

A Visibility Check of Disaster Management ETDs in Shodhganga

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Abstract

Theses and dissertations are the first-hand information sources produced as a result of research. Electronic Theses and Dissertations (ETDs) have played a pivotal role in overcoming accessibility challenges, rendering research innovations a mere finger-touch away. Shodhganga the online repository of Indian theses act as a reservoir of intellectual inputs and they took the initiative to disseminate the invaluable knowledge across the horizon. This has significantly enhanced the visibility of theses and dissertations, and the convenience offered by electronic formats further contributes to their widespread reach. In this high time, it is important to study the visibility of highly specialized areas like disaster management. This study is intended to understand the visibility of disaster management ETDs deposited in Shodhganga, their discipline-wise distribution, influential and productive institutions, influential articles, and authors. Data was obtained from the Shodhganga website from 24th-29th May 2023, Visibility is calculated using Google Scholar, and data analysis is done with the help of MS Excel. The study found that the ETDs growth in the field of disaster management is non-linear with substantial highs and lows. The science and Technology field contributes a lion's share of the ETDs, most influential authors, and most influential and productive institutions are also identified from the study.

Keywords: Disaster Management ETDs, Shodhganga, Visibility

1. Introduction

Theses and dissertations serve as invaluable sources of first-hand information, stemming from rigorous research endeavors aimed at fostering societal development. The funding for this research often comes from public funds, making the dissemination of the outcomes back to the research community a crucial step. In this regard, Shodhganga emerges as an exemplary platform, facilitating the seamless sharing of research outputs with the global research community. Electronic theses and dissertations (ETDs) have played a pivotal role in overcoming accessibility challenges, rendering research innovations a mere finger-touch away. This has significantly enhanced the visibility of theses and dissertations, and the convenience offered by electronic formats further contributes to their widespread reach. Indeed, ETDs have emerged as

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a transformative force in the academic landscape, democratizing access to cutting-edge research findings, and empowering researchers and scholars worldwide.

Theses visibility is the extent to which a thesis can be accessed, and available to the academic community, general public, and other stakeholders. It has a huge role in determining the impact and recognition in the academic community, and it allows authors to gain recognition for their research, potentially leading to collaborations and career opportunities.

Shodhganga is the online repository of Indian theses and dissertations submitted to the Indian universities. It is maintained by the INFLIBNET Center. Shodhganga was initiated as a project under INFLIBNET by a mandate forwarded by UGC in 2009. This mandate mentions the minimum standards and procedures for the award of M.Phil/Ph.D Degree and was amended on 5th May 2016. It mandates the submission of electronic versions of theses and dissertations by researchers in universities intending to facilitate open access to Indian theses and dissertations to the academic community worldwide. Shodhganga has an aim to tackle the serious issue related to repetition and poor visibility of research works. (Shodhganga/ : A Reservoir of Indian Theses @ INFLIBNET, 2023)

The researcher's approach to checking the visibility of articles published from the Shodhganga in the highly specialized area of disaster management is a comprehensive and structured way to understand the research growth, and inter-disciplinary nature of the field, and identify the most cited theses, authors, institutions, and disciplines. The first step involves determining the total number of Ph.D. theses awarded in the area of disaster management from 2010 to 2022. This can be achieved by assessing the Shodhganga database that holds ETDs and filtering the theses based on their subject or discipline and keywords related to disaster management. Since disaster management is an interdisciplinary area, it is important to analyze the distribution of ETDs across various disciplines. This could include fields like Environmental Science, Engineering, Computer Science, Technology, Public Administration, Sociology, Geography, and Arts that contribute to disaster management research. By understanding the interdisciplinary nature of the research, the study can identify different perspectives and approaches taken towards research in this area. To assess article visibility, the researcher can use various methods. One approach is to track citations of the ETDs in academic publications and databases. The number of times each thesis is cited can indicate its impact and influence within the scholarly community. By analyzing the citation data, the study can identify the most cited theses in the area of disaster management. Additionally, the researchers with the highest number of citations can be recognized as influential authors, and the institutions with the most cited theses can be recognized for their contributions to the field. Altogether, by analyzing the citations and their distribution across different disciplines, the study can gain insights into which disciplines are more actively engaging with disaster management research and which areas have the most significant impact on the field. In order to increase visibility, different authors suggest various methods, one among them is depositing the ETDs in open-access institutional repositories (McMillan, 2022). Web search engine optimization acts as another way by which the search engines will index the pdf files of academic articles making them easily accessible

through the internet, thereby increasing the chances of getting cited (Khalil et al. 2018). The fact of being published and getting visibility has become the key factor for academic career growth among young researchers (Kalwij & Smit, 2013).

