# DEVELOPING AND MANAGING INFORMATION COLLECTIONS FOR ACADEMICS AND RESEARCHERS AT A UNIVERSITY OF TECHNOLOGY: A CASE STUDY

by

## **CAROL WENDY VAN ZIJL**

submitted in accordance with the requirements for the degree of

## DOCTOR OF LITERATURE AND PHILOSOPHY

in the subject

## INFORMATION SCIENCE

at the

UNIVERSITY OF SOUTH AFRICA

PROMOTER: DR E M GERICKE

JOINT PROMOTER: PROF M P MACHET

**NOVEMBER 2005** 

#### **SUMMARY**

This study examines the efficacy of collection development and management practices, policies, guidelines and standards in universities of technology to meet the information needs of academics and researchers at such institutions. In South Africa, as in Australasia, technikons or polytechnics have been upgraded first into degree granting institutions and then, at the beginning of the 21st century, into universities of technology. The researcher was concerned that library collections in South African universities of technology have not grown to meet the research and teaching needs of academics at the level of universities offering instruction up to a doctoral level. As research funding, government grants and the general prestige of the institutions depend on the research output of the institutions, it is essential that academics and researchers find the information resources they require in their institutional libraries. Case studies of universities of technology in New Zealand and South Africa reveal that, while Auckland University of Technology has been successful in extending its collection to meet the increasing demands placed on it, the collection development policies, standards and guidelines in a South African university of technology need to be upgraded in order to meet the information needs and information behaviour of their researchers and academics. Current levels of funding for the acquisition of information resources in South Africa lag behind those found at the New Zealand university of technology. The university of technology that was the object of the South African case study needs to bring its collection in line with that of similar institutions worldwide. This entails adapting goals and objectives stating how the collection is to develop, evaluating the collection and the needs of users, changing the Collection Development Policy to reflect the direction collection development will take and ensuring that the institution and the government back this project financially. To this end, a model Collection Development Policy has been drawn up that can be adapted to the local requirements of South African universities of technology to assist with the process of developing and managing library collections that will be worthy of such an institution.

#### **Key terms:**

University of technology libraries; Collection development policies; Information needs; Information behaviour; Auckland University of Technology; Scholarly communication; Materials budgets; Library collection size; Traditional information resources; Digital information resources; Library funding.

#### **FOREWORD**

To Heather Jenks and other members of staff from the Auckland University of Technology, I offer my sincere thanks for all the time and effort you put into ensuring that I received the information I required as quickly and thoroughly as possible. This study would have been impossible without your friendly and professional assistance.

To senior members of staff at the South African university of technology, thank you very much for all the assistance and information you gave me that enabled me to carry out the case study. Your willingness to help and your time and effort are deeply appreciated.

To my husband, Pieter, thank you for your support, constant flow of tea, proofreading and encouragement throughout this study. Without you, this would have been Eric, the Half-a-Thesis.

To my promoters, Dr Gericke and Prof Machet, I offer my sincere thanks for all the advice, encouragement and assistance. Your intellectual input and technical guidance were invaluable.

To the Unisa Library, and to Mrs Tucker in particular, thank you for reacting so swiftly to every request I sent your way. Your friendly competence is much appreciated.

