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**Academics' Knowledge and Use of Electronic
Information Resources (EIR) at the University of
Bahrain**

by

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**A Doctoral Thesis Submitted in
Partial Fulfilment of the Requirements for the
Award of the Degree of Doctor of Philosophy
of Loughborough University**

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ABSTRACT

Electronic Information Resources (EIR) can be seen as invaluable teaching and research tools, which complement print-based resources and enhance the learning and research processes in any academic institution.

The aims of this research were to investigate, analyse and discuss the use of and needs for EIR and existing training in promoting and enhancing the quality of teaching and research activities amongst academic staff at the University of Bahrain.

Extensive quantitative, qualitative and theoretical methods were used to identify and analyse academic staff EIR skills, knowledge and awareness.

The population of the study is made up of all the full-time faculty members working at the University of Bahrain. A total of 593 questionnaires were distributed and 466 completed ones were returned, giving an overall response rate of 78.5%, and these were used for the purpose of the study.

The result of the study revealed that printed resources are the sources of information most used for teaching and research. The colleges of Law, Art and Education had the lowest percentages of usage of EIR compared with other colleges. Work overload, lack of awareness, low skill levels, slow servers, ineffective communication systems, language barriers and a preference for print resources were among the primary constraints that affected academic staff uptake and use of electronic resources in teaching and research.

One-to-one training was the preferred training method for those academics wishing to enhance their EIR skills. It was recommended that there is a need for greater promotion from the upper level decision-makers at the university if they wish to see greater use of electronic resources in teaching and research.

Strategic conceptual models designed to provide solutions to the current problems and to help in setting policies and decisions for the effective use of EIR in teaching and research are given.

Key words:

Electronic Information Resources

Academic Staff Use of EIR

Academic Staff Knowledge of EIR.

Academic Staff EIR Awareness.

Bahrain University Academic Staff

Academic Staff Training Needs

DEDICATION

*"To my father may your soul rest in peace to you I
dedicate this work."*

"To my mother who never forgets me in her prayers."

"To my beloved wife who never stopped motivating me."

*"To my children Mohamed, Hissa and Aysa whose
smiles light my day."*

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TABLE OF CONTENTS

	Page No.
Abstract	i
Dedication	iii
Acknowledgments	iv
Table of Contents	v
List of Figures	xii
List of Tables	xiv
Abbreviations	xvi
CHAPTER 1: INTRODUCTION	1-9
1.1 Introduction	1
1.2 Aims of the Research	4
1.3 Objectives of the Research	4
1.3.1 Objectives	4
1.3.3.1 Objective One	4
1.3.3.2 Objective Two	5
1.4 Research Questions	5
1.5 Significance of the Study	6
1.6 Thesis Structure	7
CHAPTER 2: GENERAL BACKGROUND OF BAHRAIN	10-25
2.1 Introduction	10
2.2 The Kingdom of Bahrain	10
2.3 The History of Bahrain	14
2.4 Education System in Bahrain	15
2.4.1 Higher Education in Bahrain	15
2.4.1.1 College of Health and Science (CHS)	16
2.4.1.2 Arabian Gulf University (AGU)	17
2.4.1.3 University of Bahrain (UoB)	18
2.4.1.3.1 University of Bahrain Colleges	19
2.4.1.3.2 University of Bahrain Library	23
2.5 Summary	25

CHAPTER 3 : LITERATURE REVIEW	26-90
3.1 Introduction	26
3.2 A Review of General Academic Use, Need, and Knowledge of EIR	27
3.3 Use, Need and Knowledge of EIR	39
3.3.1 OPAC	44
3.3.2 CD-ROM	46
3.3.3 Online Databases	50
3.3.4 Internet	51
3.3.5 E-journals	58
3.4 The Role of the Library in Supporting Use, Need and Knowledge of EIR	61
3.4.1 The Implementation of Library Portals	66
3.4.2 Partnership between Academics and Librarians in the Educational Process	68
3.5 Literacy Concepts and the Need for Information Literacy	72
3.6 Academic Staff Training	74
3.6.1 Training Need	78
3.6.2 Training Methods	82
3.7 Summary	88
CHAPTER 4: RESEARCH METHODS	91-116
4.1 Introduction	91
4.2 Research Strategy	92
4.2.1 Triangulation	94
4.3 Research Sampling	95
4.4 Data Collection	99
4.4.1 Semi-structured Questionnaires	99
4.4.1.1 Design and Structure of the Questionnaire	99
4.4.1.2 Distribution Procedure of Questionnaires	102
4.4.2 Interviews	104
4.4.2.1 The Design and Structure of the Interviews	106
4.4.2.2 Interviews Procedure	106
4.4.3 Document Analysis	107
4.4.3.1 Types of Document Analysed	108
4.4.3.1.1 Annual Reports	108
4.4.3.1.2 Organisational Charts	108

4.4.3.1.3	National Documents	108
4.5	Reliability and Validity	109
4.5.1	Reliability	109
4.5.2	Validity	109
4.6	Pilot Study	110
4.6.1	Pre-test Questionnaires	110
4.6.2	Pre-test Interviews	111
4.7	Data Collection Processing and Analysis	112
4.7.1	Data Processing	112
4.7.1.1	Data Input and Recording	112
4.7.1.2	Screening and Cleaning the Data	112
4.7.2	Data Analysis Methods	113
4.7.2.1	Quantitative Data Analysis	113
4.7.2.2	Qualitative Data Analysis	115
4.8	Research Findings Feedback and Evaluation	116
4.9	Summary	116
CHAPTER 5: QUESTIONNAIRE ANALYSIS		117-152
5.1	Introduction	117
5.2	Demographic characteristics	118
5.2.1	Respondents by college	118
5.2.2	Respondents by Department	119
5.2.3	Respondents by Gender	120
5.2.4	Respondents by Age	122
5.2.5	Respondents by Academic Ranking	123
5.2.6	Respondents by Academic Qualification	124
5.2.7	Respondents by Number of Years in Service	125
5.3	Academic Staff Use and Needs of EIR	126
5.3.1	Use of EIR in Teaching	126
5.3.2	Use of EIR in Research	127
5.3.3	Demographic Characteristics of the Respondents	128
5.3.3.1	Use of EIR by Age	128
5.3.3.2	Use of EIR by Gender	129
5.3.3.3	Use of EIR by Academic Ranking	129
5.3.3.4	Use of EIR Academic Discipline (colleges)	130

5.3.4	The Importance of EIR in Teaching and Research	131
5.3.5	What Might Increase the Use of EIR	133
5.3.6	Searching the EIR	134
5.4	Academic Staff Awareness	136
5.5	Academic Staff Knowledge Concerning EIR Usage	137
5.6	EIR Skills of Academic Staff	139
5.7	Publicising EIR in the University of Bahrain Library	140
5.8	Barriers and Obstacles to the Use of EIR	141
5.8.1	Reasons for the limitations in the Use of EIR	141
5.8.2	Problems Regarding Usage of EIR for Teaching and Research	142
5.9	Training in EIR	144
5.9.1	Training Received	144
5.9.2	Type of Training Received	145
5.9.3	Preferred Training Method	147
5.9.4	Training Needs	148
5.10	Relationships Between Certain Variables	149
5.10.1	Demographic Variables and Awareness, Knowledge, Skills, Needs and Use of EIR	149
5.10.2	Knowledge and Skills in Using EIR	150
5.10.3	Skill and Use of EIR in Research and Teaching	151
5.10.4	The Use, Knowledge and skills of EIR and Receiving Training	151
5.11	Summary	152
CHAPTER 6: INTERVIEWS ANALYSIS		153-184
6.1	Introduction	153
6.2	Interviewees' Demographic Characteristics	154
6.3	Heads of Academic Departments' Perceptions	156
6.3.1	Use and needs of EIR	156
6.3.2	Knowledge and Skills	162
6.3.3	Barriers and Obstacles	165
6.3.4	Training Need and Preferred Training Methods	172
6.3.5	Future Trends	175
6.4	Senior Librarians' Perceptions	176
6.4.1	Use and Needs of EIR	176
6.4.2	Knowledge and Skills	179
6.4.3	Barriers and Obstacles	181

6.4.4	Training	182
6.5	Summary	184
CHAPTER 7: DISCUSSION OF THE STUDY		185-228
7.1	Introduction	185
7.2	The Need for and Use of EIR of Academic Staff	186
7.2.1	Impact of Age on EIR Use	188
7.2.2	Impact of Gender on EIR Use	190
7.2.3	Impact of Academic Ranking on EIR Use	191
7.2.4	Impact of Discipline (Colleges) on EIR Use	192
7.2.5	Impact of EIR Needs and Use	194
7.3	Academic Staff Awareness	196
7.4	Academic Staff Knowledge and Skills	202
7.5	Relation between the Demographic Variable and the Awareness, Knowledge, Skills, Needs and Use of EIR	206
7.5.1	Gender	206
7.5.2	Discipline	208
7.5.3	Academic Staff Ranking	210
7.6	Co-operation and Coordination between Academic Staff and Library Staff	211
7.6.1	Factors Impacting on Cooperation and Coordination	211
7.7	Barriers and Obstacles to the Effective Use of EIR	214
7.7.1	Education System	214
7.7.2	Organisation	215
7.7.3	Academic Staff	216
7.7.3.1	Language Barriers	218
7.7.3.2	Time (Work overload)	219
7.7.3.3	Traditional Teaching Methods	220
7.7.3.4	Lack of Motivation	221
7.7.3.5	Continually Changing ICT	221
7.7.4	The University Library	223
7.7.4.1	EIR Education	224
7.7.4.2	Communication between the Library and the University Departments	224
7.8	Electronic Information Training	226
7.8.1	Training Received	226
7.8.2	Type of Training Received	227

7.8.3	Preferred Training Methods	27
7.8.4	Training Needs	229
CHAPTER 8: CONCLUSIONS AND RECOMMENDATIONS		229-259
8.1	Introduction	229
8.2	Conclusions	229
8.2.1	Academic Staff Needs and their Use of EIR	230
8.2.2	Academic Staff Awareness, Knowledge and Skills	231
8.2.3	Role of the University Library in Promoting Use of EIR	232
8.2.4	Impact and Role of EIR Training	232
8.2.5	Barriers and Obstacles to EIR Use	233
8.3	Recommendations for Practical Solutions	233
8.3.1	University (Organisation)	234
8.3.2	The University Library	237
8.3.3	University Academic Staff	239
8.3.4	The Communication System	244
8.3.5	Strategic Planning for Information Literacy	247
8.3.6	Electronic Information Training	247
8.4	Implementations of the Proposed Models: Feedback and Evaluation	249
8.4.1	Proposed Library Models: Feedback and Evaluation from Senior Librarians	249
8.4.2	Proposed Academic Models: Feedback and Evaluation of Heads of Departments	255
8.5	Research Limitations	258
8.6	Recommendations for Further Research	259
BIBLIOGRAPHY		260-277
LIST OF APPENDICES		278-328
Appendix 1	Letters Concerning the Study	279
1.1	Supervisor's Letter	280
1.2	Questionnaire Response	281
1.3	Dean of Education College	282
1.4	Arrangement for Interview Appointment	283
1.5	Thanks Letter for Attending Interview	284

Appendix 2	Questionnaires	285
	2.1 Questionnaire in English	286
	2.2 Questionnaire in Arabic	292
Appendix 3	Interview Guides	299
	3.1 Interview Questions for Head of Academic Dept. in English	300
	3.2 Interview Questions for Head of Academic Dept. in Arabic	302
	3.3 Interview Questions for the Library Director, Deputy Director in English	303
	3.4 Interview Questions for the Library Director, Deputy Director in Arabic	305
	3.5 Interview Questions for Head of Library Services Divisions in English	307
	3.6 Interview Questions for Head of Library Services Divisions in Arabic	309
	3.7 Second Fieldwork Interview for Head of Academic Dept. in English	311
	3.8 Second Fieldwork Interview for Head of Academic Dept. in Arabic	312
	3.9 Second Fieldwork Interview for Senior Librarian in English	313
	3.10 Second Fieldwork Interview for Senior Librarian in Arabic	314
Appendix 4	Poster Contest	315
	4.1 Poster	316
	4.2 Poster Contest Certificate	317
	4.3 Poster Contest Certificate (The Saudi Innovation Conference 2007, Newcastle University)	318
Appendix 5	Tables of Summary of Previous Research in GCC Countries	320
	5.1 Tables of Summary of Previous Research in GCC Countries	321
	5.2 Tables of Summary of Previous Research in Training	325
	5.3 Tables of Summary of Previous Research in Training methods used	326

LIST OF FIGURES

Figure 1.1:	Research model plan	8
Figure 1.2:	Research flow chart	9
Figure 2.1:	Map of the Arabian Peninsula States	11
Figure 2.2:	Map of the Kingdom of Bahrain	12
Figure 2.3:	University of Bahrain organizational chart	22
Figure 4.1:	Research strategy	91
Figure 4.2:	Triangulation between different methods	94
Figure 4.3:	Interview sampling	98
Figure 4.4:	Tests used for comparisons and correlations between variables	114
Figure 4.5:	Measuring strengths	115
Figure 5.1:	Distribution of academic staff by age	123
Figure 5.2:	Distribution of academic staff ranking	124
Figure 5.3:	Respondents' academic qualifications	125
Figure 5.4:	Distribution of academic staff by number of years in service	126
Figure 5.5:	The percentage of academic staff who never used EIR in each college	131
Figure 5.6:	Searching the EIR	134
Figure 5.7:	Asking for assistance while searching the EIR	136
Figure 5.8:	Problems faced regarding the usage of EIR in teaching and research	143
Figure 5.9:	Number of academic staff who received or did not receive training	144
Figure 7.1:	Drivers to use EIR	195
Figure 7.2:	Model showing the lack of awareness of EIR	204
Figure 7.3:	Relationship between the genders	207
Figure 7.4:	Relationship between the genders	207

Figure 7.5:	Relationship between colleges	209
Figure 7.6:	Relationship between colleges	209
Figure 7.7:	Relationship between academic rankings	210
Figure 7.8:	Relationship between academic rankings	211
Figure 7.9:	Role of the academic library	212
Figure 7.10:	Factors that influence academic staff	217
Figure 7.11:	Barriers and obstacles for academic staff	218
Figure 7.12:	The continuous changing of ICT	223
Figure 8.1:	Organisation strategy to encourage use of EIR	241
Figure 8.2:	Library strategy to encourage use of EIR	243
Figure 8.3:	Current barriers and possible future interventions	248
Figure 8.4:	Recommended communication system	249
Figure 8.5:	Proposed strategic training for Bahrain University Library	251
Figure 8.6:	Recommended communication system (Modified)	254
Figure 8.7:	Recommendations for Bahrain University, Library (Modified)	256
Figure 8.8:	Proposed strategic training for Bahrain University (Modified)	257
Figure 8.9:	Current barriers and possible future interventions (Modified)	260

LIST OF TABLE

Table 2.1:	Population estimates in Bahrain by gender and nationality in 2004	13
Table 4.1:	Academic staff research sample	96
Table 4.2:	Questionnaires distributed and received by the twenty-five departments	103
Table 4.3:	Summarises of the relevant statistical test used in the study	113
Table 5.1:	The breakdown of responses by college	118
Table 5.2:	The breakdown of responses by department	120
Table 5.3:	Distribution of respondents by gender	121
Table 5.4:	Distribution of academic staff by age	122
Table 5.5:	Respondents' academic qualifications	124
Table 5.6:	Distribution of respondents by number of years in service	125
Table 5.7:	Use of EIR in teaching	127
Table 5.8:	Use of EIR in research	128
Table 5.9:	The percentage who 'never used' EIR by academic staff by age	129
Table 5.10:	The percentage who 'never used' EIR by gender	129
Table 5.11:	The percentage who 'never used' EIR by academic ranking	130
Table 5.12:	The percentage who 'never used' EIR in each college	130
Table 5.13:	The importance of EIR in teaching	132
Table 5.14:	Use of EIR in research	133
Table 5.15:	What might Increase the use of EIR	133

Table 5.16:	Searching the EIR	134
Table 5.17:	Comparison between academic staff (male and female) on their success of searching the electronic information resources	135
Table 5.18:	Asking for assistance while searching the EIR	136
Table 5.19:	Awareness of academic staff	137
Table 5.20:	Knowledge of electronic information resources	138
Table 5.21:	Mann-Whitney U-test result comparing academic staff (male and female) in terms of their knowledge of electronic information resources	138
Table 5.22:	Academic staffs' skills	139
Table 5.23:	Mann-Whitney U-test result comparing academic staff (male and female) in terms of their EIR skills.	139
Table 5.24:	Source of information concerning EIR	140
Table 5.25:	Reasons for use of EIR limitations	141
Table 5.26:	Problems regarding the usage of EIR for teaching and research	143
Table 5.27:	Respondents who had, or had not, received training on EIR	144
Table 5.28:	Training received by academic staff in all seven colleges	145
Table 5.29:	Type of training received	146
Table 5.30:	Type of training received by academic staff in the seven Colleges	146
Table 5.31:	Training method preferred by academic staff	147
Table 5.32:	Comparison of the preferred training method among colleges	148
Table 5.33:	Training needs of academic staff	149
Table 6.1:	Profile of interviewees for Heads of Academic Departments	155
Table 6.2:	Profile of interviewees for Senior Librarians	156
Table 7.1:	Use of and need for EIR among academic staff	187
Table 7.2:	Academic staff awareness	196

ABBREVIATIONS

ALA	American Library Association
AGU	Arabian Gulf University
AUI	Al-Akawayn University in Ifrane
CAI	Computer-Assisted Instruction
CD-ROM	Compact Disk
CHS	College of Health and Science
CPD	Continuing Professional Development
COPAC	New Union of OPAC (Provides free access to the information contained in the main online catalogues of a number of important academic research library collections)
DOBIS	Dortmund Bibliothekssystem
EIR	Electronic Information Resources
FIU	Florida International University
E-journals	Electronic Journals
E-MAIL	Electronic Mail
EIS	Electronic Information Services
FMS	Faculty of Medical Sciences
FTP	File Transfer Protocol
GCC	Gulf Cooperation Council
HE	Higher Education
HCKU	Health Sciences Centre of Kuwait University
ICT	Information Communication Technology
IDRC	International Development and Research Center

IFLA	International Federation Library Association
IIUM	International Islamic University in Malaysia
ILI	Information Literacy Initiative
IRK&HS	Islamic Revealed Knowledge and Human Sciences
IT	Information Technology
KAU	King Abdulaziz University
KAUL	King Abdulaziz University Library
KFUPM	King Fahad University of Petroleum and Minerals
LIBIS	Leuvens Integraal Bibliotheek Systeem
LIS	Library and Information Services
Metalib	Information portal to library collections
MINISIS	Generalized Information Management System
MoE	Ministry of Education
MSL	Medical Sciences Library
OCLC	Online Computer Library Center
OPAC	Online Public Access Catalogue
P&S	Professional and Scientific staff
PIP	Population Information Program
POPLINE	Population Information and Family Planning
SML	Saab Medical Library
SQU	Sultan Qaboos University
TAMU	Texas A&M University
TELNET	Terminal Emulation Programme
TPI	Teachers Pay Initiative
UAE	United Arab Emirates

UAEU	United Arab Emirates University
UoB	University of Bahrain
UPM	University of Petroleum and Minerals
USM	University Sains Malaysia
UST	University of Science and Technology
USU	Utah State University
UWE	University of the West of England
WAIS	Wide Area Information Server
WBT	Web-Based Training
WMU	Western Michigan University
WWW	World-Wide Web

CHAPTER ONE

INTRODUCTION

1.1 Introduction

Electronic information resources (EIR) have become an essential source for information seekers in industry, marketing, and education. Education institutions, particularly higher education are taking the lead in using EIR due to teaching and research commitments and needs. Therefore, the adoption and use of EIR has become one of the strategic aims of every higher education institution.

Electronic Information Resources (EIR) are invaluable teaching and research tools, which complement print-based resources in any academic institution. Electronic resources facilitate access to information that might otherwise be restricted to the user because of geographical location, physical, social or financial reasons. They also provide access to current information as these are often updated frequently.

EIR facilitate, enhance and support the research process in higher education institutions. The availability of e-book and e-journals, as examples, provide the researcher with access to a wider array of information. The fast access to EIR enables the researcher to save time and effort.

Brinkley, *et al.* (1999, pp.143-146) argued that use of electronic resources offers benefit for class activities. It makes teaches preparation more efficient and the content of lecture more efficient more compelling, informative, and varied. They identified five ways that teachers should consider uses of EIR to gain benefit from technology. These five are:

Administration

Use of EIR can help in the administration of course delivery. EIR resources can be advertised in home page of the course. Use of EIR could reduce the amount of time and effort staff spend in providing course handouts. This includes savings for the teaching, photocopying and distributing the handout.

Reading/Sources:

A wide range of secondary and primary electronic information resources can be used in teaching and research. These include electronics reading materials that help in exploring ideas and views of students and academic staff EIR resources can include visual and audio resources. Access to EIR also helps students and researcher to be more independent.

Exam Papers/Presentation:

EIR helps students to be more independent in gaining access to various exam papers and not rely on the lecturer handing out past exam papers.

Lectures

Use of EIR can make the lecture activities interesting and lively. EIR provides visual and audio facilities that can help in attracting students as well as in engage them in the class discussions.

Discussions

One of the other benefits of adopting use of EIR in higher education institutions is to create a stimulates discussion environment. This discussion can be achieved by using on-line chat, e-mails as examples.

According to Lumande and Mutshewa (1999, p.107), "the university's core responsibility centres on teaching and research. Critical to these two activities is the need to access and use information. Without it no significant teaching or let alone research can be undertaken". In addition, Lipow (1991, p. 8) stated "...faculty are in themselves information seekers..., and therefore there is a need to know something about how they seek and disseminate information". Lipow (1991, p.10) also stated

that faculty has "a long-term and continuing need for information for their own benefit and for the benefit of their students".

Academic staff have a key role to play as gatekeepers and role models for students (Rowley, *et al.* 2002, p.120). Crawford (2003, p.34) stated that academic staff are the key motivators for using electronic information services (EIS) and showed that those students who used EIS, other than the Internet, did so because an academic staff member had taken the time to show them how to use such tools and had displayed their relevance to their subject area. Noting such examples, it is evident that there is a need to study the use of electronic information resources (EIR) by academic staff and to determine what factors enhance or limit their use.

Furthermore, students seem to perceive academic staff as a first point of contact when they have problems in finding the EIS required for assignments or project work (Armstrong *et al.* 2001, p.13). This, by implication, means that academic staff members are essential and key players in raising skills and awareness of EIS.

Bahrain University is the main higher education institution in Bahrain. It represents an important pillar in Bahrain's national planning and growth. This is mainly due to the university's role of providing qualified manpower, enhancing and supporting national research, and its community contribution. The University of Bahrain is a governmental institution, controlled, financed and managed by the central government. Therefore, the University is always taken into consideration in any national strategic plan. One of the strategic national plans is adopting e-government and encouraging the move toward a digital information society. As a result of this, Bahrain University invested in EIR to support teaching and research activities within the university. To date, there has been no comprehensive research that explores the use of and the need for EIR in the university. Therefore, this research aims to explore the knowledge and the use of electronic resources of the institution's academic staff.

1.2 Aims of the Research:

The aims of this research are to investigate, analyse and discuss the use and needs of EIR and existing training in promoting and enhancing the quality of teaching and research activities amongst academic staff at the University of Bahrain

1.3 Objectives of the Research:

The main objectives of the research are presented in the next sections.

1.3.1 Objective One

To assess, identify and investigate the current use of electronic information resources in the teaching and research process and the training strategies and implementation processes within Bahrain University. This can be achieved by:

- a. Assessing the use and the need for electronic information resources by academic staff at the University of Bahrain.
- b. Identification of academic staff awareness, knowledge and skills in the use of electronic information resources.
- c. Identification of the barriers and obstacles for adopting information resources that influence the use of electronic information resources by academic staff.
- d. Exploration of the factors that influence the usage of electronic information resources.
- e. Investigation of the mechanism(s) used in informing staff of existing electronic information resources offered by the library.
- f. Investigation and assessment of the academic staff training needs.
- g. Investigation of the current training methods used and identification of academic staffs' preferred training methods.

- h. Investigation of the academic staffs' perceptions towards training and use of EIR in teaching and research.

1.3.2 Objective Two

To develop a theoretical framework and model practical solutions that can be applied to Bahrain University and can be used as a framework to encourage the usage of EIR for future investigations in other universities to improve and promote teaching and research activities.

1.4 Research Questions:

This research aims to address the following questions.

1. What is the current situation regarding the use and needs of electronic information resources in teaching and research?
2. Are there any distinctions between academic staff in terms of using electronic information resources when age, gender, years of experience, qualifications, academic ranking and disciplines are considered?
3. What are the barriers to using electronic information resources in teaching and research?
4. What are the perceptions of academic staff towards the need for training and use of electronic information resources in teaching and research?
5. What are the training needs and methods preferred by academic staff?
6. What are the current academic library EIR training strategies?

