

**Information Needs and Information Seeking
Behaviour among Scientific Community
in Digital Era:**

A Study of University Library Users of Assam State

*A Thesis submitted to Assam University, Silchar
for the award of the
Degree of Doctor of Philosophy (Ph. D.)
in Library and Information Science
(Swami Vivekananda School of Library Sciences)*

Submitted By

Sudip Bhattacharjee

Ph. D. Registration No.: Ph. D. /2351/13 of 10.09.2013

Supervisor

Dr. Manoj Kumar Sinha

{M. Sc., MLISc, B. Ed. PGDHE, Ph. D. (Zoology, Library & Information Science)}
Associate Professor, DLISc, AUS



**Department of Library and Information Science
(Swami Vivekananda School of Library Sciences)
Assam University, Silchar-788011**

2016

DECLARATION

*I, Sudip Bhattacharee, Ph. D. Registration No.: Ph. D./2351/ 13 of 10.09.2013, University Registration No. 10400057 of 2003-2004 hereby declare that the topic of my Ph. D. Research entitled as “**Information Needs and Information Seeking Behaviour among Scientific Community in Digital Era: A Study of University Library Users at Assam state**” is the record of work done by me under the supervision of Dr. Manoj Kumar Sinha, Associate Professor, DLISc, Assam University, Silchar and the contents of the Thesis is based on my continuous study and review of literature of the subject.*

This thesis is being submitted to Department of Library & Information Science, Assam University, Silchar, Assam for the award of the degree of Doctor of Philosophy (Ph. D.) in Library and Information Science.

Place: Assam University, Silchar

Date: 19th February 2016

(০৭ ফাল্গুন ১৪২২; শুক্রবার)

(Sudip Bhattacharjee)

Ph. D. Registration No.:

Ph. D./2351/ 13 of 10.09.2013

Department of Library & Information Science
Assam University, Silchar



DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE
(Swami Vivekananda School of Library Sciences)
Assam University, (A Central University)
Silchar – 788 011

Dr. Manoj Kumar Sinha

call: +91-9435231672

[B.Sc (H), M.Sc, MLISc, B.Ed., PGDHE, Ph.D (Zoology and Library and Information Science)]

Associate Professor & Head of the Department

Ref. No. AU/DLIS/...../2016

Date: 19/02/2016

Certificate

This is to Certify that the Thesis entitled “**Information Needs and Information Seeking Behaviour among Scientific Community in Digital Era: A Study of University Library Users at Assam State**” submitted by Sudip Bhattacharee, Ph. D. Registration No.: *Ph. D./2351/ 13 of 10.09.2013*, University Registration No. *10400057 of 2003-2004* in our department of Library and Information Science for the award of the Doctor of Philosophy (Ph. D.) in Library and Information Science as per the provision of Ph. D. programme ordinances of Assam University, Silchar.

Place: Assam University, Silchar

Date: The 19th February 2016

(Dr Manoj Kumar Sinha)

Associate Professor & HoD

Department of Library & Information Science
Assam University, Silchar



DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

(Swami Vivekananda School of Library Sciences)

Assam University, (A Central University)

Silchar – 788 011

Dr. Manoj Kumar Sinha

Call: +91-9435231672

[*B.Sc (H), M.Sc, MLISc, B.Ed., PGDHE, Ph.D (Zoology and Library and Information Science)*]

Associate Professor and Head of the Department

Ref. No. AU/DLIS/140/2010/

Date: 19/02/2016

Certificate

This to Certify that the Thesis entitled “Information Needs and Information Seeking Behaviour among Scientific Community in Digital Era: A Study of University Library Users at Assam State” submitted by Sudip Bhattacharee, Ph. D. Registration No.: Ph. D./2351/ 13 of 10.09.2013 in the Department of Library and Information Science, Assam University, Silchar, Assam for the award of Doctor of Philosophy (Ph. D.) in Library and Information Science.

This work has been done by the scholar under my supervision with all the formalities as per the requirement of norms. This is further certified that no part of this thesis forms the basis for the award of any other degree or diploma to him. I recommend that this Thesis may be placed before the examiner(s) for consideration of eligibility and fulfillment for award of the Degree of Doctor of Philosophy (Ph. D.) in the subject of Library and Information Science to him.

I wish him every success in his life.

(Dr Manoj Kumar Sinha)

Place: Assam University, Silchar

Date: The 19th February 2016

Associate Professor & Supervisor

Department of Library & Information Science

Assam University, Silchar

ACKNOWLEDGEMENTS

.....