## ACRONYMS USED

ACLS - American Council of Learned Societies

ACRL – Association of College & Research Libraries

AHCI – Arts & Humanities Citation Index

ALA – American Library Association

ARL – Association of Research Libraries

AUT – Auckland University of Technology

CAUL – Council of Australian University Libraries

CCD – Collaborative Collection Development

CCI – Current Collecting Intensity

CDP – Collection Development Policy

CMC – Computer-Mediated Communication

DCI - Desired Collection Intensity

DOI – Digital Object Identifier

E-book – Electronic Book

ECS – Existing Collection Strength

E-journal – Electronic Journal

Email - electronic mail

E-resource – Electronic Resource

EWU - East Washington University

FTE – Full-Time Equivalent

GAELIC - Gauteng and Environs Library and Information Consortium

HDI – Historically-Disadvantaged Institution

**HEQC** - Higher Education Quality Committee

HTML – Hypertext Markup Language

ICT – Information and Communication Technology

ILL – Interlibrary Loans

IT – Information Technology

JCR – Journal Citation Reports

KFUPM - King Fahd University of Petroleum & Minerals

LAN - Local Area Network

NZQA – New Zealand Qualifications Authority

OCLC – Online Computer Library Center

OPAC – Online Public Access Catalogue

PDF – Personal Document Format

POD - Print-on-Demand

R&D – Research and Development

RLG – Research Libraries Group

SCI – Science Citation Index

CERTEC - Certification Council for Technikon Education

SMT – Science, Medical Sciences and Technology

SPARC - Scholarly Publishing & Academic Resources Coalition

SRC – Student Representative Council

SSCI – Social Science Citation Index

SUNY - State University of New York

TOC – Table of Contents

ULANZ - University Library Aotearoa New Zealand

UNLV - University of Nevada, Las Vegas

URL - Uniform Resource Locator

UTK - University of Tennessee at Knoxville

WAN – Wide Area Network

WLN – Washington Library Network

WWW - World Wide Web

XUT – X University of Technology

# TABLE OF CONTENTS

		Page
	Summary	ii
	Foreword	iii
	Acronyms used	iv
	List of Tables	XV
	List of Figures	XV
Chap	ter 1 Introduction	1
1.1	Background to the problem	1
1.2	Statement of the problem	3
1.3	Purpose of the study	5
1.4	Assumptions	5
1.5	Definition of terms	6
1.5.1	University of technology	6
1.5.2	Collection development	7
1.5.3	Collection management	9
1.5.4	Information needs	11
1.5.5	Information behaviour	13
1.5.6	Information-seeking behaviour	13
1.6	Limitations and delimitation of the study	14
1.7	Importance of the study	16
1.8	Research procedures	17
1.8.1	Research design	17
1.8.2	Case study methodology	18
1.8.3	Data collection methods	19
1.9	Research programme	20

Chapt	er 2 Collection development and collection management	
	in academic libraries	21
2.1	Introduction	21
2.2	Factors that influence collection development policies,	
	standards and guidelines	22
2.2.1	Goals of collection development and management	24
2.2.2	Determining user needs	25
2.2.3	Collection development policies	26
2.2.4	International standards for academic libraries	28
2.2.4.1	Standards for collection development budgets	29
2.2.4.2	Standards for collection size	31
2.2.5	Resource sharing	34
2.2.5.1	Collaborative collection development	34
2.2.5.2	Academic library consortia	35
2.2.5.3	Interlending of library material	36
2.2.6	Collection evaluation	37
2.3	Decisions regarding collection development policies,	
	standards and guidelines	40
2.3.1	Responsibility for selection in academic libraries	40
2.3.2	Just-in-case model for collection development	41
2.3.3	Just-in-time model for collection development	43
2.3.4	Content-based versus format-based collections	44
2.3.5	Formats in which information is made available	45
2.3.6	Access versus ownership	46
2.3.6.1	Ownership	46
2.3.6.2	Access	48
2.4	Changing trends in collection development and management	50
2.5	Conclusion	51

Chapte	er 3 A profile of academics and researchers as information	
	users	53
3.1	Introduction	53
3.2	Duties and activities of academics	54
3.3	The academic as creator, user and disseminator of information	55
3.4	The academic as teacher	57
3.5	The academic as scholar and researcher	59
3.5.1	Gathering scholarly information	60
3.5.2	Scholarly writing	61
3.5.3	The academic as researcher	64
3.6	The academic in a technikon or university of technology	67
3.7	Conclusion	69
Chapte	er 4 Information needs of academics and researchers in	
	institutions of higher learning	<b>71</b>
4.1	Introduction	71
4.2	Reasons for seeking information	73
4.2.1	Information for research	73
4.2.2	Information for teaching and lecturing	74
4.2.3	Information for writing and publishing	74
4.2.4	Other reasons	74
4.3	Need for quick, easy access to information	75
4.3.1	Information overload	77
4.3.2	Need for desktop access to information and library resources $\ldots\ldots$	78
4.3.3	Need for gateways and gatekeepers	79
4.3.4	Need for greater awareness of sources and services	80
4.3.5	Training in the use of electronic resources	81
4.4	Contents versus format	82
4.5	Need for traditional media	83
4.5.1	Dependence on journals	84
4.5.1.1	Need for core journals	86