Overall, this study will provide valuable insights into the growth and impact of research in disaster management, shed light on interdisciplinary collaborations, and recognize the most influential theses, authors, and institutions in the field. The findings can be helpful for academics, policymakers, and practitioners working in disaster management to stay informed about the research trends and influential works.

2. Methodology

Methodological Framework

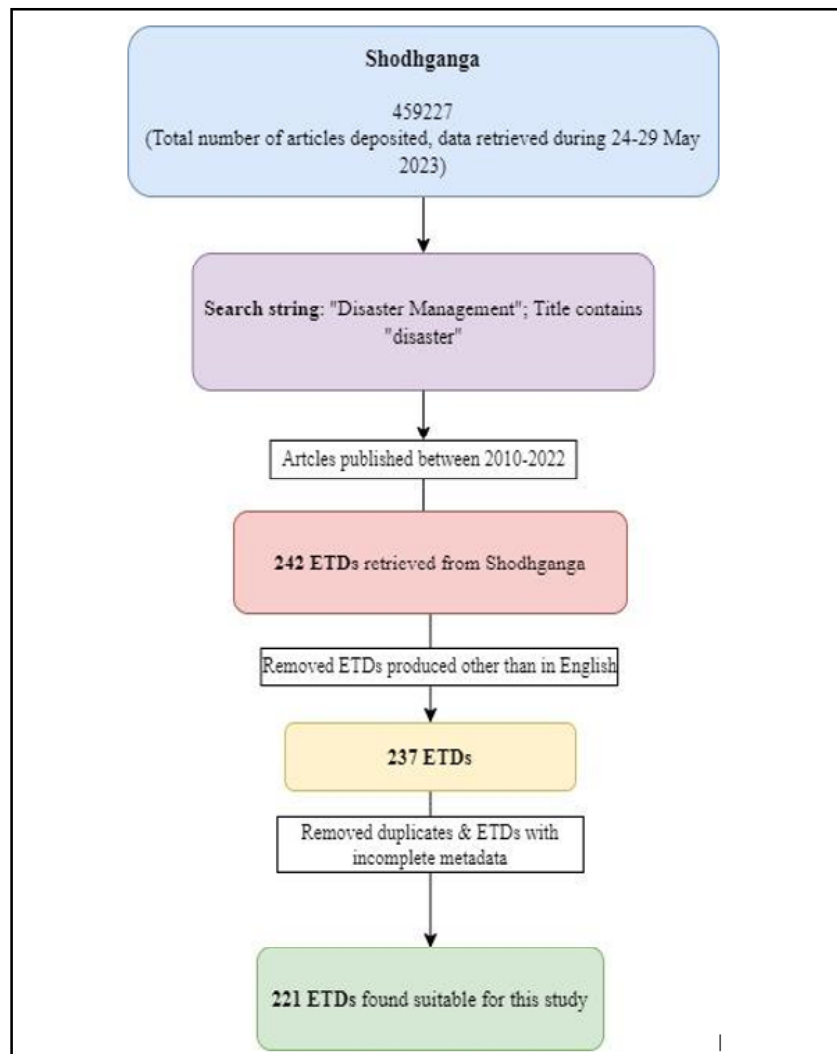


Figure 1: Flow chart of data retrieved from Shodhganga

The researcher's approach to identifying relevant Ph.D. theses in the area of disaster management from Shodhganga, excluding the ones submitted before the mandatory research article publishing criteria in 2009, and conducting a visibility check using Google Scholar is systematic and rigorous. The researcher performed an advanced search on Shodhganga, with the search string "DISASTER MANAGEMENT" in all of Shodhganga, and added the filter "title contains Disaster" to narrow down the search.

To ensure data quality and relevance, certain theses were selectively excluded from the study i.e., theses submitted before the introduction of the mandatory research article publishing criteria in 2009. Theses with incomplete metadata, duplicate records, and those not written in English are also excluded.

