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Core International Journals of Classification Systems:

An Application of Bradford's Law

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By analyzing the source documents and their references by classification systems researchers in the world, this paper presents core journals of the field during the period 1981-1990. The findings show that journal literature in this study confirms to Bradford's law and provides *Cataloging & Classification Quarterly (CCQ)* as the most productive journal, *Library Resources & Technical Services (LRTS)* as the most frequently cited journal of the field and *Knowledge Organization (KO)*, formally *International Classification (IC)* as the second productive and frequently cited journal of the field. The principal journals publishing source items differs from those used as reference sources of the field. The high-ranked international journals over the years are clearly those to be acquired to obtain the greatest coverage of the field for the least cost.   (Author)

1. Introduction

Librarians are concerned with collecting records of human culture and organizing them effectively. The collection is arranged in a systematic manner, and this arrangement is generally referred to as a classification. Rapid growth of libraries and their use have brought many developments in classification. The application and mechanics of classification and the role of classification are receiving much attention with the introduction of online catalogs.

According to Williamson's (1) survey, 93.4 percent of the 46 schools of library and information science in the U.S. offered at least one required course in classification in 1990. In Via's (2) study of collecting levels for 24 subject areas in schools of library and information science, classification and cataloging ranked first in 1984 and second in 1989. She emphasized a need to embrace new subject areas while continuing full support for the more traditional subject areas such as classification for collection development in support of schools of library and information science education.

2. Problem

While few will doubt that a considerable amount of research work has been published on classification in the world, the international literature on classification systems have not been fully explored. Consequently, Dahlberg (3) called for a statistical analysis of the literature on various classification systems in various countries. Frost (4) also found that only a few studies focused on the literature of cataloging and classification in her study of the literature of online public access catalogs. As she mentioned, there were only 2 major studies on the literature of classification.

The first one was Frohmann's (5) study, a bibliometric analysis of the literature of cataloguing and classification during the period 1969-1980. The second study of the field was Afolabi's (6) study of the literature of bibliographical classification during the period 1960-1980. Although 2 major studies of the literature have been undertaken, we still lack data on core international literature on classification systems during the past decade. The information sources used for the previous studies were almost exclusively taken from the English language literature. Foreign language materials in the field were not seriously considered even though their coverage in library and information science was increasing.

3. Purpose of Study

The primary purpose of this study was to identify core international journals of classification systems published in the period 1981-1990. The literature of general and special classification systems which were designed to arrange publications on library shelves was the main interest of the present writer. The professional literature on classification systems should be shared and exchanged internationally in order to improve existing classification systems and to make significantly better systems that improve intellectual access to research materials. In view of a continuous increase in the number of publications, their rising costs, and limited library budgets, most libraries of the schools of library and information science need to identify and acquire the most useful foreign publications. By analyzing the references used by authors in the classification systems literature, it is possible to determine some core lists of journals. By looking at the references of classification systems research, the international flow of the literature can be measured quantitatively and the strength or weakness of this communication can encourage librarians to increase purchase or encourage use of foreign materials. Also, this examination can bring or help to stimulate a greater awareness of, and interest in, some neglected but potentially important foreign language classification systems literature.

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4. Methodology

The method that was employed in this research was a reference study, an analysis of references of journal articles and other formats with the objective of identifying the core international journals. Narin (7) noted that the scatter of references across disciplinary journals to identify most of the important or core literature could be revealed by this method.

4.1 Sampling Procedure

The specific body of data used in this study was a sample of international literature published during 1981-1990 that had a primary focus on universal classification systems. For the purpose of the present study, data were collected through the *Classification Literature* section of *International Classification (IC)*, an extensive annotated bibliography section of the journal for the relevant period. It was accepted as a primary comprehensive current bibliography for the international literature of classification systems in a wide variety of languages and from a wide variety of sources. Since the title of the journal changed to *Knowledge Organization (KO)* in 1993 after this study period, the present writer used the former title of the journal throughout this paper.

