and additional advantages over journal impact factor. Harzing (2014) analyzed Google Scholar for 20 Nobelists in Chemistry, Physics, Medicine & Economics by tracking their h-index, g-index & total citations on monthly basis for one year and found that GS coverage increasing at a stable rate which proves its suitability for research evaluation and bibliometric study. Pratheepan & Weerasooriya (2016) analyzed publication output and impact of various faculties andalso accepted the fact that at present Google Scholar is a suitable data source for scientometric study than it has been in the past.Yazit& Zainab (2007) studied that highly productive LIS authors contributed most of the publication and their affiliation institution are more active and productive in nature also journal article publication is most important for increasing visibility for authors.Wilson et al. (2012) surveyed research productivity and visibility of Australian LIS educators and observed less than 5% of senior educators produced over one–quarter of journals and nearly one–third of educators authored no articles, most of the articles were singled authored but multiple authorship has increased over time also nearly 50% of articles published in Australian National Journals. Jabeen et al. (2015) analyzed research productivity of library scholars and found significant growth rate in publication & journal article is preferred publication type.

3. Scope and Limitations of the Study

The study is limited to scientometric research performance of LIS faculty members working in central universities of North-East India by using Google Scholar as the data source. In North-East India, there are 10 central universities out of which 5 central universities have LIS departments. All the faculty members have been included in the study except two whose details are not available in any form.

4. Objectives/ Criteria of the Study

For measuring the research performance of LIS faculty members, the study covers the following criteria:

❖ University-wise publications and citations;

❖ Faculty-wise publications and citations;

❖ Faculty-wise cited and non-cited publications;

❖ Year-wise growth of faculty's publications;

❖ Authorship and collaboration pattern by LIS faculties; and

❖ Co-authorship pattern and strength among LIS faculties.

5. Methodology

The primary data were collected from Google Scholar (GS). Further, faculty members bio-data (if available in university website) used for verification of their publications and year of publications wherever found incorrect. The study discarded non-LIS related publications of faculty members if any. The primary data were collected on 31st May 2018 from Google Scholar in two steps. In the first step, university's website surveyed for collecting the LIS faculties' details; and in the second step, Google Scholar database was utilized for getting the required data for each faculty by their name, profile name or profile ID which further cross verified through institutional affiliation and LIS related publications. Further, primary data collected, tabulated and analyzed using Microsoft Excel(R), Bibexcel & VOSviewer software tools.

6. Result and Analysis

6.1   University-wise Publications and Citations

From the five central universities, there are a total of 559 publications observed through GS out of which majority (40.78%) of the publications contributed by AUS followed by MZU (34.52%). NEHUc ontributed 16.81% publications while MU (5.72%) and TU (2.14%) contributed less number of publications.

There are total 790 citations to 559 publications, out of which majority of citations received by AUS (45.06%) followed by MZU (32.27%), and NEHU (17.08%). In the terms of Average Citations per Publication (ACPP) AUS has the highest ACPP (1.56) followed by NEHU (1.43), and MZU (1.32). The research publications and its citations for LIS departments as well as faculties of five central

universities have been calculated from the year of establishment of LIS departments to 31st May 2018. Based on the establishment year of the LIS departments, it has been observed that NEHU (1985) has the oldest LIS department followed by MU (1986). Rest of the LIS departments have been established in the 21st century among which MZU (2002) was the first department after that AUS (2009) and most recently TU established the LIS department in the year 2016.

It is a general trend that older department should produce more than newer but in the case of LIS departments of North-East India, it is almost reverse case. AUS has only 3 faculty members listed in GS but produced the highest number of research publications while MZU has 8 faculty members listed in GS as well as older than AUS but comparatively produced less than AUS and ranked in 2nd position in terms of the number of publications and number of citations. NEHU has the oldest LIS department but comparatively produced fewer research publications and citations than AUS and MZU, and thus ranked 3rd in terms of the number of publications as well as citations while stands 2nd in average citations per publication. MU has the 2nd oldest LIS department but comparatively research performance is very less than AUS and MZU. As per GS data, MU could produce 32 research publications and 33 citations. The newly established LIS department of TU has 3 faculty members with 12 research publications and 11 citations during the period of study which is better in the position of research than MU. More than 75% publications and 77% citations have been shared by AUS and MZU.