After applying the exclusion criteria, the total number of Ph.D. theses analyzed for the study was 221. These theses met the criteria for relevance, completeness, and language. To assess the visibility of theses, the researchers used Google Scholar, a widely used academic search engine that indexes scholarly articles, theses, books, and conference papers. By searching for each thesis on Google Scholar, the researchers collected citation details for further analysis. The citation details were entered into the MS Excel sheet for further analysis. This includes tracking the number of citations for each thesis, identifying the most cited theses, authors, and institutions, and exploring the discipline-wise citations. This methodology demonstrates a well-structured approach to exploring the visibility of articles published from Ph.D. theses in the area of disaster management. The researchers' efforts to filter the relevant theses ensure data accuracy and use of Google Scholar for citation analysis contributes towards the validity and reliability of the findings and interpretation.

3. Objectives

The study is conducted to check the visibility of Disaster Management ETDS deposited in Shodhganga. The specific objectives framed for the study are as follows.

1. To find the total number of Ph.D. theses awarded in the area of disaster management from 2010 to 2022 period
2. To examine the discipline-wise distribution of Ph.D. theses in the area of disaster management
3. To study the visibility of articles on disaster management theses deposited in Shodhganga.

4. Analysis

4.1 Growth of Disaster Management ETDS deposited in Shodhganga

The primary objective of the study was to find out the number of ETDS related to disaster management in Shodhganga. Further, a year-wise analysis of the growth of ETDS in this area was also done. The growth pattern is shown in the given figure.

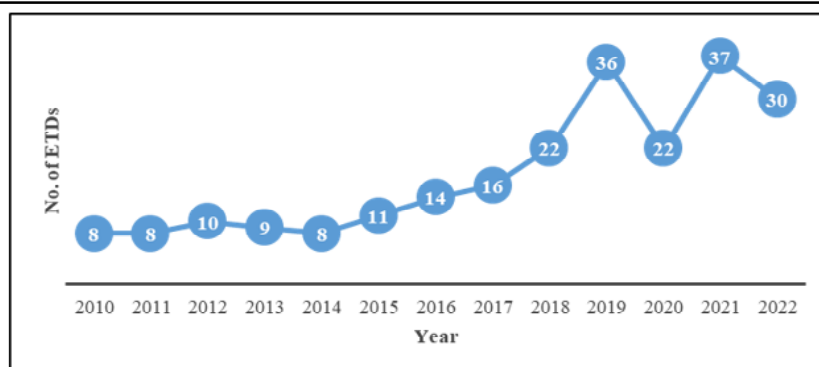


Figure 2: Growth of Electronic Theses and Dissertations Deposited to Shodhganga in the area of disaster management from 2010-2022.

Slow and steady growth has been noticed in the growth of ETDs deposited in Shodhganga from 2010 to 2019. In 2020 there is a decrease in the number of theses deposited to Shodhganga from 36 to 22. Again in the next year, i.e. 2021, a sharp increase from 22 theses to 37 is found and another small depression to 30 theses in 2022 is also seen. So according to the data shown in Figure 2, the growth of research in the field of disaster management is not in a gradual linear form but it has alternative highs and lows.

4.2 Discipline-wise distribution of disaster management ETDs

Since disaster management is a multi-disciplinary subject, the ETDs produced in this area are also from different disciplines. A discipline-wise distribution can bring to light the significant aspects of disaster management in which more research is being done. Figure 3 represents the discipline wise distribution of disaster management-related ETDs deposited in Shodhganga.

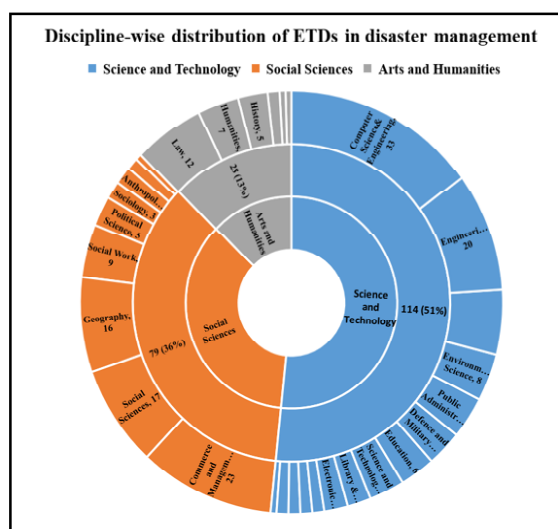


Figure 3: Discipline-wise distribution of Disaster Management ETD in Shodhganga from 2010-2022.