4.1.1 Level-one Literature

A body of source documents about classification systems literature that were published between 1981-1990 was referred to as the "level-one literature" of the classification systems. Since this study focused on classification systems for classifying publications and arranging them on shelves, to keep the focus on classification systems, from the division "4 On Universal Systems" of the classification literature scheme in *Classification Literature* of every issue of *IC*, all entries, including "see also" references, were chosen for this study. Table 1 shows the characteristics of the population, source items and their references. Eleven hundred and thirty four entries were found as source items under the division "*4 On Universal Systems.*" Among them, this researcher attempted to collect physically all 495 source items with references from the following major university and research libraries: Indiana University, University of Illinois, University of Michigan, University of California at Los Angeles, University of California at Berkeley, and Columbia University. Some source items that could not be obtained through those libraries directly were collected by using interlibrary loan services. Four hundred and twenty source items were found, nearly 85 percent of the universe of level-one literature.

4.1.2 Level-two Literature

The references included in the source items (the level-one literature) comprised a body of references, termed the "level-two literature" of classification systems. As shown in Table 1, the level-two literature produced 5302 references in all—that is, the level-two literature cited by

Table 1: Characteristics of Population – Source Items and Their References

	N	%
Population of source items	1134	100.0
Serials	968	85.3
Books	152	13.4
Proceedings	11	1.0
ERIC documents	2	0.2
Theses	1	0.1
Total	1134	100.0
Items without references	639	56.3
Items with references: (Level-one literature)	495	43.7
Serials	427	86.3
Books	59	11.9
Proceedings	6	1.2
ERIC documents	2	0.4
Theses	1	0.2
Total	495	100.0
Accessible items with references	420	84.8
Inaccessible items with references	75	15.2
Serials with references	381	90.7
Monographs with references	39	9.3
Level-two literature: Serials	2002	37.8
Level-two literature: Monographs	3300	62.2
Level-two literature (cited in entire level-one literature)	5302	100.0

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authors of the level-one literature. Among them, 2002 serial references were found and analyzed for this study.

In all cases, the lists of references were located at the end of articles or books. The titles assigned to these lists were varied, for examples, "notes," "references," and "reference notes." Some of them were entitled "bibliography," but were determined to be reference lists only if there were no other lists in that article. If a document had only footnotes or citations instead of references, these were determined to be the references of that document. Since this was a reference study, once a reference to a particular item was selected, all further references to that item in a publication were ignored. However, when multiple references were listed in a single footnote, all of them were included.

From the level-one and the level-two literatures, the citing and cited literatures were analyzed and the literature referenced by authors of the level-one literature dealing with classification systems provided the data for the major analyses of the study. Both the level-one and the level-two literatures were submitted to the *Bibliometrics Toolbox* (8) that ranked the level-one and level-two literatures from the highest productivity and reference figures to the lowest and produced frequency tables and bibliographs from the ranked figures. The results were arranged in the tables and figures divided by the level-one literature and the level-two literature and then those were compared. In order to find the core journal literature of classification systems, Bradford's law and the Goffman and Warrren's minimum cohort were used.

4.2 Bradford's Law

Samuel Clement Bradford (9) examined the literature of applied geophysics and lubrication and observed a marked regularity in the frequency distribution of articles in journals where they had been published. In applying his formulation to bibliographies on lubrication and applied geophysics, he ranked scientific journals in the order of their decreasing productivity of articles on the subject and divided them into 3 groups, each containing an approximately the same number of articles. Bradford (10) found that the number of journals in the 3 groups increased by a fixed ratio as 1:n:n when n was a constant which was proper of the collection of journals called the multiplication factor and that a small number of journals in a field yielded a high proportion of all the relevant articles, and he identified "zones" of less productive journals, each zone producing a reduced yield of relevant articles. This was known as Bradford's verbal formulation.