In the course of working of any research, many people have helped me directly or indirectly to accomplished the task of the research project. The highest happiness that accompanies the successful completion would be incomplete without the expression of gratitude to all those people who have helped me in one or other way during the period of my research work.

*I would like to express my deep sense of gratitude to my supervisor **Dr. Manoj Kumar Sinha**, Associate Professor & HoD of the Department of Library and Information Science, Assam University, Silchar, Assam for his exemplary guidance, valuable feedback and constant encouragement throughout the duration of this Research work. His valuable suggestions were of immense help throughout my Research work. His perceptive criticism kept me working to make this research work in a much better way. Thank you sir for long hour spent in helping guiding, encouraging and showing the path for successful competition of the work.*

*I would like to express my gratitude to **Prof. Sumanash Dutta**, Dean of Swami Vivekananda School of Social Sciences for extending me the opportunity to present the research project and providing all the necessary resources for this purpose and for giving me the wide scope to do the research work under his consideration and valuable suggestion.*

I am also grateful to the Chairmen and committee members of Departmental Research Committee, DLISc, Assam University, Silchar, Assam and Controller of Examinations, Assam University for their kind support and great help for providing all the necessary resources in this regard.

*I would like to express my heartfelt gratitude to **Prof. Biplab Halder**, Pro-Vice Chancellor, ICFAI University, Tripura for his continuous advice and support during the completion of research work at time to time.*

*My sincere thanks go to **Dr Mukut Sarmah**, Assistant Professor of DLIS, Assam University for his suggestions, kind co-operations and inspiration at all time.*

*I would also like to pay my heartiest thanks to all other family members of DLISc, Assam University especially **Mr. Jayanto Das, Ms. Chandraboti Kannu** for their constant support and co- operation.*

*I would like to express my warmest thanks & deep sense of gratitude to **Dr. Arun Kumar Sharma**, Librarian, Assam University, Silchar; **Dr. Utpal Das**, Deputy Librarian, Dibrugarh University, Dibrugarh; **Dr. Wooma Sankar Dev Nath**, Librarian, Gauhati University, Guwahati and **Dr. Mukesh Saikia**, Librarian, Tezpur University, Tezpur for helping me and providing suggestion and information regarding the status of the library.*

I would like to express my sincere thanks to all the respondents of the survey who were courteous enough to complete the questionnaire and returned back. Without their active participation, it would have not been possible to complete the study.

I express my warmest thanks & deep sense of gratitude to many LIS professionals, relatives, friends for their generous help in discussing the research work and giving their valuable time in successful completion of this project. Time to time I got constructive suggestions, guidance and encouragement from them.

*Last but not the least I want to thank my father, **Mr. Sunil Bhattacharjee**; mother, **Ms. Sukla Bhattacharjee**; sister, **Suparna Bhattacharjee** and my friend **Sucheta Bhattacharjee** who regularly helped me in many ways in the completion of this research work.*

Above all, it's the blessing of Almighty; for showing his blesses to take me the right way to complete the research work in time.

Last, but not the least I express my thanks to Chatniya Press for printing and making my thesis on time.

Place: Assam University, Silchar

Date: 19th February, 2016

(০৭ ফাল্গুন ১৪২২; শুক্রবার)

(SUDIP BHATTACHARJEE)

Department of Library & Information Science

Assam University, Silchar

CONTENTS

	Page No.
<i>Declaration</i>	i
<i>Certificate</i>	ii
<i>Acknowledgement</i>	iv
<i>Contents</i>	vi
<i>List of Tables</i>	ix
<i>List of Figures</i>	xii
<i>List of Plates</i>	xv
<i>List of Abbreviations</i>	xvi
<i>Preface</i>	xviii
<i>Informative Abstract</i>	xx
Chapter 1 General Introduction	01-27
1.1 Introduction	1
1.2 Information Needs	3
1.3 Generation of Information at Digital Era	5
1.4 Changing Information Seeking Behaviour in Digital Era	6
1.5 Role of Library and Information Centre	8
1.6 Area of the Study	9
1.7 Location of Research Study	14
1.8 Statement of the Problem	17
1.9 Significance of the Study	19
1.10 Objective of the Study	20
1.11 Hypotheses of the Study	20
1.12 Scope of the Study	24
1.13 Limitation of the Study	24
1.14 Definition of the Operational Term/ Key Terms	24
1.15 Plan and Design of Tentative Chapters	26

