



Indian Research Trends in Digital Humanities: an Analysis

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Abstract: *The goal of this study is to identify research trends in India's "Digital Humanities" field. For this study, every kind of Indian research output that has been published and is indexed in the Scopus database has been taken into account. The current quantitative analysis examines a variety of publication-related factors, including growth by year, author patterns, level of collaboration, publication source, subject, and citation, among others. The study examines 35 research projects using a variety of criteria, concluding that interest in digital humanities research is growing in India. The study's conclusions show that the trend of high-quality source journals for research is expanding.*

Keywords: *Digital Humanities, Research Trends, Literature Growth, India.*

1. INTRODUCTION

The ability to peruse numerous digital texts instead of just one book 'on paper' is one of the keystones of the digital humanities field, which was founded to address the enormous volume of cultural heritage data—text being the primary data type—that needs to be handled in the modern era. The creation of standards for representing cultural heritage data, such as the Text Encoding Initiative (TEI) for texts, and for gathering, digitizing, and distributing data was the main goal of the digital humanities movement in the 1980s. Unlike conventional techniques, digital humanities enable the formulation of novel research inquiries on cultural heritage datasets. The way we conduct research is evolving throughout the universe, and more and more research techniques are being mediated towards digital technologies which is affecting the epistemologies and ontologists' in this process of change.

In the realm of research activities, digital humanities endeavour to consider the malleability of digital forms and how they suggest a novel approach to thinking through mediation and representation—a concept that may be referred to as the digital folding of archives and memory. This entailed using computers to support humanities disciplines, which has been defined as viewing "the efficiency of the machine as a servant" as opposed to "its participant



enabling of criticism" (McCarty, 2010). The important thing to remember is that a computing device cannot process a cultural object if discrete encoding is not possible. The history of the digital humanities itself is quite fascinating. Initially referred to as "humanities computing" or "computing in the humanities," these projects were frequently viewed as technical supports for the work of "real" humanities academics. According to Hayles, the field's transition from the low-status of a support service to that of a legitimately intellectual pursuit with its own professional practices, strict standards, and fascinating theoretical explorations was intended to be signaled by adopting the title "Digital Humanities." Hayles (2011). Paradoxically, as the projects grew larger and more intricate, computational technology turned into a prerequisite that was necessary to consider a great deal of the contemporary humanities' open-ended problems.

In this whole process of knowledge production and dissemination in the field of DH libraries, institutional repositories, documentation centres are playing a vital role in the further development of research activities and its ongoing trend. A library serves as a central point for teaching, learning and research and is expected to provide benchmark information resources. Libraries are utilising technology to enhance the way they maintain academic materials in order to expedite and expand access to materials that are not stored locally.

Publications on research have emerged as important pillars in the field of research trends in the modern world. In this study, 35 research works that have been indexed in the Scopus database are quantitatively studied and analyzed using various bibliographic Criteria.

Objectives:

The primary goals of this research are to:

- Track the development of Indian literature in the field of digital humanities.
- To look at productivity, authorship patterns, and degree of collaboration (DC).
- To learn more about the kinds of publications related to the field of digital humanities.
- To draw attention to these publications' length and source.

Review of Related Literature:

A number of studies have been conducted throughout India on the Research Trends on Digital Humanities in India.

Holm Poul, Jarrick Arne, and Scott Dominic (2015) carried out their research for the Humanities World Report 2015 and shown that digital humanists are interested in a wide range of subjects. They also highlighted five main research areas: Digital collections, archiving and text encoding; Reading and analysing electronic texts; Geospatial and critical discursive mapping technologies; 'Big Data,' social computing, crowd sourcing, and networking; 3D immersive visualisation environments.

Paul P. Kr., Karn Bhaskar, Chatterjee Dipak, and E. Poovammal (2014) discuss social software engineering in the International Journal of Social Science, outlining its fundamental features and attributes as well as illuminating a few technologies and products that support the advancement of digital humanities and the use of digital products.



Sacco Kathleen L., Richmond Scott S.2, Parme Sara M., and Wilkes F. Kerrie (2015) outline the practical aspects of DH scholarship through the establishment and maintenance of Digital Humanities Initiatives in India in their book Supporting Digital Humanities for knowledge acquisition in Modern Libraries.

In a case study of DH, Paul K.Prantosh, Aithal S.P, Bhuimali A., Raj Krishna (2017), points out NTIA (National Telecommunication and Information Administration) as the promoter of Digital Humanities and Social Science.

The study's scope and coverage include all research publications on "Digital humanities" that have been published in India and are listed in the Scopus database. This study includes 35 research articles that were released between December 2017 and 2009.

