ORIGINAL ARTICLE

Research Supporting Roles of Search Engines and Knowledge Portals among the Scientific Community of CSIR Organisations in Uttar Pradesh, New Delhi and Uttaranchal

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Abstract

The libraries of different institutes of CSIR are the major supporting services to achieve the targeted goals. A research supporting library provides effective and efficient services to its users.To utilize the online research resources, the search engine functions as interface that is designed to search for information on the World Wide Web. Now days there are many search engines and knowledge portals deployed in the scientific studies. A few of them are most used search engines and knowledge portals used in scientific searches. The prime objective of this survey describes the main purpose for using search engines and knowledge portals. This study has been all about keeping scientists and research scholars of CSIR organisations in "Uttar Pradesh", "Uttaranchal" and "New Delhi". The study explores few aspects as awareness, about search engines and knowledge portals. The usage and popularity of search engines and knowledge portals in routine scholarly tasks have been identified and studied in context of the scientific achievements. There has been an attempt to find the linkage between searching tools and the research outcomes. Based on the findings, the study suggests proper training and awareness through library to the users, marketing of knowledge portals and their services through advertisement.

Keywords: Search Engines; Knowledge Portals; CSIR Organisations; Purpose; Scientific Community; Research Supporting Role.

Introduction

A search engine is a software system that is designed to search for information on the World Wide Web. The search results are generally presented in a line of results often referred to as search engine results pages (SERPs). The information may be a specialist in web pages, images, information and other types of files. Some search engines also mine data available in databases or open directories. Unlike web directories, which are maintained only by human editors, search engines also maintain real-time information by running an algorithm on a web crawler. Whereas Knowledge portals are the websites that provides a single point of access to the tacit and explicit knowledge that support members of the institutions or organizations in all aspects of their learning, teaching, working, research and other activities. Now days there are many search engines and knowledge portals deployed in the scientific studies. A few of the most used search engines and knowledge portals used in scientific searches are. The libraries of different institutes of CSIR are the major supporting services to achieve the targeted goals. The library of a research institute has collection of books, journals, technical trade literature, government documents, potential standard specifications, dissertations and

theses, research reports, photocopies of research documents, microfilms, and clippings, etc. These materials are organized in a scientific and helpful manner to serve the needs of scientists engaged in developing new technologies. A research supporting library provides effective and efficient services to its users.

Objectives of the Study

- To find out the awareness about the Search Engines and Knowledge Portals.

- To Know the research supporting role of Search Engines and Knowledge Portals.

- To Find Out the Purpose for Using Search Engines and Knowledge Portals.

Scope and Limitation

This study is based on "Research Supporting Roles of Search Engines and Knowledge Portals among the Scientific Community of CSIR Organisations in Uttar Pradesh, New Delhi and Uttaranchal". The scope of this study is limited to the using Search Engines and Knowledge Portals for academic and research purpose.

Literature Review

The available literature review on the research supporting role and utilization of search engines and knowledge portals reveals that the search engines and portals extensively utilized by the scientific community of CSIR organisations all over the world for dissimilar motives and goals. Jacso (2008)investigated into the depths of the requirements of new search engines and the need for more search engines, ability as a search engine, with varying results and also compares this new search engine to other more favourable search engines. Aharony (2012) has analysed academic library websites content in those ten years and has suggested lot of changes based on rising utilization of e- journals and web 2.0 applications. He has highlighted his study based on library users particularly on the large users of graphics in academic library websites. Singh and Mahajan (2010) Concludes that Students, research scholars and faculty members of chemistry and allied subjects are deriving benefit in academic study and research from the use of University's chemistry portal. Allison (2010) focused the ever increasing challenge faced by the Libraries, in today's dynamic world is to provide relevant information to diverse users having

differing needs. These innovative discovery tools available on information portals cater to most of the research and instructional needs of research communities by organizing and presenting.

