

Classification Literature in India: Analysis and Trend

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An attempt has been made to analyse the classification literature produced in India between 1932 and 1980. Some of the facets considered are: (1) type of literature (periodical, conference/seminar, books, theses), (2) Periodicals publishing CL, (3) Productive authors, (4) Yearwise distribution of CL, (5) Subjectwise analysis. The 160 Depth Schedules produced by Ranganathan and his school are listed in chronological sequence. Based on the analysis some conclusions were drawn. I.C.

1. Introduction

The field of classification in India has witnessed considerable research and development due to the pioneering and seminal researches of Dr. S.R. Ranganathan, who is considered to be the "Father of Library Science in India". He is the person who gave new dimensions to classificatory thought and practice and developed new concepts and seminal ideas which have been internationally recognised. He laid down the foundation of library science research in India. India has contributed substantially to the field of classification. The developments in the field of library science and information and the ever growing specialisation in the human endeavour and the incessant growth of knowledge has given increasing scope for research in the area of classification in India. India has provided scientific theoretical foundations to the study of classification. The scope of the study is restricted to the articles in the English language only, articles in Hindi and other regional languages have been excluded.

2. Scope of the Study

The present paper attempts at analysing the classification literature in India from the beginning (the first article in a periodical appeared 1932¹) till 1980. The study is towards reviewing literature in India and determining the trend in the literature production for classification research in India. For this purpose, depth analysis of the literature has been made.

3. Nature of the Classification Literature

It is of interest to analyse the unexplored treasure of classification literature in terms of its characteristic production etc.

The analysis of the literature is based on the scanning of the whole classification literature from all possible sources. The production of classification literature can be categorised according to

	Absolute No.	Percentage
Periodical Literature	624	76.6%
Conference/Seminar Literature	107	13.1%
Text Books	68	8.4%
Theses	15	1.8%

The analysis reveals that the major portion (76.6%) of the classification literature in India is in the form of periodical literature, followed by the conference literature which amounts to 13.1% of the total literature. The DRTC Annual seminar has not been included under the conference literature but under periodical literature because it is a regular publication. This percentage of conference literature is testimony to the fact that Indian library and information scientists are very aware of the importance of conferences and seminars in the development of a subject. Besides, a number of books have been published which contribute to 8.4% of the Classification literature a considerable number of research projects pertaining to classification are undertaken in library and information science schools and the results are published in the form of theses. So the literature incorporated (1.8%) in these theses remains the primary source material.

3.1 Periodical Literature

The ranking of periodicals in terms of the number of articles published on classification is as follows:

	Absolute No.	Percentage
Library Science with a Slant to Documentation	122	19.5%
Annals of Library Science and Documentation	115	18.4%
Herald of Library Science	101	16.1%
DRTC Annual Seminar	96	15.3%
Indian Librarian	54	8.6%
Annals of Indian Library Association	49	7.8%
IASLIC Bulletin	28	4.5%
Library Herald	23	3.6%
Modern Librarian	20	3.2%
Other Journals	16	2.6%

It is evident that *Library Science with a Slant to Documentation* is the most important and leading journal in India which publishes original articles on different aspects of classification. This journal was started by S.R. Ranganathan to report the different research activities of DRTC² and other research organisations. It is thus a research journal and most of the articles published in it are in the field of classification. At the second position in the order of ranking is *Annals of Library Science* published by the Indian National Scientific Documentation Centre (INSDOC), New Dehli.

At the third position in the order of ranking of periodicals is *Herald of Library Science* which is being published from Varanasi and is sponsored by the "Kaula Endowment for Library Science".

3.2 Ranking order of Productive Authors

The analysis of the classification literature depicting the productivity of authors is as under:

	Absolute No.	Percentage
Ranganathan, S.R.	126	25%
Neelameghan, A.	91	18.2%
Kaula, P.N.	49	9.8%
Gopinath, M.A.	46	9.2%
Bhattacharyya, G.	26	5.2%

Seetharama, S.	26	5.2%
Parthasarathy, S.	21	4.2%
Parakhi, R.S.	20	4.1%
Rahman, Abdul	15	3.1%
Iassac, K.A.	14	2.9%
Krishna Rao, D.B.	13	2.6%
Raghavendra Rao	11	2.1%
Others	42	8.4%

The analysis depicts that the major portion (25.1%) of the classification literature is contributed by S.R. Ranganathan. He actually started a new era in the field of classification through his ever challenging writings. He is well known for the *Colon Classification*, theory of Classification involving facet analysis, phase analysis, sector analysis, zone analysis, canons, principles, postulates, systems, specials, devices, hospitality in array and chain, depth classification schedule designing and so on. He is internationally recognised for his contributions.