4.3.1.2	Need for document delivery facilities	86
4.5.2	Dependence on monographs	87
4.6	Need for electronic media	89
4.6.1	Dependence on electronic journals	91
4.6.2	Dependence on electronic books (E-books)	94
4.6.3	Dependence on aggregated journal databases	95
4.6.4	Dependence on CD-ROM	96
4.6.5	Dependence on the Internet	97
4.7	Requirements relating to information resources	100
4.7.1	Comprehensiveness	100
4.7.2	Access to retrospective material	101
4.7.3	Special requirements for electronic resources	102
4.8	Discipline-specific needs	102
4.8.1	Needs of scientists, health care scholars and engineers	102
4.8.2	Needs of humanists	103
4.8.3	Needs of social and business scientists	105
4.9	Conclusion	107
т.)	Conclusion	107
7.7	Colletusion	107
Chapt		l
Chapt	ter 5 Information behaviour of academics and researchers in institutions of higher learning	ı 109
Chapt	ter 5 Information behaviour of academics and researchers in institutions of higher learning  Introduction	1 <b>09</b>
<b>Chapt</b> 5.1 5.2	ter 5 Information behaviour of academics and researchers in institutions of higher learning  Introduction	109 109 110
5.1 5.2 5.2.1	ter 5 Information behaviour of academics and researchers in institutions of higher learning  Introduction	109 109 110 112
5.1 5.2 5.2.1 5.2.2	ter 5 Information behaviour of academics and researchers in institutions of higher learning  Introduction	109 109 110
5.1 5.2 5.2.1	Introduction	109 109 110 112 116
5.1 5.2 5.2.1 5.2.2 5.2.3	Introduction  Scholarly communication  Factors influencing developments in scholarly communication  Participants in scholarly communication  Traditional print media as a vehicle for scholarly communication	109 109 110 112 116
5.1 5.2 5.2.1 5.2.2 5.2.3	Introduction  Scholarly communication  Factors influencing developments in scholarly communication  Participants in scholarly communication  Traditional print media as a vehicle for scholarly communication  Electronic means of communicating scholarly information	109 109 110 112 116
5.1 5.2 5.2.1 5.2.2 5.2.3 5.2.4 5.2.5	Introduction  Scholarly communication  Factors influencing developments in scholarly communication  Participants in scholarly communication  Traditional print media as a vehicle for scholarly communication  Electronic means of communicating scholarly information  Electronic publishing of preprints	109 109 110 112 116 119 121
5.1 5.2 5.2.1 5.2.2 5.2.3 5.2.4 5.2.5 5.2.6	Introduction	1099 1109 1110 1112 1116 1119 1211 124
5.1 5.2 5.2.1 5.2.2 5.2.3 5.2.4 5.2.5 5.2.6 5.2.7	Introduction Scholarly communication Participants in scholarly communication Traditional print media as a vehicle for scholarly communication Electronic means of communicating scholarly information Electronic publishing of preprints Self-publishing by scholars Peer review in scholarly communication	109 109 110 112 116 119 121 124 124 126
5.1 5.2 5.2.1 5.2.2 5.2.3 5.2.4 5.2.5 5.2.6	Introduction	1099 1109 1110 1112 1116 1119 1211 124

5.2.10	Implications of changes in scholarly communication on collection	
	development	131
5.3	Information-seeking methods used by scholars and researchers $\dots$	132
5.3.1	Browsing	134
5.3.2	Conducting own searches for information	136
5.3.3	Following up citations in bibliographies	136
5.3.4	Using current awareness alerting services	137
5.3.5	Use of e-resources	138
5.3.5.1	Using Online Public Access Catalogues (OPACs)	139
5.3.5.2	Using online databases	140
5.3.5.3	Using informal networked communication channels	141
5.3.5.4	Relationship between IT skills and use of e-resources	142
5.3.6	Information behaviour of humanists	143
5.3.7	Information behaviour of social scientists	145
5.3.8	Information behaviour in the sciences, medical sciences	
	and technology	146
5.4	Channels used by scholars for the transfer of information	147
5.4.1	Own private collections of information resources as	
	information channels	147
5.4.2	The invisible college as information channel	148
5.4.3	Libraries as information channels.	150
5.4.4	Information channels used in the humanities	151
5.4.5	Information channels used in the social sciences	152
5.4.6	Information channels used in the SMT fields	153
5.5	Resource sharing as a source of scholarly information	154
5.6	Conclusion	155
Chapt	er 6 Trends in the media used in academic library	
	collections	157
6.1	Introduction	157
6.2	Collection development issues regarding traditional media	158
6.2.1	Developing monographic collections	160