Meera and Rehana (2010) investigated the fact that a web-based service of this kind in select subjects of study (knowledge domains) ensures accessibility of open access literature for the scientific community and incorporated popular search engines Google and Yahoo for generating comprehensive lists of open access journals in mathematics. Kumar, B.T., Sampat and Pavithra (2010) performed comparative study of two search engines Google, Yahoo and two metasearch engines Metacrawler , Dogpile on basis of the precision value and relative recall of searching capabilities and suggested search engines poor performance relative to the meta search engines in terms of precision but metasearch engines were poor than search engines on recall parameter comparison. Bowler, Hong and He (2011) analysed the hyperlinks leading to sixteen health websites in order to assess the accessibility/visibility of teenager's health web portals. Bringula, R. P., & Basa, R.S. (2011) served as inputs for web portal development faculty of the University of the East-Manila. The data analysis inferred that most of the respondents were relatively young Master's degree holders, skilled in using the computer and the internet. Stabb and Alexander (2001) defined knowledge portals provide mapped views onto domain specific information on the World Wide Web, thus helping their users find relevant, domain-specific information. Kronenfelda and Doyle (2003 provides a framework and guide for hospital librarians working to meet the KBI needs of their institutions in a rapidly changing information environment. Two decades of 1970s and 1980s are known as, the "golden age" of hospital librarianship, this is because as the librarian's role as the key knowledge-based information (KBI) provider within the hospital was enhanced by the MEDLINE gatekeeper function.Tsuil and Fong (2012) explained a centralized access point for information, a wide range of tools and customized content for individual knowledge workers that are match their daily tasks requirements. Masrek, Jamaludin and Mukhtar (2010) research offered a snapshot of a library portal. It presented the opinions of users, regarding library portal's effectiveness. This work would be of value to digital library researchers and others interested in library portal effectiveness or design. Onaifo and Resmussen (2013) identified several website characteristics that can be optimized for higher SERP rankings. Analysed impact of

external links, as well as that of the number of indexed web pages by search engines on higher SERP rankings. Examined the phenomenon of search engine optimization (SEO) as a mechanism for improving libraries' digital content search-ability on the web. Taheri, Hariri and Fattahi (2014) used the data island method for creating the metadata records based on DCXML, MARCXML, and MODS and dealt with the index ability and visibility of the metadata element tag names. Novel kind of study never done beforefor web search engines.

Research Methdology

This is essentially a survey study. This study will use questionnaire- based survey method in order to achieve the above objectives; descriptive Research design will be used to perform the research. A detailed and well-structured questionnaire will be designed and distributed to the selected 1431 scientists and research scholars of the 11 CSIR libraries randomly selected samples to the gathering data. Out of which a total 1221 (85.33%) filled questionnaire were received back. The collected data will be analysed and tabulated by using statistical methods. SIMPLE Random sampling technique will be used for sampling procedure and the responses revealed in percentage and mean.

Data Analysis

Graph 1 shows the organization wise distribution of respondents. The total respondents are 1221 of eleven organisations. In CBRI 53 (4.3%), CDRI 215 (17.6%), CIMAP 140 (11.5%), CRRI 52 (4.3%), IGIB 190 (15.6%), IIP 72 (5.9%), IITR 146 (12.0%), NBRI 144 (11.8%), NISCAIR 56 (4.6%), NISATDS 18 (1.5%) and NPL 135 (11.1%).

Graph 2 shows the majority of scientists and research scholar (97.79%) stated yes that they know about the search and knowledge portals and only