1.5 Significance of the Study

The significance of the study can be summarised in the following:

1. This is the first comprehensive research on academics' knowledge, use of and need for electronic information resources at the University of Bahrain.
2. Bahrain is in the process of development and modernisation of its institutions. Bahrain authorities need information and guidelines to help them in this process. This research will provide guidelines and recommendations that can be used in the process of development and modernisation of the higher education sector in Bahrain.
3. The outcomes of this research can be of benefit to, as well as be used by, similar studies on Gulf States universities due to similarities in culture, politics and economies.
4. It can assist the university authority in their strategic planning towards teaching and research by providing university authorities with practical solutions models that can be used in their strategic planning to improve academic staff use and knowledge of EIR. This can contribute towards promoting teaching and research processes within the university.
5. Increase awareness of the role and the impact of electronic information among academic staff, academic libraries, and university authorities.
6. Provide the university academic library with a strategic planning model design based on the research outcomes, identifying training needs and preferred training methods.
7. This study is important for library administration and professionals in aiding them to better understand the needs of the users they serve in order to respond to and fulfil their needs.

1.6 Thesis Structure

Figure 1.1 shows the research plan. It shows the research aims, methods, research subject and the outcomes. Figure 1.2 presents the research flow chart. The plan achievement is reflected in the research chapters. This research consists of eight chapters as outlined below:

Chapter One: presents a general introduction to the research and identifies the research problems, its aims and objectives, and the significance of the study.

Chapter Two: Presents a general overview of the Kingdom of Bahrain, the provision of education and higher education, and an introduction to the University of Bahrain and the resources available, particularly Electronic Information Resources, within the University of Bahrain libraries.

Chapter Three: Presents a critical review of the literature in key areas of relevance to the thesis. It looks at previous studies in this area.

Chapter Four: Discusses the methodology for data gathering in the research, reasons for selecting the method, procedure for selecting the study population, problems encountered, and the statistical package used in analysing data.

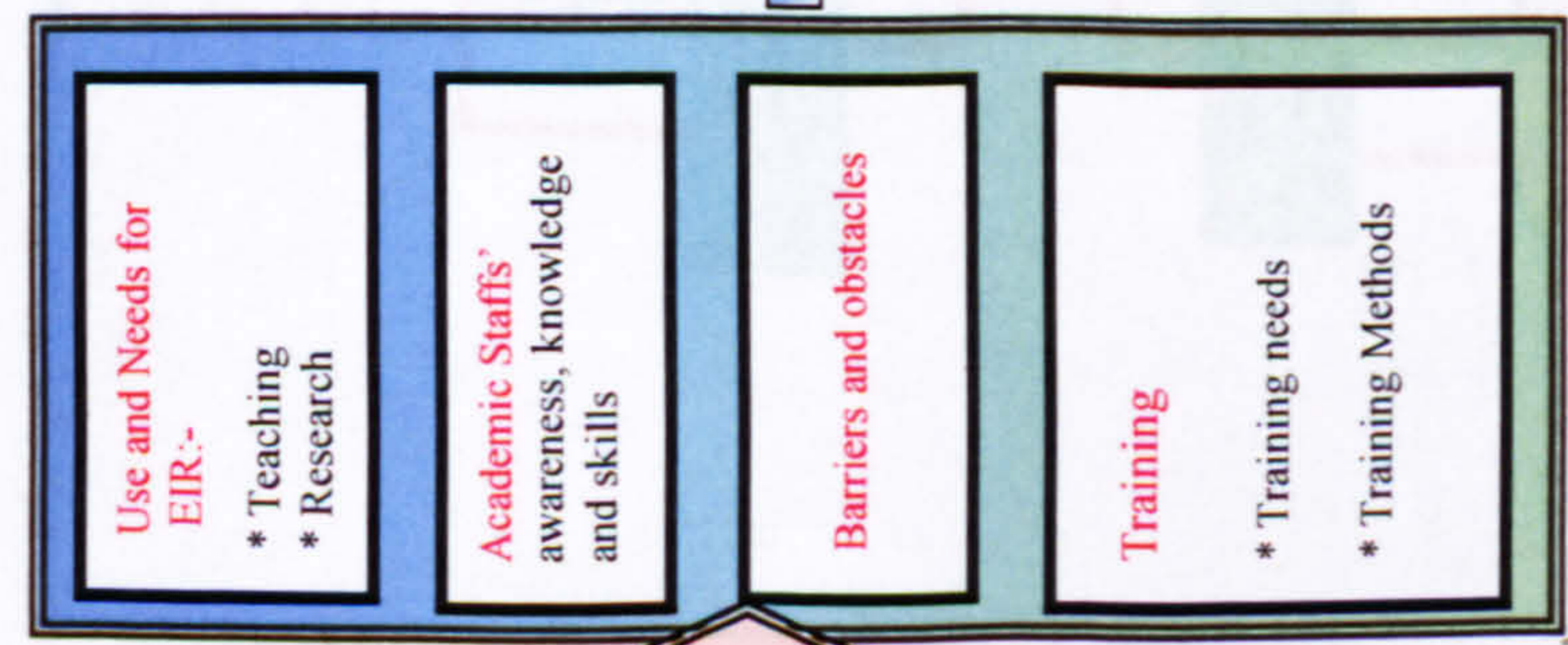
Chapter Five: Presents the results of the quantitative analysis of the questionnaire survey.

Chapter Six: Presents the results of the qualitative analysis of the semi-structured interviews.

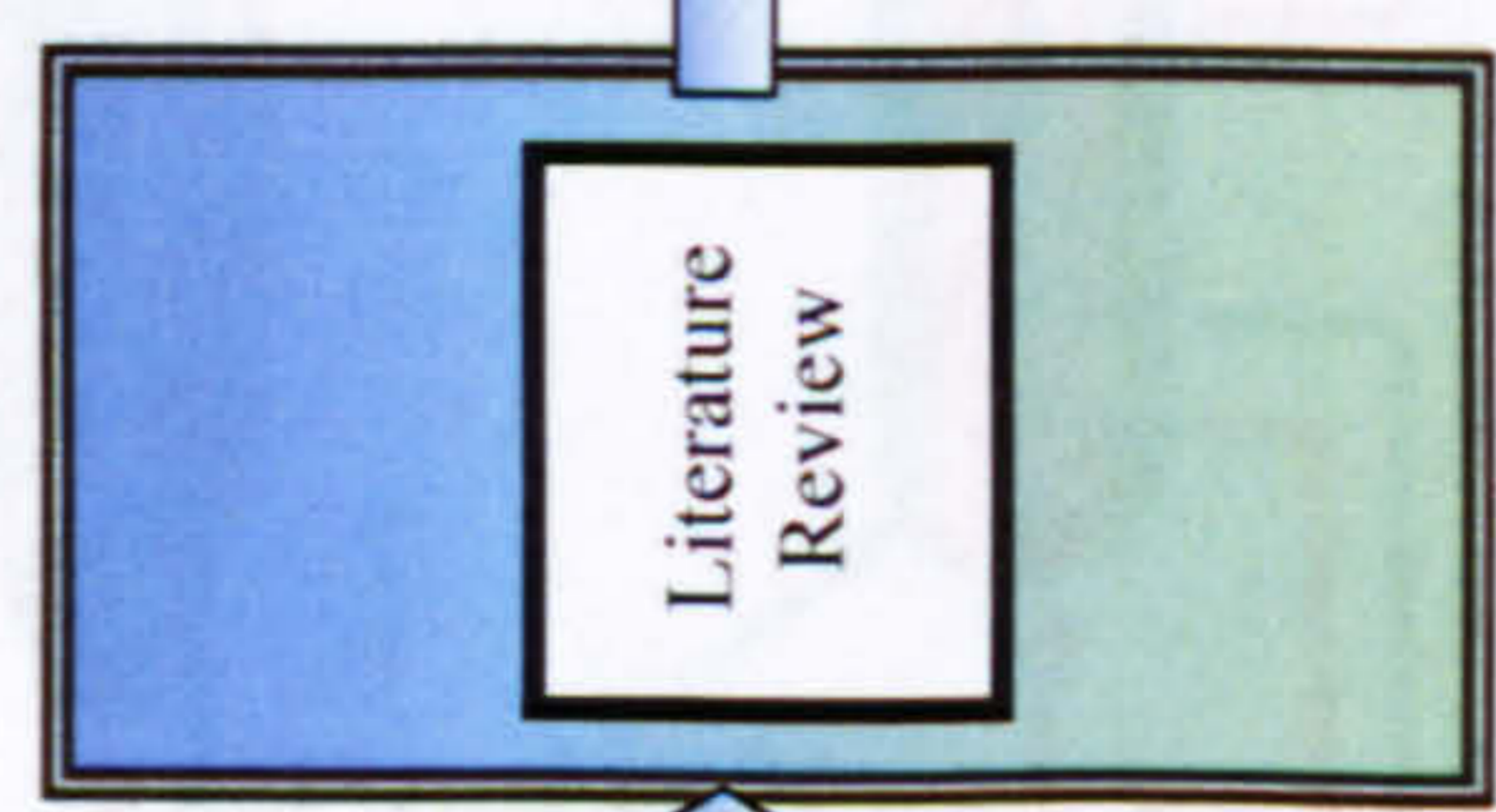
Chapter Seven: Discusses the findings of chapter 5 and chapter 6 and provides explanations of the results in light of the findings from the literature review.

Chapter Eight: Summarises the main findings, makes recommendations and provides the conclusions, research limitation and points out areas for further research. It also summarises the feedback received from the second stage fieldwork.

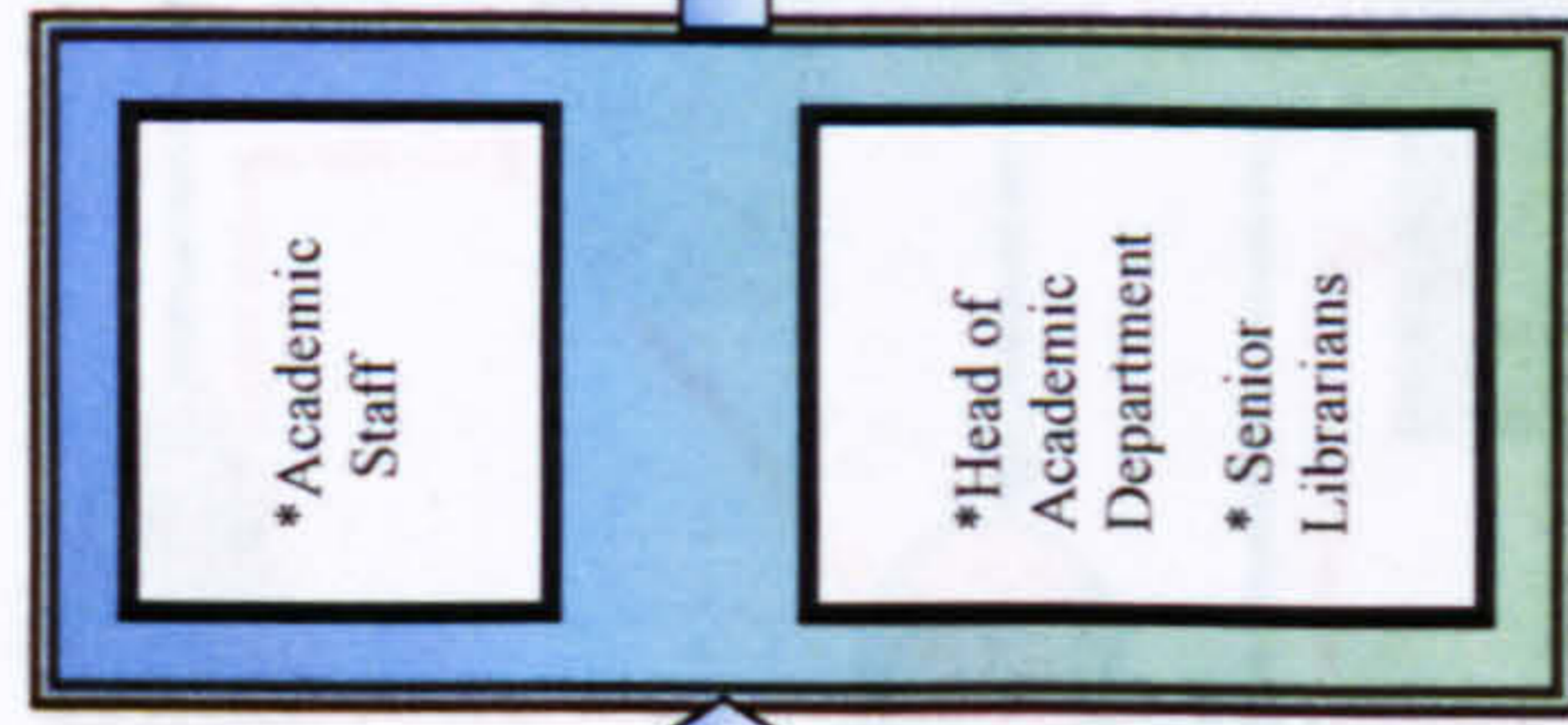
Elements of the research



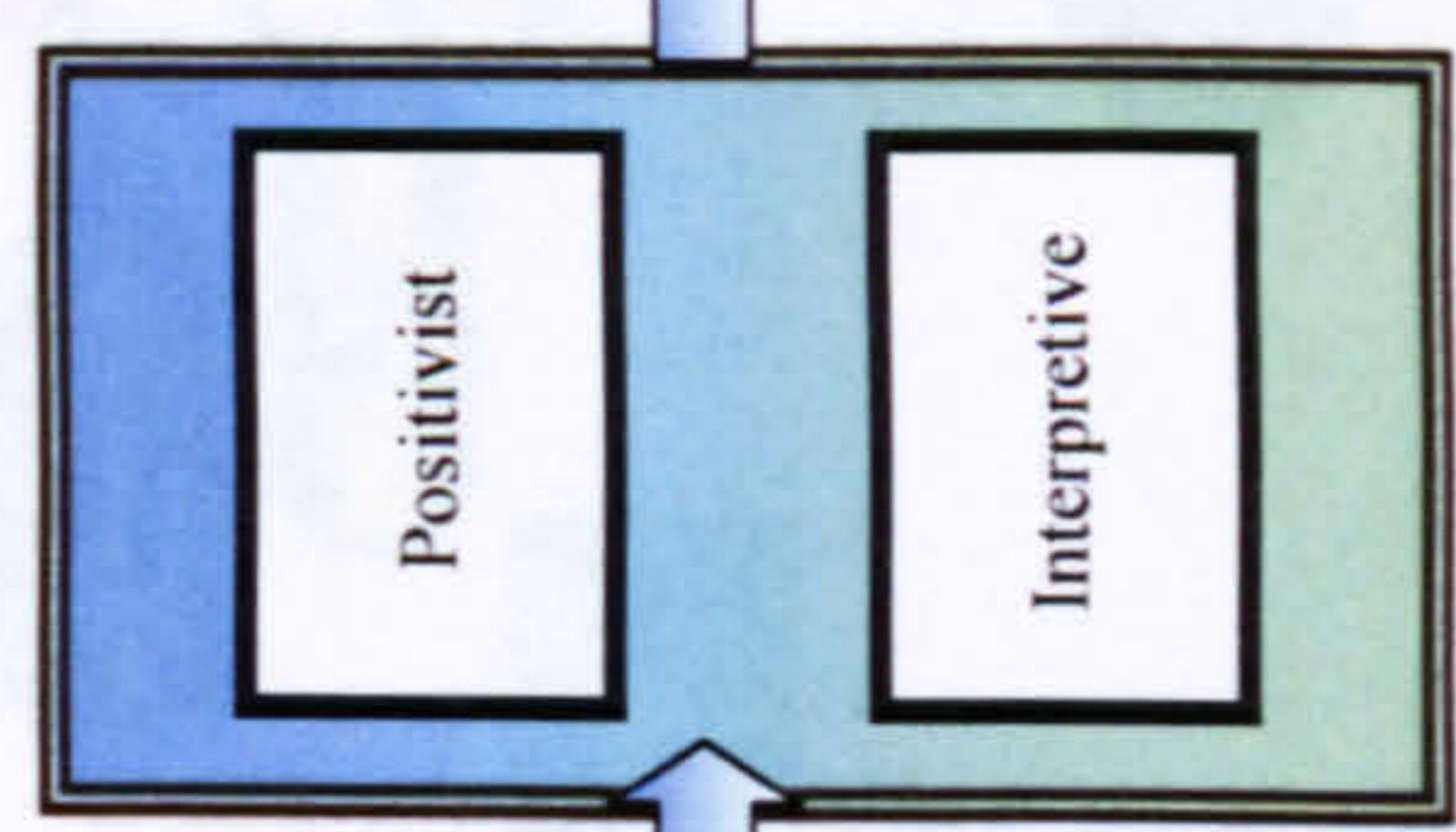
Theoretical framework



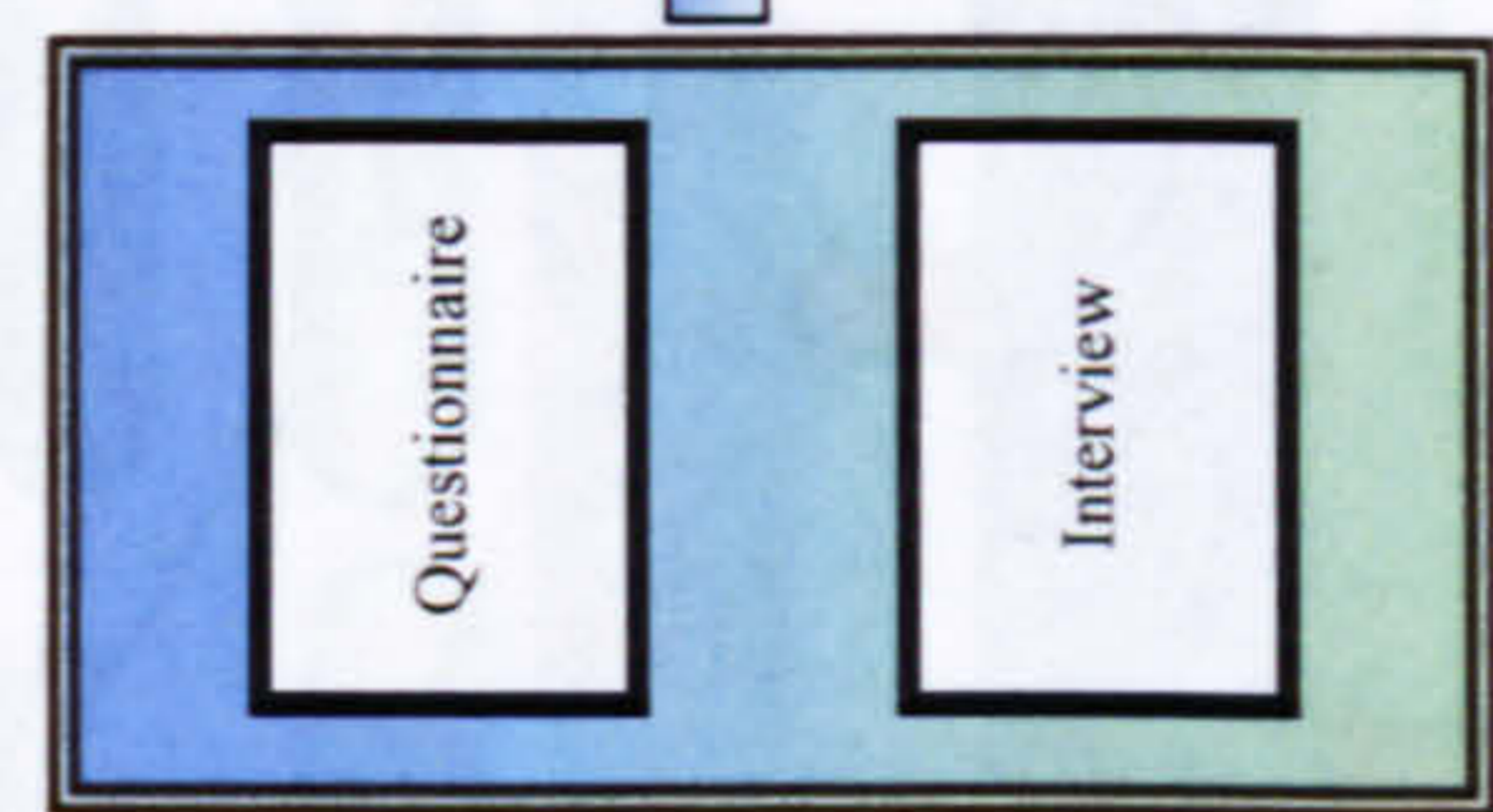
Research Subjects



Research Methods



Data Collection



Discussion



Research outcome



Figure 1.1: Research model plan

Figure 1.2: Research flow chart

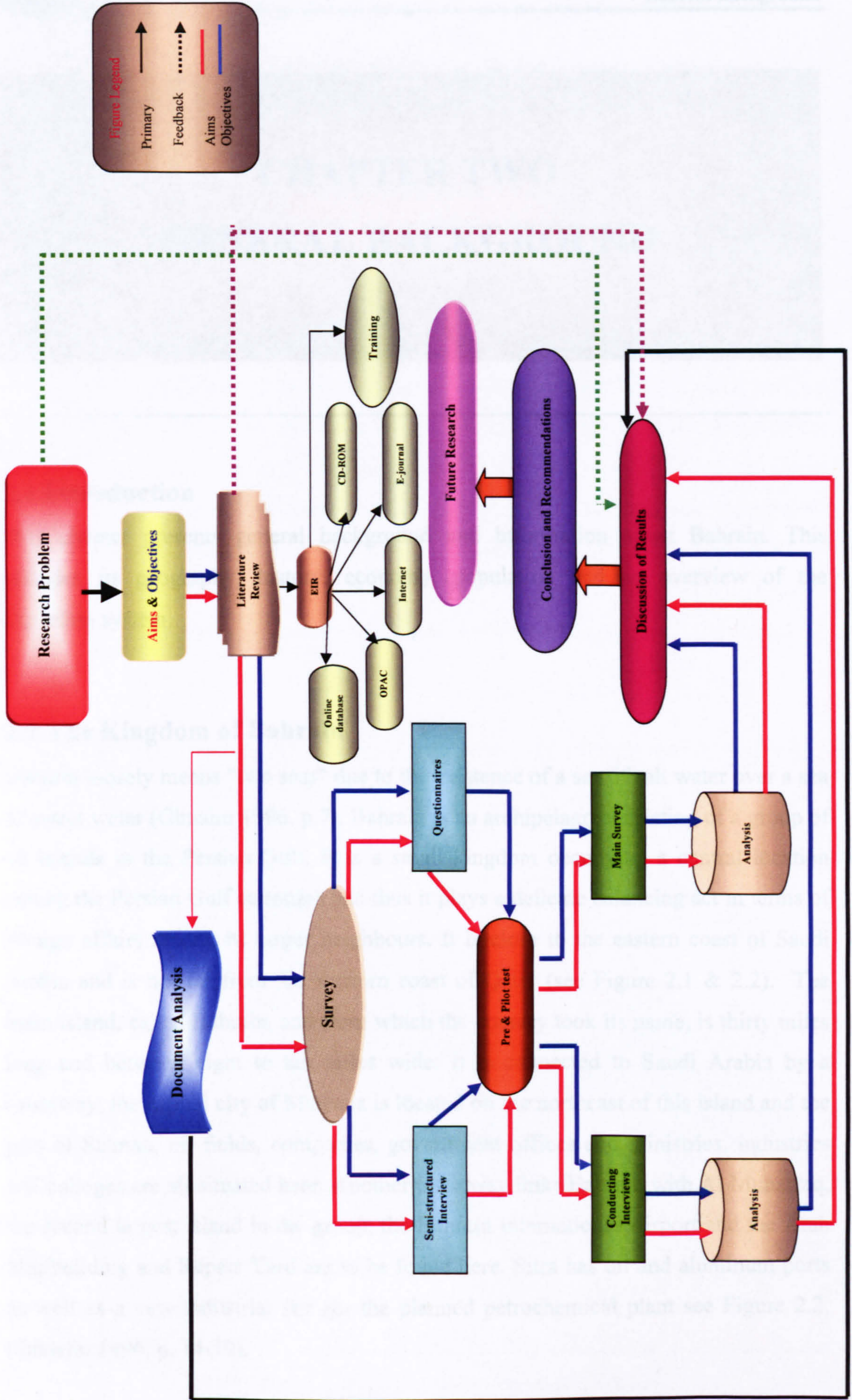


Figure 1.2: Research flow chart

CHAPTER TWO

GENERAL BACKGROUND

2.1 Introduction

This chapter presents general background and information about Bahrain. This includes its geography, history, economy, population and an overview of the education system.

