Original Article

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Scientometric Analysis of Doctoral Theses in Field of Physics Awarded by Doctor Harisingh Gour Vishwavidyalaya, Central University, Sagar, MP, India

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Abstract

Purpose: Scientometric study is a quantitative analysis of various collection of information resources have been evaluated using a variety of metrics, examine the pattern of the authorship; pattern of the citations; document types cited information used by researchers; and find out the top ranking of journals & Scimago journal category for Physics. In this study the researchers examined Country wise journal citation, supervisor wise, ranking, year wise, and core subjects' trends also.This paper aims to explore the Scientometric analysis of doctoral theses in the field of physics awarded by DHSGSU Sagar, (M.P.) India.

Design/methodology/approach: This study used a data collected total number of twenty-nine doctoral theses in field of physics during the years 2001–2010. collected of data is both method offline and online mode in field of Physics raw data has collected print form the from Jawaharlal Nehru DHSGSU Sagar (M.P) Library and also visit the department meet the supervisors' collected data of Physics, online theses data collected form Shodhganga e-theses in physics awarded by DHSGSU Sagar, (M.P). The data are tabulated and analyzed with quantitative statistics analysis methods using using SPSS, MS-Excel tables, graphs, diagrams and various parameters of Scientometric.

Finding: The study found that out the journals were the most popular information sources utilized by subject of Physics studies researchers, accounting for 4764 (70.75%) of the total citations, followed by 905 (13.44%) citations of books. Top journals wise results are first ranked of journal i.e. "Journal of Geophysical Research" most with 496 most citations and second ranked journal "Journal of Solid-State Ionics" with 280 citations. In this study, the authorship pattern wise journal citations indicate that the majority of the citations of two authors with first rank in this study with a total number of 1552 (32.58%) citations who dominate in Physics and are second highest with a total number of 1497 (31.42%) citations followed by three authored citations accounting with 854 (17.93%) citations. the Country wise research performance is first rank of this study is United States contributed 1498(31.44%) having maximum citations.

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Practical implications: The literature review revealed that the journals are top most majority of citations in this study The future importance and scope of this study are fundamental guidelines for researchers' selection of research topics and innovations in the field of physical science.

Originality/value: This study will provide an idea of increasing trends in innovative research and ideas for researchers. The study finds that the researchers prefer foreign information sources due to the qualitative nature of the research. This study will be very helpful for librarian collection development policy, budget, selection of periodicals, and study materials in all science fields.

Keywords: Scientometric analysis, Document type-wise, Authorship-Pattern, Year-wise doctoral theses, Top most Core Journals & Leading Scimago Categories, Country-wise.

INTRODUCTION

Scientometrics is a field of study that makes use of statistical and computational methods to understand the dynamics and structure of science. Science development, societal relevance, and influence are evaluated using bibliometric measurements using scientometrics. The work of Derek J. de Solla Price and Eugene Garfield forms the bulk of the foundation for contemporary scientometrics. The latter launched the Institute for Scientific Information and the Science Citation Index, both of which are widely utilized in scientometric analysis. Scientometrics is a specialized academic publication that was started in 1978. The number of scientific publications and research findings rose as a result of the industrialization of science, and the development of computers made it possible to analyze this data effectively. Scientometrics study is analyzing scholarly literature on various parameters. authorship pattern, bibliographic form wise highly cited information source use by the research community very Major research issues includes the measurement of the impact of research papers and academic journals, the understanding of scientific citations, and the use of such measurements in policy and management contexts. This study is based on online, open access medical literature available in print form. original research articles analysis the authorship pattern, bibliographic form wise analysis of literature, and journals ranking list of cited information sources used by the research community

Data Collection and Preparation

The study analyzed a total number of 29 doctoral theses from 2001–2010. The study's Ph.D. doctoral theses data was collected both offline and online in the field of physics. Raw data was collected from the Jawaharlal Nehru Library, and visited the department of physics theses collection in print mode available at: DHSGSU (M.P.) in the field of Physics. This study was used for the analysis of data used for MS Excel spreadsheet entries. The following data has been manually inspected and recorded in an Excel spreadsheet, Statistical Package for Social Sciences (SPSS) software following entries and columns.

- Theses title
- Year of submitted PhD theses
- Supervisor and Co-Supervisor Name
- Researcher Name
- Reference title
- Author name and count number
- Form type
- Ranking for journals
- Country-wise
- Citations of the per theses
- Others (e.g., errors for any unidentified information reference)

Statement of the Problem

The present research study is convened under the title "Scientometric analysis of doctoral theses in field of Physics awarded by Doctor Harisingh Gour Vishwavidyalaya (A Central University) Sagar, Madhya Pradesh, India" The study covered doctoral theses in the field of physics DHSGSU. Knowledge of the sources used by researchers shall not only improve the understanding of the researchers but also help in making the information system more efficient by allocation of budget for resources in different form and acquiring highly used sources. The study shall be able to identify those information sources used by field of science Scientists. The information source use in University Library uses researchers use available in free on the internet.