Respondents of CSRIs Organizations

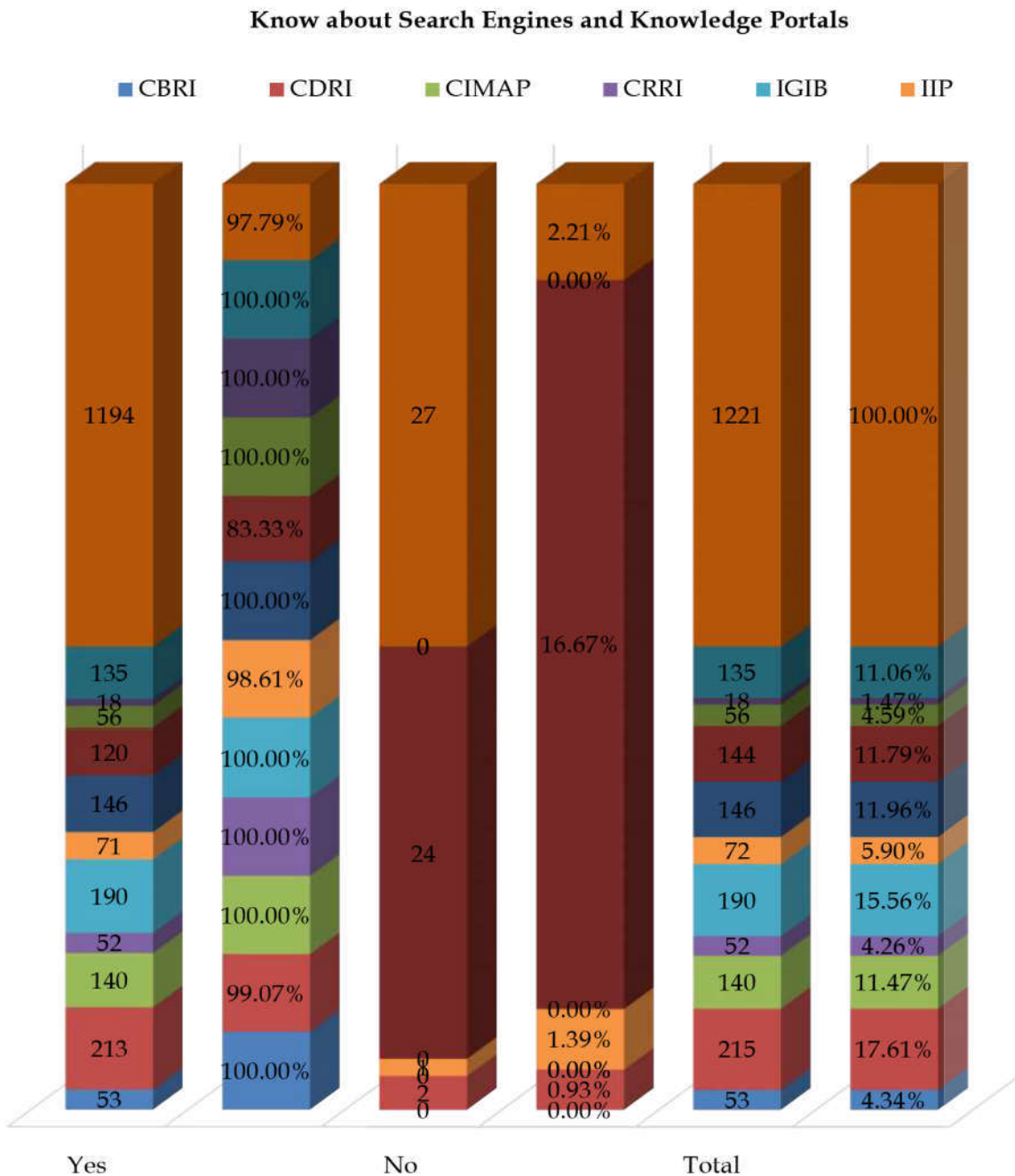|	CBRI	CDRI	CIMAP	CRRI	IGIB	IIP	IITR	NBRI	NISCAIR	NISTADS	NPL	Total
Percent	4.3	17.6	11.5	4.3	15.6	5.9	12.0	11.8	4.6	1.5	11.1	100.
No of Respondent	53	215	140	52	190	72	146	144	56	18	135	1221
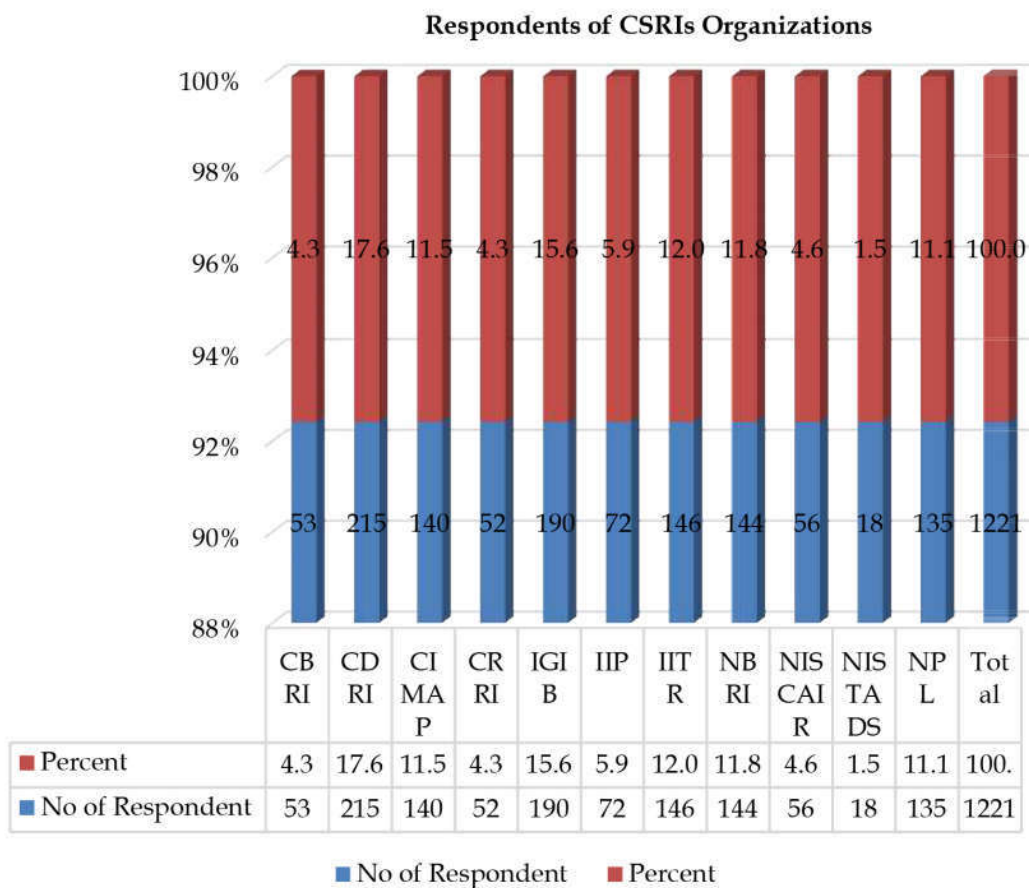
Graph 1: Organisation Wise Respondents