2.2 The Kingdom of Bahrain

Bahrain loosely means "two seas" due to the existence of a sea of salt water over a sea of sweet water (Ghnaim 1996, p.7). Bahrain is an archipelago consisting of a group of 40 islands in the Persian Gulf. It is a small kingdom occupying a central location among the Persian Gulf countries and thus it plays a delicate balancing act in terms of foreign affairs among its larger neighbours. It is close to the eastern coast of Saudi Arabia and is not far from the western coast of Qatar (see Figure 2.1 & 2.2). The main island, called Bahrain, and from which the country took its name, is thirty miles long and between eight to ten miles wide. It is connected to Saudi Arabia by a causeway; the capital city of Manama is located on the northeast of this island and the port of Salman, oil fields, companies, government offices and ministries, industries and colleges are all situated here. Another causeway links Bahrain with Al Muharraq, the second largest island in the group; the Bahrain International Airport and the Arab Shipbuilding and Repair Yard are to be found here. Sitra has oil and aluminum ports as well as a new industrial site for the planned petrochemical plant see Figure 2.2, (Ghnaim 1996, p. 14-19).

The climate of Bahrain has two seasons. It is very hot and humid in summer but mild and pleasant in winter (i.e. from December to March) with temperatures ranging from 10°C to 20°C. Humidity is high in July, August and September with temperatures averaging 36°C (Information about Bahrain 2006). According to a report issued by the Ministry of Information (1982), in July of that year, the maximum temperature rose to 44.5°C.

Bahrain is an Arab Islamic State which enjoys full independence and sovereignty. It is a constitutional monarchy as indicated in the Constitution and in the royal decree on succession. The government system in the Kingdom of Bahrain is based on separation of legislature, executive and judiciary powers with their cooperation set down according to the rules of the Constitution. In February 2001, Bahraini voters approved a referendum on the National Action Charter, the centerpiece of the Prince's political liberalisation programme and in February 2002, Prince Hamad Bin Isa AL- Khalifa proclaimed himself king. (Ministry of Cabinet Affairs & Information of the State of Bahrain 2004, p.31)

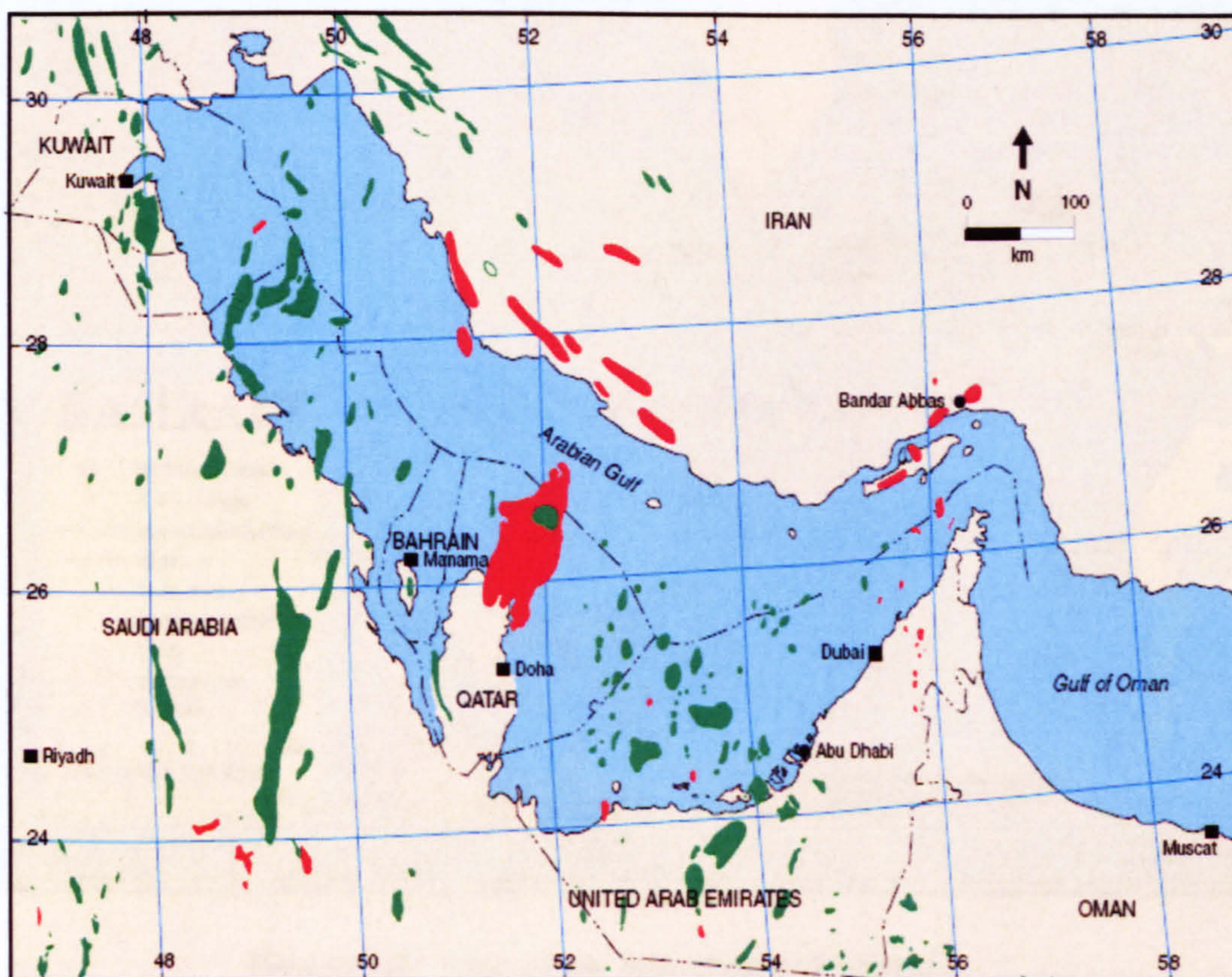


Figure 2.1: Map of the Arabian Peninsula States
(Adopted from: <http://www.arabnet.com>)



Figure 2.2: Map of the Kingdom of Bahrain
 (Adopted from: <http://www.ohchr.org/english/countries/maps/bahrain.pdf>)

In terms of population, Bahrain is among the most crowded countries in the Arab world, compared to its size and area. In fact the annual rate of population growth reached 2.7% during 1991-2001. Population estimates for 2002-2004 are presented in Table 2.1 below.

Table 2.1: Population estimates in Bahrain by gender and nationality
(Adapted from Bahrain in Figures of the Directorate of Central Statistics 2004, p.2).

National			Non-National			Total			Year
Male	Female	Total	Male	Female	Total	Male	Female	Total	
210,814	207,126	417,940	175,407	78,777	254,183	386,220	285,903	672,123	2002
215,848	212,107	427,955	180,430	81,033	261,463	396,278	293,140	689,418	2003
221,019	217,190	438,209	185,598	83,353	268,951	406,617	300,543	707,160	2004

In addition to rapid population increase, Bahrain has a young population with individuals under twenty years of age constituting 47.2% of the total population according to the 2001 census. This throws a considerable support burden on the Kingdom and weighs heavily on economic and social development (Central Information Organisation, General Directorate of Statistics & Population Registry, Directorate of Statistics 2004, p.49).

Bahrain has one of the most diversified economies in the Middle East. To avoid over-dependence on oil and gas exports, the government has developed heavy industries such as shipbuilding and aluminum smelting. It has also developed its banking and finance sector, including insurance. Bahrain was the first country to devise financial instruments that conform to Islamic principles and so Bahrain is now established as a major centre for Islamic banking. Tourism is also a growth industry and, as such, is a

priority for government and private sector investment. (Information about Bahrain 2006).

2.3 The History of Bahrain

The earliest recorded reference to Bahrain dates back to the third millennium BC when it was known as Dilmun; ongoing excavation work is revealing the secrets of the period and recent digs have shown the existence of a very organised lifestyle, with well ordered roads, houses, workshops and a central marketplace. Thousands of burial mounds have also been unearthed, each covering a stone-built chamber which formed the grave. It is believed that at one time there were more than 150,000 burial mounds but most of these have been destroyed with the development of the modern road network. The elaborate nature of the burials, however, suggests that this was, for its time, an extremely well developed society. The era was also chronicled in the Epic of Gilgamesh, who called Dilmun the land of immortality when he visited it in his quest for eternal life and, with its lush vegetation and fresh water springs, together with its location between Mesopotamia and the India, Dilmun became a popular haven on the sea trade route. As trade between Mesopotamia and the subcontinent continued to flourish, Dilmun also grew in prosperity and a city, Qalat Al Bahrain, sprang up where the Bahrain Fort now exists. However, between 1800 and 1600 BC, Aryan forces invaded and destroyed the cities of the Indus Valley civilisation, bringing trade to a halt and for a long period thereafter Bahrain remained isolated, forced to depend on its own resources, only to flourish again as part of the Assyrian Empire in the early first millennium when it became an important pearling and fishing port.

Bahrain has not always been an island. Up until around 6000 BC, Bahrain was part of the Arabian Peninsula before it began drifting away due to the forces of nature. Only in 1986 did modern technology reconnect the island with the mainland by way of the 25-kilometre King Fahad Causeway link to Saudi Arabia (History of Bahrain 2006).

2.4 Education System in Bahrain

The Kingdom of Bahrain considers the education sector to be one of the most important sectors of human development in the country and has therefore provided every possible support to promote and develop standards, including particularly the eradication of illiteracy. According to the 2001 census, illiteracy rates for the 10-44 year old age group were 1.36% for males and 4.03% for females, reaching an average of 2.69% for both sexes.

“Quranic schools (Kuttab) were the only form of education in Bahrain at the beginning of this century. These are traditional schools aimed at teaching children and young people the reading of the Holy Quran. However, many Bahraini people felt that this type of education did not meet the need for academic efficiency to match the spirit of the twentieth century and, because of this, a demand grew for modern educational institutions different from the Kuttab in terms of the educational system, curricula and objectives. The year 1919 marked the beginning of the modern public school system in Bahrain when the Al-Hidaya Al-Khalifia school for boys was opened at the northern tip of Muharraq and, in 1928, the first public school for girls was opened also in Muharraq. Due to the financial and administrative difficulty faced by the Education Committee, the schools came under the direct control of the government in 1930” (Ministry of Education 2003, p.2).

Education in Bahrain is not compulsory but all school-age children are voluntarily enrolled in government or private schools, and children with special needs have access to special education institutions. The education system consists of nine years of basic education, which covers both the primary and intermediate stages, and three years of secondary education (Ministry of Education 2003, p.10).

2.4.1 Higher Education in Bahrain

In Bahrain, the higher education institutions began as separate colleges developed to meet specific needs. In 1966, a two-year post secondary programme was started to train and prepare much needed professionals to teach in elementary and intermediate schools while in 1968, the Gulf Technical College was opened to provide

technological courses in fields such as engineering and business. A few years later the name of this college was changed to the Gulf Polytechnic and it began to offer Bachelor of Sciences degrees (B.Sc.) in civil, electrical and chemical engineering as well as accounting and business administration (Ministry of Cabinet Affaires & Information 1997, p. 247-248).

2.4.1.1 College of Health and Science (CHS)

In 1976, the College of Health Sciences was established by the Ministry of Health to be responsible for the teaching of health-related courses under four divisions: the Nursing Division, which had been operating as the School of Nursing since 1959; the Allied Health Division; the Integrated Science Division; and the Educational Department Centre. At present, the College of Health and Sciences is now made up of five academic units instead of four, some of which are composed of smaller units or programmes as follows: the English Language Department, the Integrated Sciences Division, the Nursing Division, the Allied Health Division, the Educational Development Centre (CHS Catalogue 2004, pp.2-3).

The College of Health Sciences is governed by a board of education. This board is responsible for overall planning and guidance and its membership comprises officials representing higher education institutions, the Ministry of Health, the Ministry of Education and the Ministry of Labour. The main goal of the College of Health Sciences was, and still is, to educate Bahraini nursing and allied health professionals who can provide high quality, efficient and comprehensive health awareness, promotion, maintenance and prevention services in order to improve the health and well-being of Bahraini citizens. This goal has been extended to include young men and women from the entire Arabian Gulf region. The College of Health Sciences has close working relations with academic institutions in the region and with international universities in the UK and the United States, such as the American University of Beirut, the University of Illinois, the University of Texas, the University of Colorado, the University of Central Florida, the University of Leeds, and Glasgow University. In addition, the College continues its efforts to strengthen its links with international health organisations such as the World Health Organisation (WHO), the United

Nations International Children's Emergency Fund (UNICEF) and the United Nation Development Programme (UNDP) (CHS Catalogue 2004, p.3-6).

The University College of Arts and Science was founded in 1978 as a merger of the Bahrain Teachers' Training College for Men and the Bahrain Teachers' Training College for Women, both of which were founded in 1966. In 1979, the University College of Arts, Sciences and Education was opened with courses leading to Baccalaureate level in the Arabic Language and Islamic Studies, Education, Humanities and Psychology (Ministry of Cabinet Affaires & Information 1997, p. 248).

2.4.1.2 Arabian Gulf University (AGU)

In 1980, the Arabian Gulf University was established as a regional and autonomous scientific higher education institution by a joint venture between the six Gulf Cooperation Council (GCC) members (Bahrain, Saudi Arabia, Qatar, Kuwait, Oman and the United Arab Emirates). The GCC states finance the university and each nominates a number of their students annually according to a certain quota for each member state. The Arabian Gulf University is committed to the following goals:

1. Orienting its programmes and curricula to the cultural, scientific and occupational needs of the contributing nations;
2. Undertaking the education and training of scholars and specialists in the various branches of knowledge needed by the member states;
3. Investigating the region's social, administrative and technical needs;
4. Conducting research in the various field of development and contributing to the emergence of appropriate scientific and practical solutions.

The University has two colleges: the College of Medicine and Medical Sciences and the School of Graduate Studies (AGU Catalogue 1999, p.8-9).

24.1.3 University of Bahrain (UoB)

In 1986, the University of Bahrain was established by an Amiri Decree merging the University College of Arts and Science and the Gulf Polytechnic under one governing body. This endeavour represented a significant development in the history of higher education in Bahrain. Today the university of Bahrain is composed of seven Colleges: Education, Arts, Business, Law, IT, Engineering and Science; it has two distinct campuses. The Colleges of Education, Arts, Business, Law, and IT, are located on the Sakhier campus, and the Colleges of Engineering and Science are located on the Isa Town campus. These seven Colleges have twenty-six academic departments and six continuing education departments catering to the needs of industry and the community, see Figure 2.3 (Ministry of Cabinet Affaires & Information 1997, p.248-250).

The educational system is based on the American credit system. The colleges of Business and Engineering educational programmes are based on the successful completion of a two-year programme with the award of an Associate Degree; highly successful students are then allowed to continue to complete a Bachelor's degree. The language of instruction is English for the Colleges of Business, IT (Information Technology), Engineering and Science. The Colleges of Education, Arts and Law teach in Arabic.

The University offers eighteen postgraduate programmes/diplomas, as well as Master's degrees in the disciplines of Business, Biology, Chemistry, Mathematics, Physics, Civil Engineering, Electrical Engineering, Mechanical Engineering, Physical Education, Education; it also offers Deanships in Scientific Research and Arts, and has three Ph.D. programmes in Engineering (Electrical, Mechanical and Chemical Engineering) and one in Physical Education.

Faculty members are employed from over 25 countries. Business, IT, Engineering and Science faculty members, which represent 54% of the total PhD faculty, primarily received their doctorate degrees from Western Universities. The remaining 46% of the PhDs, who are teaching in Art, Education and Law, have a mixture of degrees from Western and Middle Eastern Universities.

Since the formation of the University of Bahrain in 1986, there has been an increasing emphasis on research activities. Previously, faculties from both institutions were primarily engaged in teaching activities. The traditional academic structure adopted by this University requires a PhD for the appointment to the ranks of Professor, Associate Professor, Assistant Professor, while non-PhD faculty are appointed at the ranks of either Senior Lecturers or Lecturers (University of Bahrain Statistical Yearbook 2005, pp.4-5).

2.4.1.3.1 University of Bahrain Colleges

The following gives a more detailed list of the departments within each College:

College of Engineering

The college offers the following programmes:

1. Department of Chemical Engineering
2. Department of Civil and Architectural Engineering
3. Department of Electrical and Electronics Engineering
4. Department of Mechanical Engineering

College of Business

The college offers the following programmes:

1. Department of Management and Marketing
2. Department of Economics and Finance
3. Department of Accounting

College of Information Technology (IT)

The college offers the following programmes:

1. Department of Computer Engineering
2. Department of Computer Science
3. Department of Management and Information Systems

College of Science

The college offers the following programmes:

1. Department of Biology
2. Department of Chemistry
3. Department of Mathematics
4. Department of Physics

College of Education

The college offers the following programmes:

1. Department of Foundation and Curriculum
2. Department of Foundation and Education
3. Department of Psychology
4. Department of Educational Technology
5. Department of Physical Education.

College of Law

The college offers the following programmes:

1. Department of Public Law
2. Department of Private Law

College of Art

The college offers the following programmes:

1. Department of Arabic and Islamic Studies
2. Department of Social Sciences
3. Department of Foreign Languages and Literatures
4. Department of Information, Tourism and Art.

Academic promotion is based upon achieving a minimum of five publications in refereed international journals; it also includes quality teaching, advising and community services. In addition, each academic promotion has to be externally

refereed. Faculty publication output is a major factor in the consideration of the renewal of contracts as well as promotion.

With the change in the University structure, more funds were allocated to support the research activities of faculty through direct grants, while both private and governmental external grants have provided funding to support specific research projects. To support teaching and research activities, there are about 60 labs equipped with over 1200 PCs and, in addition, the University also has 2300 PCs for faculty use. All postgraduate programmes require students to produce a research paper and therefore, there is an increasing need for access to bibliographical information on very specific topics. The participation of faculty staff in the design of their students' research topics, as a result, has increased the awareness of both faculty and students of the library's resources and of the assistance that can be provided there in obtaining research information and data (University of Bahrain Statistical Yearbook 2005, pp.10-22).

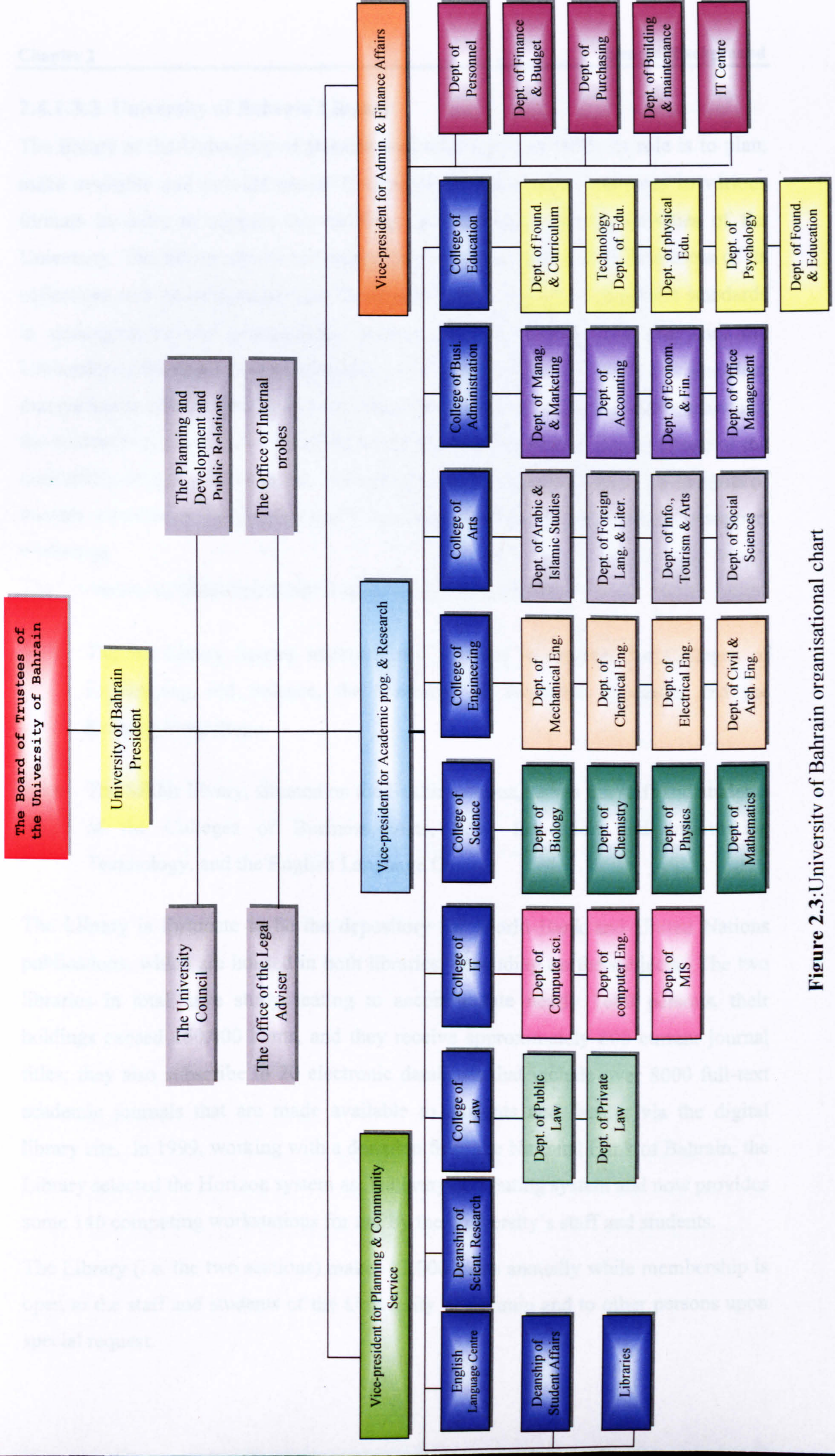


Figure 2.3: University of Bahrain organisational chart

2.4.1.3.2 University of Bahrain Library

The library at the University of Bahrain was established in 1986; its role is to plan, make available and provide access to appropriate information resources in various formats in order to support the teaching, learning and research activities of the University. The library strives to improve both the relevance and effectiveness of its collections and its services in order to support and promote high academic standards in undergraduate and postgraduate courses and in research. To this end, the University of Bahrain Library developed a five-year plan (2001-2006), as it was clear that particular effort would be needed over those five years to deal with the growth of the student population and to respond to the implications of the rapid increase of the availability of digital information. Increasingly, students need access to the benefits of modern Information Technology and Educational Technology applications to support e-learning.

The University of Bahrain Library is made up of two libraries:

- The Isa library houses materials and services to support the Colleges of Engineering and Science, the Deanship of Scientific Research, and the Evening Programme.
- The Sakhir library, situated on the Sakhir campus, serves the staff and students of the Colleges of Business, Arts, Law, Education and Information Technology, and the English Language Centre.

The Library is fortunate to be the depository for World Bank and United Nations publications, which are housed in both libraries, depending on the subjects. The two libraries in total have study seating to accommodate nearly 1600 persons, their holdings exceed 160,000 items, and they receive approximately 600 current journal titles; they also subscribe to 20 electronic databases that include over 8000 full-text academic journals that are made available to students and faculty via the digital library site. In 1999, working with a donation from the National Bank of Bahrain, the Library selected the Horizon system as its library computing system and now provides some 146 computing workstations for use by the University's staff and students.

The Library (i.e. the two sections) makes 62,000 loans annually while membership is open to the staff and students of the University of Bahrain and to other persons upon special request.

The Library employs 65 staff, administratively structured into four functional areas: the Library Services Division, the Technical Services Division, the Library Systems Division, and the Library Instruction Division. A summary of the functions and duties of these divisions is given below.

The Library Services Division

1. The Circulation Unit manages lending, re-shelving and borrower enrolment.
2. The Information Unit is responsible for providing assistance in identifying appropriate library resources, formulating research strategies, answering general and in-depth questions, and providing instruction on library resources.
3. The Special Collections Unit contains materials that focus on the countries of the Arab world with a primary focus on Bahrain. Materials are collected, in Arabic and other languages, from international organisations, governments and research centres. This also includes publications from the University of Bahrain, the Arab League, the United Nations, the World Bank, the International Monetary Fund and other regional and international institutions. The Special Collections Unit also collects theses and dissertations of students and faculty of the University of Bahrain. Materials in the Special Collections are for reference only and may not be checked out of the library.
4. The Periodicals Unit provides assistance to students, faculty and staff who are in need of the most current research available in the periodical literature. The department maintains approximately 2300 periodical titles from a vast number of academic disciplines.

The Technical Services Division

1. The Cataloguing Unit processes several hundred items in many different formats and languages each month. Every item receives a cataloguing record in the on-line catalogue that accurately describes the item and reflects its subject content.

2. The Acquisitions Unit is responsible for selecting and acquiring all of the library materials contained in the University of Bahrain Libraries. Among the tasks of the unit is the management of orders, check-ins, invoices and gifts.

The Library Systems Division

The Library Systems Division coordinates the library's technology-based services, including their development, operation and maintenance.

The Library Instruction Division

The Library Instruction Division provides users with the skills and knowledge necessary to locate and use the information they need (Directory of Libraries and Information services 2005, p. 1-10).

2.5 Summary

In summary, Kingdom of Bahrain higher education institutions represent an important element of the Kingdom's national plan due to their role in education and research. Investigating and discussing, and analysing these institutions is important in order to contribute, improve and evaluate their performances.

