

Electronic Theses and Dissertations (ETDs): A Scientometric Analysis of Research Publications

Panna Chaudhari – Assistant Librarian, IIT Gandhinagar

T. S. Kumbar - Advisor (Library & Institute Archives), IIT
Gandhinagar



October 27 , 2023



Outline

- Introduction
- ETDs- Electronic Theses and Dissertations
- ETD- Benefits
- Scientometrics
- Objectives of the Study
- Methodology
- Analysis
- Conclusion
- References

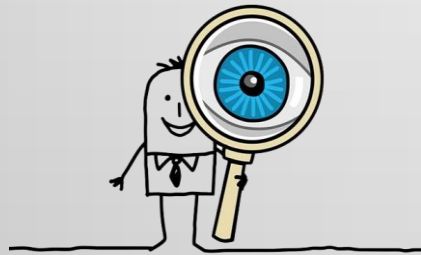
Introduction

- **Thesis/Dissertation's Significance**
 - Adds new knowledge to a discipline
 - New knowledge generated serves as a foundation for further research
 - Essential for a doctoral degree
- **Digital Transition**
 - Shift from print to digital submissions
 - Some institutions accept only digital
- **Enhanced Accessibility**
 - Digital theses (ETDs) reach a global audience
 - Promote collaboration and innovation

ETDs~ Electronic Theses and Dissertations

Electronic theses and dissertations, or ETDs, are defined as those theses and dissertations that are submitted, archived, or accessed primarily in electronic formats. [1]

ETD~ Benefits



Accessibility

Searchability

Multimedia
integration

Cost and
time savings

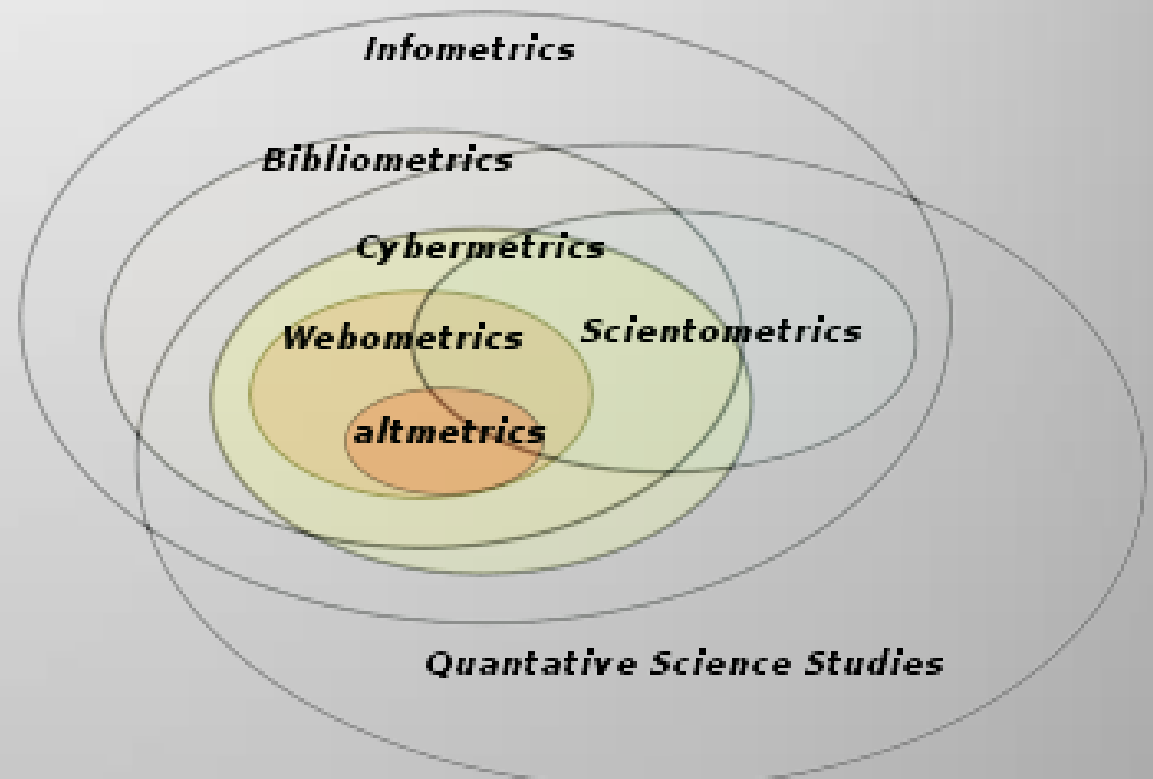
Preservation

Global reach



Scientometrics

Scientometrics has been defined as the “quantitative study of science, communication in science, and science policy”. [2]