LITERATURE REVIEW

Schlembach, M. C. (2023) conducted a study entitled "Doctoral Dissertations in Chemistry and Physics: A Longitudinal Study." The primary goals of this study are to ascertain how source books and articles are used, how old cited documents are, and how to effectively differentiate between internet and library usage. ProQuest Dissertation and Theses Abstracts and Index (PDTAI) was searched for the precise department and school names as part of the research approach data collection for this study. The results were limited by a decade. Bibliometric analysis was conducted on the bibliographies of doctoral dissertations in physics and chemistry between 1970 and 2020, with 10 dissertations from each decade (n = 100). The study looked at 50 dissertations in each discipline and was based on the total number of 12,065 references that have occurred since the introduction of electronic resources found that the analysis of total 7306 study's results in the field of chemistry with 6518 (89%). The majority of citations were found in articles, and when compared to books, chemistry findings are found in 588 (8%), physics analysis of 4728 is found in 3806 (80%) document-type articles, and book 582 (12%) is found in articles, which are the most productive documents in this study.

Donner, P. (2021) This study investigates the possibilities of employing citation analysis of Ph.D. theses to create valid and useful indicators for early career success. The study was conducted at the university department level. Ph.D. theses citation impact factor, scientific quality, and Ph.D. theses cited in journal and book literature are some of the research questions covered in this study. The suitability of citation data from Google Books and Scopus for German theses from 1996 to 2018 is assessed as part of the research technique for this study. The study's findings reveal that out of the 361,971 Ph.D. thesis records, 329,236 Scopus citations and 476,495 Google Books citations were obtained overall. This study overlaps a total of 11,000 citations from journals indexed in both sources that overlapped and were excluded from the Google Books data. Among the primary thesis records alone, the vast majority of Scopus citations (95%). Thesis records and secondary (variant) records matched in that 5% of the Scopus citations came from records of Scopus source documents. The results of this study show a modest correlation between the citation counts in Scopus and Google Books and Pearson's r = 0.20 ($p < 0.01$, 95% CI 0.197–0.203) research is major findings.

Gayan, M. A., & Singh, S. K. (2019) conducted a study "Citation analysis of doctoral theses of physics: A Bibliometrics study". The analysis of Ph.D. theses in the field of physics at Tripura University was the source of this work. It was discovered through this analysis that over the course of ten years, a total of 5640 citations from 18 theses were studied (2007-2016). This study's primary goals are to determine Bradford's law of scattering, the Scimago categories and core journals, journal half-lives, and form-wise analysis. Collected data for this study's research technique were gathered from Shodhganga using SPSS software and MS Excel. The data shows that is total number of 313 average citations per theses, which is one of the study's main conclusions. Journals receive 269 average citations per theses, followed by books with 39 citations per theses and proceedings with 5 citations per thesis journals are the primary source of information for physicists.

Correia, A., at al. (2018) conducted a study entitled "Scientometric analysis of scientific publications in CSCW. Scientometrics." The main objective of this study is country wise, affiliation, individual research output, scientific collaboration, keyword analysis, and the impact of CSCW publications. Thefindings of this study are a quantitative evaluation of the scientific literature in order to map the evolution of CSCW research over a 15-year period (2001–2015) and its intellectual structure. To throw new light on the development, dissemination, and cooperation of CSCW-focused outlets, a total of 1713 publications were examined to compiler statistics and show dynamic changes. This study was exploring a detailed of the view, the JCSCW citations remained constant between 2001-2015. Holsapple and Luo (2003) had previously noted a comparable pattern for the years 1992–1999, identifying a total number of 1246 publications and 239 journals that were cited; of these, 28.21% were journal citations, 38.85% were book citations, 6.04% were citations from technical reports, and 24.9% were citations from conference proceedings (of which 21% were from conferences specifically related to CSCW), for a total of 4417 citations.

Gupta, S., & Hasan, N. (2018) carried out on the analysis of research articles from the journal "Metamorphosis: A Journal of Management Research" since its founding in 2002 and 2016 analysis of 200 research articles were examined using scientometric analysis. The study focuses on a number of journal-related topics, including article distribution, annual growth rate, authorship pattern, productivity, level of collaboration, collaborative index, article distribution by country,

and citation analysis. The analysis reveals that 86 out of 200 papers (43%) were provided by joint authors, while 114 out of 200 papers (57%) were published by single Authors. The average degree manuscript was, in that order, is 0.43, 2.35, and 25.59. India produces remarkable collaborative contributors, accounting for 81.65% of the sharing. The total number indicates of Country-wise; it was found that the total number of 316 (81.65%) majority India is the first rank, followed by 6.33 percent contributed by the USA, and 3.48 percent of contributions from the UK findings of this study.

Alvarez, G. R., at al. (2017) Investigate this study under the title "Scientometric Indicators for Brazilian Research on High Energy Physics, during 1983–2013. The study analysis has been done on the study's goal: published year; author address; Web of Science category Source, publication, and growth rate. Data gathered from Brazilian HEP publications published between 1983 and 2013 were downloaded for use in the study technique from the transdisciplinary Web of Science (WoS) database's SCI. Boolean operators (OR, AND) were employed in the Advanced Search option. The search approach employed the field labels CU=Country (Brazil OR Brazil) and WC=Web Category of Science (Physics, Particles, and Fields) to distinguish articles authored by HEP scientists from Brazil. The study's results include the top journals for Brazilian HEP scientific production: Phys. Rev. D. (USA), with a total of 2259 (38.47%), and J. High Energy Phys. (ITA), with 505 (8.60%). The lowest P scientific output is found in Int. J. Quantum Inf. (USA), with a total of 24 (0.41) publications. In terms of authorship, the most productive Brazilian HEP researcher is Pol M. E. (CBPF), with 316 publications and 6503 citations overall. Marechal B. (UFRJ), on the other hand, has 150 publications and 3491 citations overall for this study.