few (2.21%) of them stated don't Know about the search engines and knowledge portals. The scientific community are the chief dominators of the search engines and knowledge portals expertise, facilities and resources as they are appropriately aware with this technology.

Table 1 shows the characteristics of the search engines and knowledge portals. Majority scientists and research scholars were asked that the 'Relevancy' is main characteristics 49.30% with mean =54.73 followed by 'Easy Faster' 21.13% with mean =23.45 'Advance Search Option' 12.29% with mean= 13.64, 'Multiuser' 11.88% with mean=13.18 and last ranking statement is 'Hyperlinks' 5.41% with mean=6.00. It can be inferred that the characteristics of the search engines and knowledge portals play the effective role for increasing research productivity of scientific community.

Graph 2: Awareness about the serach engines and knowledge portals

Table 2 displays the purpose of using search engines and knowledge portals. Table 4 revealed that 64.95 % with mean=72.09 of the scientists and research scholars utilized search engines and portals for 'Research Purpose', 17.94% with mean=19.91 for 'Updating Knowledge', 10.32% with mean = 11.45 for 'Supporting Research Guidance', 3.36 % with mean=3.36 for 'Increasing Qualification' and 1.97% with mean=2.18 for 'Teaching Purpose' About 1.47% with mean= 1.64

for 'Preparing Conference Papers'. It is inspiring to observe that the scientific community were effecting utilization of search engines and Knowledge portalsfor research purpose as well as other academic purpose.

Table 3 shows ability to find academic and research information available information. The highest response rate for ability to find information is 'Good' 47.09% with mean =52.27. The