Source: <https://kwoodydita14.wordpress.com/tag/word-cloud/>

Source: <https://en.wikipedia.org/wiki/Infometrics>

Objectives of the Study

To identify the trends in research publications on ETDs.

To examine the factors that have contributed to the growth of research publications on ETDs.

To identify influential authors, institutions, and countries contributing to the research publications on ETDs.

To find out the significant topics within the domain of ETDs.

To determine the publication sources where publications are most concentrated.

To study the collaboration network of institutions, countries and mapping the same.

Methodology

- Extracted data from 'Scopus,' a bibliographic and citation database
- ETD publications from 1996 to July 2023
- Utilized various search terms in 'Scopus,' including "electronic theses," "thesis and dissertation repositories," and "electronic thesis and dissertation." using the query: (TITLE-ABS-KEY ("electronic theses") OR TITLE-ABS-KEY ("thesis and dissertation repositories") OR TITLE-ABS-KEY ("electronic thesis and dissertation")) OR TITLE-ABS-KEY ("ETDs repository")
- Employed R and RStudio's Bibliometrix package, along with Microsoft Excel, for data extraction and visualization
- The process involved retrieving, integrating, and analyzing relevant publications

Analysis

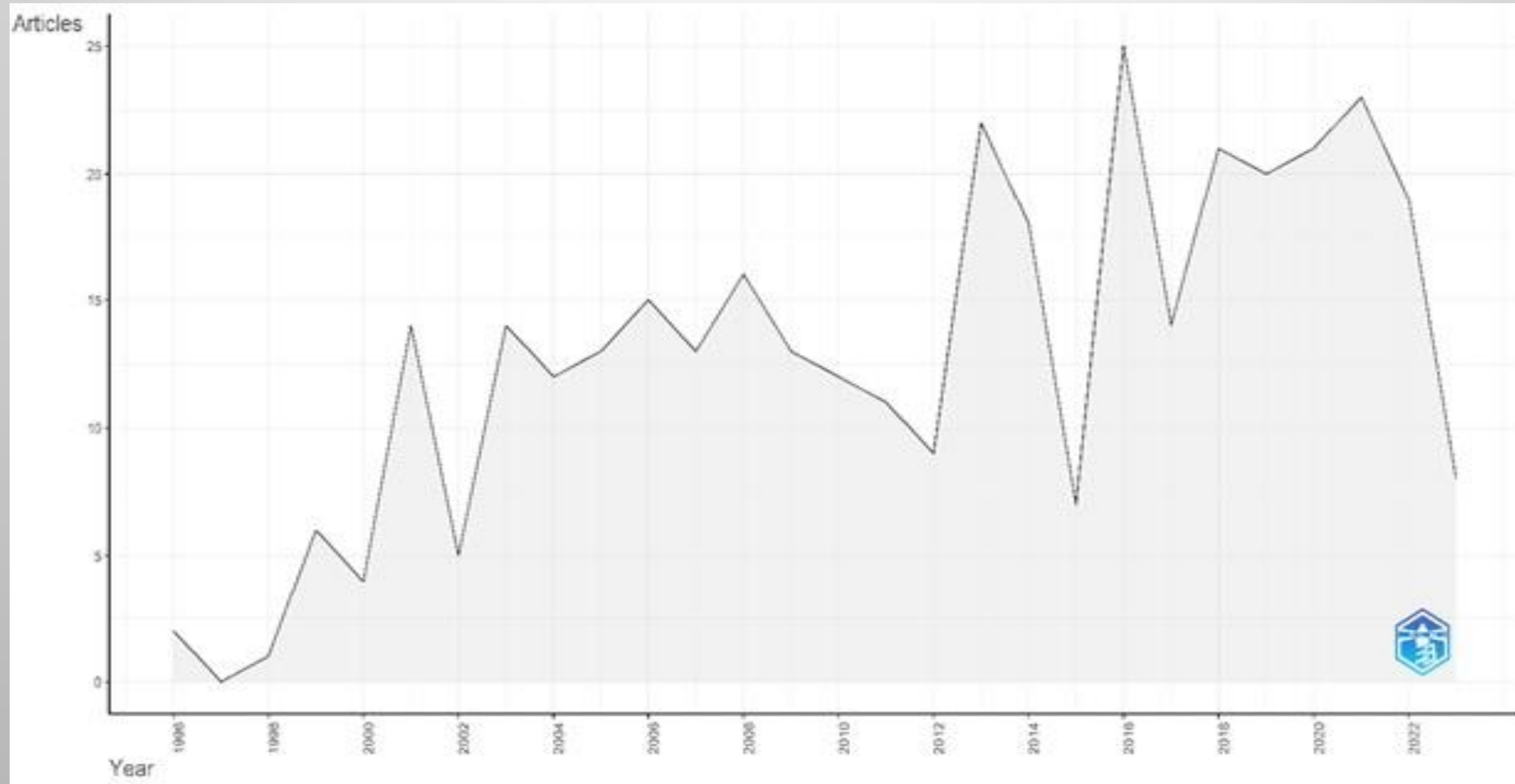
- Total Research Output
- Distribution of Document Types
- Top 10 Sources
- Distribution of Documents by Affiliations
- Top 10 Authors
- Authorship Pattern
- Degree of Collaboration
- Research Publications on Language
- Word Cloud Representation