OBJECTIVES OF THE STUDY

The objectives of this work are to examine the pattern of usage of the literature indicated in the citation analysis of the doctorate research thesis awarded by the field of physics and submitted to DHSGSU (A Central University) Sagar, (M.P.) India.

The following are the broad objectives of the study:

- To identify the document -wise distribution of citations analysis in the field of physics;
- To identify the year-wise analysis of doctoral theses and average references per theses in physics;
- To identify the authorship pattern of cited journals in physics;
- To identify the single (solo) and Co-Supervisors wise analysis of doctoral theses;
- To identify the top ranking of supervisors in Physics;
- To identify the Core subject-wise analysis of doctoral theses in physics;
- Identify the top most core journals and leading Scimago categories;
- To identify country-wise journals citations;

SCOPE AND LIMITATION OF THE STUDY

The study is based on Scientometric analysis of doctoral theses in field of Physicsawarded by Doctor Harisingh Gour Vishwavidyalaya (Central University) Sagar (M.P.) India.

The present study is based on a total of 4764 journal citations in the discipline of physics and a total of 29 PhD theses in stream. The span of ten years is taken into consideration, which is from 2001-2010. The future importance and scope of this study are fundamental guidelines for researchers' selection of research topics and innovations in the field of physical science.

RESEARCH METHODOLOGY

The present study, based on a Scientometric study, adopted various quantitative and statistical analysis find out the most highly cited journals in the discipline of physics, including authorship patterns, top-ranking journals, document types, and a broad area of the topic of the Ph.D. theses. The present study is entitled "Scientometric Analysis of Doctoral theses in field of Physics Awarded by Doctor Harisingh Gour Vishwavidyalaya (A Central University) Sagar, Madhya Pradesh, India." The study analysis of the total twenty-nine Ph.D. theses awarded by the field of physics was chosen as a sample from the years 2001–2010. Doctoral theses data collected both method offline and online mode in field of Physics raw data has collected from JLN Library and also visit the department of Physics theses collection print mode data theses in the field of Physics. Data analysis was done using Statistical Package for Social Sciences (SPSS) software, MS-Excel tables, graphs, and various parameters of Scientometric.

DATA ANALYSIS & INTERPRETATIONS

Major findings &Results of this study

Table 1: Document Type - Wise Citations analysis in field of Physics

Rank	Bibliographic form	T. C.	Percentage (%)	C. F	C. F. (%)
1	**Journals**	4764	70.75	4764	70.75
2	**Books**	905	13.44	5669	84.18
3	**Archive Research Report Bulletin**	681	10.11	6350	94.30
4	**Seminar/ Conf. Proceeding**	183	2.72	6533	97.02
5	**Web resources**	70	1.04	6603	98.05
6	**Thesis/ Dissertations**	34	0.50	6637	98.56
-	**Others**	97	1.44	6734	100.00
	Total	**6734**	**100.00**		

Abbreviation: T.C.: Total citation, C.F.:Cumulative frequency, C.F.(%) - Cumulative frequency %

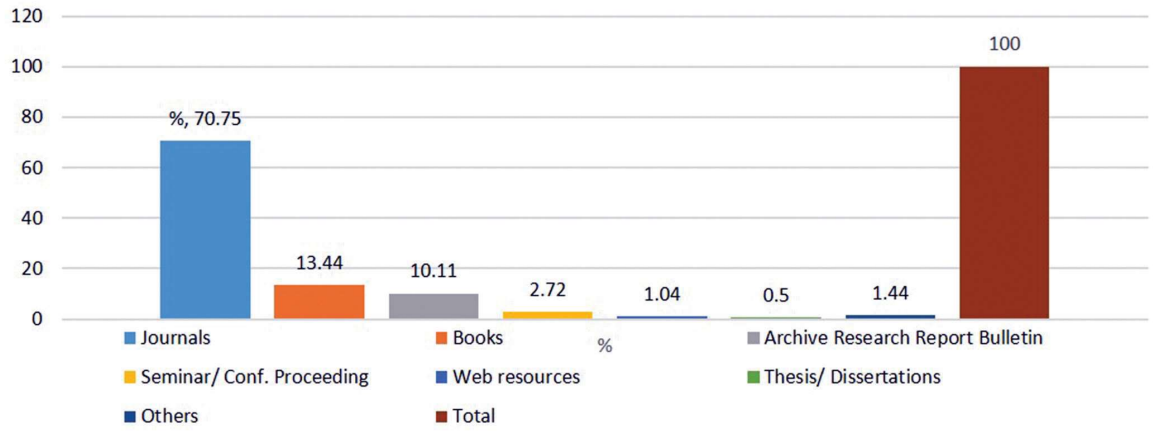

Table 1 Bibliographic form wise Information Source in Physics: To find out the total citations, it is found that the greatest number of citations, 4764 (70.75%), are concentrated in journals, which clearly specify that all other sources together comprise only 29.25% of citations. Books, being the second highest in the list, received 905 (13.44%) citations, followed by Archive Research Report Bulletin, which received 681 (10.11%) citations, followed by Thesis and Dissertations, which received 34 (0.50%) citations findings of the study.

