
CITATIONS ANALYSIS OF JOURNAL OF CREATIVE BEHAVIOUR: A CRITICAL STUDY

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ABSTRACT

Describes the uses of citations in retrieval of information in the area of creative behaviour. Presents and indicates the various trends citing the study of Journal of Creative Behaviour (JCB). Confirms the fact that the journal is the main source of information in the field of creativity, psychology and education followed by monograph and other forms of reading materials. Highlights the core journals in the subject which indicates that out of 121 journals came across during the study; only 37 journals have five or more citations which contributes about 60 per cent of the total information in all. Discusses the Bradford's law and their application in the field of citation and bibliometric analysis.

KEYWORDS: Bibliometric Analysis, Creativity, Citation Analysis, Ranking of Journals, Core Journals, Authorship Pattern, Bradford's Law.

Introduction

Citation analysis is regarded as a very effective technique for analysing the library records to decide the actual need of the documents. The main objectives of citation analysis is to evaluate and interpret citations received by the articles, authors, institutions and other

scientific analysis. This method entails the analysis of the bibliographical references that is usually appended with every research communication. Reviews and analysis of such citations reveals useful information like the relative use of different kinds of documents such as books, periodicals etc. This implies the use of quantitative and statistical methods to examine the current trends of information. The term 'bibliometrics' was coined in 1969 by Alan Pritchard. He suggested that 'bibliometrics' should replace the term statistical bibliography which had been in practice since 1923 when it was coined by E W Hulme. Pritchard defined bibliometrics as the application of mathematics and statistical methods to shed light on the process of the written communication and on the nature and course of a discipline.

Objectives of the Study

The main objectives of the study of the *Journal of Creative Behaviour* (JCB) are following:

1. To ascertain the most productive country in the area of 'creativity' and 'creative behaviour.
2. To analyse author and authorship patterns in citing articles;
3. To ascertain the language(s) in which the most literature on the subject has been published.
4. To identify the core journals in the field of creativity and related discipline.
5. To analyse types and distribution of cited references.
6. To examine the most effective form of documents.
7. To decide periodical procurement policy.

Sources of Journals

Creativity is an important and elusive concept. The approaches to studying creativity called '5-Ps', namely Persons, Process, Product, Press (situation) and Potentials are quite popular. It is regarded as the greatest asset of mankind. In order to carry out the citation analysis of creativity behaviour of the students, faculty and social scientists '*Journal of Creative Behaviour*' was found very suitable, comprehensive, and appropriate in the field of creativity. *Journal of Creative Behaviour* (JCB), published by the American Psychological Association is a quarterly publication devoted to the field of creativity and problem solving.

Interdisciplinary in nature, JCB is known throughout the world for its originality and uniqueness. The journal is suitable not only for educationists, but psychologists, sociologists, and other social scientists as well. For the purpose of this study “Journal of Creative Behaviour” published from the 2006 to 2008 has been selected as the source journal.

Methodology

For the purpose of this study, all the 12 issues of *Journal of Creative Behaviour* from the year 2006 to 2008 were consulted and citations noted on separate sheet of papers. The author, title, source of journals, place, form, text language, volume, and publishers were also noted down. Finally, the data collected was compiled, tabulated, arranged and rearranged according to different bibliographic form, subject, and country of origin, authorship pattern and subject-wise for the study. The journal was retrieved from the North-Eastern Hill University, Tura Campus Library, Tura, Meghalaya which possesses good number of learned journals in all fields of knowledge. Efforts were made to review all the references available during the period carefully.

Results and Discussion

In the process, 1872 citations from twelve issues of *Journal of Creative Behaviour* was found from the year 2006-08 with an average of 156 citations per article. These findings supports the notion that educationist, psychologists, research scholars, graduates, and other library users are still finding the journal articles more suitable for updating their knowledge in creativity and problem solving than the other sources of information. Out of 1872 references, 1053 citations were found from different journals articles, and 819 citations from the other sources of information i.e. monograph handbooks, research report, and conference proceedings, etc. The basic differences among journal citations and other sources can be seen in following table. (Table 1)

Table1: Distribution of Citations According to Bibliographic Form

S.No.	Bibliographic Forms	Count	Percentage	Ranking
1.	Journals	1053	56.25	1
2.	Monographs	574	30.66	2
3.	Handbooks	87	4.65	3
4.	Conference Proceedings	31	1.65	5
5.	Research Report	29	1.55	6
6.	Thesis	32	1.71	4
7.	Technical Bulletin	31	1.65	5
8.	Encyclopedias	21	1.12	7
9.	Internet Serf	12	0.64	8
10.	Government Publications	02	0.11	9
	Total	1872	100.00	