6.2   Faculty-wise Publications and Citations

As per available data,faculty-wise publications and their citations along with average citations per publication.Based on GS data, M. K. Sinha has produced the highest number of publications (208) amongst LIS faculties who is alone shared 37.2% of total LIS research publications followed by M. K. Verma (91, 16.27%), Akhandanand Shukla (53, 9.48%), P. Hangsing (39, 6.97%), and Bikika Laloo (21, 3.75%). There are 11 faculty members who produced more or equal to 10 research publications each and contributing 487 research publications (87%) while rest of the 13 faculty members produced 72 research publications which are 13% of total publications during the period. The top five faculty members produced 412 research publications which are 73.67% of total research publications. Citations of published work act as an indicator to determine the usage and quality of publication which helps to rank the most influential author of a particular subject area. In this context, the maximum citations received by M. K. Sinha (328) which is the highest share of citations (41.51%) out of all citations followed by M. K. Verma (77, 9.74%), S. N. Singh (67, 8.48%), Bikika Laloo (51, 6.45%), S. Ravikumar (51, 6.45%), and Akhandanand Shukla (38, 4.81%). There are 11 faculty members who received 726 citations (91.85% of total citations) while rest of the 13 faculty members have received 64 citations (8.15%). The top five faculty members, in terms of citations, shared 612 citations which are more than 77% of total citations received during the period.

The ACPP (Average Citation Per Publication) determines the number of times publication cited by the scientific community. Generally, if ACPP<1 means that the number of publications less than citations, and if ACPP>1 means that a higher number of citations than publication. The ACPP has been found the highest for S. N. Singh (7.44) followed by S. Ravikumar (4.63), K. Sangeeta Devi (2.5), and R. N. Mishra (2.5). The ACPP is found >1 for 13 faculties while <1 for 11 faculties. It is interesting to know that with less number of research publications, S. N. Singh has the highest ACPP while the top five faculties are far behind. It should also be noted that self-citations are also included in the citations data received from the GS during the period.

6.3 Faculty-wise Cited and Non-cited Publications

The cited publications have been properly quoted by the scholars in their scholarly research at least once while non-cited publications have not been quoted till now and are waiting to be cited by the scholars data reveals that 150 publications (26.83%) are cited publications while 409 publications are non-cited (73.17%). Majority of the publications by LIS faculty members are non-cited. The highest number of cited publications found for M. K. Sinha (55) followed by M. K. Verma (27), Akhandanand Shukla (9), P. Hangsing (6) and Mukut Sarmah, R. N. Mishra, Ch. Ibohal Singh (5).

In terms of cited publication's percentage, R.K. Mahapatra & R.K. Ngurtinkhuma (57.14%), bothhave the highest cited the percentage of their publications followed by R.N. Mishra, Ch.Ibohal Singh, Th.Purnima Devi, K. Sangeeta Devi (50% each).The top 3 contributors of LIS publications have less than 30% cited publications. In terms of the number of non-cited publications, the highest publications found for M. K. Sinha (153) followed by M. K. Verma (64), Akhandanand Shukla (44), P. Hangsing (33), and Bikika Laloo (17). The non-cited publications percentage has been found the maximum for J. J. Thabah (100%), Lalngaizuali (100%)

followed by Bobby Phuritsabam (87.5%), Jiarlimon Khongtim (85.71%), P. Hangsing (84.62) and Akhandanand Shukla (83.02%).

6.4   Year-wise Growth of Faculty's Publications

As per analysed data regarding year-wise growth of faculty's publications. It is evident that Google Scholar indexed the first article in the year 1991 for LIS faculties of central universities of North-East India. Thus the coverage of GS ranges from 1991 to 2018 for the study. There are 559 research publications indexed in GS, out of which 36 publications do not have publication year. Since we have 28 years of publication data retrieved from Google Scholar, it was grouped into five years of span starting from 1991.