Through careful analysis, three disciplines are identified in which the ETDs related to Disaster Management in Shodhganga are scattered: they are Science & Technology, Social Sciences, and Arts & Humanities. Among the total 221 ETDs, 114 ETDs are from the Science & Technology discipline, which constitutes about 51% of the whole sample record, followed by 79 ETDs produced by the Social Science discipline and 28 ETDs produced by the Arts & Humanities discipline respectively. The major subjects contributed to Science & Technology are Computer Science & Engineering which contributed 33 ETDs, Engineering field which produced 20 ETDs Health, Medicine, Nursing, and Pharmaceuticals together deposited 11, Environmental Science, Architecture & Planning, Public Administration, Defence & Military Science, and Education deposited 8,6,7,6, and 6 ETDs respectively. Electronics & Communication, Library & Information Science, 4 each and Mass Communication, Mathematics, Disaster Management, Tourism 2 each, and one ETD has contributed from Geo-Informatics subject also.

4.3 Visibility of ETDs related to disaster management

Visibility is an essential factor that ensures that the research work carried out is getting enough attention in the academic circle. The best way to make research visible is to publish it in the form of a research paper or journal article. The visibility of articles plays a pivotal role in disseminating knowledge, facilitating collaborations, and advancing academic discourse. Based on the visibility aspect it is possible to determine the impact created by research. So in this study, researchers checked the article visibility by using the Google Scholar database. Visibility is checked in two aspects; no. of articles published and citations received

4.3.1 Articles published from disaster management ETDs deposited in Shodhganga

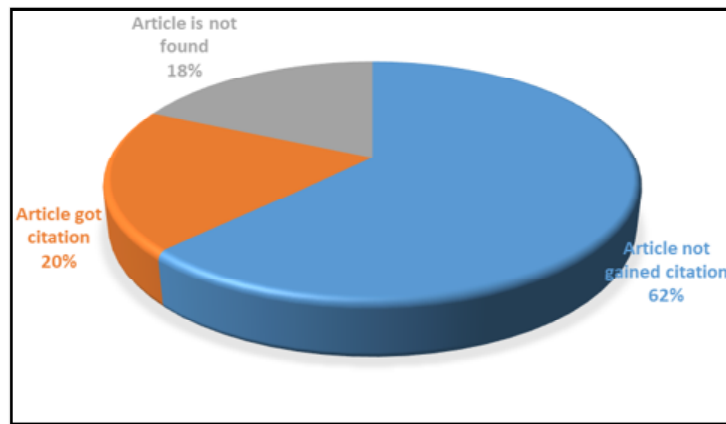


Figure 4: Total articles produced from disaster management ETDs

The total number of disaster management ETDs deposited to the Shodhganga repository is 221 in number, among these 181 ETDs (82%) are converted into articles, and articles corresponding to the rest 40 ETDs (18%) are not found in Google Scholar. The Google Scholar indexed 181 articles, and in them, only 43(20%) articles got citations the remaining 138 (62%) articles did not receive any citations.

4.3.2 Discipline-wise visibility

To check the discipline-wise visibility, the number of citations received for articles based on disaster management ETDs in each discipline is analyzed.

Table 1: Citation obtained by Subjects in Different Disciplines

Discipline	Total No : of ETDs	Subject	No: of ETDs	No of articles	Citation
Science and Technology	114	Architecture & Planning	6	6	27
		Geo-Informatics	1	1	34
		Engineering & Technology	20	17	40
		Computer Science & Engineering	33	31	191
		Electronics & Communication	4	4	0
		Mass Communication	2	2	0
		Mathematics	2	2	0
		Library Science	4	4	6
		Environmental Science	8	7	4
		Disaster Management	2	2	0
		Education	6	5	1
		Tourism	2	2	0
		Public Administration	7	5	0
		Defense and Military Science	6	3	1
		Health, Medicine, Nursing, Pharmaceuticals	11	10	10
Total			114	101	314
Social Sciences	79	Anthropology	3	3	7
		Economics	2	2	0
		Geography	16	10	24
		Political Science	5	3	3
		Psychology	1	1	0
		Sociology	3	2	0
		Social Work	9	7	1
		Social Sciences	17	11	0
		Commerce and Management	23	20	10
		Total			79
Arts and Humanities	28	History	5	4	0
		English	2	1	0
		Sanskrit	1	1	0
		Law	12	11	0
		Humanities	4	1	0
		Arts and Sciences	4	4	28
		Total			28