Total Research Output

Total Publications on ETDs from 1996 to 2023	358
Total No. of Citations	2182
Growth Per Annum	4.15%
Document Average Age	10.5
Average Citations per Paper	6.094

- Total publications and citations as retrieved from 'Scopus' database
- Total no. of publications- 358
- Total no. of citations- 2182

Annual Research Output



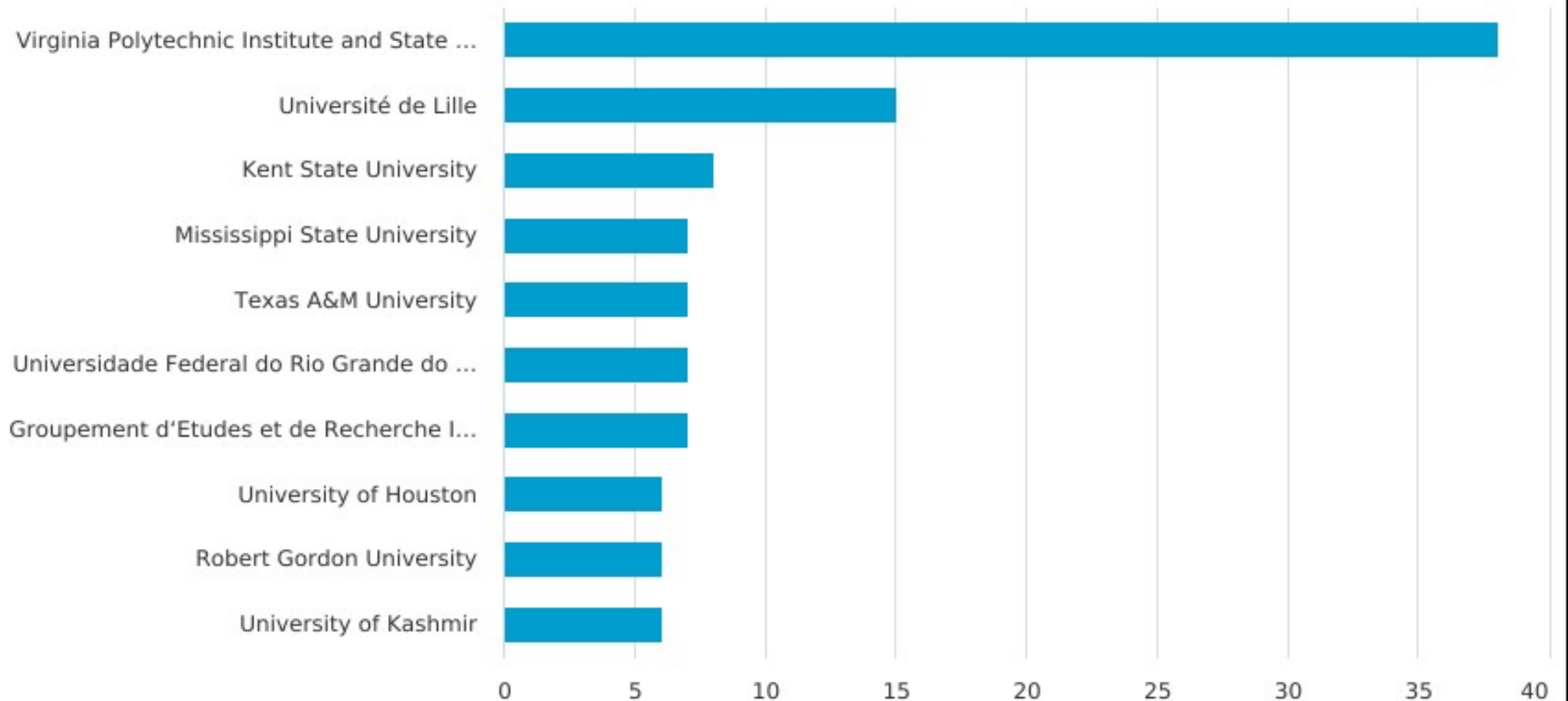
Distribution of Document Types

Sr. No	Document Type	Number of Documents	Total Citation	Percentage of Document	Percentage of Citation
1.	Article	230	1478	64.25	67.74
2.	Conference paper	63	169	17.60	7.75
3.	Review	37	507	10.34	23.24
4.	Book chapter	11	17	3.07	0.78
5.	Erratum	7	0	1.96	0.00
6.	Conference review	3	0	0.84	0.00
7.	Note	3	6	0.84	0.27
8.	Book	2	3	0.56	0.14
9.	Editorial	2	2	0.56	0.09