From the data , it is evident that 3 publications during 1991-1995 and 6 publications during 1996-2000 time periods. During 1991-1995, three faculty members (M. M. Naga, Pravakar Rath, and Th. Madhuri Devi) published 3 publications who were working in the field since long and senior in their departments. Similarly, 6 publications have been published during 1996-2000 by the two senior LIS faculties namely M. K. Sinha and Pravakar Rath. Further, 34 publications came out during the 2001-2005 by various LIS faculties out of which M. K. Sinha contributed 50% of the publications. During 2006-2010, 102 publications have been published by LIS faculties and the tremendous growth, in terms of publications, has been observed during 2011-2015 (253 publications, 45.26%of total publications). During 2016-2018, there are 125 publications recorded which is 22.36% of the total publications.
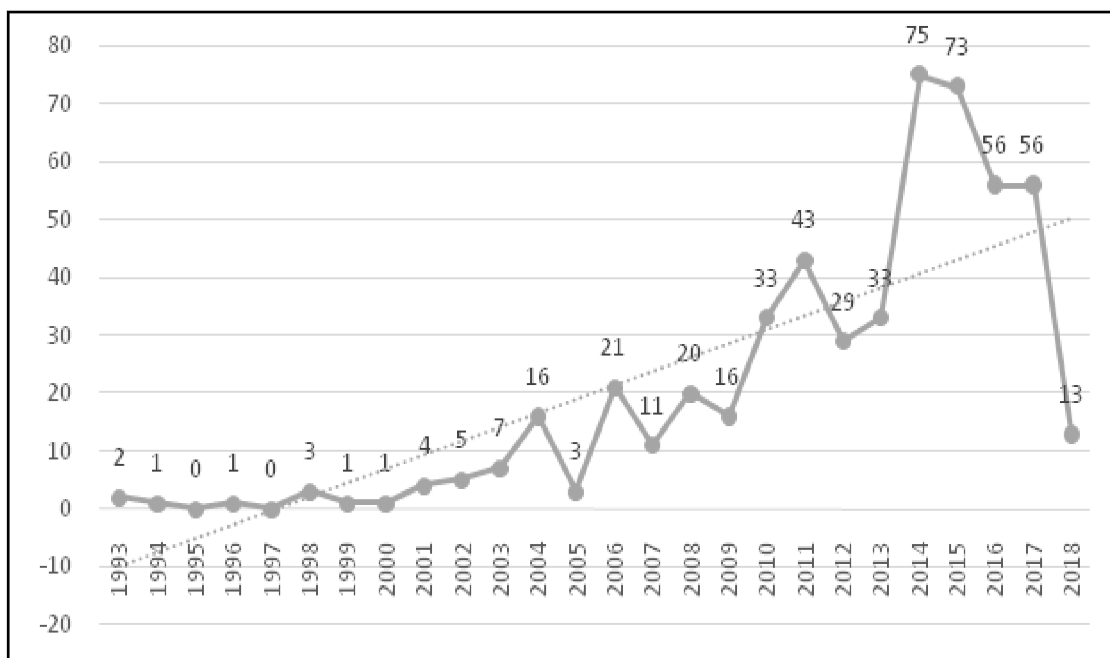

Fig. 1: Year-wise growth of publications (with Linear Trendline)

Data also revealed that the maximum publications published during the period of 2011-2015 followed by 2016-2018 and 2006-2010. The continuous growth has been observed in the number of publications during the study period. The significant increase in the number of publications has been observed since the 2001-2005 period and still continues. M. K. Sinha has the highest number of publications during 2001-2005. During 2006-2010, M. K. Sinha has the highest number of publications followed by Bikika Laloo, P. Hangsing, and Akhandanand Shukla. During 2011-2015, the highest number of publications has been observed; during this period M. K. Sinha has the highest number of publications (119) followed by M. K. Verma (41), Akhandanand Shukla (25), P. Hangsing (18), and Amit Kumar (10). During the current period i.e. 2016-2018, M. K. Verma has the highest number of publications (44) followed by M. K. Sinha (29), Akhandanand Shukla (20), P. Hangsing (7), and S. Ravikumar (7). There are some publications which are missing the year of publication. Fig. 1 clearly depicts the growth trend of publications by LIS faculties during the period.