The articles from the Science and Technology field harnessed a total of 314 citations. Computer Science & Engineering itself produced 19 articles from 33 ETDs and got 191 citations, followed by Engineering & Technology with 10 articles from 20 ETDs and 40 citations, Geo-informatics with 1 article from 1 ETD received 34 citations. In the Social Science field, 79 ETDs together got 45 citations. Subject-wise citation distribution: Anthropology- 7 citations for 3 ETDs, Geography- 24 citations for 16 ETDs, Commerce and Management- 5 citations for 23 ETDs, Political Science- 3 citations for 5 ETDs, and Social Work- 1 citation for 9 ETDs. For the Arts and Humanities discipline, the Arts and Sciences subjects contributed 4 articles from 4 ETDs and they harnessed 28 citations.

4.3.3 Highly Influential articles produced from disaster management ETDs

Table 2 shows the result of an analysis carried out for the most influential articles from disaster management. ETDs based on their citation count.

Table 2: Highly Influential Articles produced from Disaster Management ETDs

Sl.no	Title	Researcher	Guide	Department	Citation
1	Deep Learning for Disaster-related Event Classification and Location Predictions from Social Media	Kumar, Abhinav	Singh, Jyoti Prakash	Computer science and engineering2021	99
2	Geoinformatics in Landslide Risk Assessment along Kalsi Chakrata Road Corridor An Integrated Approach towards Building Climate and Disaster Resilience in Communities	Sur, Ujjwal	Singh Prafull and Thakur, Jay Krishna	Amity Institute of Geo-informatics and Remote Sensing2021	34
3	Context Aware Techniques for Energy Efficient Data Acquisition in Wireless IoT for Disaster Monitoring	Rekha P	Maneesha V Ramesh	Amrita Center for Wireless Networks and Applications (AmritaWNA)2017	32
4	Heterogeneous multiserver queueing models with system disaster	P, Savitha	R, Sudhesh	Faculty of Science & Humanities2018	27
5	Reliable and Secure Data Forwarding in Post Disaster Situation using Peer to Peer Opportunistic Network	Chakrabarti, Chandrima	Roy, Siuli	School of Engineering & Technology2022	25
6	Industrial disaster and its management in Odisha A study with reference to iron and steel and chemical industries	Behera, R	Hassan, Mohammad Izhar	Department of Geography2019	19
7	Cloud Fog Assisted Evacuation Frameworks for Disaster Management	Sahil	Sood, Sandeep Kumar	Department of Computer Science & Engineering2021	18

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8	Event driven flood management using automated procedures	Vinod Kumar Sharma	Nagamani, P.V and Amminedu, E	Geo-Engineering 2017	17
9	Dynamics of disaster risk in the urban villages of Delhi	Kumar, Bipasha	Bhaduri, Sanjukta	Urban planning 2017	17
10	Geospatial based disaster management study on forest fire detection in greater Visakhapatnam municipal corporation Andhra Pradesh India a semantic web and IoT approach	Narasimha Rao, Gudikandhula	Jagadeeswara Rao, P.	Geo-engineering 2020	13

The table 2 shows the highly influential articles produced from ETDs and the respective authors from the data. The article produced from the ETDs titled “Deep learning for disaster-related event classification and location predictions from social media” by the Researcher Kumar, Abhinav (2021), and Singh, Jyoti Prakash from the Department of Computer Science and Engineering obtained 99 citations. It is the most cited article produced out of disaster management ETDs deposited in the Shodhganga repository. Hence, it is interpreted as the most influential article and Abhinav Kumar and Singh, Jyoti Prakash are the most influential authors. In second place the ETD titled “Geoinformatics in landslide risk assessment along Kalsi Chakrata road corridor: an integrated approach towards building climate and disaster resilience in communities” written by Sur, Ujjwal, and Singh Prafull and Thakur, Jay Krishna produced by the Amity Institute of Geo-informatics and Remote Sensing harnessed a citation of 34. The third most cited article came out of ETD done by the researchers Rekha P. and Maneesha V Ramesh, titled “Context Aware Techniques for Energy Efficient Data Acquisition in Wireless IoT for Disaster Monitoring” from Amrita Center for Wireless Networks and Applications (AmritaWNA) in the year 2017, and it received 32 citations in Google scholar.