In order to substantiate his verbal formulation, Bradford constituted a graphical formulation based upon his observation, and Brookes (11,12) called it a "bibliograph." Along the x-axis Bradford arranged journals in order of decreasing productivity of references relevant to the given topic, while the y-axis corresponded to the cumulative number of references. When the cumulative number of references, R(n) was plotted against the logarithm of the cumulative number of productive journals (log n), the rising curve was followed by the approximately straight line. The journals corresponding to the rising curve constituted a 'nucleus', a small number of highly productive journals. The straight line was attained only in part and the plotted points eventually formed the curve which drooped below the linear prediction of the Bradford law. Since Groos (13) first noticed it, the upper nonlinear curve, the final saturation tendency has been called the 'Groos Droop'. Generally, droop was explained in numerous alternative explanations. Brookes (14) explained it as an indication of the incompleteness of the bibliography since many journals were widely dispersed, and consequently it was difficult to ensure that all have been found in every bibliography. Challenging Brookes' traditional interpretation, O'Neil (15) found that Groos droop appeared only in the plots of larger subsamples and he concluded that the cumulative frequency curve was one of the family of curves as an integral part of the scatter process. Saracevic and Perk (16) interpreted it as an indication of the lack of interaction among subject literatures. Price (17) attributed this phenomenon to the inadequate methods of retrieving data for the minimally productive sources and it had no underlying theoretical basis. Braga (18) interpreted it as being a function of maturity of the subject area. Lockett (19) mentioned that Braga's interpretation was most close to Bradford's concern with the kinship of scientific journals. Praunlich and Knoll (20) contended that the droop was an intrinsic feature of the Bradford distribution and that the law of scattering was precise only up to a point. Recently, Egghe and Rousseau (21) found that Groos' droop could always be expected in interdisciplinary bibliographies. However, the exact cause of droop has not been completely understood yet.

Brookes (11) emphasized the importance of using Bradford analysis in the selection of journals for large library collections and Goffman and Morris (22) suggested the use of Bradford's law as an aid to selection decisions. Therefore Bradford's verbal and graphical formulations were applied as a tool for understanding the influence of particular journals.

The Goffman and Warren (23) minimum cohort, that was just larger than half the number of singleton journals (the journals that produce one article each) was used to divide a literature into a Bradford partitioning and to identify the core journals for this study. The Goffman and Warren method was employed by Goffman and Morris (22), Saracevic (24), Saracevic and Perk (16), Aiyepeku (25), and Brooks (26). Goffman and Morris (22) showed that a minimum Bradford zone proved to be especially appropriate as the base for decision for library acquisition of journals. Therefore a "core" in this study was defined as the most important works of a literature, as defined by the Goffman and Warren method of computing Bradford's law.

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5. Findings and Discussion

5.1 Core Journals in the Level-One Literature

Four hundred twenty seven journal articles were dispersed among 120 different journals over the 10 year period, 1981-1990. Table 2 shows that there were 4 (3.3 percent) journals that supplied one-quarter of all the serial source items. Two hundred and one (47 percent) source items were published out in 13 (11 percent) different periodicals. At the other extreme, 51 journals produced only one source item each over the 10 years studied here.

Looking at only the first two columns, one can see that the first journal contributed 47 articles while the next journal contributed 25. Scanning down the table, one can see that the number of references contributed by each successive journal dropped. In order to see what was happening more clearly, a third column headed "cumulation of journals" reported a running total for the references listed. The first three columns contained all of the information that this researcher needed to describe the distribution of references over journals. However, to make a graphical formulation, a fourth column "cumulative frequency of references" was added.

The first step in the analysis of the journal literature was to determine its distribution. From Table 2, a Bradford distribution was calculated using the procedures of Goffman and Warren. Their procedure produced the maximum number of Bradford zones, and consequently, the minimum Bradford multipliers. A Bradford multiplier was the number of journals of succeeding zone divided by the number of journals of the preceding zone. The minimum Bradford zone cohort provided by Goffman and Warren method was 26, just larger than half the number of journals that produce one article each (51/2+1 = 26). Using *Bibliometrics Toolbox* (8), it was possible to divide the data in Table 2 into 13 groups, and as shown in Table 3, *Cataloging and Classification Quarterly (CCQ)* was found as a core journal. The journal that constituted zone 1, *CCQ*, that contributed about 11 percent of the articles, was selected as the most productive journal in level-one literature.

The graphical representation of the journal distribution is given in Figure 1. Those in the columns labeled "Cumulation of Journals" were used for computing the horizontal axis, and those in the column labeled "Cumulative Frequency of References" were used to compute the vertical axis. The bibliograph showed that data confirm the Bradford graphical formulation. The graph began with a rising curve and then continued as a straight line. Towards the end, there was no deviation from the linear ideal of the Bradford's law.