The second author in the order of productivity is Prof. A. Neelameghan who was the Chairman of FID/CR from 1973–1980.

3.3 Year-Wise Analysis of the Literature

The year-wise analysis of India's classification literature from the early times to 1980 shows that there has been regular rise and fall in the production of classification literature. In the form of articles it has shown more or less a gradual rise. The analysis shows that during the 1960's the contribution to classification was greatest. The period 1960–1980 has witnessed greater production of text books concerned with classification. Besides there has been less interest towards the production of bibliographies, dictionaries, directories etc. in the field of classification which should have been given more emphasis.

4. Subject Analysis

The subject analysis of classification reveals the following major areas; attention has been given to

Classification terminology
Classification history
Persons in classification
Conceptual basis of classification
Classification in relation to universe of subjects
Classification in relation to documentation and information
Classification in relation to cataloguing
Classification in relation to reference service
Classification research
Automated classification and indexing
Classification of specific subjects
Facet analysis
Isolate idea
Notation
Call number
Book number
Classification systems
Analytico-synthetic classification

Dewey Decimal Classification
Universal Decimal Classification
Colon Classification
Colon Classification compared with Decimal Classification
Colon Classification compared with UDC
Evaluation of classificatory techniques
Common isolates in Colon Classification
Space isolates
Matter isolates
Environmental isolates
Phase relation
Array
Zone analysis
Telescoping
Mnemonics
Depth Colon schedules
Rider's International Classification
Indexing
Thesaurus

4.1 Subject Analysis in Depth

The detailed analysis of the classification literature topic-wise is as under:

4.1 (a) *Classification Terminology*: In India much work has been done on the classification terminology. The research includes the comparative linguistic approach to classification and the development of classificatory terminology.

4.1 (b) *Classification History*: The classification literature reveals that much study has been made on the historical account of the developments in classification right from Dewey to Ranganathan.

4.1 (c) *Persons in Classification*: Biographical studies of eminent persons in classification have been made and interpreted in different ways. Their contributions have been critically evaluated.

4.1 (d) *Conceptual Basis of Classification*: The literature analysed depicts that much work has been done on the theoretical basis of classification, thereby elaborating the number of canons and applying these canons in the design of classification scheme. This also includes the evaluation of different schemes based on canons and principles. Research activity is projected towards developing the dynamic theory of classification.

4.1 (e) *Classification and Universe of Subjects*: In this area Indian scientists have explored to a great extent. Attempts have been made to study the developments in the universe of subjects, the mode of formation of subjects and to find a correlation between categories, universe of subjects and classification.

4.1 (f) *Classification in Relation to Information and Documentation*: The literature analysis depicts the difference between classification and machine-based subject retrieval. Much work has been done on information theory, library classification and coding trends in documentation especially in order to resolve the conflict of classification for document retrieval.

4.1 (g) *Classification in Relation to Cataloguing*: In this area work has been done on the Relative Index and Chain Procedure. The 'Chain Procedure' has been modified in a number of ways to suit subject retrieval machinery.

4.1 (h) *Classification in Relation to Reference Service*: Reference service is nothing but personal assistance provided to the readers in meeting their information needs. Depth classification has been applied to satisfy the reader for a pinpointed and exhaustive answer to meet their subject demand.

4.1 (i) *Classification Research*: The literature analysis depicts that research on classification systems has been done in considerable quantity. Researches have been carried out to investigate the role of classification in methods and technologies of information processing. Manipulation of machine readable data for classification has been made.

4.1 (k) *Automated Classification*: Much work has been done on computer facilitating the creation and updating of hierarchical classification. Besides an attempt has been made to outline automatic document classification based on the theory of classification, to explore the possibility of automatic document classification in information retrieval system as well as research on the computer and categorisation.

4.1 (l) *Classification of Specific Subjects*: There is extensive study of the problems connected with different subjects like the classification of personal bibliography, maps, geographical publications, scientific knowledge, statistical material; Indian music literature, Greek philosophy; parasitism, linguistics and so on and many more subjects in social science, humanities and science and technology. More intensive study had been made on interdisciplinary subjects and their classification.