6.5   Authorship & Collaboration Pattern by LIS Faculties

Authorship pattern determines the number of the author(s) involved in each publication published by them. A publication may be single authored or multiple authored. The degree of collaboration, in research publications, can be measured with the help of the number of single-authored and multi-authored papers by using Subramanyam (1983) formula. On the observation of, it has been found that there were 1056 authors for 559 publications. Out of total publications, 32.9% publications were single authored, 50.44% publications belong to two

authors and 14.49% publications belong to three authors. All together 67.08% publications (375) belong to multi-authors.

From the analysis it is evident that multiple authorship patterns are prevalent than single authorship pattern. The degree of collaboration for LIS faculties have been calculated and found that three LIS faculties (Th. Purnima Devi, N. C. Dey, and Lalngaizauli) have 1 degree of collaboration which denotes 100% collaboration in publications. The average degree of collaboration for all LIS faculties is 0.67. The least degree of collaboration found for BikikaLaloo (0.28). The degree of collaboration value equal to or more than 0.5 denotes good collaboration and vice-versa. Majority of LIS faculties (21) have the significantly higher number of collaborative publications which denotes collaborative trends in research publications among LIS faculties.

6.6   Co-authorship Pattern and Strength among LIS Faculties

Co-authorship in the scholarly publication is a common trend followed by the researchers for their mutual benefit as well as for producing quality research. Co-authorship pattern exists maximum in the common area of research interest among the researchers belongs to the same institution and country or beyond the institution and country. Figure as shown in supplementary material represents the co-authorship pattern among LIS faculties along with table which displays the top 20 co-authorship patterns among LIS faculties based. From the study, it has been found that S. Bhattacharjee – M. K. Sinha has the maximum (32) co-authored publications. The majority of co-authorship exists between LIS faculties and research scholars. In the study, co-authorship pattern among LIS faculties has been

found in 49 publications (8.76%) out of 559 publications; the maximum faculties have co-authored publications within the same institutions/ universities; the strong co-authorship among LIS faculties has been found between A. Shukla – M. K. Verma (8) followed by P. Hangsing – M. M. Naga (7) and M. Sarmah – M. K. Sinha (6). The co-authorship pattern across institutions/ universities has been found between S. N. Singh – S. Ravikumar (3) who belongs to MZU and NEHU respectively. The maximum co-authorship pattern among LIS faculties and LIS professionals across institutions/ universities has been found between K. C. Satpathy – M. K. Sinha (11) who belongs to NIT Silchar and AUS respectively.

It has been also found that M. K. Sinha has the strongest co-authorship strength among all LIS faculties followed by M. K. Verma, A. Shukla, and P. Hangsing. LIS faculties belong to MZU have greater co-authorship strength than other central universities. The co-authorship strength for some of the LIS faculties is distributed due non-use of uniform authorship in publication. In this regard, Bikika Laloo had three different author names in her publications like *Tariang, B Laloo; Laloo, BT; and Tariang, BT.*

7. Findings of the Study

a) MZU, NEHU, and MU have been represented fully in Google Scholar. Out of total 559 publications, the majority (40.78%) of the publications contributed by AUS followed by MZU (34.52%). Out of total 790 citations, the majority of citations (45.06%) received by AUS followed by MZU (32.27%).

b) Despite having less number of faculty members, AUS has produced the highest number of research publications. The research performance of LIS departments of central universities is just reverse in terms of establishment year, number of research publications, and the number of citations received. AUS and MZU are leading in terms of the number of research publications and number of citations.