CHAPTER THREE LITERATURE REVIEW

3.1 Introduction

The last few decades have seen a sharp increase in the development of digital electronics and communication systems. The main beneficiaries of these developments are in the commercial, (Blacke 1998, p.29; Labska 1994, p.583) and education sectors. In Education, that higher education institutions can, by exploring electronic information, help provide communication channels that can be used in research and learning processes. From the early days of the use of electronic information in higher education, there have been issues which have attracted researchers to investigate and analyse the impact of electronic information in teaching and research. The last few decades have also seen a large amount of published materials in electronic form appearing in higher education. One of the main research concerns for higher education is the use by academic staff of electronic information resources in their teaching and research and, in particular, emphasis on their knowledge, skills and competence in this area. This chapter reviews the literature that has been used to build the research framework and identify any gaps in the research literature.

Electronic information provides a number of advantages over traditional print based sources, such as speed, the possibility of searching multiple files at one time, the availability of electronic resources outside the library (dial-up access), and it is updated more often than printed tools. A growing number of universities are placing greater emphasis on information technology in order to maintain a competitive edge in higher education (Meer *et al.* 1997). Different rewards are given to academic staff who use these technologies for creative purposes. Therefore, academic staff who are

not using these technologies may command less respect from their colleagues who are using these resources. (Meer *et al.* 1997)

The main focus of this research is to identify and evaluate the academic staff knowledge and use of EIR in Bahrain University. According to Rowley *et al.* (2002, p.108), academic staff have “a key role to play as gatekeepers and role models for students”. It is the attitude of the academic staff that affects students’ use of libraries and its materials (Barrett, 1995 p.191). Therefore, when academic staff require students to use a variety of information resources, students will understand that the ability to locate, evaluate and effectively use resources is critical to learning.

Electronic information resources (EIR) are those that are commonly available in many academic libraries today, such as online public access catalogues (OPACs), CD-ROM databases, online databases, electronic journals, and the Internet resources, (Ray & Day 1998).

This chapter presents, discusses and analyses the literature on the knowledge and use of EIR in general and academic staff in higher education institutions in particular. The main aim of the literature review is to identify and establish a research framework.

The following sections consider a number of electronic resources (OPACs, CD-ROMs, online databases, Internet, e-journals, and other sources of electronic information) and review the literature that has been produced concerning their use and application in an educational environment. They also discuss some of the problems and obstacles faced by academic staff when using these resources.

3.2 A Review of General Academic Use, Need and Knowledge of EIR

This section presents a general review of academic staff use, needs and knowledge of EIR. This is needed to build a general background and lead to more specific issues of EIR.

Today, users' information needs can be met via a number of options. They need not come physically to the library to use print formats but can stay at home or in the office and access online library resources and services via networks at any time (Renwick 2005, p.21).

A study conducted by Banwell *et al.* (2004, pp.608-615) concerns access to electronic information resources in further education in the United Kingdom. The project was conducted under the JISC (Joint Information Services Committee) User Behaviour Monitoring and Evaluation Framework. The use of electronic information services (EIS) in learning is dependent on library and information staff and academic staff updating their skills both in the use of such facilities and in their use in teaching and learning contexts. Some library and information staff were anxious about their own levels of IT proficiency and, while some had organized training sessions for themselves, most were self-taught or had acquired skills by trial and error. Therefore, staff development is a key to increasing staff skills and use of EIS. Training needs were identified through appraisal systems, and an incentive to learn was provided via the Teachers Pay Initiative (TPI).

Electronic resources have exploded in popularity and use. They can and do enable innovation in teaching, and they increase timeliness in research as well as increase the discovery and creation of new fields of inquiry (Renwick 2005, p.21). However, the availability of electronic resources has changed what users actually read and use. In other words, users tend to use only what is easily accessible.

The ability to use electronic resources efficiently depends on basic computer skills, knowledge of what is available and how to use it, and ability to define a research problem. How academic staff achieve skills and knowledge depends on many factors, such as their discipline, academic status and rank, ages, access (hardware and location) to electronic resources, and training (Renwick 2005, pp.21-22).

There are some motivating factors that affect the use of electronic resources, for example, what level of importance they allocate to e-resources, how useful they have found them, and for which purposes they use them (Renwick 2005, p.24). The

researcher found that 92% of the Faculty of Medical Sciences felt that electronic resources were important to their work. (Renwick 2005, p.25).

Academic staff need to be several steps ahead of students if they are to teach them to use ICT systems (Garrod 2001, p.32). Therefore, staff need to be competent as trainers and teachers of IT and information skills. They need to be able to develop ICT skills in addition to subject teaching.

In their study of users' needs, Eager and Oppenheim (1996, pp.15-21) noted that most studies on information needs are carried out either by using questionnaires or interviews, or were based on observations in the library. Instead, these researchers argued that subjects should be observed throughout their working day so that their information needs can be assessed when they do not go to the library. Therefore, a small-scale study was undertaken of 3 academics from the Psychology Department, University of Strathclyde, using the observational technique. They found that academics preferred printed media, that they preferred informal sources of information overall and preferred to access their own collections. However, one academic preferred electronic media, the University Library, and formal sources. The problem for many academics is that they are unaware of the enormous range of information available from electronic sources, or they do not have the necessary skills. It is then the role of the libraries to provide the marketing and training to change the situation. Having effective marketing and adequate end-user education will help improve the usage of CD-ROM and other electronic information sources in developing countries (Majid 1998, p. 215).

Armstrong *et al.*: (2001, pp.12-13) found that the major benefits of using electronic information services (EIS) appeared to be concerned with saving time and obtaining access to resources that could not be located easily elsewhere.

Various studies have been carried out on the use of electronic resources by students, academic staff and research staff of institutions of higher learning. Adams *et al.* (1993, p.12-57) presented the results of a survey related to the informational needs, attitudes and expectations of faculty, administrators and other academic professionals in the four university centres of the State University of New York. The researcher

sought current faculty views on information technology and access, cooperative collection development, library collections, and library resource sharing. The researcher found that the most common obstacle to use of electronic information resources for the faculty was a lack of knowledge about what is available. Lack of time is not considered to be a major obstacle in the Science, Social Science, and Humanities. However, faculty in Professional Schools find lack of time to be an important factor. Humanities faculty, in comparison with faculty in social science, science, and in the Professional Schools, have significantly less access to computer and communications equipment, and to the campus network. A majority of respondents also reported that their library contains 75% of the key items in their field. More than 95% of respondents have a personal computer in either home or office and they expressed an interest in initiating a wide variety of library transactions by using computer from their homes or offices. Only two thirds of respondents are connected to the campus network from their offices, and less than 30% are linked to the campus network from home. Therefore, six recommendations are offered to improve faculty access and the use of information technology.

An article by Berger and Hines (1994, p.307) identified the current library usage, information seeking behavior, and features they wanted to see available at Duke University Library. Out of 5,000 distributed surveys, 1,424 were returned, for an overall return rate of about 28.5%. The researchers received responses from 286 undergraduates (20.1%), 411 graduate students (28.9%), 285 academic staff (20%), and 442 university staff (31%). More than one quarter of the total respondents reported use of the library more than twice a week for academic research, one fifth for studying, and about 7% for reserves and assigned readings. Only about 22% used the library for browsing, socializing, non-academic research, and casual reading. Considering the overall information collected from the survey, the authors found that significant numbers of university community respondents regularly use the online catalogue (almost three times those who reported regular use of the card catalogue), computerized indexes (about four-to-one over use of paper indexes), and computerized access beyond the libraries (14.5%).

In another study, Schauder (1994, pp.90-91) surveyed academics in Australia, the United States and the United Kingdom. The survey showed that more than 88% of respondents said that they used their university library for access to journal articles;

39% used a national or international computer network, and, of these, 92% used electronic mail. The next most popular activity (14% of the whole sample) used references. It was found that there was widespread use of information technology and 82% mentioned that the infrastructure was good or acceptable, while respondents were much less positive about opportunities for training.

In May 1995, University of California the office of the President distributed a system-wide survey on academic staff use of Instructional Technology via electronic mail. The purpose of the survey was to provide a snapshot of how University of California faculties are incorporating various computer-based and communications technologies into instruction at undergraduate and graduate level. Faculties were asked how they use or would like to use various tools for class management, communication with and between students, course preparation, and classroom instruction. 1277 academic staff members responded, providing evidence of substantial use of a broad range of technologies, as well as demonstrating an interest in expanding their skills in using these tools. For example, they found that e-mails were the most common form of electronic communication used by respondents. The other communications tools were listserves, bulletin boards and newsgroups. The results of the survey on academic staff use of instructional technology showed that the major concern registered by respondents, regarding electronic communication with students, related to the lack of universal student access to computers, modems and e-mail. Therefore, the respondents stated that, without access and training, it is difficult to rely on electronic communications as a major tool (University of California 1995).

A further study by the SUNY University Center Libraries conducted a four-campus survey of academic staff use of electronic information technologies and resources (Adams & Bonk 1995, p.124-129). The survey's objectives were to determine the availability to faculties of the equipment and network connections necessary to access electronic information resources, to measure use and frequency of use of these resources, to report locations from which academic staff members accessed electronic information, and to elicit academic staff perceptions of obstacles to the use of electronic technologies and library services. They found that the electronic resource then used by the largest percentage of academic staff respondents was the campus library online catalogue. The next most widely used resource was electronic mail,

which was utilized by nearly 75% of the respondents. All other electronic information resources received quite low use 10% to 20% of the Humanities faculty reported daily or weekly use of online catalogues from both local and distant libraries this was more than their colleagues in other disciplines. However, the academic staff of the Science faculty used the online catalogues the least of the disciplinary groups. The researchers also found that the percentage of assistant professors who frequently used the catalogue (and especially index/abstract databases) was between 10 and 15 percentage points higher than their full professor colleagues. Considering other electronic information resources, they found that the academic staff of the Science faculty used electronic listservs, bulletin boards, electronic journals and electronic mail at rates 8% to 15% higher than academic staff in other disciplines.

The researchers found that inequalities in access to electronic technology among the disciplines and a lack of knowledge about resources were seen to be major obstacles to the exploitation of electronic information. The survey results present clear requirements related to information services, training, the allocation of funds for networking, and access to electronic information resources for libraries. In addition, the survey also recorded a generally positive attitude to electronic information resources and an interest in conducting library transactions via networks.

In 1996, the University of Iowa libraries embarked on a four-year process to assess current user satisfaction with library-wide resources and services in order to determine future needs and to substantiate budget requests with empirical support Washington-Hoagland and Clougherty (2002, pp.628-641). The Libraries' Executive Council appointed a group of professional and support staff from public services, collection management, technical services, branch libraries and administration to conduct a comprehensive study. The University of Iowa library system is complex and serves a broad customer base (undergraduates, graduate and professional students, academic staff and staff). Therefore, the User Needs Assessment Group developed a three-step research implementation plan. Since the University increased its focus on undergraduate education, undergraduate students were studied first. Next, graduate and professional students were studied, and finally academic staff and staff. In July 1999, the User Needs Assessment Group began work on the third phase of the User Needs Assessment Project: the academic staff and staff study. The study population

included three groups: academic staff, professional and scientific staff (P&S) and merit staff. The jobs of merit employees (merit staff) are part of the state merit system and include blue collar, security, clerical, technical and supervisory exempt positions. P&S employees are not part of the state merit system and include job categories such as research scientists, administrative assistants, program associates, nurses, computer programmers, librarians, postdoctoral fellows and hospital residents. Surveys were mailed to 1,929 academic staff members, 591 P&S and 515 merit staff. Overall, a total of 1,414 surveys were returned, which represents an overall response rate of 46.6 percent. The results of this study revealed that academic staff and staff would like the libraries to invest more in the acquisition of print books and journals, in addition to electronic journals and expanding remote access. This study also revealed that academic staff and staff underutilized many of the libraries' resources and services simply because they were not aware of their existence. Considering the overall information collected from the survey, the User Needs Assessment Group found that, even though academic staff members were satisfied with current print and electronic resources, the findings identified a need for additional resources to support academic staff research.

Furthermore, Bell's paper (1997, p.1) examined the impact of electronic information on the academic research community at the University of Wales, Cardiff. The survey established that printed material from university libraries was one of the most important sources of information for research, along with contacts with other researchers. Overall, Bell found that attitudes to electronic sources were generally positive, but printed sources of information were preferred by most academics contributing to published studies.

Lumande and Mutshewa (1999, pp.107-110) described a study which investigated the information seeking behaviour of science academics at the University of Botswana. The faculty of science is composed of eight academic departments: Biological Sciences, Chemistry, Computer Science, Environmental Sciences, Geology, Mathematics, Physics and Communication and the Study Skills Unit. Questionnaires were sent to all staff in the eight departments of the Faculty of Science, the response rate being 56%. The findings of this study show that scientific academic staff depend on journals and textbooks as their major source of information. Thirty-eight (70.4%)

of respondents ranked journals as the source they very often used. The next most often used source was textbooks with 35 (64.8%) responses, whereas twenty-three (42.6%) respondents used the Internet very often, twenty-two (40.7%) respondents used research in progress publications very often. Another highly ranked source was conference literature: twenty-five (24%) respondents used it very often. Abstracting services were used by 21 (38.9%) while nineteen (35.2%) respondents often used research reports, followed by reviews and professional associations. Finally, the researchers found that scientific academic staff knew about the existence of information sources mainly through reading review articles (27%).

In addition, in the Lumande and Mutshewa study, the researchers found that scientific academic staff sought information to develop their careers. Thirty-one (57%) respondents indicated that they needed information for career development and 28 (52%) indicated professional needs. Teaching was indicated by 21 (39%) as 'very often' the reason and 26% as 'often' the reason for looking for information. Nineteen (35%) respondents indicated that they often looked for information to satisfy their personal ego.

In an interesting article by Hart, Coleman and Yu (2000, pp.41-49), a survey of a random sample of the academic staff at Texas A&M University (TAMU) was designed to determine the use made of electronic resources and services. Surveys were sent to 400 academic staff members in the spring semester of 1998 with a self-addressed return envelope. Thirty nine percent of the recipients of the survey responded. The researchers found that the majority of the academic staff at TAMU who answered the survey did use the library's OPAC and the journal indexes available through the OPAC operating system. The results of this study support Adams (1993) findings: most of the respondents used the electronic journal indexes, electronic journals and listservs either at the office or at home as opposed to in the library. The Lexis-Nexis database and CD-ROM databases showed higher usage in the library because, at the time of the survey, special permission was required to obtain remote access to these. The top three obstacles to using electronic information technology were lack of information about available databases (68% of the respondents), lack of time (42.7%), and lack of necessary training (40.8%). Overall, the results of the study

showed that a lack of information was the greatest obstacle impeding the use of electronic resources/services, and the researchers suggested that greater emphasis should be placed by the libraries on improving marketing strategies and on providing outreach services to academic staff. This is what was also recommended by Majid (1998, pp.214-215) and Rowley *et al.* (2002, p.107) to improve use of electronic resources.

In their article, Rowley *et al.* (2002, pp.107-120) outlines the Evaluation Framework which has been established to investigate the use of electronic information service (EIS) within higher education in the UK. A combination of quantitative and qualitative approaches were used with 1500 users, including academic staff, library and information services staff, and students. The researchers found that students had a relatively low level of use of EIS, and their use was focused on email, search engines, the Web, and online catalogues (OPACs). Academic staff had a key role to play as gatekeepers and role models for students. However, academic staff often expressed concerns about the relevance of EIS to learning and their competence in the use of EIS.

Meer *et al.* (1997) reported results of a survey conducted at Western Michigan University (WMU) in 1994. The purpose of the survey was to explore the relationship between academic staff use of university libraries and academic staff use of computers. The implications for libraries were also discussed in relation to the findings in the areas of computer databases, academic staff assistance, collaboration with computing staff, and marketing of electronic services. The survey was sent to the entire population of 742 academic staff members and the authors received 314 completed survey forms, (a response rate of 42.3 percent). In the area of library electronic services, they found that approximately 60% of the respondents used the WMU online catalogue several times a month. Approximately the same percentage of respondents used online electronic databases and other online catalogues, but used these services less than once a month. On the other hand, only 45% of the respondents reported used CD-ROM databases less than once a month. The findings of this study support the findings of the previous studies, such as those of Marghalani and Hafez (1993, p.35) and Adams and Bonk (1995, p.126): assistant professors reported the highest level and full professors reported the lowest level of use. In

short, senior academic staff members used the library less than their junior counterparts. Overall, the findings of this study provide substantial evidence that levels and frequency of computer use are positively related to library use. So, it can be assumed that academic staff members who do not use the library regularly are using computers less.

Majid and Abazova (1999, p.103-107) examine the relationship between the computer literacy of academic staff and their use of electronic information sources. The researchers considered the impact of other factors such as age, gender and educational background on the use of electronic information sources. The study population consisted of 360 academic staff at the International Islamic University in Malaysia (IIUM). A random sample of 50 percent (180 individuals) was drawn with the help of a computer program. Professors, associate professors, assistant professors and lecturers constituted strata for the samples and a questionnaire was used to collect data on the computing skills of academic staff and their use of OPAC, CD-ROM databases, and the Internet. A total of 114 questionnaires were returned, with an overall response rate for the survey of 63.3 per cent. Respondents were affiliated with four faculties of the university: Law, Economics and Management, Engineering, and Islamic Revealed Knowledge and Human Sciences (IRK&HS). Academic staff of the Centre for Languages and Pre-university Academic Development (CELPAD) were also included in the study. Of the 114 respondents, 14 (12.4%) were professors, 13 (11.4%) associate professors, 41(35.9%) assistant professors, and 46 (40.4%) lecturers; 80 (70.2%) respondents were male and 34 (29.8%) female. The number of respondents with doctoral and master's degrees totaled 70 (61.4%) and 44 (38.6%) respectively. The researchers found that the use of electronic information sources and services was influenced by such factors as the computing skills of academics, and their age and gender. A majority of academic staff members with "very good" and "excellent" computing skills had frequently used electronic information sources and services. Use of these sources and services was minimal among academic staff members with low computer literacy.

The results of this study support the findings of Tomney and Burton (1998, p.423): academic staff members over 50 years of age used electronic information sources less frequently (14%).

Furthermore, the authors concluded that a significant relationship exists between computer literacy and the use of electronic information sources and services. Therefore, adequate emphasis should be given to developing basic computing skills among library users through user education programmes.

The main criticism of this study is that it does not show which academic staff, in which faculties, had excellent or very good computing skills.

Hewitson (2002, p.51) also found a direct link between electronic information services (EIS) use and perceived IT competency. The Internet was the most widely used service and electronic indexes, abstracts and electronic journals were not heavily used.

Furthermore, Jirojwong and Wallin's study (2001, pp.68-72) considered both formal and informal methods used by academic staff at an Australian University to gain information. Almost half the survey's respondents said they "frequently" searched the Internet for information but fewer searched electronic indexes or looked at current journals via electronic databases. The researchers also found, not surprisingly, that academic staff members with low levels of skills regarding IT tended to communicate more with colleagues to gain information while those with better skills used the electronic resources more often.

A study carried out by Crawford (1999, pp.352-361) at the library at Münster University, Germany, sought to compare the findings with those resulting from a previous study at Glasgow University. At Münster, Crawford found that academic staff or students did not make heavy use of electronic journals. Academic staff used email more for work while students used it more for non-curricular purposes. The researcher also found that students valued the "Enquiries desk" service and basic induction tours more than the specialised training offered by subject librarians.

Wiberley and Jones (2000, pp.421-426) examined the use of electronic information technology by humanists at the Carnegie Research University. They interviewed ten humanists in 1987-1988 who were in mid-to-late career. The median number of years since obtaining the Ph.D. was twenty-seven and the average was twenty-five, with a

range of fifteen to thirty-four years. All of these scholars were full professors. In addition, the researchers spoke with three scholars who had received their PhDs less than seven years before. These scholars were assistant professors in English, German and History. The researchers found that senior scholars used electronic information technology more; this normally began with the OPAC in their home libraries. The scholars used word processing for everything: class notes, correspondence, research notes, and manuscripts. The second most heavily used electronic information technology was e-mail. The third most used electronic information technology was the online public access catalog (OPAC).

In late 2000, a study was conducted by JSTOR (a market-research firm) to understand how technology affects the behaviours and attitudes of academic professionals at higher education institutions in the United States (Heterick, 2002, pp.10-11). A detailed questionnaire was mailed to over 32,000 randomly selected humanities and social sciences faculty academic staff in the United States. More than 4,000 respondents completed and returned the survey. Over 60% of the responses stated that they were comfortable using electronic resources and believed that a variety of electronic resources was important to their research. In addition, 62% of the academic staff respondents expected to become increasingly dependent on electronic resources in the future. The resources they used most often were online catalogues, full-text electronic journal databases, and abstracting and indexing databases. A very important finding of this study was that over 60% of the economists considered their library's online catalogue to be very important, while nearly 90% of humanists regarded it as very important. Like the previous study, the home library catalogue was the most important electronic resource for humanists rather than any other fields. In addition, the researchers found that more than 75% of respondents felt that the roles of the library as archivist and as buyer were very important, while 80% of the humanists rated the library's role as a starting point for research as very important, and 48% of economists considered this role to be very important.

Although electronic information services are seen as providing benefits for students and academic staff, planning is constrained by structural changes within the organization (e.g. convergence, merging of institutions), resource constraints, and the complications of negotiating licensing arrangements.

In his study, Hassan (2002, pp.220-221) identified end users' current knowledge and ability to use electronic information resources in selected public universities in Malaysia. He found that more than one-third of respondents lacked the knowledge and ability to use OPACs and online databases. About one-third of the students lacked the knowledge and ability to use CD-ROMs. The major problems faced by respondents when using electronic information resources are: using Boolean logic, selecting appropriate CD-ROM databases, formulating correct search strategy, executing FTP, using CD-ROM and online databases and using Internet search engines. The researcher also found both students and academic staff claimed that universities' network servers were too slow, and this discouraged them from accessing the Internet at the universities.

A training programme for health care academics on electronic information searching was undertaken at the Dorset House Library, Oxford Brookes University by Rothera (2001, pp.22-23). She noted that many staff did not make effective use of online resources and found that barriers included a lack of awareness of what benefits could be gained from these resources, lack of confidence in their use, and poor searching skills. Academic staff also did not have the time or energy to invest in acquiring these skills and knowledge during term time.

3.3 Use, Need and Knowledge of EIR

This research presents Bahrain University as a case study. A review of research in developing countries can highlight issues and frameworks that benefited in this research. This section reviews research in developing countries and is focused on GCC.

In his study, Al Mughairi (2006) investigated the information gathering behaviour of the academic researchers at Sultan Qaboos University in the Sultanate of Oman. He explored researchers' awareness and attitudes towards information sources and services. He also sought to explore the national policy for planning and provision of information. Data was collected by the use of semi-structured interviews as the main

instrument and observation as supplementary tools. The researcher found that the information environment at Sultan Qaboos University was inadequate to meet the information needs of the research community. The major causes for such a situation was inadequate funding, lack of clear information policies, ineffective partnership between top management and academic researchers, lack of effective in house training and absence of a reliable information technology infrastructure. The researcher found that science researchers depended on colleagues and their own collections as useful sources for their information needs. On the other hand, social science researchers regarded their institutional library as an important source of information for their research work (Al Mughairi 2006, pp.219-220).

In an article "Developing electronic resources at the KFUPM Library" Al-Baridi and Ahmed (2000, pp.109-111) provided an overview of the development of electronic resources at the King Fahd University of Petroleum and Minerals (KFUPM) Library. They highlighted the experiences of the KFUPM Library in developing electronic resources and also described the use of the KFUPM Library Web site and the Internet in enhancing the library collection, expanding services, and in improving operations to provide access to a growing array of internal and external electronic resources. The electronic information resources considered in their paper included online public access catalogues/systems, compact disc search services, Internet sites, World Wide Web products, electronic texts, multimedia and other sources of information that users can access directly in an electronic format. CD-ROMs used in libraries included those on stand-alone stations as well as those that were networked. Internet resources included electronic resources found via the World Wide Web, Gopher, Telnet, file transfer protocol (FTP), and e-mail. They also considered online databases from such vendors as DIALOG and ORBIT. However, they did not provide any usage statistics.

In another study, Rehman and Al-Ansari (2003, p.170) assessed the potential of six library and information education programmes in preparing manpower for the digital environment. The situation of six higher education schools in the member nations of the Gulf Cooperation Council was analyzed by collecting data from the school heads and 49 academic staff members. The study focused on curricular changes; academic staff size and its research and publication record; hardware equipment and software

packages available for instruction; the use of digital resources such as databases, online services and electronic utilities for instruction; and the availability of periodicals, books and electronic resources for instructional activity. The researcher found that the majority of these schools were deficient in the use of hardware, software and other technological resources needed for the instruction of courses dealing with electronic systems, resources and facilities.

Overall, the study showed that there was a need for revision of the curriculum in these programmes in order to reflect changes in the digital marketplace. Many higher education schools needed to take a fresh look at their degree programmes, curricula, the research and publication credentials of their faculties, the situation regarding their academic and instructional resources, and the application of information technology.

A study has recently been carried out by Rehman and Ramzy (2004b, pp.150-154) at Kuwait University. The researchers considered electronic resources at the Centre for Health Sciences at Kuwait University by carrying out a questionnaire survey of health professionals. They found that most respondents cited lack of time (37.1%), lack of familiarity with computerized searching (22.6%) and satisfaction with printed sources (20.2%) as the main reasons for not using the electronic resources.