Table 1: Characterstics of Serach Engines and Knowledge Portals

The Characteristics of the Search engines and knowledge portals													
Organisation	Relevancy		Advance search		Easy faster		Multi user		Hyperlinks		Total	
CBRI	28	52.83%	12	22.64%	11	20.75%	0	0.00%	2	3.77%	53	4.34%
CDRI	172	80.00%	5	2.33%	28	13.02%	7	3.26%	3	1.40%	215	17.61%
CIMAP	11	7.86%	0	0.00%	67	47.86%	62	44.29%	0	0.00%	140	11.47%
CRRI	31	59.62%	6	11.54%	11	21.15%	1	1.92%	3	5.77%	52	4.26%
IGIB	113	59.47%	38	20.00%	34	17.89%	0	0.00%	5	2.63%	190	15.56%
IIP	40	55.56%	13	18.06%	15	20.83%	1	1.39%	3	4.17%	72	5.90%
IITR	79	54.11%	25	17.12%	35	23.97%	0	0.00%	7	4.79%	146	11.96%
NBRI	24	16.67%	14	9.72%	14	9.72%	61	42.36%	31	21.53%	144	11.79%
NISCAIR	31	55.36%	10	17.86%	13	23.21%	0	0.00%	2	3.57%	56	4.59%
NISTADS	8	44.44%	4	22.22%	1	5.56%	2	11.11%	3	16.67%	18	1.47%
NPL	65	48.15%	23	17.04%	29	21.48%	11	8.15%	7	5.19%	135	11.06%
Total=	602	49.30%	150	12.29%	258	21.13%	145	11.88%	66	5.41%	1221	100.00%
Mean	54.73		13.64		23.45		13.18		6.00			
SD	49.94		11.13		18.10		24.14		8.56			

Table 2: Purpose of using serach engines and knowledge portals

Purpose_ of using Search engines and knowledge portals.													
Organisation	Research purpose		updating knowledge		supporting research guidance		Preparing conference papers		Increasing qualification		For teaching		Total
CBRI	40	75.47%	2	3.77%	7	13.21%	1	1.89%	2	3.77%	1	1.89%	53	4.34%
CDRI	165	76.74%	31	14.42%	4	1.86%	0	0.00%	15	6.98%	0	0.00%	215	17.61%
CIMAP	85	60.71%	33	23.57%	22	15.71%	0	0.00%	0	0.00%	0	0.00%	140	11.47%
CRRI	36	69.23%	10	19.23%	3	5.77%	1	1.92%	2	3.85%	0	0.00%	52	4.26%
IGIB	98	51.58%	47	24.74%	30	15.79%	6	3.16%	5	2.63%	4	2.11%	190	15.56%
IIP	40	55.56%	13	18.06%	12	16.67%	2	2.78%	3	4.17%	2	2.78%	72	5.90%
IITR	75	51.37%	35	23.97%	19	13.01%	3	2.05%	7	4.79%	7	4.79%	146	11.96%
NBRI	144	100.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%	144	11.79%
NISCAIR	38	67.86%	8	14.29%	5	8.93%	2	3.57%	2	3.57%	1	1.79%	56	4.59%
NISTADS	7	38.89%	6	33.33%	4	22.22%	0	0.00%	0	0.00%	1	5.56%	18	1.47%
NPL	65	48.15%	34	25.19%	20	14.81%	3	2.22%	5	3.70%	8	5.93%	135	11.06%
Total=	793	64.95%	219	17.94%	126	10.32%	18	1.47%	41	3.36%	24	1.97%	1221	100.00%
Mean	72.09		19.91		11.45		1.64		3.73		2.18			
SD	48.44		16.29		9.80		1.86		4.38		2.89			

second ranking response is 'Very Good' 24.49% with mean = 27.18 The third ranking response is 'Excellent' 20.97% with mean =23.27. The fourth ranking response is 'Poor' 6.39% with mean =7.09 The last ranking response is 'Very Poor' 1.06% with mean =3.92. Subsequently the search engines and knowledge portals are performing encouraging ability to find academic and research information available information for scientific community.

Table 4 reveals "The usefulness of find the search engines and knowledge portals as tools for your academic and research purposes". The highest response is 'Very Useful' 44.39% with mean = 49.27 The second ranking response is 'Useful' 30.14% with mean = 33.45. The third ranking statement is 'Indispensable' 15.23% with mean = 16.91. The fourth ranking response is 'Some What Useful' 9.99% with mean =11.09. The last ranking response is 'Totally Useless' 0.25% with mean = 0.27. Search engine and

knowledge portals the continuallyexhausting technology helps as single point for all the requirements of scientific community. scientists and research scholars were well aware about the usefulness of find the search engines and knowledge portals as tools for your academic and research purposes.