Table 2: Distributions of citations according to doctoral theses in Physics

Year	Number of theses	Number of Citations	Percentage %	Average references / per thesis
2001	1	640	9.50	640.0
2002	5	766	11.38	153.2
2003	1	162	2.41	162.0
2004	1	199	2.96	199.0
2005	3	693	10.29	231.0

Year	Number of theses	Number of Citations	Percentage %	Average references / per thesis
2006	4	973	14.45	243.3
2007	6	1511	22.44	251.8
2008	2	586	8.70	293.0
2009	2	196	2.91	98.0
2010	4	1008	14.97	252.0
Total	**29**	**6734**	**100.00**	**232.20**

Figure 2 Distributions of Citations According to doctoral theses in Physics

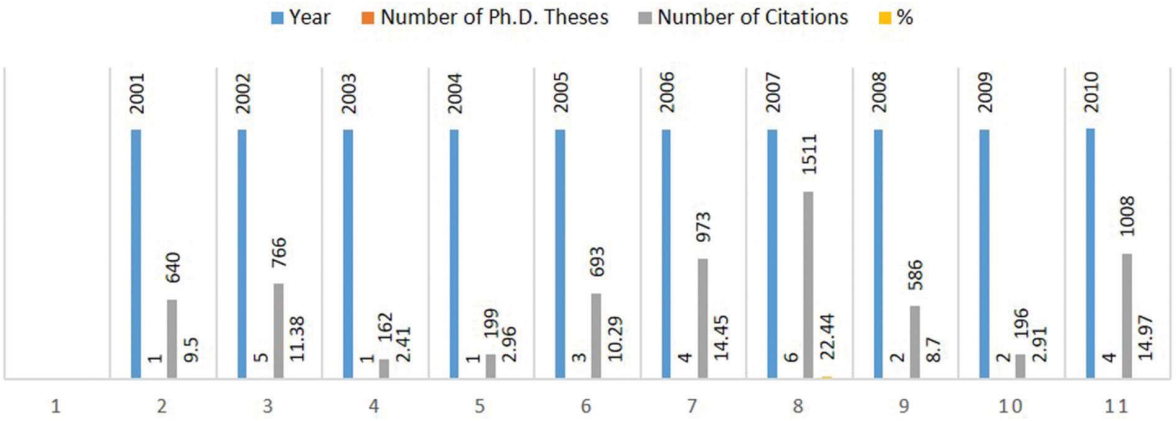

Table 2 It is indicated from the study is find out the maximum number of citations cited by the Ph.D. theses in years 2007 that is maximum six Ph.D. theses total number of 1511 (22.44%) most citations and year 2003 is total number of 162 (2.41%) is lowest citations findings of this study.

Table 3: Authorship pattern of cited Journals in Physics

Rank	AuthorshipPattern	T.C	Percentage %	C. F.	C. F.(%)
1	**Single**	1497	31.42	1497	31.42
2	**Two**	1552	32.58	3049	64.00
3	**Three**	854	17.93	3903	81.93
4	**Four**	428	8.98	4331	90.91
5	**Five**	187	3.93	4518	94.84
6	**Six**	98	2.06	4616	96.89
7	**Sevan**	51	1.07	4667	97.96
8	**Eight**	38	0.80	4705	98.76
9	**Nine**	22	0.46	4727	99.22
10	**More than 10**	37	0.78	4764	100.00
	Total	**4764**	**100.00**		