Top 10 Sources

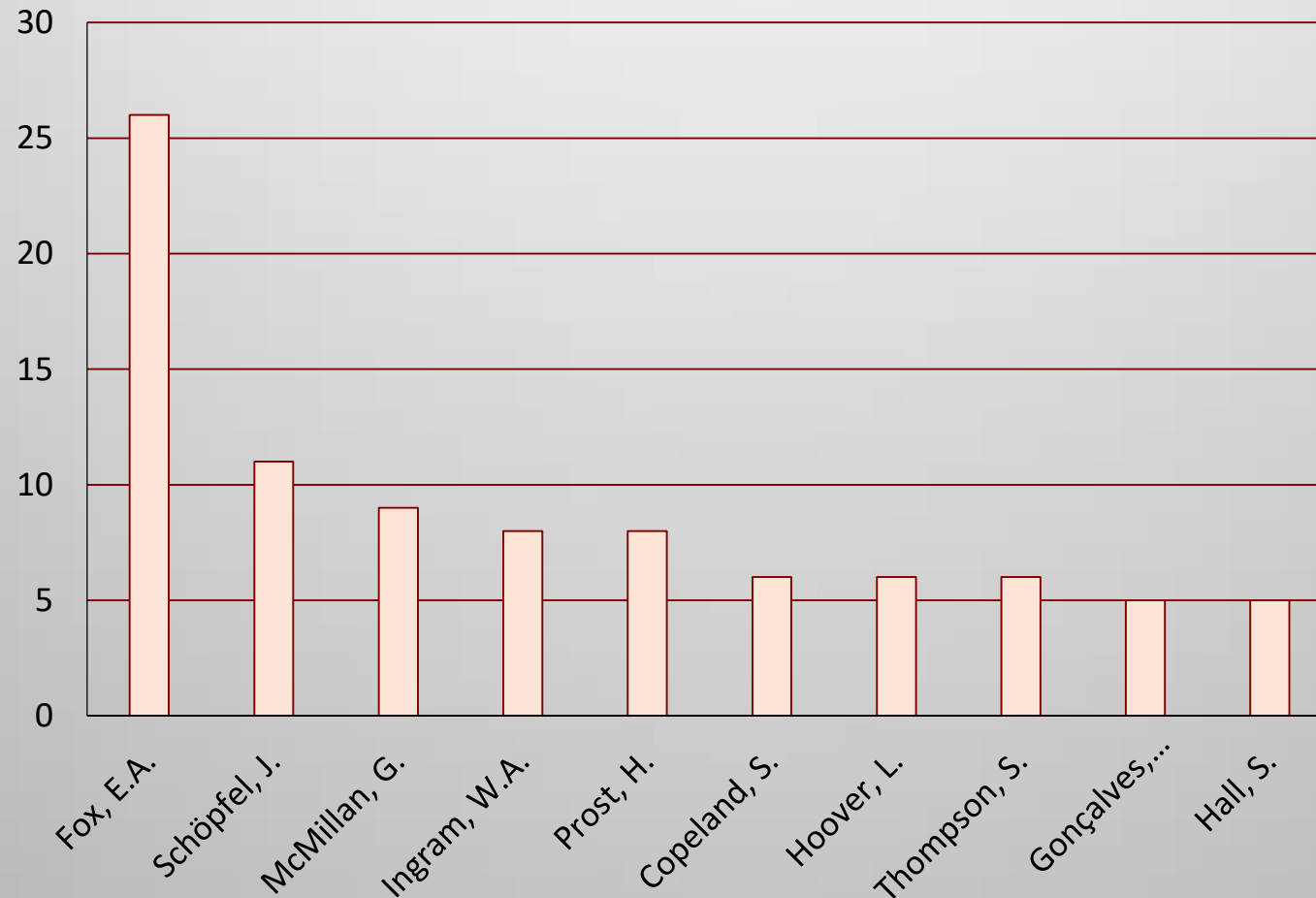
Sources	No. of Articles	CiteScore 2022	SNIP 2022	SJR 2022
Library Philosophy and Practice (Currently Not Covered)	21	0.4	0.233	0.235
Lecture Notes in Computer Science	14	2.2	0.32	0.542
Proceedings of the ACM/IEEE Joint Conference on Digital Libraries	13	-	-	-
D-Lib Magazine	12	2.4	0.208	1.438
Journal of Academic Librarianship	10	4.1	0.899	1.694
Technical Services Quarterly	10	0.5	0.173	0.608
Cataloging and Classification Quarterly	9	0.7	0.199	1.583
International Information and Library Review	9	2.3	0.401	0.617
Library Hi-Tech	9	4.9	0.507	1.217
Grey Journal	8	1.7	0.211	0.476

Distribution of Documents by Affiliations



Top 10 Authors

The graph showcases the ten most prolific authors in the realm of scientometric studies concerning Electronic Theses and Dissertations (ETD) publications



Authorship Pattern

Authorship Pattern	No. of articles	%
Single author	122	34.08
Two authors	101	28.21
Three authors	58	16.20
Four authors	29	8.10
Five authors	16	4.47
Six to Eleven authors	32	8.94
Total	358	100