The productivity of journals with respect to the source items is given in Table 4, along with the names of the 10 highest ranked journals. The list is arranged in descending order of frequency and lists each journal's geographic origin. The first ranked journal with most source items was *CCQ* and the second one was *IC*. Although the U.S. publication was ranked first, there were 3 publications

from Germany, 4 from Russia. It showed what the most productive countries of the field were and how the journal literature of the field presented itself internationally.

5.2 Core Journals in the Level-Two Literature

Table 5 ranked the most frequently cited to the least cited journals. From 1981 to 1990, 2002 references of the level-one literature appeared in 446 journals. At one extreme, 280 journals received only one citation each over the 10 years studied here. One thousand and twelve (50.4 percent) references came out in 24 (5.3 percent) different periodicals. Six (1.3 percent) of the journals received 490 (24.4 percent) of all citations to journals.

A very small number of journals accounted for the majority of journal citations, while a very large number of journals accounted for a small number of journals citations. These findings were similar to those of Schrader (27) for the *Journal of Education for Librarianship (JEL)* and Schrader and Beswick (28) for *Public Library Quarterly (PLQ)*. Based upon the minimum Bradford zone cohort (N=141) provided by Goffman and Warren, it was possible to divide the data in Table 5 into 13 groups by using *Bibliometrics Toolbox* as shown in Table 6. The core journal, identified by the Goffman and Warren method was *Library Resources & Technical Services (LRTS)*. This journal was therefore described as the most significant journal in the literature of classification systems.

The bibliography is shown in Figure 2. Instead of "*", a number was used to indicate the number of scores that were very close or were in that position on the bibliograph. The distribution of articles among journals showed that it was Bradfordian and there was a "droop" that had already been explained concerning its numerous causes in the methodology part.

Table 7 lists the frequency, name of the journals and the geographic origin of the top 24 journals in the level-two literature that accounted for half of the journal references.

Along the top 10 ranking journals, 5 come from the U.S., 2 were from Germany, 2 were from the U.K. origin and 1 was from India. The first, third, fourth, eighth and tenth rank went to journals from the U.S. The impact of U.S. journals was more pronounced than those from any other country.

All of the top 24 most cited titles in Table 7 were library and information science journals. *LRTS* led with 181 references. It was cited more than twice as often as the next ranking journal, *IC*. Katz and Katz (29) described *LRTS* as a library school collection that must be included. In Rice's (30) study of communication and library and information science journals, *LRTS* was designated a higher-status journal in "library science," which included scientific studies of practice and policy in academic and research libraries and some new trends in systems. In the periodical literature in information science, Pope (31) found that *LRTS* ranked fourth in the core journals for information science and second in the journals more productive than the median in library and information science. It was also

Table 2:Bradford Analysis of the Level-One Literature

Number of Journals*	Frequency of Articles	Cumulation of Journals		Cumulative Frequency of Articles	
1	47	1		47	
1	25	2		72	
1	17	3		89	
1	16	4	(3.3%)	105	(25.0%)
1	13	5		118	
3	12	8		154	
1	11	9		165	
1	10	10		175	
2	9	12		193	
1	8	13	(11.0%)	201	(47.0%)
4	7	17		229	
2	6	19		241	
2	5	21		251	
8	4	29		283	
13	3	42		322	
27	2	69		376	
51	1	120	(100.0%)	427	(100.0%)

* Number of journals producing a corresponding given number of references. The journals are ranked the most productive (rank 1) to the least productive journals.

Table 4:Top 13 Journals with Respect to Productivity in Level-One Literature

Rank	Frequency	Journal	Geographic Origin
1	47	Cataloging and Classification Quarterly (CCQ)	U.S.
2	25	International Classification (IC)	Germany
3	17	Dezimal Klassifikation-Mitteilungen	Germany
4	16	Library Resources & Technical Services (LRTS)	U.S.
5	13	Zentralblatt Fur Bibliothekswesen und Bibliographie (ZBB)	Germany
6	12	Bibliotekar Sofia	Russia
	12	International Forum on Information and Documentation	Netherlands
	12	World Patent Information	
9	11	Sovetskaya Bibliografiya	Russia
10	10	Nauchno-Tekhncheskaya Informatsiya 2	Russia
11	9	Herald of Library Science	India
	9	Information Technology and Libraries	U.S.
13	8	Sovetskoe Bibliotekovedenie	Russia