Chapter 2	Review of Literature	28- 60
	2.1 Introduction	28
	2.2 Scope and Coverage of the Review	32
	2.3 Conclusion	60
Chapter 3	Research Methodology and Research Design	61- 79
	3.1 Introduction	61
	3.2 Population/ Size or Area of the Study	62
	3.3 Research Method Adopted	63
	3.4 Sampling Procedure for Survey	64
	3.5 Tools for the Collection of Data	65
	3.6 Stages/ Time Period of Data Collection	71
	3.7 Statistics Used for the Analysis of Data	71
	3.8 Coding	78
	3.9 Citation Style	79
	3.10 Conclusion	79
Chapter 4	Information Seeking Behaviour: A Conceptual Framework	80-118
	4.1 Introduction	80
	4.2 Data, Information and Knowledge	81
	4.3 Various Types of Scientific Information	82
	4.4 Information Needs	84
	4.5 Information seeking behaviour	88
	4.6 Models of Information Behaviour/ Information Seeking Behaviour	89
	4.7 Human Information Behaviour (HIB) Model	106
	4.8 Information Searching Models	111
	4.9 Conclusion	118
Chapter 5	Data Analysis and Interpretation	119- 198
	5.1 Pilot Study	119
	5.2 Qualitative Interpretation	120
	5.3 Distribution of Questionnaire to Scientific Community	121
	5.4 Personal Characteristics/ Details of the Scientific Community	124
	5.5 Library Visit and Library Usage Pattern of Scientific Community	134
	5.6 Information Searching Pattern by Scientific Community	150

5.7	Internet Literacy and E-resource Search Strategies	164
5.8	Problems & Suggestions Provided by the Scientific Community	180
5.9	University Library Management Scenario	186
Chapter 6	Major Findings & Discussions	199- 235
6.1	Major Findings	199
6.2	Summary of the Results of the Hypothesis Tested	221
6.3	Summary of the Results of Correlation between Variable	223
6.4	Discussions between Earlier Study and Current Study	225
Chapter 7	Suggestions & Recommendations	236- 239
7.1	Suggestions and Recommendations	236
Chapter 8	Design & Development of Proposed Model	240-249
8.1	Necessities for Designing a Model	240
8.2	Proposed Model of LISNSCA	241
8.3	Information Seeking Model of Scientific Community at Assam (ISMSCA)	246
8.4	Action plans for Implementation of the Model	247
8.5	Conclusion	248
8.6	Scope of the Further Study	249
	Bibliography	250-285
Annexure I	Questionnaire for Students/ Research Scholar	286
Annexure II	Questionnaire for Faculty Members	292
Annexure III	Questionnaire for Librarian	298

LIST OF TABLES

Sl. No.	Chapter	Table No.	Title of the Table	Page No.
1	Chapter 1	Table: 1.1	Areas and Populations of the 27 Districts of Assam	11
2		Table: 1.2	Statistical Records of Assam	12
3		Table: 1.3	List of districts wise schools in Assam	13
4		Table: 1.4	Numbers of Higher Educational Institutions in Assam	14
5	Chapter 3	Table: 3.1	Sample Design for the Present Study	64
6	Chapter 4	Table: 4.1	User Groups and Their Specific Information Needs	87
7	Chapter 5	Table: 5.1	Number of response received from Scientific Community	121
8		Table: 5.2	Number of Response Received from Each University/ Category	122
9		Table: 5.3	Educational Qualification-Wise Distribution of Respondents	125
10		Table: 5.4	Number of response received Gender wise	126
11		Table: 5.5	Respondents Common Characteristic/ Behavioral Role	132
12		Table: 5.6 (A)	Ranks of purpose of library visit by respondents	137
13		Table: 5.6 (B)	Summary of the Ranking of Library Visit Purpose	138