Degree of Collaboration

- The degree of collaboration (DC): $DC = N_m / (N_s + N_m)$

where,

DC = Degree of collaboration in a Topic

N_s = Number of single documents in the Topic

N_m = Number of multi-authored documents in the Topic

As per our formula

$$N_s = 122$$

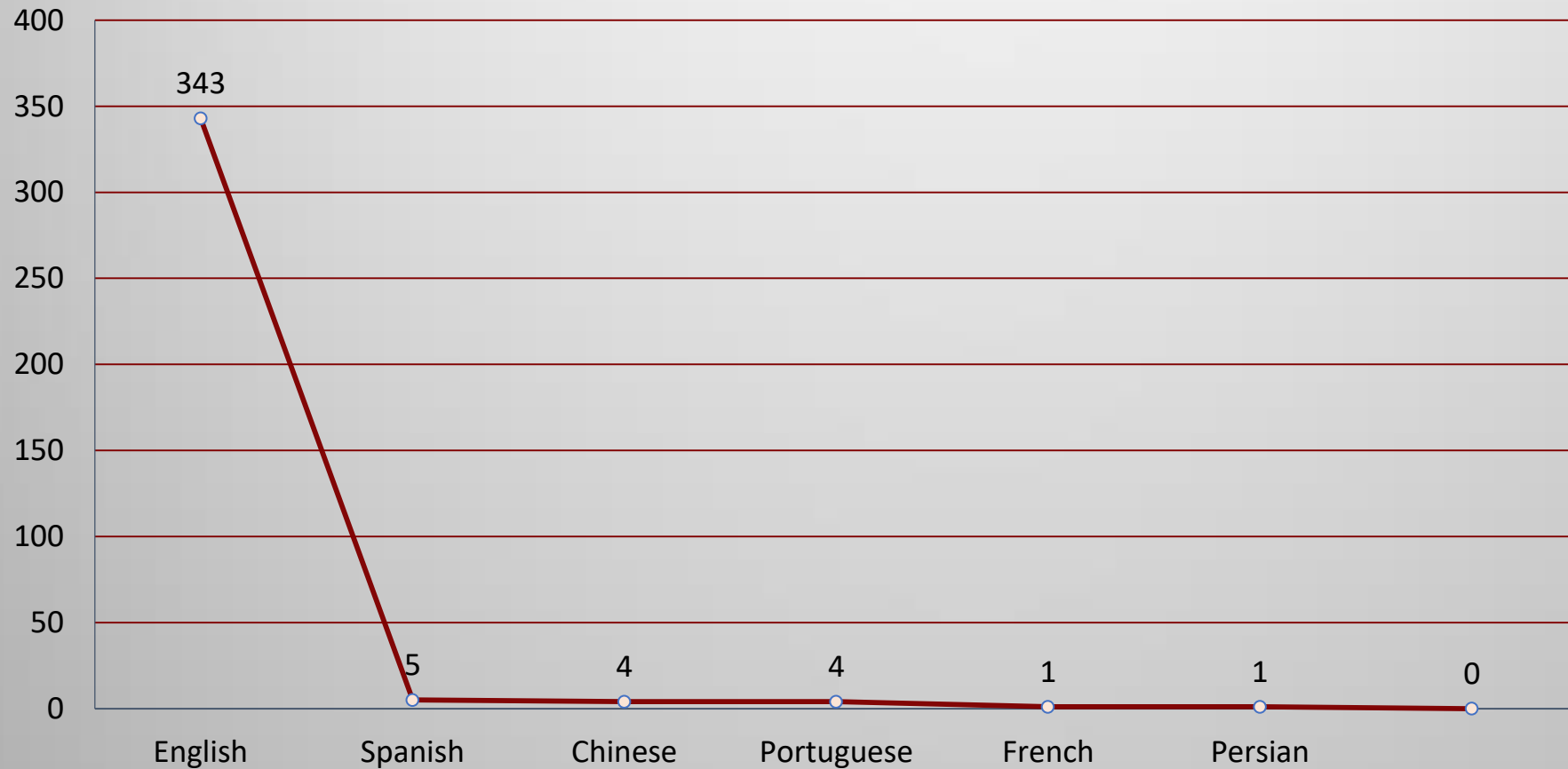
$$N_m = 236$$

$$N_s + N_m = 358$$

Thus, degree of collaboration (DC) on the topic of ETDs from 1996 to 2023 (July)- **0.65**