Table 3:Bradford Zone of the Level-One Literature

Zone	Journals	Articles	Multiplier
1	1	47	--
2	2	42	2.00
3	3	41	1.50
4	4	45	1.33
5	5	40	1.25
6	6	36	1.20
7	7	28	1.17
8	9	28	1.29
9	11	27	1.22
10	13	26	1.18
11	18	26	1.38
12	26	26	1.44
Remainders	15	15	--
Total	120	427	1.36*

* Average   Core Journal: CCQ.

Table 6:Bradford Zone of the Level-Two Literature

| Zone	Journals	Articles	Multiplier
1	1	181	
2	3	194	3.00
3	4	204	1.33
4	5	188	1.25
5	6	145	1.20
6	8	147	1.33
7	11	144	1.38
8	15	143	1.36
9	25	143	1.67
10	42	141	1.68
11	95	141	2.26
12	141	141	1.48
Remainders	90	90	--
Total	446	2002	1.63*

* Average   Core Journal: LRTS.

Table 5:Bradford Analysis of the Level-Two Literature Cited
in Level-One Literature

Number of Journals	Frequency of References	Cumulation of Journals		Cumulative Frequency of References	
1	181	1		181	
1	72	2		253	
1	62	3		315	
1	60	4		375	
1	59	5		434	
1	56	6	(1.3%)	490	(24.4%)
1	45	7		535	
1	44	8		579	
1	43	9		622	
1	41	10		663	
1	38	11		701	
1	34	12		735	
1	32	13		767	
1	27	14		794	
1	25	15		819	
2	24	17		867	
1	23	18		890	
2	22	20		934	
2	21	22		976	
1	19	23		995	
1	17	24	(5.3%)	1012	(50.4%)
2	16	26		1044	
2	15	28		1074	
4	14	32		1130	
2	13	34		1156	
3	12	37		1192	
2	11	39		1214	
8	10	47		1294	
4	9	51		1330	
3	8	54		1354	
6	7	60		1396	
6	6	66		1432	
9	5	75		1477	
18	4	93		1549	
27	3	120		1630	
46	2	166		1722	
280	1	446	(100.0%)	2002	(100.0%)
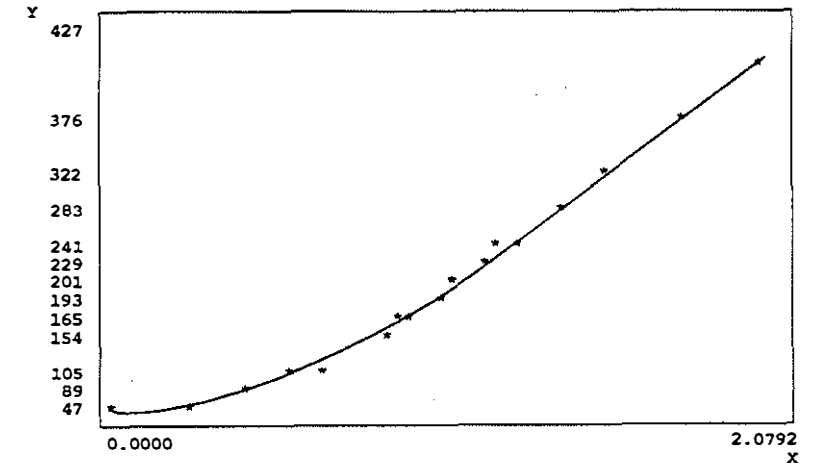
Y axis: Cumulative Number of Total Articles;
X axis: Log of Cumulative Number of Journals