4.1 (m) *Facet Analysis*: The analysis reveals that much research work went into Facet Analysis of different subjects, especially on optional facets in Agriculture and many more subject fields. Work has also been done on Facet Analysis and machine coding as well as on the concept of [P] [M] [E] [S] [T].

4.1 (n) *Notation*: Work has been done in the field of notation to increase hospitality to infinity. This had led to the emergence of sector notation, group notation, zone analysis, telescoping and so on. Detailed analyses have been made of the problems of notation in faceted classification. A large number of work relates to developments in notational techniques from enumerative to faceted notation.

4.1 (o) *Classification Systems*: There is much literature on classification systems relating to comparative study of schemes, structure, validity and prospects of classification schemes.

4.1 (p) *Analytic-Synthetic System*: The analytico-synthetic system of classification has emerged from India itself with a comprehensive literature on this topic.

4.1 (q) *Dewey Decimal Classification*: There is considerable amount of literature on the different aspects of DDC starting from a critical study of standard subdivisions, different devices in DDC, homonyms and synonyms in DDC; study of auxiliary tables; area table; Dewey notation; recollection of subjects and the class number within the same basis terms in different editions of DDC. There are several articles discussing the limitations of DDC, suggesting improvements in schedules.

4.1 (r) *Universal Decimal Classification*: The literature analysis depicts the work on the general theory of library classification and classification according to UDC. Researches have been made on the theoretical basis of UDC, on the improvement of UDC and on the application of Ranganathan's principles to UDC.

4.1 (s) *Colon Classification*: *Colon Classification* is one of the important contributions from India. Hence basic research went into this system and the results of the research have been incorporated into the different editions of CC. Comprehensive work on the comparative study of *Colon Classification* with other schemes are available, regarding common isolates, treatment of Indological subjects, notation, schedules of physics, chemistry, biology, agriculture, military science, fine arts, economics, history, law, etc.

Besides much work has been done on the evaluation of *Colon Classification* and its suitability in different libraries and countries. Attempts have been made to extend the notation of the Colon Classification to an extent that it meets the challenge of the universe of subjects. This includes the work on the integrated theory of notational language; interpolation and extrapolation devices; and mnemonics.

4.1 (t) *Depth Schedules*: There is almost too much liter-

ature on depth schedules and depth schedule designing. The following list shows the fields in which depth schedules have been developed in chronological arrangement:

1950	Devaluation	1967	Production Engineering of Aircraft
1953	Labour Economics		Production Engineering of Computer
1956	Personnel Management		Production Engineering of Locomotive
1958	Industrial Relations		Production Engineering of Motor Vehicle
	Labour Awards		Refractory
	Wages		Social Work
	Workers Education	1968	Air compressor
1959	Planning Literature		Electric Generator
1962	India-China Relation		High Vacuum Pump
	National Integration		Incandescent Lamp
	Personal Bibliography		Leather
1963	Highway Engineering		Library Classification
	Solid State Physics		Man-Made Fibre
1964	Book Science		Sampling
	Coffee Cultivar		Statistical quality control
	Drug Pharmacology		Student Unrest
	Military Science	1970	Food
	Planning Literature		Higher Education
	Production Engineering of Bearing		Industrial Economics,
	Production Engineering of Gear		Transport system
	Production Engineering of Nuts		Pharmacognosy
	Radar		Production Engineering of Motor Vehicle
	Transistor		Wing
1965	Chemical Rocket Engine		Psychology
	Diagnostic Radiology		Public Health
	Effects of Nuclear Radiation, Pharmacology		Spectroscopy
	Electron Tube	1971	Banking
	Gandhi Personal Bibliography		Disease (in Medicine)
	Library Science		Economics
	Missile		International Trade
	Nuclear Fission Reactor		Investment
	Plastic		Petrology
	Production Engineering of Screw		Production Engineering of Lathe
	Reciprocating Internal Combustion Engine		Sociology
	Rubber		Steam Generator
	Semi-conductor Diode		Taxation
	Transistor		Transistor Material
	Steel	1972	Antenna
	Therapeutic Radiology		Biology of Steroids
	Tobacco Cultivar		Communism
	Turbine Engine		Dermal System
	Voltaic Cell		Fountain Pen Production
1966	Bridge Engineering		Human Body, Nervous system
	Cytology		Human Resource, Economics
	Electric Motor		Myology
	History, Foreign Policy		Plant Nutrition
	Meat		Production Engineering of Helicopter
	Particle Accelerator		Programming Language
	Political Science, Foreign Policy		Syndesmology
	Production Engineering of Laser	1973	Agriculture, Rice
	Rubber Cultivar		Corrosion
	Socialism		Exploration Geophysics
	Sub-forms of Hindi Poetry, Drama and Prose		History, India, Foreign Policy
	Teaching Technique		Horticulture
	Animal Technique		Human body, skeletal system
1967	Animal Breeding		Industrial Economics, Agriculture
	Ceramic		Mining
	Foot Wear		Radio-astronomy
	Furnace		Aerodynamics
	Glass		
	Library Cataloguing		