The results of this study support the findings of Hart, Coleman and Yu (2000, p.49), that a lack of information was the greatest obstacle impeding the use of electronic resources. Adams and Bonk (1995, p.119) also supported this notion of underutilization and stated that the most common obstacle in the use of electronic information was lack of knowledge about resources.

A study done by Renwick (2005, pp.24-25) investigated the Faculty of Medical Sciences' (FMS) knowledge and use of electronic resources provided by the Medical Sciences Library (MSL) at the University of the West Indies and the need for training in use of these resources. The researchers found that academic staff were quite knowledgeable about the electronic resources available at MSL in general, averaging 80%. However, they were not as well informed about MSL specific resources. In addition, reasons for using electronic resources were for communication (86%), professional (79%), and personal research (77%), supporting teaching activities (74%)

and administrative purposes (41%), and the reason given the least often was recreation (38%).

Furthermore, the researchers found that resources available on the Internet were used more by respondents: Internet/Web (79%), email (67%), search engines (59%), online databases (67%), PubMed (65%), and online journals (45%). Overall, the study showed that the electronic resources were used to support academic staffs' research (83%), teaching (65%) and clinical practice (37%).

Another study has recently been carried out by Ibrahim (2004, pp.20-24) which measured the use and perception of the United Arab Emirates University (UAEU) academic staff members of electronic resources. Questionnaires were sent to a sample of 140 academic staff members. The researcher found frequency of use of electronic resources was low. Significant low usage was reported for e-books, bibliographic databases and e-journals. Inconsistent with earlier research findings, the researcher found that participants from the College of Engineering and Information Technology reported less usage of electronic resources in the UAEU. Reasons for the low use of electronic resources were lack of time because of the time needed to focus on teaching; lack of awareness of electronic resources; ineffective communication channels; and language barrier. The researcher found that the medium of electronic resources being English was an obstacle to academic staff members who had their degrees from the Arab World and conducted teaching and research in the Arabic language. Likewise, academic staff members instructed in the Arabic language also reported low use since English was the main language for most electronic resources. Therefore, academic staff members were expected to be unenthusiastic towards using the electronic resources.

Lack of time to search for needed information was a major problem and according to Al Mughairi (2006, p.220), shortage of time had at least two aspects:

- Researchers were expected to work hard and fast to meet the deadlines of their research projects.

- Researchers were expected to undertake a wide range of responsibilities and duties, such as teaching, supervision of students, committee attendance and other administrative work.

The researcher found that the majority of the respondents agreed that their official commitments were a constraint to their information gathering activities.

Dadzie (2005, p.295) investigated the use of electronic resources by the students and academic staff of Ashesi University Ghana, in order to determine the level of use, the type of information accessed and the effectiveness of the library's communication tools for information research. The researcher found that one of the barriers to electronic resources was the inadequate number of PCs.

Awareness and use of the library's collections thus indicate "user's knowledge of the availability of these collections and the use they make of them" (Boakye 1999, p.204). The researcher reported results of a survey undertaken by the University of Science and Technology Ghana (UST), to determine the extent to which students, lecturers and research fellows were aware and made use of the science and technology collections. The result of the study showed that 24.9% of students and 7.4% of the lecturers and research fellows were not aware of some available collections relevant to their studies, teaching and research. A number of factors that affected the awareness and use of the collections were identified: competence in library use skills; library promotion strategies; current awareness services; and library staff's attitude towards users.

In his study, (Basager 2001) investigates the strengths and weaknesses of the information technology services in academic libraries in Saudi Arabia. Questionnaires and interviews were used to generate empirical findings. The researcher found that respondents from science faculties were found to use technology more than other users. Lack of funding, qualified staff, programmers and connections to the computer networks were major reasons for not providing efficient electronic services to users. The researcher recommended coordination and cooperation between libraries by improving interlibrary loan (ILL) services to allow users to gain more information effectively and quickly.

The following sub-sections present and discuss the use and need of OPAC, CD-ROM, Online Databases, Internet and E-journals.

3.3.1 OPAC

There is no doubt that there is a growth in the use of OPACs in libraries, as they provide faster access to the catalogue (database) from any location in the university campus or beyond, using many access points and powerful search commands. Today, an OPAC can provide access to many library databases through the Internet, thus allowing the searcher to find useful information from a wide range of sources.

In Saudi Arabia, the University of Riyadh and the University of Petroleum and Minerals (UPM) were the to first start implementing online library information systems (Deemer 1982, p.37). The author described the installation and development of the DOBIS/LIBIS system at UPM. DOBIS/LIBIS "is an online, integrated, interactive system that meets major library requirements" (Ashoor 1983, p.194). DOBIS (Dortmund Bibliothekssystem) handles the searching and cataloging activities for a single library or a network of libraries. However, LIBIS (Leuvens Integraal Bibliotheek Systeem) handles circulation and acquisitions activities.

Furthermore, Al-Dosary and Ekrish (1991, p.115) added that DOBIS/LIBIS and MINISIS are the most widely used software packages in academic libraries in Saudi Arabia. MINISIS is "a generalized information management system", developed by the International Development and Research Center (IDRC) in Canada. MINISIS is used primarily in developing countries.

An OPAC user survey was carried out by Ashoor and Khurshid (1987, pp.221-224) at the University of Petroleum and Minerals Library at Dhahran, Saudi Arabia. They found that the users attempted to search for library materials using subject terms in the subject file. (42%) of the users searched the subject file, 31% the title file, (20%) the name file, and (7%) the shelf list or call number files. Users were satisfied almost equally with the three access points, i.e., author (83%), title (84%), and subject (84%). In general, the researchers found that 83% of users found their search either very

satisfactory or somewhat satisfactory. Only 17% of users failed to get what they were looking for and rated their search as unsatisfactory. UPM users had difficulty in searching by subjects because of the unavailability of key word searching. This access point was important in the UPM environment because of language problems. About 90% of the users were Arabs and to them English is a foreign language. Therefore, difficulties in applying English terms probably explain why users showed almost equal levels of satisfaction with the three main access points. In short, the researchers found that levels of satisfaction with searches were high even without an instructional program or an updated manual.

According to Riggs (1991, p.25), "library technology is an interesting phenomenon. Technology is a tool which will enable libraries to deliver service in a more efficient manner." The author added that the public access online catalog is one of the best innovations developed in the library world. It has substantially elevated access to library holdings. The dial-in capability enables users to access, not only their local libraries, but also practically any library in the world (Riggs, pp.25-26).

In recent years, the scope of what is offered by OPAC systems has expanded. These enhancements include access to the Internet and the catalogues of other libraries, locally mounted databases and/or network access to a variety of other databases.

One of the developments of the OPAC system, COPAC, was discussed by Cousins (1997, pp.185-187). COPAC is "a new union OPAC which provides free access to the information contained in the main online catalogues of a number of important academic research library collections". The COPAC project was established in November 1995. The reaction of end-users to COPAC has been enthusiastic. A lot of positive feedback has been received about both interfaces and the general value of the database. The main criticisms from users are their desire for more libraries to be included in COPAC.

OPACs for libraries appeared in the 1980s, Web-based online public catalogues (OPACs) began to appear in the late 1990s (Babu & O'Brien 2000, p.316). These OPACs demonstrate advances on traditional OPACs, especially in terms of remote

access by users and their ability to integrate a number of document types and sources via a single interface. The authors examined six popular Web OPAC interfaces in UK academic libraries (Talis, INNOPAC, WebCat, Voyager, GeoWeb & ALEPH) with an overview of their functions.

Babu and O'Brien (2000, p.325) concluded that users rate most highly the ability to access the system remotely, select, mark and download results from their searches and integrate references into their own personal documentation.

In addition, Jordan (2000, pp.180-185) studied a personalized component of the Information Gateway, known as My Gateway at the University of Washington Libraries. My Gateway "provides a way for users to create their own views of the Registry and to integrate their own URLs into those views". Therefore, users can add items to or delete items from categories they create. Librarians can also use "My Gateway" to collect URLs that are related and which can then be published as Web pages or which may be available for users to include on their own My Gateway pages. Two rounds of usability testing were done on "My Gateway", the first focusing on terminology and the second on functionality. The researcher found that My Gateway users show a marked preference for databases over other types of resources. However, there are some deficiencies such as users have no automated way to transfer URL lists between their browsers and "My Gateway" or between "My Gateway" and other "My" services.

3.3.2 CD-ROM

Compact Disk Read Only Memory (CD-ROM) is one medium which can store a vast amount of data. It was developed by Sony and Philips and was launched in 1980. It is the most predominant and commercially successful optical storage technology. The introduction of CD-ROM searching services has generated much interest and has had a significant positive impact on library resources and services. The introduction of CD-ROM has made a great impact on users and also on libraries (Oduwole 2000, p.367). Users are able to search data at their own convenience and with minimal charge. On the library side, the CD-ROM has increased the use of journal collections

and enhanced the library's image. Therefore, a great deal of research has been done on the use of CD-ROM in libraries.

Efthimiadis (1994, pp.113-120) made a study of user behaviour regarding CD-ROM bibliographic database searching. The searching behaviour of 79 end-users of CD-ROM databases was studied at the University of California, Los Angeles (UCLA). 68% of the users used CD-ROMs for course-related essays or term projects. The user satisfaction toward CD-ROMs was 11% for "excellent", 38% for "good", and 33% for "satisfactory". Negative dissatisfaction was indicated by 13% for "poor" and 5% for "bad". Overall, the researcher found that searching was often not effective because users lacked basic skills. He concluded that users needed training but, more importantly, the CD-ROM user interfaces and systems for retrieving information needed to be improved to make them more user-friendly.

A study conducted by Ali and Young (1992, pp.185-188) identified the relationship between the use of CD-ROMs and academic staff publication output. They found that the introduction of the CD-ROMs enabled the library to access information sources more rapidly, print accurate citations for follow-up interlibrary loan requests, and reduced consumption of shelf space for long sets of important reference tools. The physical space saved enabled the library to house more computer stations. They assert that the introduction of CD-ROMs has increased library users' willingness to become involved with new technology, and enabled the library to have more constant assessment of the necessary tools needed to support the academic needs of the departments and colleges.

Although there are other contributing factors to the growth of academic staff research productivity, such as the emphasis placed by the University upon research publications, financial support for research, and the more stringent promotion guidelines adopted by the University, the study results do show a strong relationship between the use of CD-ROMs and an increase in academic staff publication output. Since the introduction of CD-ROMs at the University of Bahrain library, 74.8% of the academic staff output occurred from 1988 to 1990, while only 25.2% was realized during the period from 1981 to 1987. Furthermore, the Electrical Engineering and

Physics departments produced more research publications since the introduction of CD-ROMs than any other departments between 1986 to 1990.

Arabic speaking users (student and academic staff) not proficient in the English language find it difficult to use information sources published in English (Al-Qaisi & Ali 1995, pp.24-26). Since the available information in the Arabic language was not up to date in many disciplines, the users tended to rely on information sources published in other languages, mainly English. CD-ROM technology attracted non-English-speaking users because of its user friendliness, free access, and availability of information in a majority of disciplines. However, they were not fully utilized because of language limitations. Finally, Al-Qaisi and Ali concluded that these user groups would like to see multilingual terminology dictionaries added to each database to facilitate Arabic-speaking users.

A study carried out at King Fahd University of Petroleum & Minerals (KFUPM) Library by Ashoor and Kanamugire (1996, pp.171-174) considered the use and perceptions of CD-ROM services by academic staff and researchers. Out of 817 questionnaire forms distributed to academic staff members and researchers, 438 forms was returned, representing a response rate of 53.5%. Approximately 66% of the respondents indicated that they had used CD-ROMs, and only 21% had never used them. The researchers also found that 7% of respondents indicated that they did not use CD-ROMs because they were not aware of the availability of the service, while 7.7% of respondents indicated that they did not need to use it. Further, seventy-five percent of the respondents were either 'very satisfied' or 'satisfied'. Of those respondents who gave reasons for dissatisfaction regarding CD-ROM search service, 46% attributed dissatisfaction to the retrieval of very few citations while 34% were not satisfied because of the non-availability of documents, as well as delays in receiving documents ordered through interlibrary loan. Overall, it was felt that there was a strong need for user training in order to make best use of the resources.

Furthermore, Kaser (1998, pp.249-262) discussed user behaviour towards the POPLINE CD-ROM database by organizations in developing countries. POPLINE IS "a population information, family planning, and health database produced by the Population Information Program at the Johns Hopkins University (JHU/PIP)". Its

users are researchers, students, academic staff, staff, and medical practitioners of educational and healthcare institutions. POPLINE is funded by the US Agency for International Development. The researcher found that academic organizations are the heaviest users of the POPLINE CD-ROM database, reporting an average of 180 searches per 6-months reporting period. However, government and non-government organizations search significantly less. Overall, 84% of the users of POPLINE were satisfied with the database.

Oduwole (2000, pp.364-368) investigates the use of CD-ROM databases in academic libraries in Nigeria. A questionnaire was sent to ten academic libraries in Nigeria. The researcher found that the high cost of subscriptions to CD-ROM databases was the major constraint to CD-ROM use. Other constraints include: high cost of acquiring personal computers, CD-ROM drives, printers; unavailability of identified documents found in CD-ROM databases in the institutions' libraries; lack of computer education; shortage of manpower. Oduwole recommends that there is a need to develop products tailored to meet the needs of the academics, policy makers, and professionals in Africa as a whole.

In another study, Culpepper (2000, pp.29-34) describes a study conducted at Murray State University. The objective of this study was to review management reports produced by electronic databases. This was done by discussing three database reports, an electronic report prepared locally and a local academic staff assessment. The database-produced reports were: OCLC's FirstSearch Usage Statistics Online, SilverPlatter's Electronic Reference Library software generated reports, and Information Access Company's SearchBank Usage Statistics. The fourth report was a record of the usage of only CD-ROM resources and was produced from the configuration of locally acquired software. While less than half of the academic staff participated, questions were designed to help assess research strategies, teaching methods and the usefulness of specific databases. Overall, the study showed that 60% of the participants indicated they used electronic resources only three to four times a year while 36% reported weekly usage of the electronic resources. In addition, 81% found the combination of online, handouts, and staff instruction helpful. Therefore, the study showed that the academic staff were interested in electronic resources and

receptive to incorporating the new format into both teaching and professional research.

3.3.3 Online Databases

The World Wide Web is the vehicle for online databases and other collections of online information (Notess 1998). By making the database available on the Web, users can search a database directly from anywhere with a Web connection. Therefore, plenty of databases were available on the Web prior to 1998. The author added that most Web-based databases seemed to be a few seconds slower than a local counterpart. (Notess 1998)

In terms of the use of online databases, Clark and Silverman (1989, pp.231-235) carried out a survey in two academic institutions in the USA, Winthrop College and the College of William and Mary. The researchers asked academic staff members themselves if they used online computer searches as a part of their research, and how this information (computer search) communicated to students.

They found that, although academic staff used online searching for their research and recommended that students do so, they did not explain how this approach could be best utilized by their students, nor did they provide guidelines on how computer searching fits into the overall research method. The researchers recommended, therefore, that online searching should be integrated into the research structure of academic institutions.

Bar-Ilan, Peritz and Wolman (2003, p.356) conducted a survey of senior academic staff in Israeli universities on their use of electronic journals and databases. They concluded from the 583 responses obtained (a 44.7% response rate) that electronic information services have already been well adopted by academic institutions in Israel; moreover, a large majority (91.7%) was satisfied with the services provided. They also found that, while gender and academic rank have little effect on the use of such services, the older the academic staff member, the less likely he /she was to use the electronic facilities. The perceived computer literacy of respondents was

satisfactory though it was felt that better methods should be found to inform staff of training opportunities.

Widespread use of a variety of databases was found in the survey carried out by Perdue and Piotrowski (1991, pp.133-134) of reference personnel in 200 college and university libraries in the USA with particular regard to psychology. While PsycINFO (the online version of Psychological Abstracts) is the usual choice when searching for information regarding the behavioural sciences, the researchers found a wide variety of alternative search strategies and the utilization of a diverse range of other databases.

Marghalani and Hafez (1993, p.27-36) investigated the perception of academic staff members at King Abdulaziz University (KAU) towards online search services in the Jeddah main campus. Survey methods were used and 70% was the response rate. The researchers found that the largest number of requests was made via online searches by the faculty of Engineering 32.3%, 26.6% were received from the faculty of Medicine and 16.5% from the faculty of Science. The researchers also found that 61% of Assistant Professors were involved in online searches more than other groups, followed by Associate Professors (31%) and Professors (8%). Overall, the researchers found that 45% of respondents used online search services to conduct personal research, 30% used online services with their colleagues, and 25% used it to help students in conducting research.

Majid and Tan (2002, pp.321-324) and Ibrahim (2004, p.18) found that some reasons which were attributed to low use of online databases included lack of awareness of electronic resources, lack of time to access and too many passwords to remember.

3.3.4 Internet

The Internet is a unique information medium allowing information to be accessed at any time from anywhere in the world. It is a means of communication that enables easy contact between teachers, students and colleagues (Wanjun 1998, p.87). The Internet is a vast "network of networks" that interconnects physically thousands of

networks worldwide (Swain and Cleveland 1994, p.17). It is valuable resource, and forms the basis of a new generation of information services. According to Rehman and Al-Obaidali (2000, p.177) the Internet brings a wide range of information resources to the desktop of a user. It also creates endless opportunities for information capture, storage, organization, retrieval and delivery systems.

In addition, the Internet is characterized by a number of elements such as: a global network and it is fast, unstructured, anarchic, growing at a tremendous rate, difficult to locate the data, and flexible (Bradley 1997, p.16-17).

Network and navigation tools available on the Internet are:

1. Electronic mail, which involves sending messages from one computer to another;
2. TELNET, which allows a local computer to connect to a remote computer as a terminal;
3. McGill's Archie system, an online directory service for anonymous File Transfer Protocol (FTP) sites and other information resources;
4. FTP involves moving files from one computer to another;
5. Wide Area Information Server (WAIS), a document delivery system that allows natural language queries of remote WAIS-formatted databases;
6. Internet Gopher, a simple system that provides easy, menu-driven access to many network resources, including FTP sites, WAIS and Archie systems; and
7. World Wide Web, a system that provides simple access to a variety of Internet resources through a hypertext interface (Swain & Cleveland 1994, p.18).

The World Wide Web is a widely used tool for giving access to distributed, linked information. The Web provides “a distributed multimedia hypertext system which can be used in teaching, research and administration” (Wanjun 1998, p.87). By using the Web, users can: retrieve multimedia documents from around the world; publish documents globally; download programs on local machines; and run programs on remote servers (Wanjun 1998, p.87).

Furthermore, there are a large number of search engines which exist now and, according to Bradley (1997, p.30) these search engines break down into one of four

types or a combination of them. These types are: free text search engines; 'index' based search engines; multi-search engines; intelligent agents.

Most of the studies have reported high usage of Internet resources (Vicente, Crawford & Clink 2004, p.401; Falk 2003, pp.63-64). Some of the reasons attributed to the high usage were the freely available access, the ease of use, and its currency.

The Internet has become an important source of information for academic studies. Therefore, academic staff members may use the Internet as a preferred electronic source of information, probably because of the ease of gaining access to it (Jirojwong and Wallin 2001, p.72). Vicente, Crawford and Clink (2004, p.401) found "the freely available internet was the most widely used source, which some respondents viewed as a more appropriate source of vocationally oriented information than passworded databases." The researchers investigated the use of electronic information services (EIS) by academic staff at Glasgow Caledonian University (GCU). The researchers found that the most used service was searching the Internet, and less than a third used the catalogue to find EIS. They also found that search engines were the main method used to find EIS (Vicente, Crawford & Clink 2004, p.406).

Bane and Milheim (1995, pp.32-35) developed a survey concerning the utilization of the Internet among users in higher education in order to better understand its use by various professionals. The survey was sent to 231 randomly chosen discussion groups from a list of Scholarly Electronic Conferences assembled by Diane K. Kovacs and her Directory Team at Kent State University Libraries. The authors found that academics use the Internet more often for e-mail than for any other purpose (nearly 90% use it more than once a week) and library catalogues are consulted more than once a week by just 18.3%.

A survey of library and information services (LIS) educators teaching reference related courses examined the coverage of electronic information resources in LIS curricula (Hsieh-Yee 1997, pp.569-583). The researcher also explored educators' views on the importance of these resources, the ideal teaching methods, and continuing education for electronic information resources. Four major information resources were selected for the study, including the OCLC online union catalog,

Internet resources, online databases, and CD-ROM databases. The author reported in the article only the findings related to the OCLC and Internet resources. OCLC, Online Union Catalog, was developed in 1967 as a resource-sharing consortium for colleges and universities in Ohio. The Online Computer Library Center (OCLC) became one of the most important bibliographic utilities. With more than twenty thousand members and more than thirty two million bibliographic records for various data formats, OCLC has long been recognized as a major source for bibliographic information. The researcher found that Internet resources were covered by more than 80% of the respondents, and OCLC online union catalog by more than 50%. Lecture, hands-on practice, and demonstration were three favored methods of teaching. However, there are challenging factors LIS programs need to take into account when providing continuing education programs such as, limited resources, overworked academic staff, and rapidly changing technology.

Lazinger, Bar-Ilan and Peritz (1997, pp.508-513) examined and compared the use of the Internet among various sectors of the academic staff members in all departments and professional schools of the Hebrew University of Jerusalem. Of the 778 questionnaires sent out, 462 were returned, a response rate of 59.4%. The researchers found that Internet use was consistently higher among academic staff members in the sciences and agriculture than among those in the humanities or social sciences. Of the 371 Internet users, 362 used E-mail. Almost all E-mail is research related, but a substantial proportion is social in nature. In addition, the researchers found that 86% of respondents learned to use the Internet without the aid of any kind of course. Academic staff members in humanities showed a higher demand for courses in Internet use.

A survey carried out by Bao (1998, pp.535-539) collected data from 786 students and academic staff at Seton Hall University to gauge their satisfaction with information services provided by the Internet's World Wide Web. About 80% of the respondents used the Web on a daily or weekly basis. The researcher also found that most respondents placed their levels of satisfaction for Internet search results at level two (36.1%) and level three (37%). Only 61 (7.7%) of the respondents indicated a high level of satisfaction, and 117 (about 15%) indicated low levels (level four and five) of

satisfaction. There were three major problems encountered by users when searching the Internet. These were:

1. Did not find information needed;
2. No full-text information cited for academic study and research; and
3. Too many hits.

In Morocco, Clark and Lai (1998, p.23) revealed that the Al Akhawayn University in Ifrane (AUI) established Morocco's first Internet connection. The study surveyed 124 users (38 academic staff and 86 graduate students) who had Internet access for at least one complete semester. Results indicated that although most respondents (34 % of academic staff and 78 % of graduate students) had no prior experience with the Internet, they were heavily utilizing Internet services for business, academic and personal purposes. Respondents who had used Internet facilities prior to AUI expressed a high level of satisfaction, while the major reason for academic staff or students' dissatisfaction with Internet services was related to their misunderstanding of how the system worked.

Another study carried out by Hamshari and Bouazza (2000, p.328) aimed to investigate how academic staff members at Sultan Qaboos University used the Internet. It also examined the purposes of their use, their sources of information about the Internet and the difficulties they encountered in its use. The results of the study showed that approximately 37% of the academic staff at SQU used the Internet and that the majority of these worked in Physical Science colleges.

They also found that the purposes of using the Internet by the academic staff, in rank order, were as follows: communication through e-mail, teaching, research, browsing and visiting sites. The major difficulties faced by the academic staff when using the Internet were slowness of communication and heavy use of the Internet.

Another study carried out by Rehman and Ramzy (2004a, pp.53-59) aimed to analyse Internet use and related issues among the health care professionals at the Health Sciences Centre of Kuwait University (HSC). A questionnaire was sent to 180 academic staff members in the Health Sciences department at the university and the extent and patterns of use of twelve applications were examined, together with the

skills levels of respondents. The population covered both the clinician professionals and non-clinician researchers. The response rate was 76.6%. Like the previous study, nearly half the respondents used the Internet for professional communication on a daily basis. About one-third of respondents used the Internet daily for personal contacts. Overall the Internet has a central role in keeping staff connected both professionally and socially.

Like previous studies, the researchers found that slow access, speed, lack of time, lack of training, difficulty in finding relevant information, few workstations, overload of information on the Internet, obsolete hardware, inadequate physical facilities, and absence of the necessary support were the most common problems that inhibited its use.

A study was also carried out on the use of the Internet at the university library in Bahrain by Elayan and Al-Qessi (1999, 18-23). The study revealed that 95 % of the respondents used the Internet for information searches, e-mail, browsing newspapers, accessing the news, and for entertainment. Most (73%) of the respondents used Yahoo!, Lycos, Excite, Infoseek, and AltaVista search engines. The research was based on general use of the Internet with emphasis on its use and needs in teaching and research.