Table 3: Highly Influential Institutions/ Universities in the Field of Disaster Management

Sl. No	Name of the University	No: of Theses	Total Citation
1	National Institute of Technology Patna	1	99
2	Anna University	10	41
3	Amity University	3	36
4	Andhra University	4	34
5	Amrita Vishwa Vidyapeetham	3	32
6	Maulana Abul Kalam Azad University of Technology	1	25
7	Ravenshaw University	1	19
8	Guru Nanak Dev University	1	18
9	Sardar Vallabhbhai National Institute of Technology Surat	2	18
10	School of Planning and Architecture, New Delhi	2	18

To determine the most productive and influential academic institution in the field of disaster management, the researchers constructed Table 3 with universities, number of ETDs deposited, and citation obtained for the universities from them. The National Institute of Technology, Patna received a total of 99 citations from one article. Anna University got 41 citations from 10 articles. By going through the data it is visible that there is a huge difference in the productivity and citations received by different universities. According to the table, the most influential university in the field of disaster management is The National Institute of Technology, Patna and the most productive institution is Anna University.

5. Results

5.1 The growth pattern of disaster management electronic theses and dissertations (ETDs) within Shodhganga repository

While analyzing the growth pattern of disaster management electronic theses and dissertations (ETDs) within the Shodhganga repository from 2010 to 2022, an unexpected pattern is apparent. The ETD distribution revealed a fluctuating trajectory with a characteristic variation in the number of ETD depositions. This growth pattern reflects a notable increase in submissions over the years, with several instances of substantial growth followed by periods of relative stability. The surge in 2019 followed by a dip in the subsequent year, and a sudden rise in the next year raises questions about potential catalysts for these shifts, such as emerging disasters, policy-making, academic interests, etc.

5.2 Discipline-Wise Distribution of Disaster Management Theses and Dissertations

The analysis of the dataset revealed the presence of three prominent disciplines among the studied electronic theses and dissertations (ETDs); Science & Technology, Social Sciences, and Arts & Humanities.

Out of the total 221 ETDs, a comprehensive categorization showcased that Science & Technology emerged as the most prominent discipline, constituting 114 ETDs, approximately 51% of the entire sample record. It was followed by Social Sciences, contributing 79 ETDs, approximately 36% of the entire data, and Arts & Humanities contributed 28 ETDs and which is about 13% of the entire sample.

Within the Science & Technology discipline, a further breakdown of major subjects highlighted a substantial contribution from Computer Science & Engineering, accounting for 33 ETDs. The Engineering field itself produced 20 ETDs, while Health, Medicine, Nursing and Pharmaceuticals collectively contributed 11 ETDs.

Within the Social Science discipline, major contribution was made by the subjects Social Sciences with 17 ETDs, Geography with 16 ETDs, and Commerce & Management with 23 ETDs.

5.3 Visibility of articles produced from Disaster management ETDs deposited to Shodhganga

5.3.1 Cited and Non-Cited articles

The total number of ETDs deposited to the Shodhganga repository is 221 in number, among these 181 ETDs (82%) are converted to articles, and for the rest, 40 ETDs (18%) corresponding articles are not found. Google

Scholar indexed 181 articles and in them only 43 (20%) articles got citations. The remaining 138 (62%) articles did not receive any citation.

5.3.2 Citation obtained by subjects in different disciplines

It is important to find out the discipline in which more disaster management-related research is being done. By processing the citation data obtained by articles reveal the subjects and the discipline in which more research is conducted. By interpreting Table 1, it is found that Science and technology harnessed a total of 314 citations. According to Table 1, from the Science & Technology discipline, Computer Science and Engineering got 191 citations, followed by Engineering & Technology with 75 citations, and Geo-informatics with 34 citations. Social Science secured 45 citations, in which Anthropology received 7 citations, Geography- 24 citations, Commerce and Management- 10 citations, Political Science- 3 citations, and Social Work- 1 citation. For the Arts & Humanities discipline the Arts and Science subjects harnessed 28 citations from Google Scholar.