c) M. K. Sinha has produced the highest number of publications (208) which is 37.2% of total LIS research publications followed by M. K. Verma (91, 16.27%) and Akhandanand Shukla (53, 9.48%).M. K. Sinha has received the highest number of citations (328) which is the highest share of citations (41.51%) out of all citations followed by M. K. Verma (77, 9.74%) and S. N. Singh (67, 8.48%).The highest ACPP has been found for S. N. Singh (7.44) followed by S. Ravikumar (4.63), K. Sangeeta Devi (2.5) and R. N. Mishra (2.5).

d) The study found 150 publications (26.83%) as cited publications while the majority of publications (409, 73.17%) were non-cited publications. The highest number of cited publications found for M. K. Sinha (55) followed by M. K. Verma (27) and Akhandanand Shukla (9). R. K. Mahapatra & R. K. Ngurtinkhuma (57.14%) have the highest cited the percentage of their publications followed by R. N. Mishra, Ch. Ibohal Singh, Th. Purnima Devi, K. Sangeeta Devi (50% each), and S. N. Singh (44.44%). The highest non-cited publications found for M. K. Sinha (153) followed by M. K. Verma (64) and Akhandanand Shukla (44). The non-cited publications percentage has been found the

maximum for J. J. Thabah (100%), Lalngaizuali (100%) followed by Bobby Phuritsabam (87.5%) and Jiarlimon Khongtim (85.71%).

e) During the period of 2006-2010, there were 102 publications by LIS faculties. The tremendous growth has been observed in terms of publications during 2011-2015 with 253 publications (45.26%) out of the total. During the period of 2016-2018, there are 125 publications recorded which is 22.36% of the total publications. M. K. Sinha has the highest number of publications during the period of 2001-2015 while during the period of 2016-2018, M. K. Verma has the highest number of publications (44).

f) In terms of collaboration, the majority (50.44%) of publications belong to two authored while 67.08% publications (375) belong to multi-authored. The highest degree of collaboration has been found for three LIS faculties i.e. Th. Purnima Devi, N. C. Dey, and Lalngaizauli. The average degree of collaboration for all LIS faculties was 0.67.

g) From the study, it has been found that S. Bhattacharjee – M. K. Sinha has the maximum (32) co-authored publications. The co-authorship pattern among LIS faculties has been found in 49 publications (8.76%). The strongest co-authorship among LIS faculties has been found between A. Shukla – M. K. Verma (8). The maximum co-authorship pattern across institutions has been found between S. N. Singh – S. Ravikumar (3). The maximum co-authorship pattern among LIS faculties and LIS professionals across institutions has been found between K. C. Satpathy – M. K. Sinha (11).

h) M. K. Sinha has the strongest co-authorship strength followed by M. K. Verma, A. Shukla, and P. Hangsing. LIS faculties belong to MZU have greater co-authorship strength than other central universities.

8. Discussion and Conclusion

The purpose of the research was to study the online visibility through scientometric approaches and does not include any intention to highlight or demoralize the LIS faculties of the North-East region and doesn't have any specific intention to boast the achievements of LIS departments. The study concentrated upon online visibility of LIS academia of central universities of North-East India through Google Scholar. The study covered the research publications available online without restriction of time and form of the document. Further study includes all the publications of LIS faculties before joining the department or when they were serving in the previous organization.

The scientometric analysis gives insight into science policy making for individual institutions, an individual person as well as the country as a whole also. The comparative online visibility of faculty members in particular field draws the strengths and weaknesses of the faculties and motivates to grow in the weak areas while provides an opportunity to excel in strong areas. Google Scholar maintains the bibliographic records of online research publications across the academic disciplines. Though Google Scholar does not reflect complete publication and citation records of any researcher, whatever it displays is sufficient enough to observe the online visibility. The study also established that faculties having qualitative publications will receive higher citations. The number of publications does not attract

citations which were observed with the publications of many faculties. It has been also observed that some university is increasing fast while others are not and similar case found with faculties also at the individual level. Overall, we may conclude that the online visibility of LIS faculties based on Google Scholar is not uniform and not satisfactory. The experienced faculties should concentrate more on qualitative research than quantitative. The qualitative research can increase the online visibility of faculty as well as the institution. Department level as well as university level, uniform, and strong science development policy should be framed for attracting better online visibility.

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Note:

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