Authorship Pattern

The findings reveal that 431 citations were contributed by single authors and 380 citations by two authors which cover more than 78 per cent of the total journals articles cited during the last three years. The citations counting further reveals that the remaining articles are produced by three or more authors. This infers the notion that in the field of social sciences shared contribution of research articles are less compared to science discipline as it has frequently been observed in the various science based journals. (Table 2)

Table 2: Authorship Pattern of Journals Citations

S. No.	Types of Author	Citation Count	% of Citation	Ranking
1.	Single Authors	431	42.34	1
2.	Two Authors	380	35.51	2
3.	Three Authors	158	14.24	3
4.	Four Authors	53	04.78	4
5.	Five Authors	18	01.51	5
6.	Six Authors	11	01.04	6
7.	Seven or more Authors	02	00.18	7
	Total	1053	100.00	

Core List of Cited and Ranking of Journals

The most commonly cited journals, *Journal of Creative Behaviour* (JCB), was cited 121 times during the last three years by the social scientists. Table 3 (A) provides the list of prominent journals cited by the academicians, research scholars, and social scientists. The list covers 37 journal titles which were counted 5 times or more. These journals counted 59.6 percent of total journal citations and remaining citations were cited 4 times or less which counts 39.4 percent. The study further reveals that maximum journals (more than 90 percent) consulted by the users are from USA which shows its dominance in the field of creativity and problems solving. The first 25 journals accounted for nearly 55 percent and remaining 1028 journals have almost 45 percent citations. (Table 3)

Table-3 (A)
Ranking List of Journals in Creative Behaviour

S.No.	Rank No.	Journal Title	Citation	Cumulative Citations	%	Country
1.	01	Jl of Creative Behaviour	121	121	11.49	USA
2.	02	Creativity Research Journal	112	233	10.65	USA
3.	03	Jl of Personality & Social Behaviour	51	284	4.84	USA
4.	04	American Psychologists	32	316	3.13	USA
5.	05	Psychological Report	30	346	2.85	USA
6.	06	Jl of Applied Psychology	27	373	2.56	USA
7.	07	Jl of Educational Psychology	21	394	1.99	USA
8.	08	Roeper Review	19	413	1.81	USA
9.	09	Jl of Personality	17	430	1.61	USA
10.	10	Gifted Child Quarterly	15	445	1.42	USA
11.	11	Perceptual & Motor Skill	11	456	1.04	USA
12.	12	Educational Leadership	10	466	0.94	USA
13.	13	Memory & Recognition	09	475	0.85	USA
14.	13	Annual Review of Psychology	09	484	0.85	USA
15.	13	Psychological Bulletin	09	493	0.85	USA
16.	14	Educational & Psychological Review	08	501	0.75	USA
17.	15	Organizational Behav & Human Dec Pro	07	508	0.66	USA
18.	15	Jl of Eduatl Psychology, Learning & Mem	07	515	0.66	USA
19.	15	Jl of Psychology	07	522	0.66	JAPAN
20.	15	Jl of Social Behaviour & Personality	07	529	0.66	USA
21.	15	Creative & Gifted Child Quarterly	07	536	0.66	USA
22.	14	Educational Research	06	542	0.57	USA
23.	14	Jl of Counseling Psychology	06	548	0.57	USA
24.	14	Jl of Social Psychology	06	554	0.57	USA

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25.	14	Personality & Social Psychology Bulletin	06	560	0.57	USA
26.	14	Psychological Review	06	566	0.57	USA
27.	14	Gifted Educational International	06	572	0.57	USA
28.	13	Academy of Management Review	05	577	0.47	USA
29.	13	American JI of Psychology	05	582	0.47	UK
30.	13	Intelligence	05	587	0.47	USA
31.	13	International JI of Psychology	05	592	0.47	USA
32.	13	Jl of Abnormal Psychology	05	597	0.47	USA
33.	13	Jl. of Advertising Psychology	05	602	0.47	USA
34.	13	Jl of Personality Assessment	05	607	0.47	USA
35.	13	Child Development	05	612	0.47	USA
36.	13	Review of Educational Research	05	617	0.47	USA
37.	13	Social Behaviour & Personality	05	622	0.47	USA

Table-3 (B)

A	Journal Cited 4 times	70	692	6.64	
B	Journal Cited 3 times	63	755	5.98	
C	Journal Cited 2 times	114	869	10.85	
D	Journal Cited 1 times	184	1053	17.47	
	Total		1053	100.00	