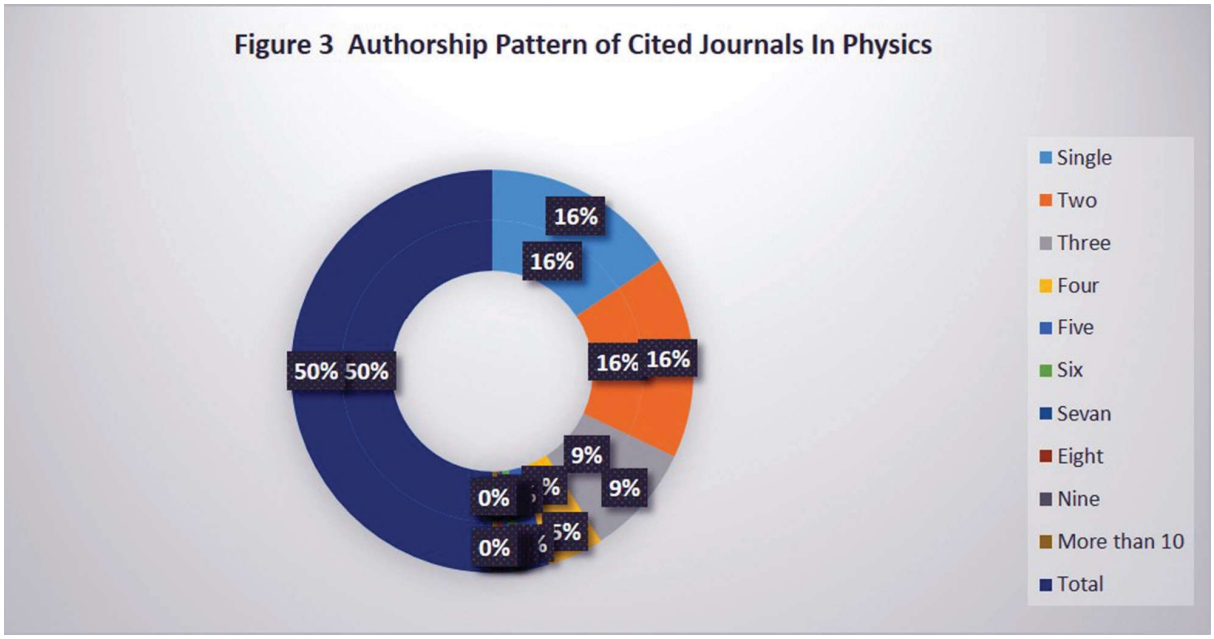

Table 3 The results indicated in the table show that two-authored citations are cited the most with 1552 (32.58%) citations, while single-authored citations are second highest with 1497 (31.42%) citations, followed by three-authored citations accounting for 854 (17.93%) citations. It is concluded from the analysis that two authored papers are cited in more numbers than single, three, four, and more than ten authored papers.

Table 4: Supervisors (solo) and Co-Supervisors wise analysis of doctoral theses

Supervisors	Number of Ph.D. Theses	Percentage %	Rank
Supervisor (solo)	27	96.43	1
Co-Supervisors	2	7.14	2
Total	**29**	**100.00**	

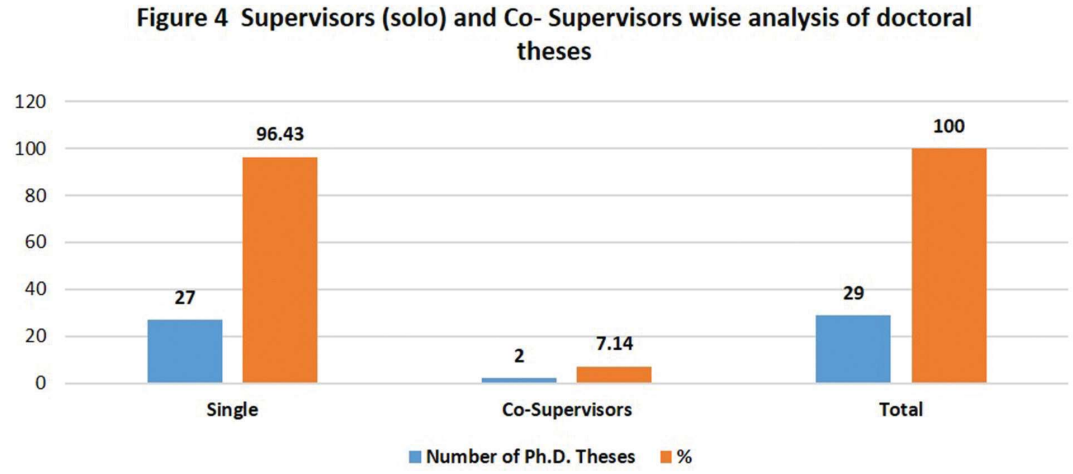

Table 4 shows the supervisors and co-supervisors' doctoral theses in the field of physics. Out of the total number of 29 Ph.D. theses submitted to Doctor Harisingh Gour Vishwavidyalaya, this study found that the maximum number of Ph.D. have completed single supervisors 27 (96.43%) in the first rank of this study and co-supervisors wise Ph.D. have completed a total number of 2 (7.14%) in the second rank of this study.

Table 5: Top most Supervisors ranking list of theses

Research supervisors	Numberof theses	Ranking	Percentage %
Dr. Mohan Tiwari	10	1	34.48
Dr. R.A. Singh	7	2	24.14
Dr. Ranveer Kumar	4	3	13.79
Dr. Ashish Verma	4	=3	13.79
Dr. R.S. Kasana	2	4	6.90
Dr. K.M. Kesharwani	1	5	3.45
Dr. R.K. Pandey	1	=5	3.45
Total	**29**	-	**100.00**