Figure 1: Graphical Representation of a Bradford Distribution of
Level-One Literature
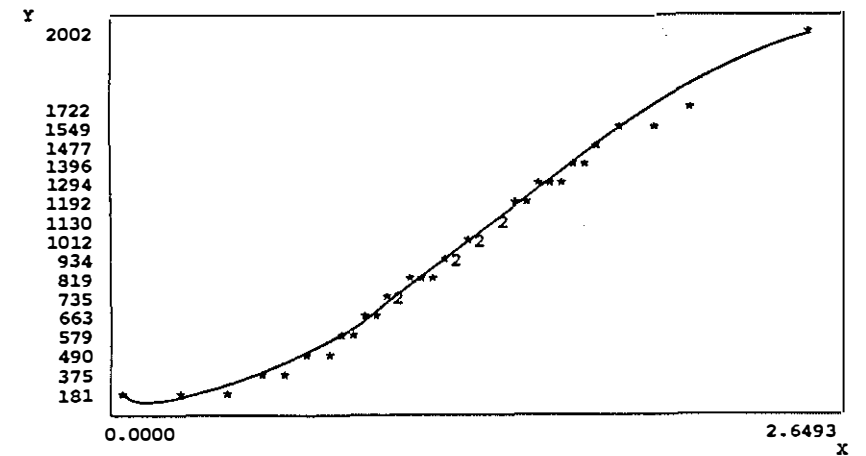
Y axis: Cumulative Number of Total References;
X axis: Log of Cumulative Number of Journals

Figure 2: Graphical Representation of a Bradford Distribution of
Level-Two Literature

Table 7:Top 24 Principal Journals in Level-Two Literature

Rank	Frequency	Journal	Geographic Origin
1	181	Library Resources & Technical Services (LRTS)	U.S.
2	72	International Classification(IC)	Germany
3	62	Library Journal (LJ)	U.S.
4	60	Cataloguing and Classification Quarterly (CCQ)	U.S.
5	59	Library Science with a Slant to Documentation	India
6	56	Zentrablatt Fur Bibliothekswesen Und Bibliographie (ZBB)	Germany
7	45	Journal of Documentation	U.K.
8	44	Cataloging Service Bulletin	U.S.
9	43	Catalogue and Index	U.K.
10	41	Journal of American Society for Information Science (JASIS)	U.S.
11	38	Dezimal Klassifikation- Mitteilungen	Germany
12	34	Library Quarterly (LQ)	U.S.
13	32	Information Technology and Libraries	U.S.
14	27	Indian Librarian	India
15	25	Library Science	India
16	24	Government Publications Review	U.S.
	24	Library Association Record	U.K.
18	23	American Libraries	U.S.
19	22	Aslib Proceedings	U.K.
	22	Herald of Library Science	India
21	21	College & Research Libraries	U.S.
	21	Journal of Academic Librarianship	U.S.
23	19	International Forum on Information Documentation	Netherlands
24	17	Sovetskaya Bibliografiya	Russia

listed in the core library journals of 1980 in Nour's (32) quantitative analysis of research articles.

At the top of both journal distributions for source items and references, *IC* was the second in rank. Katz and Katz (29) listed *IC* as a quality journal with an extensive annotated bibliography related to classification. Although IC was not the first in rank, it received an outstanding number of citations that placed it in second rank. The source items from the *Classification Literature* section of *IC* might produce this result. However, in Afolabi's (6) study, *IC* was not frequently cited. The possible reasons were: first, IC came into existence in 1974 and like many new journals, it took some time before its articles got cited; and second, his study included years in the sixties but the journal was not in existence then. This might give the articles in the existing journals the chance to be cited more than the articles in this journal.

Library Journal (LJ), which was not scholarly and was a vehicle for current awareness rather than for research, was ranked third. It was followed by *CCQ, Library Science with a Slant to Documentation, Zeitschrift für Bibliothekswesen und Bibliographie (ZfBB)* and others. The frequent citedness of *LJ* was found by Schrader (27),

Mittermeyer and Houser (33), and Schrader and Beswick (28) in other studies of library science. They pointed out the uncertainty of the quality of writing that was based heavily on nonresearch materials such as that in *LJ*. They mentioned that the possible reasons for the domination of *LJ* were its high frequency of appearance and dominant use of short announcements and news items. In a study of communication and library and information science journals, 1977-1987, Rice (30) found that *LJ* covered practice, training, news, and current topics in the field of librarianship.