In a paper presented to the 65th IFLA conference held in Bangkok, Thailand in 1999, Begum and Jean (1999, pp.1-3) described the extent of Internet connectivity and usage among Southeast Asian libraries, and how many of them were using the Internet to provide electronic information resources and services through their homepages. The paper also presented a case study of the University Sains Malaysia (USM) library's strategy in promoting the use of the Internet among the university's academics and students. The researchers found that homepages exist for all the major academic libraries in each country; all of these libraries provided general information about their organizations in their websites; almost half of the libraries surveyed provided access to the library's OPAC and databases via the homepage.

Until early 1995 Internet access was very limited or completely non-existent in the Middle East and North Africa (Houissa 2000, pp.57-60). The researcher examines the Internet problems in the Middle East and North Africa. He found that Egypt and Kuwait boasted the highest numbers of private service providers and Internet users on average among all the Arab countries. He also found that the high cost of Internet access was the major problem facing users. In addition, the quality of online services and networked access in the Middle East and the North Africa varied widely from country to country according to the quality of the communication channels (post, telegraph and telephone). Another problem raised by the researcher is the dominance of English-language materials on the Internet, which limits the growth of the Internet in the region. The degree and types of control over the Internet vary from country to country due to religious and cultural sensitivities and the worries of security conscious governments to justify censorship. Finally, the author concluded that the Internet and related information technologies have significant economic consequences at all levels.

In 2001, Bu-Merafi also found similar problems when he assessed the use of the Internet by Al-Sharqa university faculty members (Younis 2002, p.197). Bu-Merafi found that lack of training, lack of time, lack of the needed information, language problems, the Web's slow response time and unorganised information, were the main problems that hindered their use of the Web.

In Jordan, Younis (2002, p.193) reviewed the extent of Internet utilization in Jordanian university libraries. He discusses its use, benefits, services and applications; and its effect on acquisitions, administration, the libraries' organizational structure, cost and services, together with associated problems and solutions. The study investigated 13 libraries linked to the Internet. Head librarians perceived the Internet as a supplement to their libraries' collections, as a substitute for databases on CD-ROMs, and a way of saving on subscription charges for printed journals, but not as a replacement for printed books. The author found that lack of experience, misconceptions about the Internet, misuse of Web sites, information on authenticity, censorship, copyright, insufficient quality terminals, and language problems were the main reasons which limited the optimal use of the Internet.

3.3.5 E-journals

Tomney and Burton (1998, p.420) defined the Electronic Journal as “An electronic journal is a periodical – regular or irregular – and moderated unit made available in an electronic format, either on a static medium or via computer networks”

Electronic journal communication has the potential to change fundamentally the nature of scholarly communication and, consequently, alter the nature of library serial collections. The success or failure of electronic journals will lie with the academics themselves. Publications will thrive only if researchers are prepared to have their material published in such a form and to make use of these new publications in their everyday work.

Among the studies in the literature regarding e-journals, Tomney and Burton (1998, pp.419-427) carried out a study which evaluated attitudes towards electronic journals; it also examined the current level of use by university academics in five faculties at University of Strathclyde. Consideration was given to both users and non-users and the study examined why they use or do not use this medium. The faculties examined were Science, Engineering, Arts, Business and Education. Two departments were then selected from each of the five faculties. The survey population thus chosen resulted in 27 professors, 8 readers, 35 senior lecturers, 55 lecturers and 22 research/other academic staff. Other academic staff included research fellows, graduate teaching assistants, etc. In total, 75 of the 147 questionnaires distributed were returned with a response rate of 51%. The researcher found that 21 (28%) of the 75 respondents indicated that they used electronic journals. Only two departments, History and the School of Further Education, reported no use of electronic journals. The use of electronic journals was highest in the Business (44.4%), Science (36.4%) and Engineering 30.0% faculties. The results from the Business academic staff were very much influenced by the high level of usage within the Law Department, in which members of staff were involved in the production of an electronic journal. The researcher also found that the use of electronic journals also varied with academic grade. Half of the “other category” reported using electronic journals, while the lowest usage was reported by those at professorial level. Only 12% of professors had used electronic journals while Readers made only slightly more use of electronic

journals and 26% of lecturers indicated some use. Senior lecturers were somewhat higher at 34%. The researcher also considered the breakdown of usage by age. They found that 56% of academic respondents under 40 years of age claimed to have used electronic journals, as opposed to 14% of those over 40 years of age.

Academics were also asked about their use of other electronic information and communication systems, such as e-mail, discussion lists and the Internet/WWW. They found that e-mail and the Internet/WWW were used by 41 respondents (54.7%), of whom eleven were electronic journal users and while 20 respondents (26.7%) used e-mail, discussion lists and the Internet/WWW, nine were electronic journal users. In general, both readers and non-readers of electronic journals made use of other electronic information resources, especially e-mail. Accessibility and the ability to read material from the desktop were perceived as the biggest advantages by both users and non-users of electronic journals. However, time is the main factor that affected the use of electronic journals and other electronic resources. Academics simply needed time to come to terms with the new technology and to locate electronic resources. Overall, the study showed that although academics were not using electronic journals in large numbers at that time, they were aware that material is available in this new medium and were not dismissive of the possibility of this type of publishing.

In 1998, a survey carried out at the University of the West of England (UWE) examined the use of electronic journals (e-journals) by academics and their attitudes towards them (Nelson 2001, pp.205-213). A questionnaire was e-mailed to 3,400 members of academic staff, in all faculties, and around 10% of the students. The survey had an overall response rate of 11%. The responses comprised 36% from those who used e-journals and 64% from those who did not. The greatest factor affecting e-journal use appeared to be whether the person was engaged in research. As with the previous study, the highest use of e-journals was found to be in the Business School, while the lowest use was in the Art, Media and Design.

In addition, the researcher found that there are some reasons for the non-use of e-journals, such as lack of knowledge about how to use them (35%), lack of awareness

(30%), lack of time to find out (15%), and access difficulties (6%). The commonest complaint about e-journals, as in most surveys, concerned the discomfort of reading from a computer screen. The next most cited disadvantages were lack of awareness of what is available and the time needed to explore and locate e-journals. There were also some problems related to technology, such as the slowness of the Internet, downloading problems, lack of access to sufficiently good equipment, poor graphics, and password problems. In addition, there was a requirement for IT skills, which not all users had. The last disadvantage mentioned was lack of prestige.

Finally, Nelson concluded that the non-use of e-journals does not appear to be due to the availability of items themselves but to external factors such as, for example, institutional culture change (from paper-based to electronic journal use), improvements in the technology and the needs of research.

On a similar topic, SuperJournal is a project in the Electronic Libraries Programme (eLib) researching the academic use of electronic journals in terms of the features that are most valued and the factors that will make electronic journals successful. Pullinger (1999, pp.164-165) in his paper focused on articulating the factors to be considered in the impact of the local information environment and the early evidence for the importance of these factors in the implementation and use of electronic journals. Seventy scientific users in four universities completed a full questionnaire in 1996. Most of them used the Internet weekly or more frequently 94% and 80% used online bibliographic databases weekly or more frequently. According to this project, the local factors affecting the use of electronic journals were: holdings of print journals, accessibility of the library as place, promotion of e-journals, signaling electronic journals, technical infrastructure, user authentication, and training and support for information retrieval.

The next section reviews the literature concerning the role of libraries in relation to electronic resources and the impact of electronic resources on libraries.

3.4 The Role of the Library in Supporting Use, Need and Knowledge of EIR

The introduction of technology to the university campus has provided an environment full of change for all campus stakeholders. Change which brought a number of opportunities for both users and staff (Quinlan 1991, pp.99-101). In order to remain stable in the information technology environment, the organization must constantly change and be successful in managing between the continuity and rapid change. It is also important that the biases and attitudes of the stakeholders be set aside and attention directed toward establishing a campus culture that encourage innovation and change.

The library serves as the university's principal source of scholarly information and provides support for the research and teaching needs of the institution. Besides its traditional roles of acquiring, organizing, housing and making resources available, the library is increasingly assuming an "information transfer" role on campus (Quinlan 1991, p.92).

Therefore, the role of academic library staff is to serve the needs of the academic community by providing a wide range of information and educational resources to support teaching and research (Mathews 1997, p.84). As new forms of information and technology become available, it is important that an academic library remains current, and providing the most useful resources possible. Therefore, staff development prepares the individual and the organization for the future (Callahan & Watson 1995, p.376).

Electronic sources became important library resources and the user had to learn new methods of accessing a library's resources (Quinlan 1991, pp.93-94). Information technology has provided libraries with new tools that allow new and higher levels of service to be achieved. The library collection can be used optimally if the users can work with these tools (Lapp 1996, pp.35-36). The researcher notes that the library should: allocate resources; organize training services; control the handing out of passwords; allow access to selected databases; organize user meetings; and offer a helpline. Lazinger, Bar-Ilan and Peritz (1997, p.515) stated that university librarians

and information professionals need to consider shifting the emphasis of their services from providing searches to providing courses. Training courses need to be organized, advertised and implemented for academic staff in all disciplines. Therefore, the goal of many librarians is to create “a self-sufficient” library user by educating the users in the concepts of information retrieval and encouraging them to apply these concepts to locate the desired information (Quinlan 1991, p.94).

Although academic libraries now include Web-based resources, the same challenges exist as in the past: user education, consistent administrative support, convenient and timely access to information, recognition of technology as a change agent, and reaffirmation of the important teaching role that librarians have (Rockman 1999, p.254).

In order to keep abreast with constantly changing library technology, library staff should continue participating in library staff development programs (Anderson & Huang 1993, p.28). The researchers considered the training of “para-professional” library staff (i.e. those without degrees in library science) in the use of new technologies. They asserted that such training should focus on skills development and learning transfer in order to improve the quality of services available to users.

Elizabeth W. Stone states, “...The result of participation in continuing education activities should be the improved quality of services to the library clientele” (Anderson & Huang 1993, p.28). Wade (1996, p.108) also highlighted the importance of staff development. The author stated that the challenge for information professionals is to ensure that they equip themselves first with the necessary skills in a constantly changing environment, in order to be able to train their users. A range of approaches to training end-users in using electronic information resources effectively have been adopted at Sheffield Hallam University (SHU). Many users preferred a personal tutorial, but this level of service cannot be given to all users.

At Kuwait University Libraries, Rehman and Al-Obaidali (2000, pp.180-184) found that searching the Web and using e-mail were the most heavily used applications by library and information professionals. The researchers also found that twenty-eight

(77.8%) of respondents expressed the need for training about telnet, FTP, e-mail, discussion groups, and design of Web pages. Twenty-six (72.2%) indicated the need for training about web searching while twenty-four (66.7%) indicated the need for training about indexing and cataloguing of web pages.

Mathews' paper (1997, pp.84-94) examined Internet training for academic library staff through a literature search, a survey of 15 academic libraries in the UK and interviews with three training librarians. He pointed out that poor training, or having no training at all, could result in: poor performing staff; inadequate standards of service; errors and / or accidents; high staff turnover and resistance to change. In addition, training could be delivered by lectures, presentations, demonstrations, workshops and "hands-on" activities, tutorials and seminars, free search/browsing time, worksheets and practical exercises, and videos or other media. He pointed out that while Internet training is being implemented in academic libraries in the UK, evaluating the training that is offered was not a priority.

Organising and developing training strategies is the subject of Callahan and Watson (1995, pp.376-378) as they assert that library administrations must provide comprehensive training for their staff. The article offers recommendations regarding cost-effective programmes which included providing a series of programmes to keep staff up to date with current technological developments; arranging programmes, speakers and workshops off campus; arranging Research Interest Group presentations for staff to share research results; publicizing programmes via a library newsletter; and developing an evaluation procedure.

The necessity for ongoing training is also stressed by Balas' study (1998, p.36).

As libraries continue to offer new technologies for improved service, they must offer training programs for both staff and patrons. In addition, Farha (2001, p.351) noted that in a virtual library, reference librarians should act as educators and consultants for end-users, advising users on the search strategy as well as the software set-up.

To meet the challenge of preparing employees to use technology effectively, Marmion (1998, pp.216-218) argued that libraries need to pay more attention to training and

computer skills. He makes the point that librarians could become obsolete if they do not recognize the need for a highly computer-competent workforce.

A survey carried out by Kirkpatrick (1998, pp.57-58) examined the current training practices in academic libraries at Minnesota State Colleges and Universities (MnSCU) in the USA. She found that, in the majority of libraries, training was available on PCs, automated systems, e-mail, and the Internet. However, the number of libraries offering PC training was considered lower than the number providing training on the other technologies. Also, the most frequently used training methods were individual training and workshops while computer-assisted instruction (CAI) and e-mail workshops were used much less frequently.

Computer-Assisted Instruction (CAI) is “the use of a computer to present and test learning material” (Barrett 1995, p.186). The author added that CAI should not replace lectures, classes or tours. In other words, a combination of both methods was appropriate.

Rader (2000, pp.25-32) argues that the new skills of librarians need to acquire include teaching students and other users information and computer skills to cope in the information society. Users of academic libraries need expert help and instruction in order to navigate through the World Wide Web and other electronic information formats. Librarians are the expert professionals in the current information environment to assist people with their information needs. Therefore, librarians need teaching skills and also need to obtain knowledge of networking, print and electronic databases etc. They also need to build partnerships with computer experts, information specialists and academic staff members.

Furthermore, Flatten (1997, p.23-25) reported on training librarians to support academic staff in their use of networks via the TAPin project organized by a consortium of six universities based in the West Midlands in the UK. This consortium committed to a three-year study of library services from training library staff in Internet skills to the delivery of support to Education, Law and Life Sciences academic staff. The librarians then targeted staff known to be keen to learn and taught searching techniques afterwards providing a selection of URLs and CD-ROMs

to cater for the individual's information needs. After this initiative, the impact of the project was evaluated.

The question posed by Meer *et al.* (1997) is whether it is worth attracting non-users, or infrequent users, to libraries and their computer services when there is much work to do serving users who already use the library frequently. The researchers conclude that academic staff who did not use such resources would be, in the future, at a disadvantage and that librarians have a role in instructing both students and academic staff in the use of electronic resources. In short, the library cannot afford to ignore any of its potential customers.

Tomney and Burton (1998, pp.427-428) believed that individual departments, the libraries and computer services should actively encourage use through providing training courses, publicising what was available, and by offering demonstrations at times that suit academics. In addition, the authors added that the role of promoting electronic journals must be shared among libraries, publishers, and professional associations.

Weingart and Anderson (2000, pp.127-132) carried out a study at Utah State University (USU) to investigate the levels of awareness of electronic databases of 856 administrators and academic staff since they felt it is often difficult to alert staff to new resources that become available. The survey's main finding was that university libraries need to work much harder to publicise these resources, to teach users how to access them, and to make users aware of what each database has to offer.

The integrated access to all electronic resources is an important issue discussed by Kennedy (2004, p.480) and Cohen and Calsada (2003, p.31). With the proliferation of these resources especially for libraries with large subscriptions, Cohn and Calsada (2003, p.37) raised pertinent issues such as the management of web site lists, the provision of a unified search interface to the library's research databases and e-journals and the inclusion of URL's web sites in the library's catalog. Kennedy (2004, pp.481-485) also proposed the inclusion of web pages to the library catalogue as a solution to the maintenance of increasing web sites links.

Campbell (2000, p.73) discussed the key political and strategic issues needed for the future development of Australian subject gateways. Some of the issues identified were: quality of content creation, integration of access to print and electronic resources, archiving and persistent identification, sustainability of services and service integration.

According to Rockman, "technology will continue to function as a change agent, and the role of the librarian may continue to be redefined as adviser, consultant, counselor, educator, intermediary, policy-maker, soothsayer, or trouble-shooter, but will apparently not be replaced" (Rockman 1999, p.258).

Basager (2001, p.227) added that libraries need to market their services such as establishing a home page to encourage users to use all the electronic facilities which are available through the Internet. They should also advertise what other services are provided such as the description of training courses they could offer. Therefore, by providing effective marketing of library services, this would increase the use of electronic services and thus raise libraries' profiles and demonstrate their value to the educational process.

3.4.1 The Implementation of Library Portals

One technical development that has taken place recently is the library portal which tries to integrate and facilitate access to electronic resources. Despite the role of portals and also because of their linked introduction, users still have difficulty using electronic resources and information sources in general. As a result there is still a need for librarians to become involved in training.

Library portals provide a single search facility that will allow users to search both local and external databases, OPACs and digital media simultaneously, thus avoiding users being overwhelmed by the vast number of resources and interfaces available (Ramsden 2003, pp.17-18). Such portals can greet users by name, store previous searches, recall favorites, link to articles from periodical databases, and link to OPAC to allow requests for interlibrary loans.

Looney and Lyman (2000, p.30) defined library portals as "systems which gather a variety of useful information resources into a single 'one stop' Web page, helping the user to avoid being overwhelmed by 'infoglut' or feeling lost on the Web."

Ramsden outlines certain examples of existing library portals including the ILINK portal from the SIRSI Corporation, Zportal (Fretwell-Downing Informatics), ENCompass from Endeavor Information Systems and Metalib, supplied by Ex Libris. Metalib is now in use at the University of Loughborough and the researcher points out that, with the exception of this system, take-up of such portals over the last two years in the UK has been slow. She asserts, in addition, that these systems are unable to "unlock the wealth of digital resources held in libraries" (Ramsden 2003, p.21).

Sadeh and Walker (2003, pp.12-14) offer a more comprehensive description of a portal, explaining that this is a Web service or site that provides wide-reaching online services and information to a specific community, allowing individuals to receive news, find and talk to one another, and find links to other Web information of common interest. A library portal, therefore, provides a gateway to an institution's resources by listing them and providing links to each.

This paper focuses on the Metalib portal, mentioned above, which has a repository for information known as the Metalib KnowledgeBase, allowing it to remain free of resource-specific references. Thus, each resource (either descriptive or functional), which can be searched using Metalib, is represented in the KnowledgeBase itself.

The advantages and disadvantages of portals were examined by Groenewegen and Huggard (2003, pp.452-454) after trialling Zportal software at Monash University in Australia.

This system offers a single login for all the resources available instead of the multiple logins usually required to access separate resources. It also reduces electronic library resources to one standard interface through which all library information and services can be searched and by which all results are returned in a standard format; multiple databases can also be searched thus saving the time usually spent moving from one resource to another.

However, at the end of the trial, it was decided that the software was not yet sufficiently developed to merit recommendation as the standards of records was often limited and search options very proscribed.

In the UK, Cox (2003, pp.38-40) considers the benefits of the library portal, listing these as:

- Providing easier access for users;
- Simplifying authentication;
- Unifying the presentation of resources;
- Allowing the personalization of resources; and,
- Offering a mechanism for the provision of an institutional portal.

Cox notes, however, certain reservations and problems must be addressed before implementing such a system. These include considering the price in terms of cost and time for set-up, the functionality of the system, and the track record and the number of development partners of the suppliers.

3.4.2 Partnership Between Academics and Librarians in the Educational Process

Partnerships are also the focus of Doskatsch's study. This paper, drawn partly from personal experience (Doskatsch is the senior librarian for information literacy at the University of South Australia), and partly from the experiences of colleagues, considers the relationship between academics and librarians in the educational process.

Many universities have noted that information literacy, i.e. the ability of learners to search for, access and use information, is a key aspect in the education of all students (Doskatsch 2003, pp.111-117). As information sources proliferate, the definition of the educator broadens to include a wide range of non-academic professionals in the educational process. Thus, this paper examines the relationship between academics and librarians and asserts the importance of collaboration between them.

Doskatsch argues that the library can contribute to teaching and learning by:

- Discovering resources to support the curriculum
- Developing a range of on-line learning resources
- Acting as intermediaries to support access to resources and service in a complex information environment
- Enabling simple and easy access to available resources
- Ensuring that librarians are part of curriculum committees.

Doskatsch quotes Bruce, who noted five dimensions of the academic staff partnership: these were as policy, research, curriculum, higher degree supervision, and academic development partnerships.

Bruce (2001, pp.106-113) considers the changing face of higher education in Australia. Universities now have a much broader educational role than previously since they must now respond to the needs of the economy and the workforce, thus bringing together the diverse needs of different groups.

This wider context offers opportunities for new partnerships between academic staff and librarians. While the faculty-librarian partnership in the teaching-learning process is not a recent phenomenon for Australia, a new emphasis on information literacy and the role of the library in teaching and learning have strengthened those partnerships. Therefore, this paper examines emerging partnerships in a variety of areas including research and scholarship, curriculum, policy, higher degree supervision, and academic development. The strongest partnerships, and the greatest impact of these partnerships are likely when all dimensions are working coherently together in the one institution.

Librarians, according to Bruce, are recognising the need to move towards a broader understanding of information literacy and their role in fostering student learning.

Policy partnerships include such examples as the Central Queensland University's Teaching and Learning Management Plan, which states a commitment to information literacy and lifelong learning skills being incorporated into academic programs.

In higher degree supervision partnerships, academic staff and librarians share responsibility for helping students through the phases of higher degree research. A version of three-way partnership between student, supervisor(s) and librarians has been trialled at Deakin University.

Many curriculum partnerships have been initiated with librarians involved in the production of web-sites for courses and subjects, web materials for use by staff and students, and in self-directed information literacy modules. Numerous other examples are cited.

The researcher concludes that many partnership efforts are being carried out in single institutions but that it is necessary for a much more cohesive and combined effort to be made by information literacy innovators in Australia to demonstrate the nature and value of their work to the higher education community.

This sense of the changing roles of the library professional in the "Information Age" is addressed in Johnston and Webber's paper. While universities were once seen as centers of disinterested academic teaching and learning, they are now being redefined, according to Johnston and Webber (2004, pp.12-19), as much more economically relevant and useful institutions. The writers outline some of the pressures for change:

- Contemplative knowledge is now questioned with more emphasis being put on knowledge arising from practice.
- Student education is focused more on skills that will equip them for "lifelong learning".
- Students' numbers are increasing, along with student diversity: universities must cater for this diversity.

The writers argue that information literacy is essential for lifelong learning in this fast-changing world and that librarians have a key role to play alongside academics, administrators, researchers and students to promote information literacy. This broad concept i.e. information literacy encompasses the use of electronic resources.

Their paper offers two case studies. The first considers the design, teaching and evaluation of compulsory Integrative Studies classes in the Strathclyde University Business School, aimed to introduce a core of key development for the first three years of undergraduate study. These classes enable students to work in interdisciplinary teams, sharing and integrating knowledge from their main subject. 460 first year students took the course in 2002/2003 with 490 students in year two and three. The course used a variety of elements such as disciplinary knowledge, key skills, self-awareness, personal dispositions, and multi-disciplinary team working.

This course was aimed at moving the "skills" agenda into the centre of the curriculum and was a powerful method of enabling these skills to be related to other aspects of student study and life.

The second case study concerns the Information Literacy class for undergraduates also designed and delivered at Strathclyde University. This was a one-semester class that has since been opened up to include Science as well as Business students. It aims to provide students with a foundation in information seeking and communication skills and has seven themes: information literacy as a concept; communication; searching and browsing; selecting and evaluating information; team skills; writing; and the information economy.

The authors see the role of the LIS academic staff in developments such as the two courses outlined above as central. However, they point out that the academic staff will need to be committed to developing information literacy through action, learning and negotiated change. They can then take on roles as visionaries, strategists, change agents, consultants, collaborators, innovations, role models and implementers. Thus, moving beyond their traditional roles.

Majid and Tan (2002, p.324) found that undergraduate students perceived lecturers as the second most important information source and sought their advice for using different information sources. Therefore, improved relationships between academic staff and library would increase students' knowledge of library resources, which would enhance the use of electronic information resources by the students. Rothera (2001, p.23) also highlighted that effective liaison with teaching staff, and

maintaining a high profile for the library and training which is offered by librarians, are crucial to the success of the user education programme for students.

3.5 Literacy Concepts and the Need for Information Literacy

Siitonen (1996) reported that literacy has been connected with different educational and cultural activities and linked with a variety of technologies. The concept of literacy has been expanded to include information literacy which emphasizes content rather than particular technological tools.

Hepworth (2000, p.22) argues that because we are now part of an "Information Age" and because educational institutions now place greater emphasis on independent learning, learners now need a high degree of information literacy and the academic library has an important part to play in increasing users' skills.

Library science once placed an emphasis on bibliographic instruction to users but the current concept of information literacy as the "skills and attitudes relating to the generation, use and communication of data, information, and knowledge" means that the remit of librarians is now is much wider. To define more precisely the areas of learning necessary to achieve information literacy, Hepworth (2000, p.25) offers four key areas of learning:

- 1- Learning to use information tools to access, organize and distribute data, information and knowledge.
- 2- Learning the intellectual norms of the subject.
- 3- Learning intellectual processes concerning knowledge creation and information management.
- 4- Learning how to communicate to access and exchange information and knowledge.

Hepworth (2000, p.26) notes that approaches to teaching information literacy range from a "discrete approach" where specific skills are taught to an approach where information literacy is completely integrated into subject content.

The paper also addresses challenges to introducing information literacy. These are defined as changing the attitudes of many support staff, academic staff and of students themselves. Librarians' own knowledge will have to be extended and infrastructure may need to be adapted or altered; this has, of course, funding implications.