6.2.1.1	Statistics of monographic collections	16
6.2.1.2	2 Distinctive components of monographic collections	16
6.2.1.3	Book sales	16
6.2.2	Developing collections of serials	16
6.2.2.1	Statistics relating to serials	16
6.2.2.2	2 Collection development standards and guidelines for serials	16
6.2.2.3	3 Core collections of serials	16
6.2.3	Developing collections of other traditional media	16
6.3	Collection development issues regarding digital media	17
6.3.1	Selection criteria for digital media	17
6.3.2	Developing CD-ROM collections	17
6.3.3	Developing e-journal collections	17
6.3.3.1	Pricing and access models	17
6.3.3.2	Benefits relating to e-journals	17
6.3.3.3	Problems relating to e-journals	17
6.3.4	Developing collections of journal aggregation services	17
6.3.4.1	Benefits relating to aggregation services	18
6.3.4.2	2 Problems relating to aggregation services	18
6.3.5	Developing e-book collections	18
6.3.5.1	Benefits relating to e-books	18
6.3.5.2	2 Problems relating to e-books	18
6.3.6	Managing Internet resources	18
6.4	Traditional versus digital media	18
6.4.1	Digital libraries	18
6.4.2	Hybrid collections	19
6.5	Conclusion	19
Chapt	ter 7 Collection development and management at two	
	universities of technology – report of case studies	19
7.1	Introduction	19
7.1.1	Data collection methods used	19
7.1.2	Role of the researcher	19
7.1.3	Reporting style	19

7.2	Historical framework of AUT and XUT and their libraries
7.2.1	Auckland University of Technology
7.2.2	X University of Technology
7.3	Goals relating to collection development and management
7.3.1	Goals at AUT
7.3.2	Goals at XUT
7.4	Determining user needs
7.4.1	Attempts to determine user needs at AUT
7.4.2	Attempts to determine user needs at XUT
7.5	Collection development policies
7.5.1	AUT's collection development policy
7.5.2	XUT's collection development policy
7.6	Information resources budgets
7.6.1	Budgets at AUT
7.6.2	Budgets at XUT
7.7	Collection size and composition
7.7.1	Development of library collection at AUT
7.7.1.1	Books
7.7.1.2	Non-book materials
7.7.1.3	Serials
7.7.1.4	Electronic resources
7.7.2	Development of the library collection at XUT
7.7.2.1	Books
7.7.2.2	Non-book materials
7.7.2.3	Serials
7.7.2.4	Electronic resources
7.8	Resource sharing practices and policies
7.8.1	Collaborative collection development through consortia
7.8.2	Interlending of library material
7.9	Collection evaluation
7.10	Selectors and collection developers
7.11	Just-in-case or just-in-time model of collection development
7.12	Access or ownership
7.13	Future plans for collection development

7.14	Conclusion	254
Chap	ter 8 Conclusions and recommendations	256
8.1	Introduction	256
8.2	Factors to consider when formulating policies, standards and	
	guidelines for developing and managing collections for	
	researchers and academics in academic libraries	258
8.3	How academics and researchers in universities and universities	
	of technology interact with information	261
8.4	Information needs of academics and researchers	261
8.5	Information behaviour of academics and researchers	264
8.5.1	Scholarly communication	264
8.5.2	Ways in which academics and researchers seek and use	
	information	265
8.6	Collection development issues relating to various types	
	of information media	267
8.6.1	Collection of traditional media	267
8.6.2	Collection of digital media	267
8.7	Comparison between the collection development policies,	
	standards and guidelines of two universities of technology	270
8.7.1	Goals and objectives relating to collection development	270
8.7.2	Ascertaining user needs	271
8.7.3	Collection development policies	272
8.7.4	Budgetary allocations for collection development	273
8.7.5	Collection evaluation	275
8.7.6	Collection size	276
8.7.7	Resource sharing	278
8.7.8	Responsibility for selection	278
8.7.9	Just-in-case or just-in-time model of collection development	279
8.8	Adequacy of collection development policies, guidelines and	
	standards at universities of technology to satisfy the information	
	needs and behaviour of lecturers and researchers	279
8.9	Model CDP for a university of technology	281

REFE	RENCES	301
8.11	Conclusion	299
8.10	Topics for further research	299

# LIST OF TABLES

Table no.		Page
7-1	Total library expenditure per FTE student	219
7-2	Percentage of total institutional budget given to AUT Library	219
7-3	AUT collection strength – 1996	223

# LIST OF FIGURES

Figur	e no.	Page
2-1	A model for collection development and management in academic libraries	23
7-1	Proportion of budget spent on various formats – AUT	216
7-2	Materials budgets	218
7-3	Proportion of budget spent on various formats – XUT	221
7-4	Size of book stock	224
7-5	Number of monographs added annually	225
7-6	Non-book items added annually	228
7-7	Print serial subscriptions	229
7-8	E-resources	233