14	Table: Visit of Various Libraries by Respondents 5.7	139
15	Table: Ranks of Strategies Adopted for Searching/ 5.8 Seeking Desired Information from Library (A)	144
16	Table: Summary of the Ranking of Strategies Adopted 5.8 (B) for Searching/ Seeking Desired Information from Library	145
17	Table: Rating of Library Resources to Meet Expectation 5.9 of Library Users	146
18	Table: Preference of Use of Documents for Learning/ 5.10 Research Activities	155
19	Table: Rating the Various Channels Used by Library 5.11 Users	157
20	Table: Confidence Level of Scientific Community 5.12	158
21	Table: Satisfaction Levels of Scientific Community 5.13	161
22	Table: E-resource Searching Pattern 5.14	173
23	Table: Problem faced by Respondents in Accessing 5.15 Information	181
24	Table: Suggestion Provided by Scientific Community 5.16	183
25	Table: Library Collection Details 5.17	187
26	Table: Status of Technical House Keeping Operation in 5.18 the Library	189
27	Table: Library Automation/ Computerization Details 5.19	190
28	Table: Status of Library Networking/ Resource Sharing 5.20 Facility	191
29	Table: Status of Human Resource Management in Library 5.21	192

30	Table: Status of Human Resource Management in 5.22 Library	193
31	Table: Numbers of User Orientation Program Provided 5.23 by Library	195
32	Table: Opinion of Librarian Regarding the Purpose of 5.24 Library Use by the Library Users	196
33	Table: E-resource Usage Pattern by the Respondents 5.25	196

LIST OF FIGURES

Sl. No.	Chapter	Figure No.	Title of Figure	Page No.
1	4	Figure : 4.1	Communication Model from Shannon and Weaver	85
2		Figure : 4.2	Model for Identification of Information Needs	86
3		Figure : 4.3	Stages of Information Needs	86
4		Figure : 4.4	Wilson's Model of Information Behaviour	90
5		Figure : 4.5	Godbold's (2006) Model of IB	92
6		Figure : 4.6	Wilson's Model of Information Seeking Behaviour	94
7		Figure : 4.7	Dervin's Sense-Making Framework	96
8		Figure : 4.8	Dervin's Sense-Making Framework Modified	96
9		Figure : 4.9	A Stage Process Version of Ellis's Behavioral Framework	98
10		Figure : 4.10	A Comparison of Previous Figure 4.7 with Kuhlthau's Stage Process Model	99
11		Figure : 4.11	Wilson's 1996 Model of Information Behaviour	101
12		Figure : 4.12	Bystrom and Jarvelin's (1995) Task-Based ISkB Model	103
13		Figure : 4.13	Non-linear Model of Information Seeking Behaviour	104
14		Figure	Sonnenwald and Iivonen's (1999) Model	106

		: 4.14	
15	Figure	Niedzwiedzka's (2003) Model	108
		: 4.15	
16	Figure	Spink and Cole's Integrated HIB Model	109
		: 4.16	
17	Figure	Model of Human Multiple Information Task	111
		: 4.17 Behavior	
18	Figure	Ingwersen's Model of the IR Process	112
		: 4.18	
19	Figure	Saracevic's Model of the IR Process	114
		: 4.19	
20	Figure	Spink's Model of the IR Interaction Process	115
		: 4.20	
21	Figure	Nested Model of the Information Seeking and	116
		: 4.21 Searching Research Areas	
22	Figure	A Problem Solving Model of the Information	117
		: 4.22 Seeking and Searching Process	
23	Figure	Linking Information Seeking and	118
		: 4.23 Communication	
24	5	Figure	Age-Wise Distribution of Respondents
		: 5.1	128
25		Figure	Designations -Wise Distribution of Faculty
		: 5.2 Members	129
26		Figure	Income /Family Income Wise Distribution
		: 5.3	130
27		Figure	Frequency of Library Visits by Respondents
		: 5.4:	134
28		Figure	Type of Other Library Visit by Respondents
		: 5.5	142
29		Figure	Most Preferred Way of Desired Information
		: 5.6 Search	151
30		Figure	Strategies Adopted for Searching Desired
		: 5.7 Documents	153
31		Figure	Extent of Internet Literacy among Scientific
			165

		: 5.8	Community	
32	Figure	Internet Access Frequency for E-resource Use by	168	
		: 5.9	Scientific Community	
33	Figure	Preferable Time of Internet Searching by	169	
		: 5.10	Scientific Community	
34	Figure	Time Spent in a day to Check/ Access Internet by	170	
		: 5.11	Scientific Community	
35	Figure	Interfaces Used to Access of Internet by Scientific	171	
		: 5.12	Community	
36	Figure	Preference of Place to Access Internet/ E-	172	
		: 5.13	resources by the Scientific Community	
37	Figure	Search Techniques Used for E-resource Search	175	
		: 5.14		
38	Figure	Frequency of Website Evaluation by Library	176	
		: 5.15	User	
39	Figure	Evaluation Criteria of Website by Scientific	177	
		: 5.16	Community	
40	Figure	Usefulness of E-resource Available in the	178	
		: 5.17	University Library	
41	Figure	Library Usage Statistics on Daily Basis	194	
		: 5.18		
42	8	Figure	Proposed Library & Information System Network	245
		: 8.1	for Scientific Community of Assam (LISNSCA)	
43		Figure	: Proposed Information Seeking Model by	247
		: 8.2	Scientific Community (ISMSC)	