Graph 3 shows "Information on the search engines and knowledge portals has become important resources for academic and research purposes". The 62.74 % scientists and research scholars of CSIR's organisations is 'Agree' the available information on the SEs and KPs has become important resources. The second ranking response is 'Strongly Agree'28.67%. The lowest ranking response is 'Partially Agree' with 8.60%. Research productivity of scientific community is the main challenges for the present knowledge society. An effort has been here to identify search engines, knowledge portals

Table 3: Ability to find academic and research information

Organisation	Very Poor		Poor		Good		Very Good		Excellent		Total	
CBRI	0	0.00%	5	9.43%	22	41.51%	16	30.19%	10	18.87%	53	4.34%
CDRI	0	0.00%	6	2.79%	162	75.35%	30	13.95%	17	7.91%	215	17.61%
CIMAP	0	0.00%	22	15.71%	98	70.00%	20	14.29%	0	0.00%	140	11.47%
CRRI	0	0.00%	6	11.54%	20	38.46%	15	28.85%	11	21.15%	52	4.26%
IGIB	0	0.00%	12	6.32%	74	38.95%	61	32.11%	43	22.63%	190	15.56%
IIP	0	0.00%	5	6.94%	31	43.06%	21	29.17%	15	20.83%	72	5.90%
IITR	0	0.00%	10	6.85%	59	40.41%	44	30.14%	33	22.60%	146	11.96%
NBRI	13	9.03%	0	0.00%	24	16.67%	26	18.06%	81	56.25%	144	11.79%
NISCAIR	0	0.00%	4	7.14%	21	37.50%	17	30.36%	14	25.00%	56	4.59%
NISTADS	0	0.00%	0	0.00%	9	50.00%	7	38.89%	2	11.11%	18	1.47%
NPL	0	0.00%	8	5.93%	55	40.74%	42	31.11%	30	22.22%	135	11.06%
Total=	13	1.06%	78	6.39%	575	47.09%	299	24.49%	256	20.97%	1221	100.00%
Mean	1.18		7.09		52.27		27.18		23.27			
SD	3.92		6.14		45.52		15.90		23.19			

Table 4: Usefulnes of find serach engines and knowledge portals as tools for your academic and research purpose

Usefulness of find the Search Engines and knowledge portals as tools for your academic and research purposes