The writer notes that the approaches adopted to address information literacy need to be diverse in order to respond to the range of needs of learners. However, because many of the skills associated with information literacy are traditionally key to Library and Information Science Hepworth asserts that it will almost certainly be academic librarians who will take the lead in ensuring that students are information literate and that information literacy is incorporated in the curriculum. (Hepworth 2000, pp.26-32)

Collaboration and the need to establish partnerships are considered by Iannuzzi (1998, pp.98-102). Iannuzzi argues that information literacy is not just a new name for library instruction. Instead, the agenda for information literacy extends into the classroom and depends on an effective collaboration between librarians and instructors: this collaboration may take time to evolve.

The writer indicates three "sub-cultures" which must contribute to the information literacy agenda. These are:

- The library: the library's mission statement and planning must clearly reflect a commitment to information literacy.
- The academic staff: the curricula should incorporate information literacy, assessment programmes should include an assessment of information literacy skills and information literacy should be included in the agendas and projects of academic staff committees.
- The administration: the mission statement and strategic planning documents should include language relevant to information literacy. Funding not only indicates support, but also reflects the priorities of the university, which in turn represents the overall culture of the university.

Iannuzzi suggests that a university's commitment to information literacy can be ascertained by viewing the institutions attitude to what she terms "hot initiatives".

These include: accreditation, writing across the curriculum, student retention, technology in the classroom and distance learning.

She also encourages librarians to become more involve in campus-wide activities and initiatives.

To demonstrate a working example of this, Iannuzzi describes the strategies adopted at Florida International University (FIU). There librarians are involved in strategies within the library, academic staff, administration, and with individual academic staff members via a series of planned steps:

1. Clarifying the Challenge
2. Identifying Campus Partners
3. Finding a New Approach to Collaboration
4. Forming an Information Literacy Initiative Model
5. Creating Multiple Strategies for Influencing Campus Culture.

Four important campus initiatives SACS accreditation, the strategic plan, student retention, and technology in the classroom, were identified.

Finally, the writer described how Information Literacy Initiative staff (ILI) demonstrated how they could help academic staff members function more effectively in the classroom by offering their experience.

3.6 Academic Staff Training

One of the main aims of this research is to identify the training needs, training methods and preferred training methods for academic staff. This section reviews academic staff training.

Library environments and the methods of providing services to library users are changing with the availability of new technologies (Qari 1999, pp.39-41). To help library users and librarians to deal with the new technology, training is becoming a very important issue. The aim of training was to provide librarians with the necessary confidence and competence to use IT in their jobs. Training library users will help

them to cope with the ever-changing environment of the library. In addition, Qari (1999, p.44) concluded by saying that "today libraries need more effective training programmes to support strategies and planning in using IT".

Training was felt to be "critical factor" if users were to make the most effective and productive use of computers according to Chrisman and Beccue (1990, pp.56-62). This paper covers an example of an extensive database training programme designed to teach both skills and concepts. The researchers argue that the same type of analysis of training needs can equally be applied to other tools and that the support of management is essential if effective training is to be developed.

An effective staff training programme can result in: knowledgeable and skilful staff; high moral and motivation; greater job satisfaction and acceptance of change; improved staff performance and a better quality of service; and successful fulfillment of aims and objectives (Mathews 1997, pp.86-87). To keep up-to-date with new developments, training must be an essential part of an academic library's objectives.

Hepworth (1990, pp.210-211) considered the training implications of automation in libraries as they affected both users and staff in health libraries. He concluded that library staff were often accused of providing expensive, unstructured programmes that lacked evaluation and / or follow-up so put forward a six-stage design process to provide effective training. These six stages were: (1) establish needs, (2) establish objectives, (3) devise a training strategy to cover content and method, (4) establish evaluation and follow-up, (5) estimate necessary resources, (6) produce training materials.

Fleming noted that educating library users would provide them with opportunities to make effective, efficient and independent use of library and information resources and services (Khalid 2000, p.184). Therefore, everyday changes in technology lead to an increased need for educating library users.

Librarians can assume facilitating and training roles in assisting academic staff who have limited time to learn the new technology (Jirojwong & Wallin 2001, p.72).

Therefore, training programs should help them to gain the maximum benefits of the resources available in their workplaces.

Adams and Bonk (1995, pp.119-129), for example, found that a lack of knowledge concerning electronic resources was the main reason why academic staff members at the State University of New York did not use such resources to any great extent and therefore, this constituted a major obstacle to their exploitation. The researchers argued that if such staff were given appropriate training it would be likely to increase their usage of electronic information resources.

Similar results were found by Applebee, Clayton and Pascoe (1997, pp.90-92) in their study at the University of Canberra, Australia. In their research, over 75% of the academic staff surveyed said that they lacked training on Internet facilities and this was felt to be the major reason that their usage of these facilities was limited. The researchers recommended increasing training to raise awareness of the benefits of the Internet. A similar recommendation was made by Moyo (1996, p.32) in his research, carried out at the University of Botswana. Moyo also discovered a low level of Internet awareness on the part of academic staff and noted that this was linked to the fact that most staff reported that they had not received prior training. The study concluded that systematic training was needed and that this should be organised as a collaborative process between computer center staff, library staff and teaching departments. The training should be evaluated regularly to determine its effectiveness and suitability of content.

A case study, carried out by Farha (2001, pp.351-356) concerning an academic medical library (The Saab Medical Library) in Lebanon, found that the training offered aimed to teach users how to retrieve information rather than providing answers. This helped users to become self-dependent, and to teach them information-seeking skills to develop into life-long learners. Farha concluded that librarians are actually needed more than ever to teach and help users with the changing technologies.

Adika (2003, pp.29-34) noted, in his study on Internet use among academic staff members in the universities of Ghana, that lack of access to the Internet and a lack of training in its uses were the main barriers facing the effective employment of this technology on the part of academic staff. The majority of the respondents who said they did not use the Internet, stated that the provision of training was likely to be the greatest motivator in persuading them to use such resources (65%), while 55% cited increasing access as motivating them most. Therefore, Internet use is likely to increase when users have access and receive training. In addition, university authorities including academic staff boards, heads of departments must adopt mechanisms for creating awareness among their academic staff.

Furthermore, Garrod (2001, pp.31-36) examined the HyLiFe Project at Plymouth University in the UK, which involved the design and development of a Web-based interface to the hybrid library for nursing and midwifery students. The HyLiFe interface set out to provide a resource which took into consideration the characteristics and needs of this group of students. The researcher noted that getting users used to new Web-based services takes time and that while training can help users take the first step, peers are also a valuable method of passing on skills. Staff and students have to be willing to learn and prepared to change behaviour. Training is only a starting point especially with new technology. The study highlights the paradox that, without skills and confidence, staff and students will not use a hybrid library interface. In other words, to gain confidence they need practice and to gain skills they need guidance, tuition, training and ongoing support.

Meer *et al.* (1997) found that end users trained in the use of computers, the Internet, and information finding can retrieve, search and manipulate information electronically and are better at finding information independently.

Training programmes provided many benefits both to the library and to the academic staff, as well as enhancing the relationship between them (Rothera 2001, pp.27-28). The training raised staff's awareness of resources and services offered by the library; enhanced staff's teaching and research; and saved them time. Training programmes should also benefit the library by making academic staff act as backers of the library's services; saving library staff's time as academic staff become more independent users

of library services. Therefore, providing timely training to the academic staff in a familiar and convenient environment can increase staff's appreciation of librarians' skills and of the usefulness of the services.

3.6.1 Training Need

The growth in electronic publishing creates a need for new skills by users in searching full-text multimedia and hypermedia-based electronic resources (Meer et al. 1997). This trend reinforces the need for traditional computer skills, such as word processing, searching databases, text editing and using multiple search interfaces. According to Hazari (1991, p.166) computer literacy training is a very important component in the effective use of new technologies for instructional purposes.

To plan in-house training sessions in the use of online databases, the following needs be considered:

1. Planning for a training program long before a system is implemented;
2. Conducting training sessions prior to the time the trainees will begin using the system; and
3. On-going training, to keep all staff current in new developments (Anderson & Huang 1993, p.23).

Khalid (2000, p.179) noted that a literature survey revealed that a limited amount of material was currently available for the use of technology in libraries in Saudi Arabia possibly because of, firstly, the lack of a national information policy and, secondly, a lack of trained staff. Boston suggests three types of training for the development of library staff, these are:

1. Increasing staff awareness of the possibilities offered by the technology.
2. Familiarising those running the systems (cataloguers and administrators) with word processing or database software packages.
3. Raising the skills of programmers and maintenance technicians (Khalid 2000, p.184).

Furthermore, Garrod (2001, p.34) described some issues that need to be considered before developing a programme of user education. These are:

1. What levels of IT literacy have users attained?
2. What level of information handling skills have users attained?
3. How do you assess users' IT and information skills and when?
4. How do you provide for different levels of expertise?
5. How do information management and IT skills map onto "learning to learn" or study skills programmes of education and training?
6. What methods are best suited to the delivery of user training and education in the hybrid library context?
7. What types of advisory services are appropriate, e.g. voice mail, telephone, e-mail, face to face, online help, etc.
8. Where do you draw the line between being helpful and spoon-feeding users?
9. How do you persuade teaching staff that information-handling skills are essential skills for survival in a knowledge-based economy?
10. Do library staff have appropriate training skills to deliver or develop user education?

The following empirical studies illustrate some of the important skills that are required by users in handling electronic information resources.

Eighty-seven inexperienced users of CD-ROM resources and thirty-one experienced users were surveyed about what training they thought should be provided and which training methodologies they preferred (Allen 1990, p.88). The researcher found that respondents needed training in: developing search strategies, search procedures, Boolean logic, and how to use the equipment. The researcher also found that females expressed a stronger desire for training than males. In other words, females rated training to be more important than males. The researcher explained the reason for such a finding is that females are more insecure about using new equipment than males, or that they are more willing to express a need for assistance. Females tend to ask librarians for help more than males, who tend to rely on their friends for assistance (Allen 1990, p.92).

McCarthy, Krausse and Little (1997, pp.128-140) also examined the use of CD-ROM by evaluating the effectiveness of current services at the University of Rhode Island, USA. The data gathered via a questionnaire survey showed that users were generally satisfied with CD-ROM services and actually preferred these resources over printed materials. Users also noted that, although they felt confident regarding searching, they needed to know: how to develop a search strategy, how to choose the right CD-ROM database, how to use the various software interfaces, and how to limit searches. Users also preferred personal assistance and hands-on workshops as training methodology.

A survey carried out by Bao (1998, pp.540-542) at Seton Hall University found that academic staff and students were most interested in learning advanced Internet searching skills (55.5%), followed by basic Internet searching (44.3%), gateway Internet resource listings (30.6%), and subscription databases (24.4%). The researcher concluded that a high percentage of students and academic staff used the Web on a daily basis, demonstrating that the Internet is now an important part of library services. Therefore, academic librarians need to strengthen their relationships with their institution's computing services and also with the academic disciplines. An instructional strength for academic librarians would be to work with classroom academic staff to teach students how to locate scholarly information effectively and how to evaluate sites where information is found.

Similar results were found by Lazinger, Bar-Ilan and Peritz (1997, p.515), that the majority of respondents who want to learn more about the Internet were interested in learning about advanced protocols, such as gopher, WWW, and graphic interfaces.

Furthermore, Lapp's paper (1996, pp.31-34) considered user training in the electronic library and presents an approach to provide information, reference and training services to meet the needs of users of such libraries. The approach included the following aspects: introduction to the library; online training for OPAC searching; searching bibliographic and subject databases; finding relevant information on the Internet; and evaluating activities. Lapp stated that the training programme for CD-ROM databases and the Internet should be adapted to meet users' needs and should ideally be linked with the university's teaching programme.

Majid and Abazova (1999, p.110) argued that substantial training time should be allocated to develop users' basic computer skills. Once users in developing countries are computer literate and have a good grasp of searching techniques they are likely to make much greater use of the electronic resources available.

Cullen and Cheng (1999, pp.209-211) examined training needs in university libraries in China and in New Zealand. They concluded that, although the countries were very different in terms of their economics and information infrastructures, certain recommendations could be made for both nations. These were that ways of accurately ascertaining the level of staff competence regarding new technologies were needed; it was necessary to ensure that staff were able to cope with information retrieval strategies; staff needed to understand how to evaluate information and how to understand users' needs; and finally, that training needed to be developed to address these needs.

Rehman and Ramzy (2004a, p.57) found that 67% of the respondents expressed interest in developing skills for Web searching, which was followed by Internet phone use. 52.8% wished to develop skills in Web site design. 38.7% were interested in learning about e-mail, 32.1% and 31.1% were interested in Telnet and discussion groups respectively. 22.6% and 20.8% were interested in learning about FTP and chat applications.

In Malaysia, Hassan (2002, p.221) investigated end-users' perceptions of training needs in using electronic information resources in selected public universities. The researcher found that both students and academic staff lacked certain knowledge and skills concerning IT and they faced problems when using electronic information resources. Both groups need training in the following areas: computer skills, Internet skills, and Information/library skills.

3.6.2 Training Methods

A review of the literature revealed that there are a number of training methods available to train academic staff in the use of electronic information resources.

According to Barrett (1995, p.188-189), “no one method fits all situations and no one situation fits all methods”. It is therefore the task of the library to start training academic staff through activities such as open days, demonstrations, and sessions for new staff, etc. (Barrett 1995, p.191).

Hu (1996, pp.2-5) considered the need for network literacy among library users and examined methods of teaching such skills, both to librarians and to academic users. Network literacy for library users consists of two aspects: knowledge of networked information and skills to locate, select, evaluate and use the networked information. To acquire network literacy, users should first of all possess other basic literacies such as computer literacy, media literacy and information literacy.

Furthermore, Hu suggested the following methods for delivering network literacy instruction: classroom lectures and presentations with computer demonstrations; workbooks and printed texts; multimedia and computer-assisted instructional programs (CAI); point-of-use signage; individual instruction; and electronic user guides.

Since there are variances in learning styles, such as visual, auditory, and tactile or kinesthetic, several training methods can be incorporated into any training (Anderson & Huang 1993, p.25). Balas (1998, pp.36-38) notes that there are many training resources available including videos, CD-ROMs, books, and online training resources. With the variety of choices available, users should be able to find the training that best fit their needs.

Furthermore, Allen's study (1990, pp.88-92) found that respondents, especially females, preferred using individualized training methodologies, such as one-to-one assistance, help available in the CD-ROM lab, and demonstrations, rather than group instruction. These results add an additional burden on those library staff who have bibliographic instruction responsibilities. It is important that a library has an adequate number of staff to provide this individualized instruction for patrons. It was evident that shortages in library staff were regarded widely as an obstacle to providing effective library services (Basager 2001, p.218). This resulted in a lack of satisfaction with the services provided when users found that staff were unable to help them,

either because they were too busy or they did not have sufficient skill. In order to overcome the problem of lack of professional IT staff, new staff are needed with a knowledge of network management, software development and interface design. Such staff could then up-date existing library staff and educate users on the latest technology (Basager 2001, p.223).

In his study, Hassan (2002, p.221) found that both students and academic staff preferred one-to-one training methods as their first choice. However, students preferred computer-assisted instruction (CAI) as their second choice of training method, while academic staff preferred the library workshop.

Information skills include higher order cognitive skills, for example: evaluation, analysis and synthesis of materials (Garrod 2001, p.30). These skills can be difficult to develop in a short period of time.

Rader (2000, p.32) argues that information skills instruction can be provided as needed on an individual basis or in groups. Such instruction can include interactive online training; in print or person; or instruction that can take place in an electronic classroom.

Hart, Coleman and Yu (2000, p.47) also found in their study that most respondents preferred small group sessions, printed help-manuals, and online tutorials in training electronic technologies.

Strategy for Internet use, with a particular focus on the Shanghai Second Polytechnic University, was the subject of Wanjun's study (1998, pp.87-88). Because only a small number of staff and students were accessing the Internet, and because the university was spread over six sites, a cascade method was adopted for training. In this method, the lecturers who were teaching document retrieval skills would take a small group to be trained by the Information section; these would then go away and themselves teach colleagues and students.

Kaczor and Jacobson (1996, pp.214-221) carried out a survey at the University at Albany, SUNY, to examine how patrons had learned to use the Internet, the

penetration of the Internet instruction programme organized by the researchers and the public awareness of the instruction available to them in the university's library. The researchers found that 80% of respondents had not attended any Internet instruction sessions provided by the library or computing services. Females were more likely than males to seek Internet instruction, by 36% to 14%. The results also revealed that most respondents learned how to access the Internet either by themselves 54%, or from a friend 16%. They also found that patrons favored hands-on instruction over demonstration classes.

Qari (1999, pp.39-44) examined training issues and concerns regarding on-line library services at King Abdulaziz University Library (KAUL), Saudi Arabia. He noted that the library had established the need for the following training initiatives: expansion of the library's electronic services needed to be announced to all users; librarians needed to be trained in the use of such technology; users needed to be free to choose from a range of learning strategies (i.e. manual, computer-based training, and video tape) to improve their usage of the library's electronic services; and that training should be provided in a networked environment. The objectives of the self-training programme is to help users who cannot attend a regular training programme, thus training themselves at their convenience from offices or home, etc. Qari (1999, p.44) stated that "...the best method of technology training is to provide users with an opportunity to use the technology". Self-training is beneficial especially in the Arabic world, because it is not possible to bring female learners to male classrooms for training purposes. Therefore, self-training packages will help females to learn IT facilities at their own convenience.

In his study regarding the requirements for planning an electronic library in the Gulf region, Ashoor (2000, pp.36-37) noted, concerning staff training, that short courses, workshops, local seminars and visit by professionals, as provided by King Fahd University of Petroleum and Minerals (KFUPM), were beneficial as part of the continuing programme of education in the library. Furthermore, he stated that a strong user instruction programme was essential in promoting the use of the virtual electronic library. Both computer literacy and information literacy programs must be established for academic staff and students. Information literacy is defined as "understanding the tools necessary to conceptualize, retrieve, evaluate and manage

information" (Ashoor 2000, p.37). In order to build a strong user instruction programme, the library must first make sure that they have the technical staff who have the latest knowledge and expertise in information technologies. To support the instructional mission, the library should offer workshops, seminars, and short courses. Most of the workshops should be supplemented by Web-based tutorials to teach users how to navigate through the various electronic databases on the Internet. Web-based classes and Web-based tutorials provide fast and efficient communications between the instructors and the students.

According to Steed (1999, p.1), W-based training or Internet-based training is set to transform the world of training and education. With Web-based training, teaching and learning can be freed from the boundaries of classrooms and class schedules. WBT is "media-rich training fully capable of evaluation, adaptation, and remediation that can provide the available tools to organize and deliver content into well-crafted teaching systems" (Tobin & Kesselman 1999, p.2). It allows self-directed, self-paced instruction in any topic. Therefore, WBT meets the needs of diverse populations and learning styles (Tobin & Kesselman 1999, p.2-3). The authors also highlighted the importance of updating any guidelines drawn up for web-based instruction because of technology change (Tobin & Kesselman 1999, p.6).

Farha (2001, p.354) also defined Web-based instruction as "a dynamic process that involves a great deal of trial and error, revising and revising it, and even discarding parts or moving them from one place to another. This makes it a time consuming process of continuous revision".

Web-based training has a number of advantages over traditional training class, such as: more accessible, less cost, learning gains, constantly up-to-date material, faster completion of training, consistency of presentation (Steed 1999, p.31-32). The author also highlighted two disadvantages for the use of WBT:

- New software and procedures: which need students to be familiar with.
- Bandwidth/browser limitations: limitations in bandwidth may restrict instructional methodologies as performance for sound, graphics and video can be slow.

A survey was carried out in 1998 in 68 UK university libraries by Rhodes and Chelin (2000, pp.59-68) to examine the use of the World Wide Web in user education; almost three quarters of the surveyed libraries used the Web for this purpose. However, only ten percent of user education was delivered using the Web alone. The researchers also found that greater use is made of the Web for information skills training than for library induction. The researchers noted that reasons why the Web was not more widely used included: many people preferred the "personal touch" offered by face-to-face contact; while the Web was useful for teaching generic skills, some libraries preferred to deliver specific training; problems arise when only one person has the skills and expertise to develop and maintain web pages; the skills of users varied; and lack of suitable infrastructure; lack of impetus and lack of time were also cited

Furthermore, Detlor (1999, p.393) carried out a case study of 17 participants in a Canadian utility company to examine the use of a custom-developed software application both before and after an advanced Web training course. He found that after the training several improvements were identified which included more effective and efficient searches, greater comfort on the part of users with Web technology, and greater appreciation for the resources and services offered by the library.

The training at the Saab Medical Library (SML) is presented in different forms such as orientation sessions, seminars, and course-related instruction, and Web-based instruction (Farha 2001, p.351). The author found that, while Web-based training was useful for users who were unable to attend live classes, both users and librarians missed the face-to-face contact afforded by conventional instruction (Farha 2001, p.356). According to Dewald, Web-based training should complement and supplement traditional training (Farha 2001, p.356).

Academic librarians could use the library's home pages to expand instructional programs for traditional bibliographic instruction by developing Web-based, self-paced teaching courses that allow users to learn and use academic library resources, online databases, and general Internet search (Bao 1998, p.542).

The Luke Wadding Library at Waterford Institute of Technology, Ireland was the focus of the article by Hegarty *et al.* (2004, p.293) which describes the creation and

progress of an integrated information literacy programme for lifelong learning with particular emphasis on the library's support model. The priorities of the models were to train staff and students to use the library's resources effectively; to provide them with transferable information seeking skills; and to encourage them to ask for help when necessary from library staff. The following programmes were devised: walk-round library tours; one-hour library tutorials; training on specific databases; and one-to-one training sessions for academic staff.

The "Woman to Woman" Community Health Information project, conducted by Huber, *et al.* (2003, pp.404-409), considered information access to certain community-based health agencies in Houston, Texas, USA. As well as examining health resources posted on a website, the study considered training in accessing electronic health information resources. The training module developed for Woman to Woman provided an in-depth overview of resources contained on the project Website. In addition to the formal training, participants were given an opportunity to work with the librarian in locating information relevant to their own topics of interest. Evaluations were included with each training session. The researchers suggested that academic/community partnerships could provide a model whereby academic resources could be used to allow access to relevant health information.

Furthermore, Joint's study (2003, pp.417-421) suggested that a more "constructivist" approach is required to teaching and learning in the digital library. This might involve training being provided on an "as needed" basis with line-managers learning alongside staff members. If job knowledge is a linear and fluid process of construction, a good line manager could be one who sits down beside a member of staff and shares the learning process with them.

A study done by Rehman and Ramzy (2004a, p.57) showed that a majority of respondents learn how to use the Internet through self-instruction. 60.6% reported that they used online help and documentation, while 18.9% used library guides and brochures. The total number of academic staff members who learnt on their own was 79.5%; 55% received informal training from their colleagues and family members.

Furthermore, the respondents' preferred modes of training were; firstly, by formal training programmes, followed by one-to-one training in the workplace and then online training and the use of printed documentation.

The use of formal training programmes and the active involvement of librarians would encourage and help users to make better use of electronic resources (Rehman and Ramzy 2004b, p.155).

3.7 Summary

This summary seeks to crystallize the main lessons learned from the literature review. This includes previous research themes, academic staff knowledge and use of EIR, and the importance and role of academic staff training needs and preferred methods.

In examining the literature to gather some perspectives on academic staff knowledge, use and need for EIR in Bahrain and other Arab countries, a lack of studies was identified in the literature. The vast majority of the studies concentrated on traditional academic library services and their impact on the traditional teaching and research. Emphasis on academic staff knowledge, use and need for electronic information resources is very limited. Studies in this field in GCC in general and in Bahrain in particular are very rare and continue to be limited in comparison to similar studies conducted in the West.

Academic Staff Knowledge and Use of EIR

The literature review shows that a vast amount of research has been conducted into the use of ICTs in education. This includes research in the area of EIR. However, the review shows that there is a lack of specific comprehensive research into the use and need for EIR in higher education academic staff in general and GCC countries in particular. The literature revealed the importance of developing the competence of academic staff in the use of EIR in research and teaching.

Balance of Investment

The literature relating to investment in ICTs in developed countries generally shows that it is the norm for companies and government to invest heavily in the hardware

and software components of information and communications technologies. However this is rarely matched by adequate investment of resources in the human, organizational and social aspects. As a consequence, the adoption of many applications eg, e-government, e-learning ect is slow and limited. A crucial lesson to be learned to benefit developing countries which will avoid repeating the mistakes of other countries is the importance of balance in investment between ICTs and human resources. Effective and efficient use of technology such as EIR, can only be achieved by competence, confident and knowledgeable, academic staff. The literature indicated that lack of academic staff knowledge and awareness of EIR is the main cause of low use of EIR in teaching and research. These lessons and outcomes also shared in some developing countries where introducing EIR to the academic intuitions is appealing as it is seen to be attractive and modern but without attention to human and organizational needs fails to reflect effective and efficient use of the technology. Britz, *et al.* (2006, pp. 25-26), Rehman (2006, p. 467), Galbraith (1991, p.17) argued in favor of the importance of investigating in human resources.