The majority of the most cited journals listed in Table 7 were "special interest" titles. Their primary subject emphasis was technical services or classification. *LRTS*, which covered the technical services area, and *IC*, which concerned the classification area, received the 2 largest numbers of citations. Only 3 of the most cited journals, *LJ, Journal of Documentation,* and *Library Quarterly (LQ)* were not specialized journals.

The principal journals publishing source items on classification systems from 1981 to 1990 were not similar to those used as reference sources that had been published over the past 150 years. All the journals frequently used for

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source items were not always highly cited and vice versa. However, all highly used journals for source items had one or more citations. Especially noteworthy was the absence of any journals classified as other than library and information science in the principal journals.

The list of the top 24 principal journals in level-two literature (Table 7) differed from the list of the top productive journals in level-one literature (Table 4). First, among the top 10 journals, over half of the journals were different from each other. For example, *LRTS* ranked fourth within the top 13 journals in level-one literature while it ranked first in the level-two literature with more than 2 times of the number of citations of the next following journal. Similarly, though *CCQ* was listed as the most productive journal in the source items, it ranked fourth in the top principal journals of the cited literature. Therefore it showed that new journals like *CCQ* might take some time before its articles got cited and the most productive journals might not always mean the most significant journals in the field. Second, there was a large number of publications from Russia, e.g., *Bibliotekar Sofia, Sovetskaya bibliografiya (Sov. BBK), Nauchno Tekhnicheskaya Informatsiya (Nauch-Tekh. Inf.) and Sovetskoe Bibliotekovedenie (Sov. Bibl.)* in the most productive journals in the level-one literature. However, in the level-two literature, more than half of the top 10 publications cited had appeared in the U.S. journals, followed by German and Indian journals. It implied that many Eastern European articles in classification systems literature were not cited or left aside despite its tremendous potential and amount due to many reasons.

In a study of the literature of cataloguing and classification, Frohmann (5) found that *LRTS, Journal of Library Automation, Journal of Documentation, LJ,* and *LQ* were the core journals of the field. Later, in a study of the core literature of bibliographical classification, Afolabi (6) found that *Journal of Documentation, LRTS, Journal of the American Society for Information Science (JASIS), Library Association Record, Library Science with a Slant to Documentation* and *Aslib Proceedings* were core journals. Comparing their core journals with this study, all of their core journals except the *Journal of Library Automation* were listed in the top 24 frequently cited journals in this study. Thus one might conclude that many articles appearing in several journals in the literature had been frequently cited over the past 30 years. The high-ranked journals over the years were clearly those to be acquired to obtain the greatest coverage of the field for the least cost.

6. Conclusions and recommendations for future research.

This study identified the core journals of the classification systems literature and listed the principal journals of the field in the world. Differences in the principal journals publishing the source items and those used as reference sources have been addressed. The application of Bradford's verbal and graphical formulation to the classifica-

tion systems literature showed that the data confirmed to a Bradford distribution. Using Goffman and Warren method, *CCQ* appeared to be the most productive journal and *LRTS* was the most frequently cited journal of the field.

Analysis of the source items (the level-one literature) and their references (the level-two literature) produced interesting results. All the journals frequently used for source items were not always highly cited and vice versa. However, a similarity was observed for the absence of any journals classified as other than library and information science in the principal journals.

Further research covering the years that followed 1990 is recommended to determine if the core journals are consistent overtime. It will identify the new "core" and can provide an interesting comparison with the 1980s. In addition, it will be useful to see whether the distribution of circulating data in classification systems literature appear to confirm Bradford's law and have the same core journals of the field as in this study.

The findings of this study provide important listings of the literature of the field in an effort to develop a tool for the selection and acquisition of relevant materials. It identifies candidates for selection or cancellation in the literature of classification that are important to librarians involved in building and maintaining library science collections, especially when this information is used along with other judgments. While these findings are limited by the source items accessible and how references of the source items in the *Classification Literature* section of *IC* during the period 1981-1990, it may stimulate a great awareness of and interest in some neglected but potentially important foreign language classification systems literature. As a result, it will encourage international communication efforts that will bring fruitful cooperation, exchange of ideas and experience in the classification research area. Such efforts will open fields for the benefit of colleagues in other countries.

Acknowledgements

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