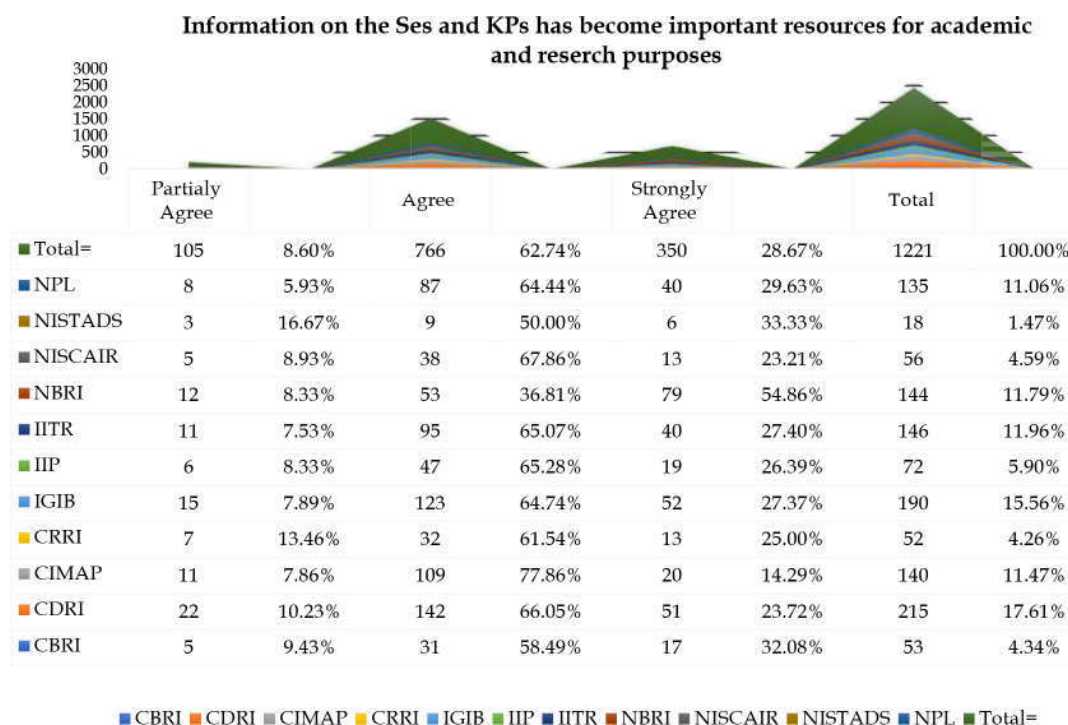| Organisation	Totally useless		Somewhat useful		Useful		Very useful		Indispensable		Total	
CBRI	0	0.00%	6	11.32%	12	22.64%	24	45.28%	11	20.75%	53	4.34%
CDRI	3	1.40%	17	7.91%	147	68.37%	24	11.16%	24	11.16%	215	17.61%
CIMAP	0	0.00%	22	15.71%	11	7.86%	96	68.57%	11	7.86%	140	11.47%
CRRI	0	0.00%	5	9.62%	14	26.92%	22	42.31%	11	21.15%	52	4.26%
IGIB	0	0.00%	24	12.63%	49	25.79%	81	42.63%	36	18.95%	190	15.56%
IIP	0	0.00%	9	12.50%	17	23.61%	33	45.83%	13	18.06%	72	5.90%
IITR	0	0.00%	17	11.64%	37	25.34%	64	43.84%	28	19.18%	146	11.96%
NBRI	0	0.00%	0	0.00%	24	16.67%	108	75.00%	12	8.33%	144	11.79%
NISCAIR	0	0.00%	6	10.71%	15	26.79%	23	41.07%	12	21.43%	56	4.59%
NISTADS	0	0.00%	0	0.00%	9	50.00%	7	38.89%	2	11.11%	18	1.47%
NPL	0	0.00%	16	11.85%	33	24.44%	60	44.44%	26	19.26%	135	11.06%
Total=	3	0.25%	122	9.99%	368	30.14%	542	44.39%	186	15.23%	1221	100.00%
Mean	0.27		11.09		33.45		49.27		16.91			
SD	0.90		8.48		39.74		34.26		10.05			

and communication associated technologies can improve research productivity of scientific community.

Table 5 Scientific community were also asked the factors influence the proper utilization of search engines and knowledge portals. Table 8 exposed that the first ranking factors is 'More Information' 41.77% with mean =46.36. The second ranking factors is 'Most Popular' 24.24% with mean =26.91. The third ranking factor is 'Easy to Connect' 17.94% with mean =19.91. The fourth factor is 'User Friendly' 14.17%

with mean 15.73. The last ranking factors 'I Know the Search' 1.88% with mean = 2.09. Scientists and researchers much rest on search engines and knowledge portals for improving their research productivity. They were know that the above factors influence the proper utilization of search engines and knowledge portals.

Disscussion and Findings

A majority 90% of Scientists and research scholars of CSIR organisations Aware about the search engines

Graph 3 data:

	Partialy Agree		Agree		Strongly Agree		Total	
Total=	105	8.60%	766	62.74%	350	28.67%	1221	100.00%
NPL	8	5.93%	87	64.44%	40	29.63%	135	11.06%
NISTADS	3	16.67%	9	50.00%	6	33.33%	18	1.47%
NISCAIR	5	8.93%	38	67.86%	13	23.21%	56	4.59%
NBRI	12	8.33%	53	36.81%	79	54.86%	144	11.79%
IITR	11	7.53%	95	65.07%	40	27.40%	146	11.96%
IIP	6	8.33%	47	65.28%	19	26.39%	72	5.90%
IGIB	15	7.89%	123	64.74%	52	27.37%	190	15.56%
CRRI	7	13.46%	32	61.54%	13	25.00%	52	4.26%
CIMAP	11	7.86%	109	77.86%	20	14.29%	140	11.47%
CDRI	22	10.23%	142	66.05%	51	23.72%	215	17.61%
CBRI	5	9.43%	31	58.49%	17	32.08%	53	4.34%

■CBRI ■CDRI ■CIMAP ■CRRI ■IGIB ■IIP ■IITR ■NBRI ■NISCAIR ■NISTADS ■NPL ■Total=

Graph 3: Information on search engines and knowledge portals has become important resources