Technique Employed: A search strategy using the Scopus database was used to find all research publications on "Digital Humanities." Thirty-five research publications published in India were highlighted in the collected findings. Subsequently, every publication was evaluated to gather bibliographic information such as the year of release, authorship structure, kind of publishing, etc. One option for verifying the papers' cited status is to use Google Scholar. Following the collection, archiving, organisation, and separate presentation of the raw data in MS-Excel, tabulation, analysis, and interpretation were performed.

Data Analysis and Findings:

Table 1: Year wise growth of publication:

Year	No of papers	Percentage	Cumulative growth	Log _e 1 ^P	Log _e 2 ^P	[R (P)]
2015	1	2.86	1	---	0	
2016	1	2.86	2	0	0.69	0.69
2017	0	0	2	0.69	0.69	0
2018	2	5.72	4	0.69	1.39	0.7
2019	1	2.86	5	1.39	1.61	0.22
2020	4	11.43	9	1.61	2.20	0.59
2021	6	17.14	15	2.20	2.71	0.51
2022	12	34.28	27	2.71	3.30	0.51
2023	8	22.86	35	3.30	3.56	0.26
Total	35	100	-	-	-	-

The distribution and growth of publications in the subject of digital humanities by year are shown in Table 1. Just 35 research publications from 2015 to 2023 were found by the survey. The table makes it evident that the growth rate during the era was not very high. The slow rise of publications is indicated by the relative growth rate. The relative growth rate (RGR) means the increase in a number of publications/Pages per unit of time. The equation of relative growth rate (RGR) discussed as: $R(P) = \frac{\log_e 2P - \log_e 1P}{2^T - 1^T}$

Here R (P) = Relative Growth Rate of articles over the specific period of time



$\text{Log}_e 1P$ = Log of Initial number of articles

$\text{Log}_e 2P$ = Log of final number of articles

$2^T - 1^T$ = The unit difference between the initial and the final times

Table 2: Authorship Pattern:

Authorship pattern	Number of Papers	Percentage
One	11	31.42
Two	13	37.14
Three	7	20
Four	2	5.72
Five	1	2.86
More than Five	1	2.86
Total	35	100

The authorship pattern of these publications is displayed in Table 2, with the majority of the papers being co-authored. Additionally, a sizable portion of papers (about 32%) follow the pattern of single authorship. The pattern of joint authorship in the publications demonstrates collaborative research in the digital humanities.

Table 3: Degree of Collaboration (DC):

Year	Single Author Paper (Ns)	Multi Author Paper (Nm)	Total	Degree of Collaboration
2015	1	0	1	0
2016	1	0	1	0
2017	0	0	0	0
2018	0	2	2	1
2019	1	0	1	0
2020	2	2	4	0.5
2021	2	4	6	0.67
2022	2	10	12	0.83
2023	2	6	8	0.75
Total	11	24	35	0.69

Table 3 displays the level of collaboration by year. The authors' pattern of collaborative authorship when publishing articles is shown by the degree of participation. The average DC in the field of digital humanities is 0.69, indicating a small majority of joint authors. The following formula can be used to calculate the degree of collaboration: $(DC) = Nm / (Nm + Ns)$, where Nm and Ns are the number of multi-authored and single-authored works, respectively.

Table 4: Author Productivity:

Year	No of Papers	No of Authors	Average Author Per Paper	Productivity per Author
2015	1	1	1	1



2016	1	1	1	1
2017	0	0	0	0
2018	2	5	2.5	0.4
2019	1	1	1	1
2020	4	8	2	0.5
2021	6	12	2	0.5
2022	12	27	2.25	0.44
2023	8	22	2.75	0.36
Total	35	77	2.2	0.45

The productivity of the author is shown in Table 4. The quantity of papers an author publishes in a specific amount of time is known as author productivity. These 35 research publications have been contributed to by 77 authors in total, with an average authorship of 2.2 per paper and productivity of 0.45 per author. The following is a discussion of the author productivity mathematical formula:

Productivity per Author = (No of Papers)/(No of Authors) and Average Author per Paper = (No of Authors)/(No of Papers). Here the trend of productivity of the authors is found to be discontinuous with respect to different periods of time.

Table 5: Type of Publications

Type of publications	Number of papers	Percentage
Article	15	42.86
Conference paper	12	34.29
Book chapter	6	17.13
Book	1	2.86
Review	1	2.86
Total	35	100

Table 5 shows the distribution of publications according their type of publications. Results indicate that maximum numbers of papers were published as primary research work, i.e. journal article (43%) and conference paper (35%). Beside that 6 book chapters, one book and one book review were found as publication type.