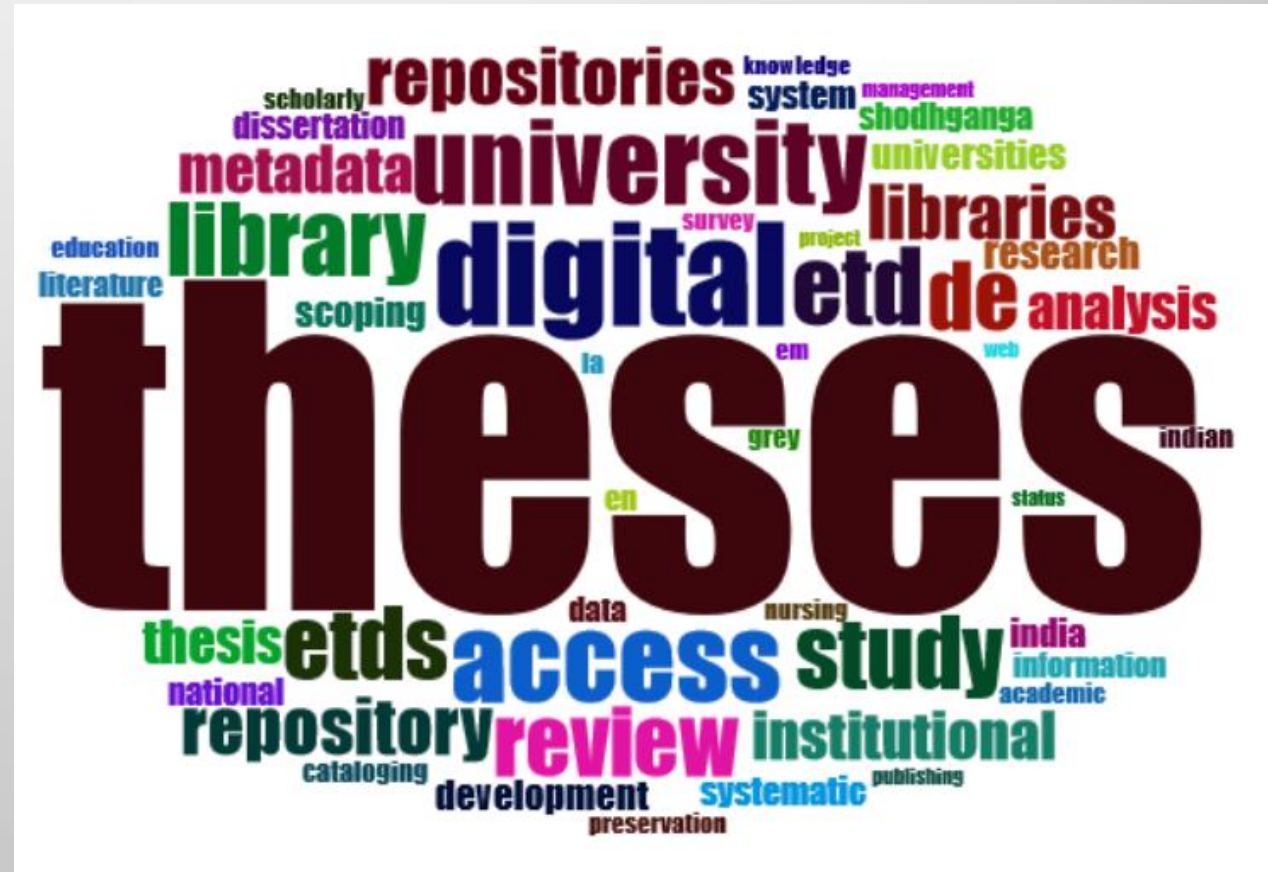
Research Publications on Language

The study identified six (06) scholarly presentation languages:



Word Cloud Representation

- The figure presents an analysis of keywords used in the titles of ETDs
- The title field was selected with a limit of 50 words and focusing on unigrams
- The resulting word cloud illustrates the frequency of keywords within titles



Conclusion

- ETDs are a growing and important source of scholarly research
- Cost and time savings, preservation, and global reach
- Accessibility, searchability, and multimedia integration
- Implications for researchers, librarians, and policy makers
- Growing ETDs & evolving technologies attract researchers to explore further in this area
- Accurate and comprehensive metadata increases the chances of ETDs being included in important academic databases like 'Scopus'

References

1. Weisser, C. R., & Walker, J. R. (1997). Excerpted: Electronic Theses and Dissertations: Digitizing Scholarship for Its Own Sake. *Journal of Electronic Publishing*, 3(2). <https://doi.org/10.3998/3336451.0003.209>
2. Leydesdorff, L., & Milojević, S. (2013). *Scientometrics* (arXiv:1208.4566). arXiv. <http://arxiv.org/abs/1208.4566>
3. Bradford's law. (2023). In *Wikipedia*. https://en.wikipedia.org/w/index.php?title=Bradford%27s_law&oldid=1168193546

THANK YOU!