Agriculture, Wheat Demography Education, Library science Toxicology Virology Zoology, Fish Regional organs of hu- man body Photography	Immunology Reproduction biology Occupational psychology Financial planning Diary technology Loud speakers Cotton cultivar Human genetics Agricultural economics Angiology
1975 Physical anthropology Human digestive system	1980 Nepaliana Alkaloid chemistry Solar energy Plasma physics Thermal physics Transistor production technology Oncology International affairs Educational psychology Mathematical probability Operations research Development studies Radio-chemistry Personnel management
1976–1978 ¹	
1979 Advertising techniques Production engineering of integrated circuits Production engineering of minicomputers Production engineering of rectifiers Production engineering of amplifiers Petroleum technology Fertilizer technology Cosmetics technology Mycology	

There are many more topics which are not mentioned here. The analysis reveals that a greater number of depth schedules has been designed in science and technology. Attention has been given to micro-subjects taking into consideration the needs of special libraries and documentation centers.

4.1 (u) *Thesaurus*: There have been studies on the theoretical foundation and on semi-automatic construction of thesauri, on term-concept relationships in an information retrieval thesaurus and on computer generation of thesauri. Work has also been done on Thesaurofacet.

4.1 (v) *Indexing*: The literature analysis shows work on defining rules for making an alphabetical subject catalogue; indexing methodology; abstracting and indexing services in science and technology; characteristics of subjects and their impact on indexing; mechanisation in indexing; compilation of computerised indexes and handling of compound terms; cyclic indexing; citation indexing and so on.

5. Conclusion and Trends

The analysis of classification literature leads into the conclusion that the work in classification in India concentrated mainly on the following seven topics:

- (I) Developing the theory of library classification;
- (II) Development of classification schemes;
- (III) Studies in the universe of subjects;
- (IV) Increasing hospitality and versatility of the notation;
- (V) Application of Ranganathan's theory to different schemes;
- (VI) Design of the depth schedules; and
- (VII) Demarcating the classification work in the three planes namely idea, verbal, and notational plane.

Based on the above analysis, the following ten trends can be determined:

- I The research trend in the theory of classification till 1980 is towards the development of a dynamic theory of library classification based on normative principles.

- 2 Developing the notational system to an extent especially in view of *Colon Classification* to meet the challenge of the universe of subjects and to create infinite hospitality for the interpolation and extrapolation of isolates in Array and Chain.
- 3 Formulation and use of a precise terminology for classification.
- 4 Developing mnemonics of different kinds so that it becomes easy for a classificationist to design the scheme and the classifier in the classification of documents.
- 5 Applying scientific methods to tackle the different problems in classification.
- 6 Demarcating the work involved in classification on three planes, namely, idea plane, verbal plane and notational plane.
- 7 Determination of the different modes of formation of subjects and the development of the various devices to accommodate newly emerging subjects.
- 8 Making comparative studies of the different schemes of classification.
- 9 Design of depth schedules on different macro and micro subjects.

10 Developing canons, postulates and principles. Thus, it can easily be seen from the analysis that classification research in India is mostly based on the contributions of S.R. Ranganathan. The application of his theories and techniques in improving the structure and schedules of existing schemes and also in designing special schemes or special depth schedules of existing basic classes is a direction in which applied research in classification has taken place. The symbiosis between classification and cataloguing or indexing and the study of the universe of subjects and its relation to the development of classification are yet other directions for present and future study in classification.

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Notes:

- 1 The first article published in India in the field of classification was "Colon scheme of Library classification" by R.S. Parakhi. It appeared in *Modern Librarian* Vol. 3, Oct. 1932.
- 2 DRTC = Documentation Research and Training Centre, Bangalore
- 3 During 1976–1978 no depth classification schemes were developed since emphasis shifted at DRTC from classification to industrial information activities.

References:

- (1) Gopinath, M.A.: Classification Research (India): 1968–1973. Bangalore: DRTC 1974. 78 p. 171 refs. = FID/CR Report No. 14.
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