Table 6: Citation status

Year	No of Papers	No of paper cited	Total number of citation
2015	1	1	12
2016	1	1	2
2017	0	0	0
2018	2	2	8
2019	1	1	2
2020	4	3	15
2021	6	1	1



2022	12	4	4
2023	8	3	18
Total	35	16	62

Table 6 shows the distribution of papers and their cited frequency. Out of 35 papers 16 papers have been cited with 62 total number of citation. This indicates that almost half of the works were cited with good number of citation count.

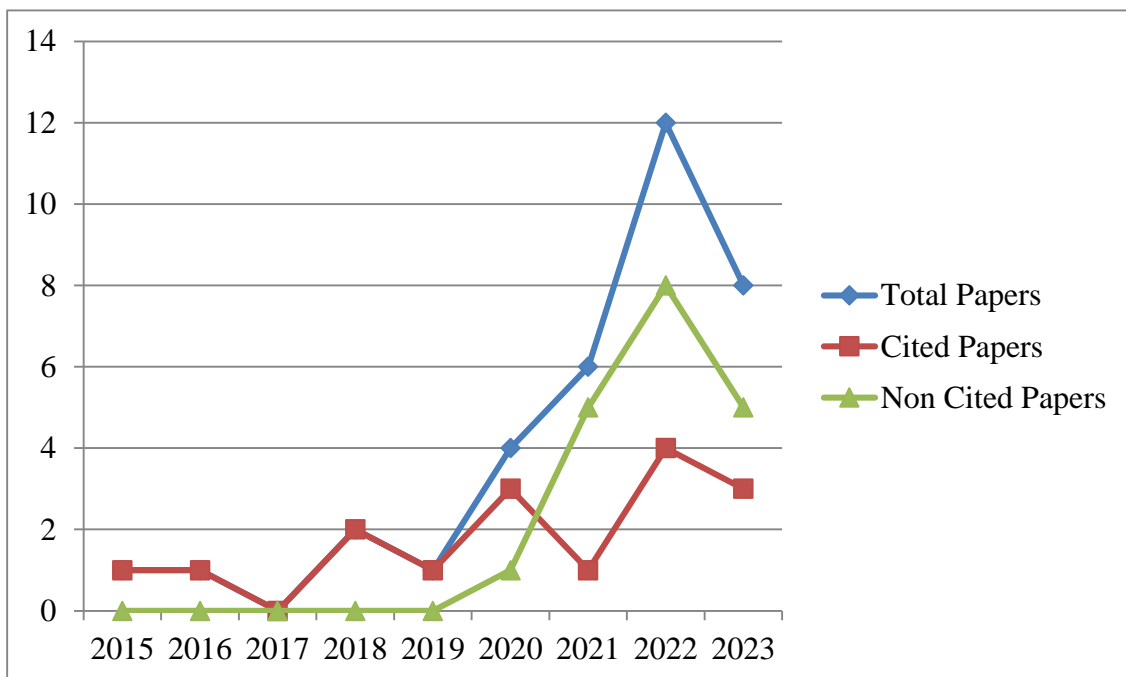


Chart 1: Cited vs. Non Cited papers

Above chart describes the graphical representation of total publications, cited and non cited papers.

Table 7: Length of the Publication:

Number of Pages	Number of papers	Percentage
0 to 10	17	48.57
10 to 20	13	37.14
20 to 30	4	11.43
30 to 40	0	0
40 to 50	0	0
More than 50	1	2.86
Total	35	100

Table number 7 depicts the distribution of length of published papers during these years. Out of the publications maximum papers of 17 in number (49%) have a length between 0 to 10



pages and 13 papers (38%) have 10 to 20 pages. This indicates that the trend of the length of publications is not voluminous enough and is short and precise.

2. CONCLUSION

The study of digital humanities involves a great deal of computational communication as well as fast and efficient access, processing, and visualisation of data. People will increasingly need to transform data and information into useful computational forms in order to comprehend it at all at all levels of society. The DH paper effort as a whole has led to numerous conclusions and avenues for investigation. The first and most important noteworthy aspect is that scholars have shown a great deal of interest in the trend of DH study. The quantitative study showed that trend of research in India is developing gradually and is a continuous process. The study also points out that researches done so far are precise and compact with maximum degree of collaboration. The Research works in the field of DH has been a vital and a major issue of concern as it has already been incorporated in many of the well known publications and famous institutions.

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