LIST OF PLATES



Sl. No.	Chapter	Plate No.	Title	Page No.
1	1	1.1	Map of Assam with location of Universities under the Study	10

LIST OF ABBREVIATIONS



ALA	America Library Association
ALA	Assam Library Association
A.P.	Andhra Pradesh
APA	American Psychological Association
AU	Assam University
AUS	Assam University, Silchar
CAS	Current Awareness Service
CD ROM	Compact Disc Read-Only Memory
CDS/ISIS	Computerized Documentation System-Integrated Set for Information Systems
CoV	Coefficient of Variance
DELNET	Delhi Library Network
DU	Dibrugarh University
E-Book	Electronic Book
E-governance	Electronic governance
E_i	Expected Frequency
E-Journal	Electronic Journal
E_o	Observed Frequency
E-Resource	Electronic Resource
GU	Gauhati University
http	Hypertext Transfer Protocol
ICSSR	Indian Council of Social Science Research
ICT	Information and Communication Technology
ILA	Indian Library Association
ILL	Inter -Library Loan
INFLIBNET	Information Library and Network
INSDOC	Indian National Scientific Documentation Centre, New Delhi
IPR	Intellectual Property Right
IQR	Inter-Quartile Range

IR	Information Retrieval
ISBN	International Standard Bibliographic Description
IT	Information Technology
LIS	Library and Information Science
Mdn	median
MHRD	Ministry of Human Resource Development
N-LIST	National Library and Information Services Infrastructure for Scholarly Content
OPAC	On-line Public Access Catalogue
PG	Post Graduate
RFID	Radio Frequency Identification
SDI	Selective Dissemination of Initiative
SNS	Social Networking Site
SPSS	Statistical Package for the Social Sciences
TU	Tezpur University
UG	Under-Graduate
UGC	University Grants Commission, New Delhi
UNESCO	United Nations Educational, Scientific & Cultural Organisation
UPS	Uninterruptible Power Supply
UT	Union territory
Web OPAC	Web On-line Public Access Catalogue
WWW	World Wide Web

PREFACE

Information seeking behaviour involves personal reasons for seeking information, the kinds of information which are being sought, and the ways and sources with which needed information is being sought. This study has focused on information searching pattern and information seeking behaviour of scientific community belong to University Libraries of Assam. The purpose of this study is to examine the information needs and information seeking behaviour of university library user's especially scientific community of Assam in current environment and their use of information to support their process of inquiry and scholarly communication.

This thesis offers a comprehensive overview of the concepts of information needs, information seeking behaviour and its various models put forwarded by eminent library and information science professionals of world. This thesis also highlights the strategies generally adopted by the scientific community to search their desired day to day information needs for their academic as well as research purposes.

This thesis comprises of mainly seven chapters: First chapter deals with "General Introduction" are the subject matter for the first chapter. It provides information on the background, significance, objectives, hypothesis, scope, limitation, definition of operational term and Organisation of capture for the study in detail. Second chapter deals with "review of literature". Here, it provides information about national level, international level and printed and non-printed types of review of earlier study. Third chapter describes methodology adopted in the collection and analysis of the data. It also describes sampling procedure, tools of data collection and hypothesis of this study. Forth chapter describes the information seeking concepts, needs and information seeking models in detail. Fifth chapter deals with the data

analysis and interpretation of the data related to personal information, information needs of the library users. It contains interpretation of data by statistics that includes statistical data and figures. Sixth chapter comprises of major findings and discussions. Seventh chapter provides suggestions and recommendations conclusion. Further, eighth chapter describes the design and development of proposed model. It also includes areas of further research which is followed by references according to APA style.

The finding of the study shows that with the changing scenario of information seeking behaviour, users are shifted towards new information searchable technique. In this backdrop Information Seeking Behavior of Scientific Community have been analysed, and the results of the same have endorsed the investigator to design a model through which they, as expected, can meet their needs.