Country Wise Citations of Journals

From the cited documents, it was observed that works emanating from as many as 25 countries were cited by the scientists, research scholars on creativity and problems solving areas. Among all, the USA dominated with 1389 citations (74.19 per cent), followed by UK accounting 169 citations (9.02 per cent). China occupied third place with a list of 45 citations (2.40 per cent), followed by Canada 24(1.24 per cent), and Japan with a total of 20 (1.06 per cent) are five major countries. Remaining 20 countries in the list contributed only 12.09 (per

cent) of total citations. This indicates that major research work in the field of creativity and related discipline are carried out in western countries rather than Asian countries. Table 4 depicts the picture of same.

Table 4: Country vs Bibliographic Form Wise Distribution of Cited Journals

Country	Journals	Mono graph	Confere. Proceed.	Hand-books	Theses	Tech Bulletin	Others	Total	%
USA	874	397	08	43	19	17	35	1393	74.42
UK	79	60	02	41	01	01	12	180	9.95
China	09	28	03	09	03	02	08	62	3.31
Canada	10	13	02	00	00	02	02	29	1.54
Japan	11	05	01	00	04	02	02	25	1.33
Brazil	05	11	03	03	01	00	00	23	1.22
Norway	05	08	01	00	01	00	01	16	0.85
Ireland	08	04	00	00	00	03	00	15	0.80
India	07	03	01	00	00	00	00	11	0.58
Australia	04	05	02	00	01	00	01	11	0.58
Turkey	03	03	01	01	01	01	00	10	0.53
Holland	07	03	01	00	00	00	00	12	0.64
Belgium	05	03	00	00	00	00	02	08	0.42
New Zeland	06	02	00	00	00	00	01	10	0.53
Germany	03	04	00	00	00	00	00	08	0.42
Russia	02	04	00	00	00	00	00	06	0.33
S Africa	02	03	00	00	00	00	00	05	0.26
Finland	02	03	00	00	00	00	00	05	0.26
Italy	02	03	01	00	00	00	00	06	0.33
S Korea	02	02	02	00	01	01	00	08	0.42
Denmark	02	02	01	00	00	00	00	05	0.26
Hawaii	01	04	01	03	00	00	00	06	0.33
Poland	01	03	00	00	00	00	00	04	0.21
Sweden	01	02	01	00	00	00	01	06	0.33
Venezuela	02	01	00	00	00	00	00	03	0.16
	1053	574	31	87	32	31	64	1872	100.00

Averages of Citations

This study reveals the fact that altogether 1872 references were found in 42 research papers published from the year 2006 to 2008. The overall citations of journals was highest (25.07 per cent) among all the reading materials, whereas search on internet for research materials in the area of creativity was found very less (0.30 per cent) counting by the researcher. This also proves that traditional forms of bibliographic material i.e. monograph, journals, handbooks, research reports, and conference proceedings are still holding prominent place instead of web search in the area of creativity and related discipline. There were 44.57 citations per paper during the period. The following table depicts the true picture of the average of citations and exact difference can be better seen in figure 1.

Table 5 : Averages of Citations

S. No.	Averages	Citations per paper
1.	Average number of citations per paper	44.57
2.	Average number of book sited per paper	33.66
3.	Average number of journals sited per paper	25.07
4,	Average number of web citations	0.30
5.	Average number of miscellaneous citations	5.54

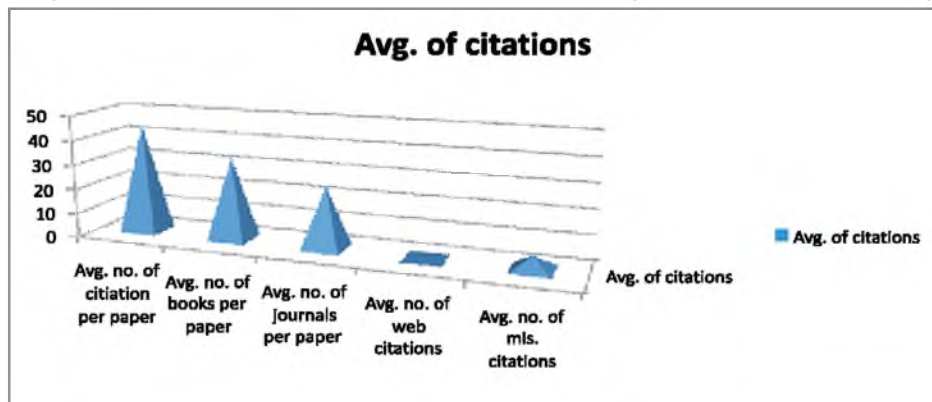


Figure 1 : Average Number of Citations per Paper

Dates of Journal Citations

The journals cited for references in JCB revealed some interesting fact to the researcher about the year of citations quoted during the past. Some of the journals were cited which are 250 years old. However, ratio of journals cited during the period 1990-1999 was the highest (45.99 percent). The journal cited pre-1950 is the lowest (1.65 percent). The table 6 shows the decade wide development of the articles in the field of creativity and related discipline.