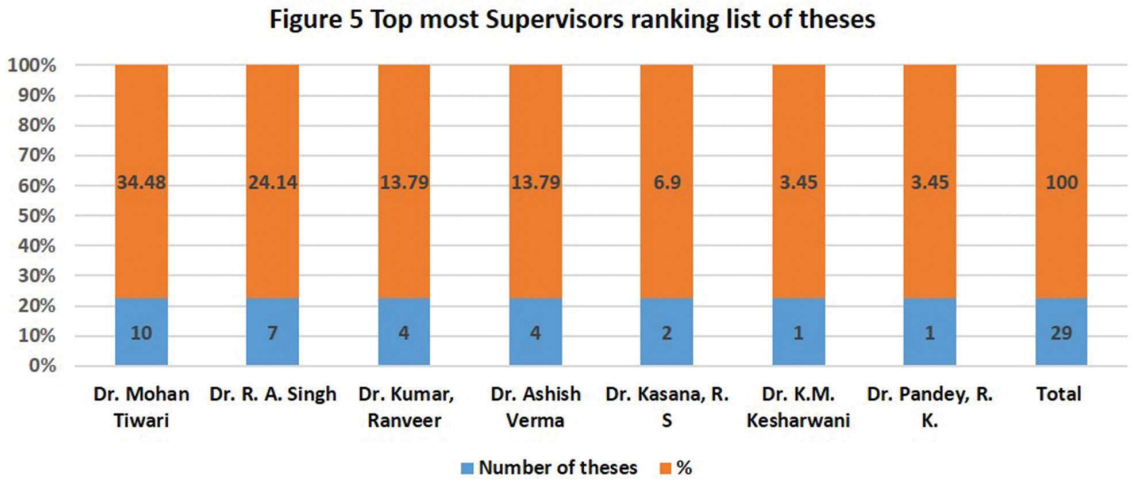

Table 5 Analysis of the ranking of the guides is to find out that Dr. Mohan Tiwari ranked first and had a total of 10 successful completed Ph.D. degrees, followed by Dr. R. A. Singh with a total of 7 theses and Dr. Kumar, Ranveer, having 4 completed research candidates at their credit research guides successfully completed a total number of 29 research topics till 2001-2010 from DHSGSU (M.P) India.

Table 6: Core Subject wise analysis of doctoral theses in Physics

Subject covered	Number of theses	Percentage %	Rank	C.F.	C.F. (%)
Digital Systems	5	17.24	**1**	5	17.24
Electronic Properties	5	17.24	**=1**	10	34.48
Drug Molecules	4	13.79	**2**	14	48.28
Optical devices	3	10.34	**3**	17	58.62
Microprocessors	3	10.34	**=3**	20	68.97
Space Plasma	3	10.34	**=3**	23	79.31
kinetic Alfven wave	2	6.90	**4**	25	86.21
Interferometric Techniques	1	3.45	**5**	26	89.66
Substituted Benzenes	1	3.45	**=5**	27	93.10
Borax Glasses	1	3.45	**=5**	28	96.55

Subject covered	Number of theses	Percentage %	Rank	C.F.	C.F. (%)
Ceramic Materials	1	3.45	**=5**	29	100.00
Total	**29**	**100.00**	**-**	**29**	**100.00**

Figure 6 Core Subject wise analysis of doctoral theses

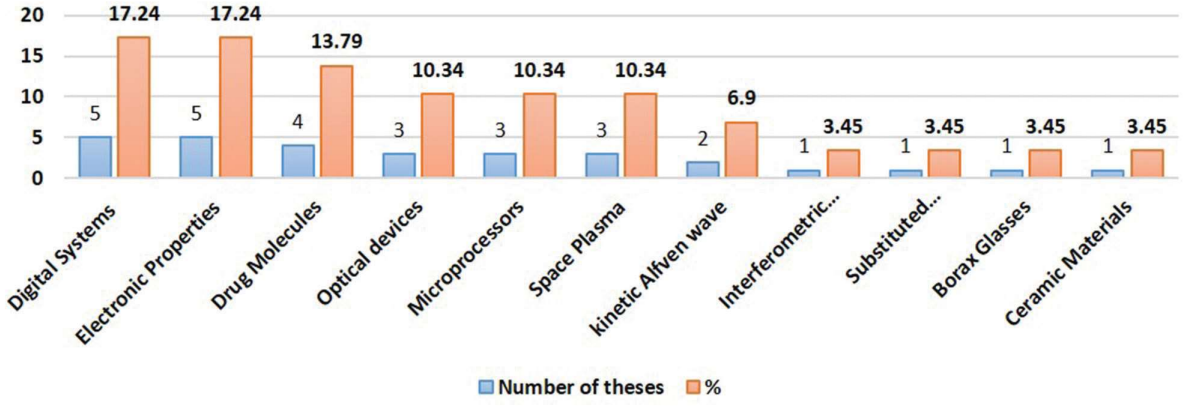

Table 6 It can be clearly visible from the core-subject-wise distribution of doctoral theses in the field of physics in DHSGSU (M.P.) India. Based on this, it is concluded that the study's first rank is digital systems and electronic properties, both of which have the highest core subject research trends. find out the total number of theses is 5 (17.24%), followed by Drug Molecules 04 (13.79%), followed by optical devices, microprocessors, and space plasma with 3 (10.34%) theses. kinetic Alfven wave 2 (6.90%), four rank. Followed by Interferometric Techniques, Substituted Benzenes, Borax Glasses, and Ceramic Materials, the same research has been done, but only one (3.45%) of the core subjects has been done.

Table 7: Subject areas wise Cited top most Journals based on Leading Scimago Journal Category Ranking List for highly Cited top most journals and Scimago categories

Rank	Name of Journal	Country	T. C.	Scimago Journal Category
1	Journal of Geophysical Research	United States	496	Agricultural and Biological Sciences
2	Journal of Solid-State Ionics	Netherlands	280	Chemistry
3	Journal of Chemical Physics	United States	172	Physical and Theoretical Chemistry
4	Journal of Applied Physics	United States	160	Physics and Astronomy
5	Journal of Non-Crystalline Solids	Netherlands	146	Materials Science
6	Spectrochimica Acta	Netherlands	130	Chemistry
7	Journal of Physical Chemistry A	United States	122	Chemistry
8	Journal of the American Ceramic Society	United States	118	Materials Science
9	Planetary and Space Science	United Kingdom	102	Earth and Planetary Sciences
10	Physical Review Letters	United States	92	Physics and Astronomy
11	Indian Journal of Pure & Applied Physics	INDIA	74	Multidisciplinary
12	Geophysical Research Letters	United States	56	Earth and Planetary Sciences
13	Journal of Sound and Vibration	United States	46	Engineering
14	Journal of Materials Research	Switzerland	44	Engineering