5.3.3 Highly influential articles produced from disaster management ETDs

Notably, the article titled “Deep learning for disaster related event classification and location predictions from social media” by Researcher Abhinav Kumar (2021) and Jyoti Prakash Singh from the Department of Computer Science and Engineering received a remarkable number (99) citations. This article emerges as the most cited and influential article produced from disaster management ETDs archived in the Shodhganga Repository. Abhinav Kumar and Jyoti Prakash Singh - the authors of this article - attain the distinction of being the most influential contributors in this context. In the second position, the article “Geo-informatics in landslide risk assessment along Kalsi Chakrata Road Corridor” authored by Ujjwal Sur, Prafull Singh, and Jay Krishna Thakur, produced by the Amity Institute of Geo-informatics and remote sensing, gathered a citation count of 34. The third most cited article authored by Rekha P. and Maneesha V. Ramesh, which is titled” Context-aware techniques for energy efficient data acquisition in wireless IoT for disaster monitoring” originated from the Amrita Center for Wireless Networks and Applications (Amrita WNA) in the year 2017, got 32 citations. These findings throw light on the articles and authors that have significantly impacted the field of disaster management. These highly cited works provide insights into the research directions that have garnered substantial recognition and influence within the scholarly landscape.

5.3.4 Highly influential and productive institutions in the field of disaster management

The analysis of Table 2 facilitated the identification of highly influential articles and authors emerging from the field of disaster management ETDs. In order to ascertain the most productive and influential academic institution within the realm of disaster management, a comprehensive analysis of data was conducted. When the available data is tabulated, scrutinized, and analyzed in Table 3, a substantial disparity in the number of citations acquired by different universities is seen. Notably, the National Institute of Technology, Patna, secured an impressive citation of 99 from a single article and it is the most influential institution. Anna University, with a productivity of 10 ETDs is the most productive institution in the field. This underlines a

significant variation in the recognition and impact received by different academic institutions in the field of disaster management. Through the holistic review of the data, it becomes evident that the National Institute of Technology, Patna emerges as the most influential university and Anna University as the most productive within this domain.

6. Conclusion

This study delved into the realm of Electronic Theses and Dissertations (ETDs) to unravel the insights into the transformation, disciplinary distribution, institutional productivity, and influential articles in the field of disaster management. The analysis of ETDs has shed light on several significant trends, underscoring the multidimensional dynamics of scholarly communication.

The key findings of this study underscore the effectiveness of the ETDs to article transformation process, with a considerable proportion of ETDs evolving into articles for publication. This process has facilitated the dissemination of research findings beyond academic archives, enhancing the visibility and accessibility of scholarly work.

The discipline-wise analysis revealed distinct concentrations within Science & Technology, Social Science, and Arts & Humanities, each contributing significantly to the ETD landscape. The variation in citations received by different disciplines suggests diverse levels of impact and recognition within the academic community warranting further investigation into contributing factors.

Institutional productivity emerged as a focal point, identifying Anna University as the most productive institution in terms of the number of theses, whereas the National Institute of Technology, Patna emerged as the most influential academic institution within the field of disaster management with its high citation. This finding highlights the institution's substantial contributions to the scholarly discourse and reinforces the need for collaborative networks to elevate research impact. The exploration of highly influential articles spotlighted pivotal works that have shaped the academic discourse in disaster management. These articles obtained notable citation counts, reflecting their impact on the academic arena in advancing the field's understanding and application.

Collectively the study's results emphasize the complex interplay between academic disciplines, institutions, and individual contributors in shaping the landscape that continues to evolve, the insights drawn from the study offer valuable perspectives for researchers, institutions, and policymakers seeking to understand and contribute to the field's advancement. This study's limitations, such as data scope and availability, provide avenues for future research to delve deeper into the nuances of ETD to article transformation, discipline-specific trends, and the factors influencing citation patterns.

In conclusion, this study serves as a stepping stone toward comprehending the intricacies of ETD dissemination, academic productivity, and influence within the dynamic realm of disaster management research.

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