Table 6: Dates of Journals Citations

S. No.	Dates of Journal Citations	Frequency	Percentage
1.	2000-2008	214	11.43
2.	1990-1999	861	45.99
3.	1980-1989	411	21.95
4.	1970-1979	189	10.09
5.	1960-1969	114	6.08
6.	1950-1959	52	2.77
7.	Pre-1950	31	1.65
	Total	1872	100.00

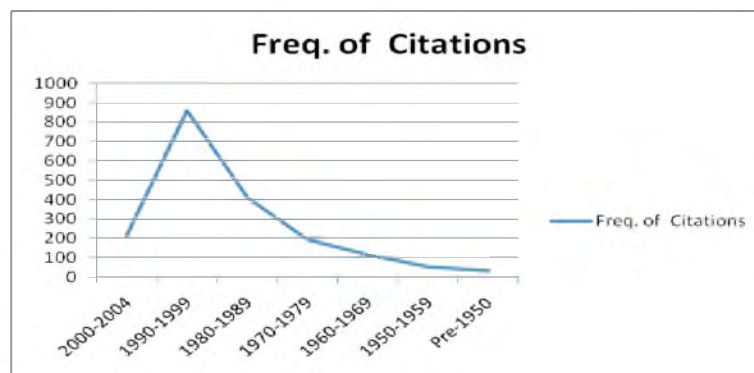


Figure: 2: Graphic Presentation of Dates of Citations of Journals

Most Cited Authors

The study of citation and bibliographic analysis revealed the frequency of most cited authors in the *Journal of Creative Behaviour*. Some of the authors are common in all the papers. Table 7 shows the frequency of most cited authors in the field of creativity and related discipline.

Table 7: Most Cited Authors

Rank	Frequency of Authors	No. of Citations
1	Amabile, T. M.	34
2	Torrance, E.P.	31
3	Bayer, J.	30
4	Csikzzentmihalyi, M	24
5	Sternberg, R J & Lubart, T I	22
6	Stenberg, R J	21
6	Guliford, J P	21
7	Runcho, M A	18
8	Parnes, S J	14
9	Kirton, M J	12
10	Momford	11
11	Parnes, S J & Nollor, R B	10
11	Rudowicz, E & Hui, D	10
12	Ludwing, A M	09

Application of Bradford's Law

B C Brookes was among the first to address the application of Bradford's law. Bradford's law of scattering (1934) together with the Zipf's law and Lotka's laws is often regarded as the best model or example of scientific research that is available in the field of librarianship.

Bradford's law states that documents on a given subject is scattered (distributed) according to a certain mathematical function so that a growth in papers on a subject requires growth in the numbers of journals/information sources. Then for a given topic, a large number of the relevant articles will be concentrated in a small number of journals. The remaining articles will be dispersed over a large number of journals. The number of the groups of journals to produce nearly equal numbers of articles is roughly in the proportion to $1 : n : n^2 \dots$ where n is called the Bradford's multiplier. Bradford believed then to be constant in the different zone i.e. $n_1 = n_2 = n$. In other words, Bradford's law states that a small core of journals have as many articles on a given subject as a much larger journals, which again has as many papers on the subject as n^2 journals. After analyzing the same into area of creativity and related discipline, it was found that 2.65 per cent of the total journals accounted for 53.7 percent of the articles out of 1053 journals published. However, Rao (1948) indicated that Bradford's, assumption was wrong as the Bradford's multiplier varies zone to zone.

Conclusion

The citation analysis of '*Journal of Creative Behaviour*' indicates that researcher mainly depend on journal sources for their information use. The study further reveals that the core journal satisfies the maximum number of users. It further indicates that the journals are the most important tools for furthering of any research to give more authenticity and creativity to work. It is also evident from the data analysis that English language dominates over other languages. The United States of America alone dominates in the area of creativity as it produces most forms of the reading materials in the field.

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