Rank	Name of Journal	Country	T. C.	Scimago Journal Category
15	Journal of the Optical Society of America	United States	42	Physics and Astronomy
16	Journal of IEEE Transactions on Communications	United States	39	Engineering
17	Journal of Thin Solid Films	Netherlands	31	Materials Science
18	International Journal of Robotics Research	United States	30	Computer Science
=18	Journal of Space Science Reviews	Netherlands	30	Earth and Planetary Sciences
19	Polymer International	United Kingdom	28	Chemistry
=19	Journal of Physics and Chemistry of Solids	United Kingdom	28	Chemistry
=19	Indian Journal of Chemistry	INDIA	28	Chemistry
20	Journal of the Indian Chemical Society	INDIA	27	Chemistry
21	Materials Research Bulletin	United Kingdom	26	Engineering
22	Journal of the Electrochemical Society	United States	25	Chemistry

Figure 7 Ranking list for highly cited top most journals and Scimago categories

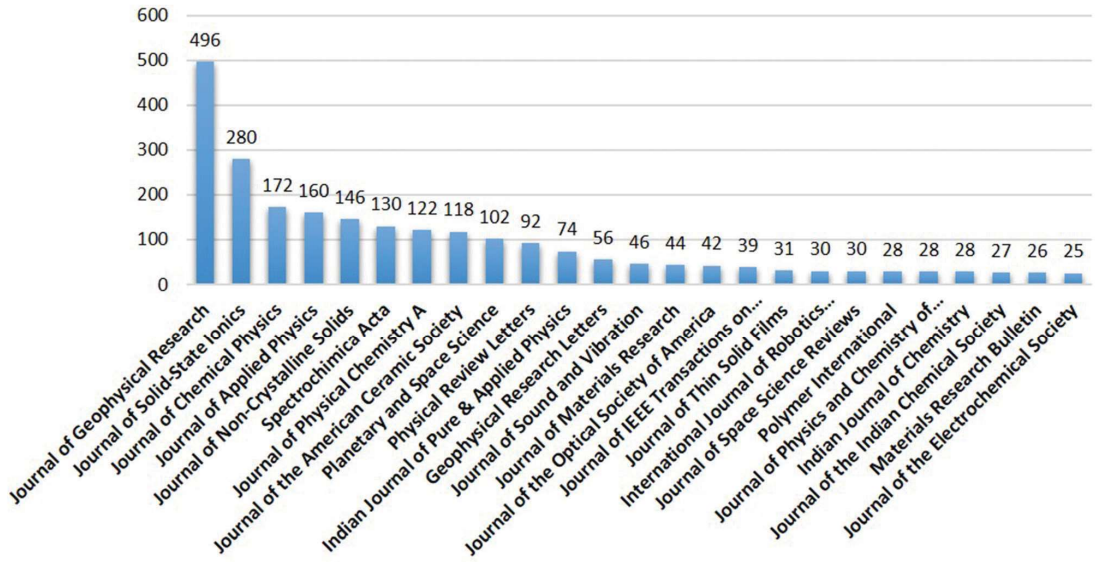

Table 7 shows the ranked list of highly cited journals and their Scimago categories in the field of physics at Doctor Harisingh Gour Central University. The first-ranked journal was "Journal of Geophysical Research," with a total number of 496 citations, which is the most usable information source for research communities. The second-ranked journal was "Journal of Solid-State Ionics," with 280 citations. The third-ranked journal was "Journal of Chemical Physics," with 172 citations and findings from this study.

Table 8: Country-wise top ten Journals ranking in Physics

Country	T.C.	Percentage %	C. F.	C. F. (%)	Rank
United States	1498	31.44	1498	31.44	1
Netherlands	823	17.28	2321	48.72	2

Country	T.C.	Percentage %	C. F.	C. F. (%)	Rank
United Kingdom	685	14.38	3006	63.10	3
India	465	9.76	3471	72.86	4
Switzerland	282	5.92	3753	78.78	5
China	252	5.29	4005	84.07	6
South Africa	135	2.83	4140	86.90	7
Japan	123	2.58	4263	89.48	8
Australia	112	2.35	4375	91.83	9
Germany	108	2.27	4483	94.10	10
Other all countries	281	5.90	4764	100.00	--
Total	4764	100.00	--	--	--