Table 5: Factors influence the proper utilization of search engines and knowledge portals

	Factors influence the proper utilization of Search Engines and knowledge portals										
Organisation	Most popular		More information		User friendly		I Knw the search		Easy to connect		Total	
CBRI	14	26.42%	17	32.08%	9	16.98%	1	1.89%	12	22.64%	53	4.34%
CDRI	17	7.91%	153	71.16%	13	6.05%	0	0.00%	32	14.88%	215	17.61%
CIMAP	22	15.71%	54	38.57%	53	37.86%	0	0.00%	11	7.86%	140	11.47%
CRRI	12	23.08%	21	40.38%	5	9.62%	1	1.92%	13	25.00%	52	4.26%
IGIB	59	31.05%	62	32.63%	25	13.16%	6	3.16%	38	20.00%	190	15.56%
IIP	21	29.17%	24	33.33%	9	12.50%	3	4.17%	15	20.83%	72	5.90%
IITR	45	30.82%	49	33.56%	18	12.33%	5	3.42%	29	19.86%	146	11.96%
NBRI	43	29.86%	62	43.06%	14	9.72%	0	0.00%	25	17.36%	144	11.79%
NISCAIR	14	25.00%	19	33.93%	7	12.50%	2	3.57%	14	25.00%	56	4.59%
NISTADS	7	38.89%	5	27.78%	2	11.11%	0	0.00%	4	22.22%	18	1.47%
NPL	42	31.11%	44	32.59%	18	13.33%	5	3.70%	26	19.26%	135	11.06%
Total=	296	24.24%	510	41.77%	173	14.17%	23	1.88%	219	17.94%	1221	100.00%
Mean	26.91		46.36		15.73		2.09		19.91			
SD	17.18		40.49		14.02		2.30		10.59			

and knowledge portals. A majority of 49.30% with mean= 54.73 scientists and research scholars of CSIR organisations felt that the "Relevancy" are the elementary characteristics of information available on search engines and knowledge portals. 64.95% scientists and research scholars of CSIR organisations using search engines and knowledge portals for "Research Purpose" with mean =72.09. A majority 80% above scientists and research scholars responded positively for "Ability to find Academic and Research Information". About 65.27% with mean =72.45 scientist and research scholars of CSIR organization felt that the search engines and knowledge portals are "helpful". About 44.39% with mean =49.27% research scholars and scientist of CSIR organization felt that very useful find the search engines and knowledge portals as tools for academic and research purpose. A 62.74% scientist and research scholars of CSIR organization were "agree" information on search engines and knowledge portals has become important resources for academic and research purpose. And 41.77% with mean = 46.36 "More information" is the factor influence the proper utilization of search engines and knowledge portals of "scientist and research scholars".

Conclusion and Suggession

The current study examined the usage and effectiveness of among the scientists and research scholars of CSIRS institutes. The study revealed that, the most of scientists and research scholars of CSIRS institute have very much aware a about the search engines and knowledge portals. The study also revealed that the "Relevancy" is the most elementary characteristics of information available on search engines and knowledge portals. The study identified that the majority of scientists and research scholars of CSIR organisations using search engines and knowledge portals for "Research Purpose". The study has also identified that the scientists and research scholars good ability to find academic and research information on search engines and knowledge portals and search engines and knowledge portals are "helpful". This research has also revealed that the very useful find the search engines and knowledge portals as tools for academic and research purpose and "More information" is the factor influence the proper utilization of search engines and knowledge portals of "scientist and research scholars".

- Librarians of CSIR institutes should effort in aggregation with subject specialists to choice appropriate knowledge portals and search engines for scientists and research scholars utilization.

- Determine the specialized search engines and portals which are utilized to retrieve for specific need of scientists and researchers on web pages.

- Librarians of CSIR institutes should support the scientists and researchers to discriminate among the valuable are not valuable knowledge portals and search engines and require to endure emphasise assessmentstandards

- Librarians need to be talented to assists the scientists and research scholars in the direction of useful knowledge portals and search engines that can be found on the internet hub.

- Library instructional programme must be conducted on the utilization of disparate search engines and knowledge portals and their tactics in recovering specific prerequisite based data.

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