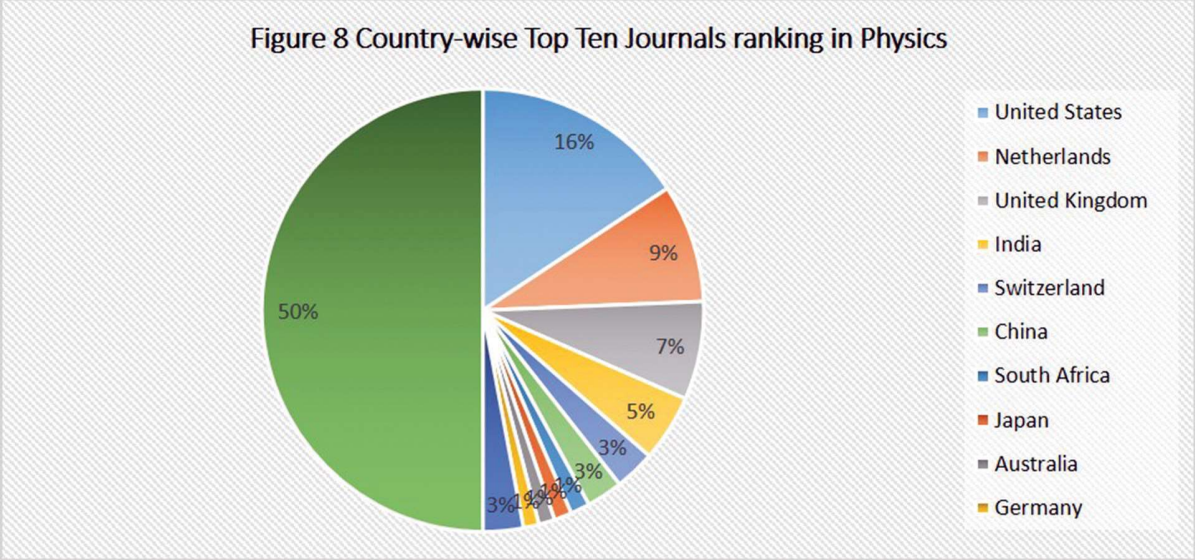

Table 8 Top ten country-wise rank distribution of journal citations the first rank of this study is the United States, which contributed 1498 (31.44%) maximum citations, followed by the Netherlands in second rank with 823 (17.28%) citations and the United Kingdom in third rank with 685 (14.38%) citations. India's fourth rank contributed 465 (9.76%) citations. Followed by Germany is the lowest citation, with a total number of 108 (2.27%) with ten ranks, and all other countries contributed 281 (5.90%) citations to the findings of this study.

DISCUSSION

- Bibliographic form-wise Information Source in Physics: find out the total citations. It was found that the greatest number of citations (4764) (70.75%) show that this study journal is the most usable information source.
- It is indicated from the study is find out the maximum number of citations cited by the Ph.D. theses in years 2007 that is maximum six Ph.D. theses total number of 1511 (22.44%) most citations and year 2003 is total number of 162 (2.41%) is lowest citations findings of this study.
- Authorship pattern wise findings is most research trends is two authors with total number of 1552 (32.58%) citations, while single-authored citations are second highest with 1497 (31.42%) citations, followed by three-authored citations accounting for 854 (17.93%) citations. It is concluded from the analysis that two authored papers are cited

in more numbers than single, three, four, and more than ten authored papers.

- Supervisors (solo) and co-supervisors wise, find out the doctoral theses in the field of physics. Out of the total number of 29 Ph.Ds., the maximum majority of Ph.Ds. have completed solo supervisors 26 (96.43%) in the first rank of this study, and co-supervisors wise, PhDs have completed a total of 2 (7.14%) in the second rank of the study.
- Ranking of supervisors wise, find out that Dr. Mohan Tiwari ranked first and had a total of 10 successful completed Ph.D. degrees, followed by Dr. R. A. Singh with a total of 7 theses and Dr. Kumar, Ranveer, having 4 completed research candidates at their credit research guides successfully completed a total number of 29 research topics till 2001-2010 from DHSGSU.
- Core-subject wise distribution of doctoral theses in the field of physics in Doctor Harisingh Gour Vishwavidyalaya, Madhya Pradesh, India is: find out the maximum Ph.D. have done first rank is Digital Systems and Electronic Properties both are got highest core subject research trends find out the total number of with 5 (17.24%), followed by drug molecules with 04 (13.79%), followed by optical devices, microprocessors, and space plasma with 3 (10.34%) theses. kinetic Alfven wave 2 (6.90%), four rank. Followed by Interferometric Techniques, Substituted Benzenes, Borax Glasses, and Ceramic Materials, the same research has done only one (3.45%) of the core subjects research has done.
- Ranked list of highly cited journals and their Scimago categories in the field of physics. The first ranked journal was "Journal of Geophysical Research," with a total number of 496 citations, which is the most usable information source by research communities. The second-ranked journal was "Journal of Solid-State Ionics," with 280 citations. The third ranked journal was "Journal of Chemical Physics," with 172 citations. The overall study finds that journals are the most informative information source used by researchers and professors.
- This study results *table 8.8:* top ten country wise rank distribution of journal citations the first rank of this study is the United States, which contributed 1498 (31.44%) maximum citations and was the most prolific country of journals ranking findings of this study.

CONCLUSION

The study is based on the field of physics citations available in doctoral theses in the fields of physics awarded by DHSGSU (M.P.) India available at: Shodhgangae-thesis and physical mode offline plateform Ph.D. theses on JLN Central Library by Dr. Harisingh Gour University. The study found that journal articles are the most cited sources. The increasing trends in innovative research and ideas for researchers. The study finds that foreign information sources are preferred by the researchers due to the qualitative nature of the research. This study will be very helpful for librarian collection development policy, budget, selection of periodicals, and study materials invarious science Strems. This study future very helpful for subject expert in Physics and research community, scholars of Physical sciences discipline research tools for physics in the most informative and productive journals in the field of physics in particular areas can be helpful for librarians and research scholars. Information needs and requirements can be recognized by these kinds of studies.

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