Appendix 5.1 shows the summary of EIR research in GCC higher education academic institutions. The main outcomes of this review are lack of clear information policies, low use of EIR, lack of awareness, training needs, lack of appropriate training methods, lack of use of Internet. It reveals that there is a lack of comprehensive research in Bahrain higher education academic staff use and needs for EIR. The review also showed a lack of conceptual models for use and need for EIR in research and teaching in GCC. Therefore, this research contributes to fill this gap by introducing a comprehensive study on Bahrain academic staff use and need for EIR in teaching and research.

From the methodology point of view, the majority of the articles reviewed in this study show that the data collection methods used were mainly questionnaires and interviews. The observation method was also used but was very rare.

Training Needs

An investigation of academic staff training needs was one of the research aims. The literature review revealed several issues related to training EIR, see Appendix 5.2.

The vast majority of the research was directed to issues related to EIR, ICT for example, rather than EIR training needs for academic purposes. The literature indicated that there is a lack of research in academic staff EIR training needs in general and in developed countries in particular. There is also clear evidence that there is a lack of research in academic staff EIR training needs in Bahrain. There is no author who has tried to explore this issue.

Training Methods

Appendix 5.3 shows the main EIR training methods identified in the literature by several authors. The most popular methods used lectures based training, on-line and one-to-one training. The literature clearly identified a lack of any comprehensive EIR research in training methods used for higher education academic staff in Bahrain. There is also lack of comprehensive research in training methods used for academic staff EIR knowledge and skills.

CHAPTER FOUR

RESEARCH METHODS

4.1 Introduction

The main objectives of this research are to assess, identify and explore the use, needs, knowledge, skills and awareness of EIR by the academic staff of Bahrain University. The research framework, described in Chapter Two, identifies the guidelines set to achieve the research objectives. In order to achieve these aims and objectives, an appropriate methodology is needed to provide the data and information required to fulfil the research framework.

This chapter therefore presents and discusses the methodology adopted in this research to achieve the study's aims and objectives. The chapter presents and discusses the research strategy that has been adopted, the research sampling and the data collection processes; it also discusses the reliability and validity of the study, and describes the pilot study and data analysis technique.

The chapter is divided into seven sections. Section 4.2 discusses the research strategy whilst Section 4.3 describes the research sampling. Section 4.4 outlines in greater detail the data collection process and the research methods appropriate to the study, whilst Section 4.5 discusses the reliability and validity of the study. Section 4.6 describes the pilot study, Section 4.7 discusses the data analysis technique, Section 4.8 describes a second stage fieldwork and, finally, Section 4.9 offers a summary of the chapter.

4.2 Research Strategy

The nature of this research requires that both positivist and interpretive approaches are adopted to collect the data and information required to achieve the study's aims and objectives. The first approach is needed to generate data that can be used for analysing and predicting the research issues, while the interpretive approach is required to explore the experiences, backgrounds and feelings of the research subjects to enhance the research data and information. Figure 4.1 shows the research strategy, a combination of quantitative and qualitative approaches, adopted in this research. Using a quantitative approach allows the perceptions of a larger number of people concerning a limited set of questions to be measured; this then enables comparisons and judgments concerning the statistical significance of data to be made. The qualitative approach, on the other hand, can be used to gather in-depth information regarding a relatively small number of people or subjects (Patton 2002, p.14). Glazier and Powell noted that:

"A research design that takes advantage of the complementary aspects of qualitative and non-qualitative methodologies is likely to generate a richer cache of data overall."

(Glazier & Powell 1992, p.209)

The survey permits researchers to gather data concerning opinions, attitudes, beliefs, and so on, of the whole population (Busha & Harter 1980, p.54). Thus, the survey method allow investigators to gather information about target populations without undertaking a complete 'enumeration'.

In terms of the qualitative approach, a set of interview questions was designed for the university heads of department and the university librarians carried out in two fieldwork visits, stages, see Figure 4.1. The first visit was mainly to collect data and information while the second was to evaluate the research main findings. Two methods were used in the quantitative approach: the first was a questionnaire designed

for academic staff and the second was the document analysis. These methods were carried out in the first fieldwork visit.

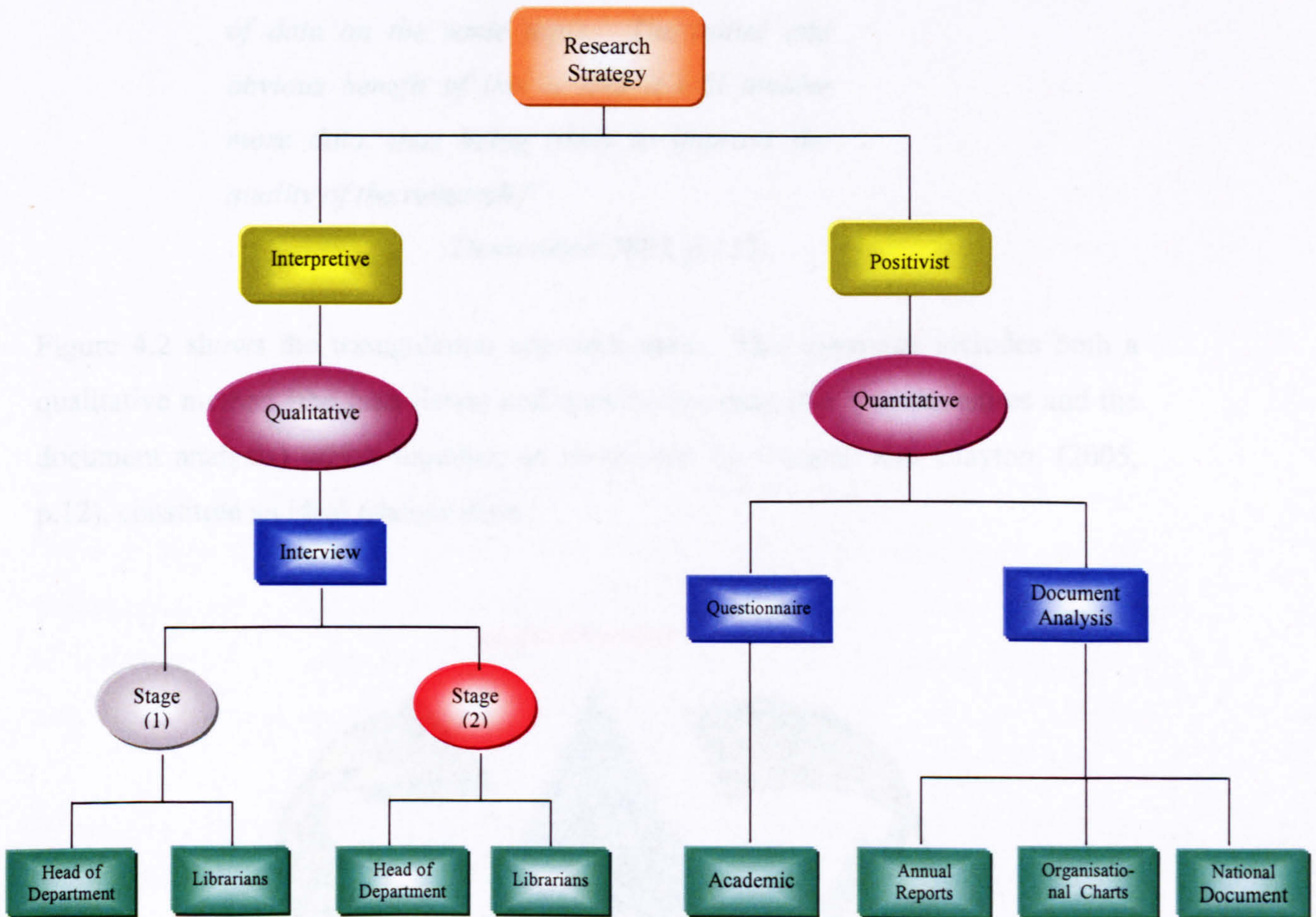


Figure 4.1: Research strategy

4.2.1 Triangulation

The strategy adopted in this research involved employing a multi-method approach in order to enhance the value of the collected data to improve their reliability. A multi-method approach provides different kinds of data and information that contribute positively to research topics, as stated by Denscombe 2003:

"Using multi-methods produces different kinds of data on the same topic. The initial and obvious benefit of this is that it will involve more data, thus being likely to improve the quality of the research."

(Denscombe 2003, p.132).

Figure 4.2 shows the triangulation approach used. This approach includes both a qualitative method (the interviews) and quantitative ones (the questionnaires and the document analysis) which together, as mentioned by Gorman and Clayton, (2005, p.12), constitute an ideal triangulation.

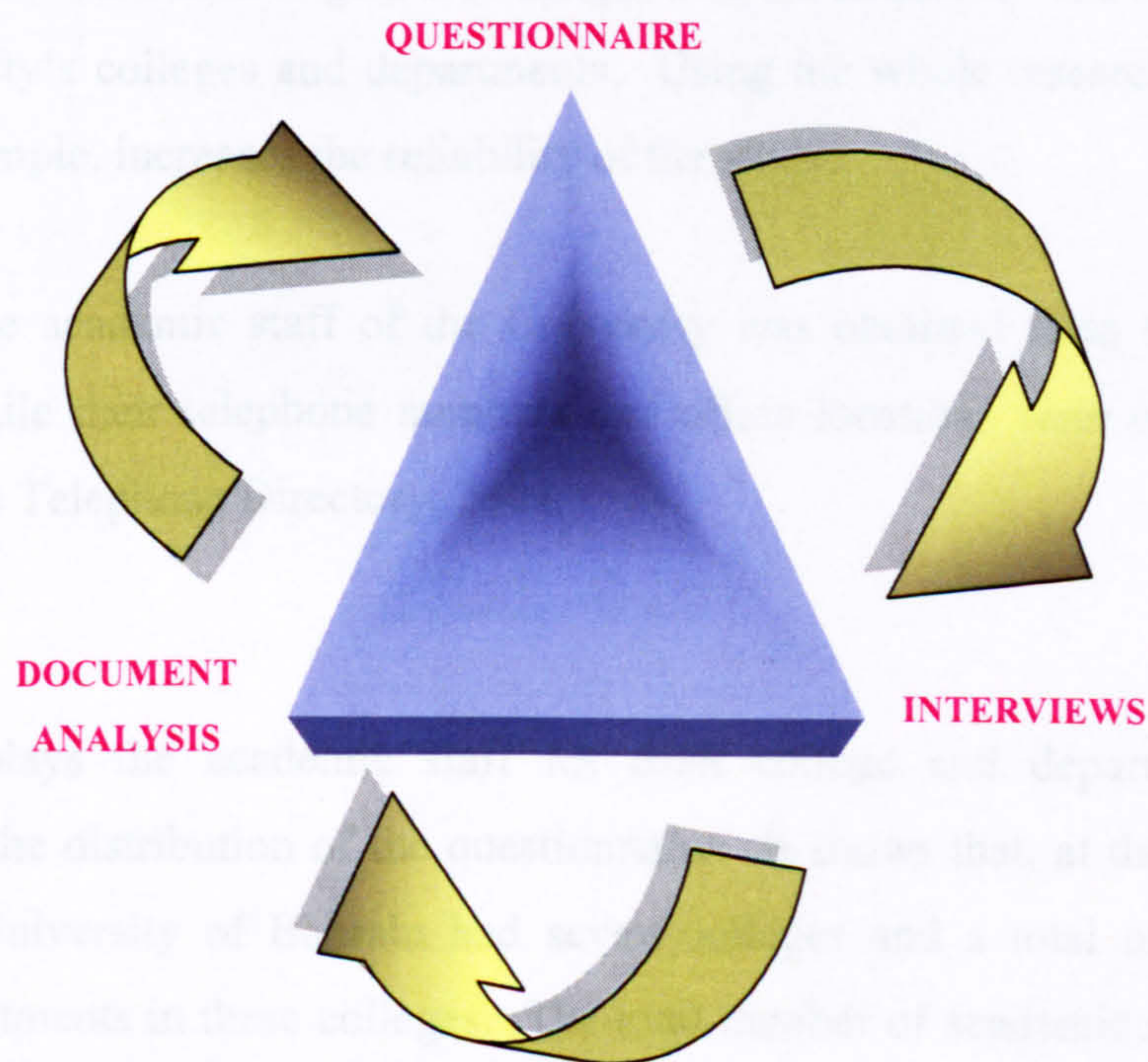


Figure 4.2: Triangulation between different methods

Thus, while each method provides a slightly different view of the research issues (Moore 2006, p.13), when combined together, they offer a rich picture. Adams pointed out:

"Questionnaires and interviews are the most common methods of data collection that can be used in multi-methods in all of the many branches of social behavioural science. Both of these methods are highly flexible and adaptable to a variety of research designs, populations and purposes."

(Adams 1985, p.200).

4.3 Research Sampling

The strategy of the research is to select all University academic staff. This was decided because the total number (593) of the University academic staff is manageable and is sufficient to give true insight into the situation. The sample covers all the University's colleges and departments. Using the whole research population, rather than a sample, increases the reliability of the study.

A list of all the academic staff of the University was obtained from the personnel department, while their telephone numbers and office locations were obtained from the University's Telephone Directory, 2004.

Table 4.1 displays the academic staff for each college and department of the University for the distribution of the questionnaire. It shows that, at the start of this research, the University of Bahrain had seven colleges and a total of twenty-five academic departments in these colleges. The total number of academic staff that was selected as a sample for the questionnaire distribution was 593, representing 100% of the population of academic staff members.

Table 4.1: Academic staff research sample

No.	Colleges	Department	Location (Site)	Population	Sample
1	Education	Foundation & Curriculum	Sakhir Site	21	21 (100%)
2		Educational Technology		21	21 (100%)
3		Psychology		17	17 (100%)
4		Physical Education		24	24 (100%)
5	Arts	Arabic & Islamic Studies		53	53 (100%)
6		Information, Tourism & Art		25	25 (100%)
7		Social Science		49	49 (100%)
8		Foreign Language & Literature		60	60 (100%)
9	Business	Management & Marketing		26	26 (100%)
10		Accounting		17	17 (100%)
11		Economic & Finance		15	15 (100%)
12		Office Management		11	11 (100%)
13	IT	Computer Science		28	28 (100%)
14		Computer Engineering		8	8 (100%)
15		Management Information System		21	21 (100%)
16	Law	Public Law		13	13 (100%)
17		Private Law		13	13 (100%)
18	Science	Biology	16	16 (100%)	
19		Chemistry	13	13 (100%)	
20		Physics	19	19 (100%)	
21		Mathematics	28	28 (100%)	
22	Engineering	Mechanical Engineering	15	15 (100%)	
23		Chemical Engineering	22	22 (100%)	
24		Electrical Engineering	24	24 (100%)	
25		Civil & Arch. Engineering	34	34 (100%)	
Total				593	593 (100%)

In order to obtain information and further data to enhance the data collected from the questionnaires directed to academic staff, a series of interviews were carried out with three key subjects relating to EIR and academic staff. These subjects were the University heads of department, the director of the library and his deputy, the head of libraries, and the supervisors of library divisions.

Figure 4.3 shows the selected samples for the two fieldwork stage visits. This includes the first stage three sets of interviews. The first set covered all University heads of department; these numbered 24 in total: 17 males and 7 females. The second set of interviews concerned the director and deputy director of the libraries and both were selected due to the fact that each was responsible for directing one site at the university. The final set of interviews was carried out with three heads of the library divisions and two library division supervisors.

The second stage samples include fourteen head of academic departments and three senior university librarians.

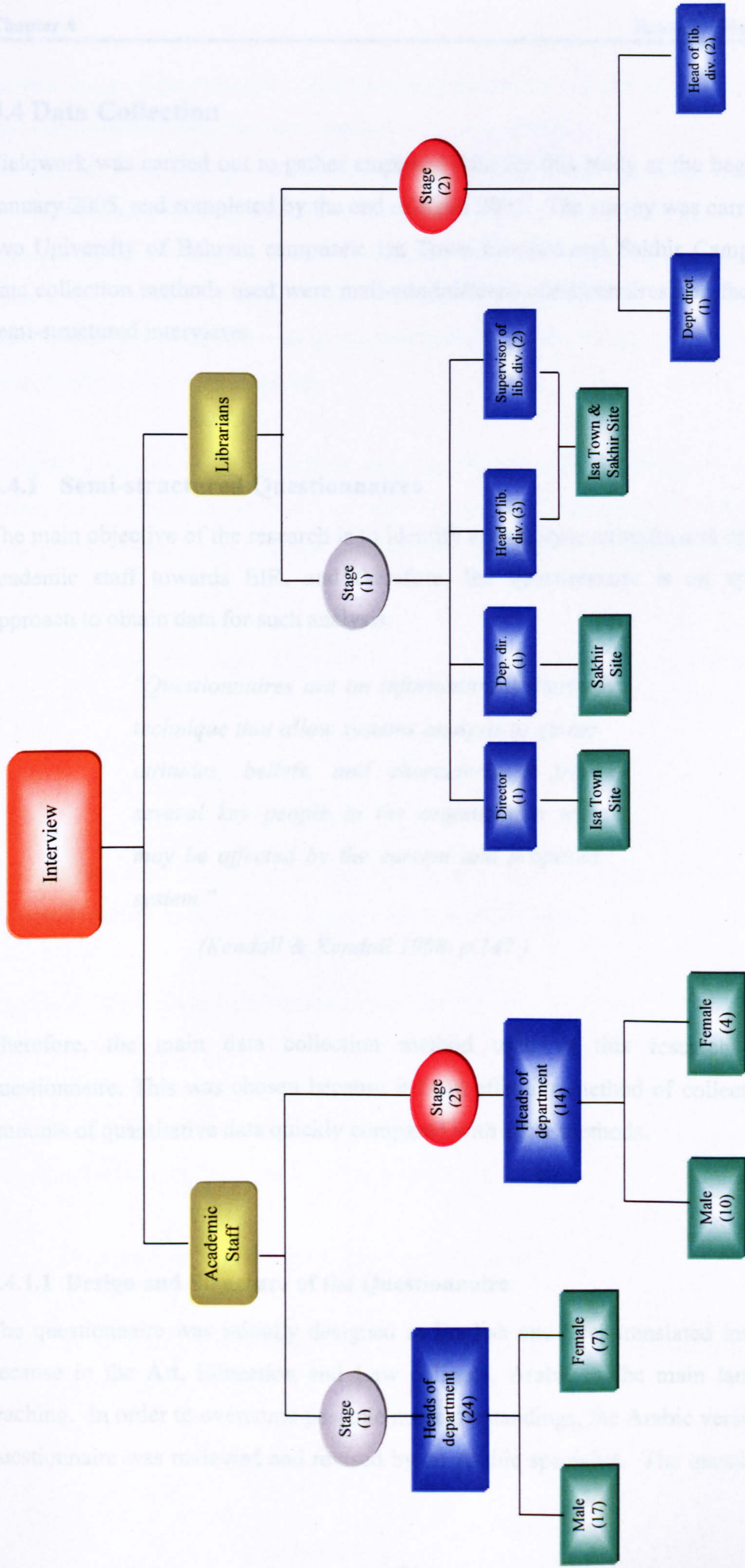


Figure 4.3: Interview sampling

4.4 Data Collection

Fieldwork was carried out to gather empirical data for this study at the beginning of January 2005, and completed by the end of April 2005. The survey was carried out at two University of Bahrain campuses: Isa Town Campus and Sakhir Campus. The data collection methods used were mail-administered questionnaires and face-to-face semi-structured interviews.

4.4.1 Semi-structured Questionnaires

The main objective of the research is to identify and analyse attitudes and opinions of academic staff towards EIR, and therefore, the questionnaire is an appropriate approach to obtain data for such analysis.

"Questionnaires are an information-gathering technique that allow systems analysis to gather attitudes, beliefs, and characteristics from several key people in the organization who may be affected by the current and proposed system."

(Kendall & Kendall 1998, p.147)

Therefore, the main data collection method used in this research was the questionnaire. This was chosen because it is an effective method of collecting large amounts of quantitative data quickly compared with other methods.

4.4.1.1 Design and Structure of the Questionnaire

The questionnaire was initially designed in English and later translated into Arabic because in the Art, Education and Law colleges, Arabic is the main language in teaching. In order to overcome possible misunderstandings, the Arabic version of the questionnaire was reviewed and revised by an Arabic specialist. The questions were

written based on the research's objectives and framework. A part of the questionnaire includes questions modified from previous research studies (Hassan, B. 2002; Basager, M. 2001). Both closed and open questions were used in the questionnaire although the majority of the questions were closed questions where respondents were offered a choice of alternatives including a category which invited them to specify an alternative "other" response. At the end of the questionnaire, one open question was included to give participants the opportunity to offer their own perceptions in their own language.

Roughly a quarter of the questions used an ordinal scale measurement (a 5-point Likert-type scale) as shown in the example below, which examines the competency of respondents in using each category of electronic information resources:

1. Not competent at all
2. Less competent
3. Average
4. Competent
5. Very competent

The questionnaire was designed and structured to consist of the following sections with each section being related to a particular research objective. (see Appendix 2.1)

Section 1: Electronic Information Resources

This was the main section of the questionnaire as these questions were vital to the study's objectives and also helped in identifying the current use, needs and knowledge of Electronic Information Resources. Most of the questions in this section were closed and used a scale of 1 to 5. Examples are given below:

- How often do you use the following for research?

- To what extent do you now use the following electronic information resources in teaching?

- How would you rate the following in term of importance and meeting your research needs?
- How important are the following in helping your students to learn the course content?
- How would you rate your personal knowledge of the following electronic information resources?

The responses to these questions elicited data concerning the use, needs, knowledge and skills of respondents in using Electronic Information Resources in research and in teaching.

Section 2: Searching Skills

This section was designed to address one of the study's objectives concerning the problems faced by academic staff when using and accessing Electronic Information Resources. Some examples are given below:

- Do you find what you need when searching the EIR in teaching and research?
- Have you ever asked for assistance during searching?
- How competent do you consider yourself on the following?

The answers to these questions helped to measure the existing skills of academic staff and to determine the kind of training that could be offered.

Section 3: Training

The questions in this section were meant to identify the type and preferred methods of training received by the respondents, as well as the training programmes in which they were likely to participate. Examples of such questions included:

- Have you received training in any of the Electronic Information Resources?

- What type of training have you received?
- If you have received training in any of the following, how good was the training?
- If you were to participate in training related to Electronic Information Resources which type(s) of training would you prefer?

The answers to these questions helped to identify the academic staffs' training need and their preferred training methods.

Section 4: Personal Record

The questions in this section amassed data concerning the respondents' personal records and examined the following categories: respondents' college, department, gender, age, academic ranking, work experience and qualifications, among others.

4.4.1.2 Distribution Procedure of Questionnaires

Two sets of questionnaires were printed and distributed to two different groups of respondents. One set of questionnaires (written in English) was for academic staff in the colleges of Science, Engineering, IT and Business (see Appendix 2.1). Another set of questionnaires (written in Arabic) was designed for the colleges of Art, Education and Law (see Appendix 2.2).

The researcher delivered the questionnaires in person to the mail office at both campuses and also attempted to obtain the cooperation of all the departments in the two campuses. Arrangements were made with the colleges and/or departments in advance by telephone or personal contact; professional letters were also sent from the researcher's supervisor as well as the Dean of the College of Education (see Appendix 1.1). Once completed, the questionnaires were returned to the secretaries of the respective departments for subsequent mailing to the researcher via the University Mail office.

593 questionnaires in all were distributed to academic staff in twenty-five departments and almost all of these were collected via the University mail with the remainder posted to the researcher at the Department of Information Science, Loughborough University in the UK at a later date by the mail office at Bahrain University. Table 4.2 illustrates the university departments in which the questionnaires were distributed to academic staff.

Table 4.2: Questionnaires distributed and received by the twenty-five departments

No.	DEPARTMENTS	Distributed
1	FOUNDATION & CURRICULUM	21
2	EDUCATIONAL TECHNOLOGY	21
3	PSYCHOLOGY	17
4	PHYSICAL EDUCATION	24
5	ARABIC & ISLAMIC STUDIES	53
6	INFORMATION, TOURISM & ART	25
7	SOCIAL SCIENCE	49
8	FOREIGN LANGUAGE & LITERATURE	60
9	MANAGEMENT & MARKETING	26
10	ACCOUNTING	17
11	ECONOMICS & FINANCE	15
12	OFFICE MANAGEMENT	11
13	COMPUTER SCIENCE	28
14	COMPUTER ENGINEERING	8
15	MANAGEMENT INFORMATION SYSTEMS	21
16	PUBLIC LAW	13
17	PRIVATE LAW	13
18	BIOLOGY	16
19	CHEMISTRY	13
20	PHYSICS	19
21	MATHEMATICS	28
22	MECHANICAL ENGINEERING	15
23	CHEMICAL ENGINEERING	22
24	ELECTRICAL ENGINEERING	24
25	CIVIL & ARCH. ENGINEERING	34
TOTAL		593

4.4.2 Interviews

Interviews were used as a tool to collect qualitative data and information from the interviewees' to explore use and need for electronic information resources in teaching and research, and of their training needs; these data were intended to supplement those gained through the questionnaire survey. Hakim (1997) notes the importance of the qualitative data to complement the quantitative data.

"The qualitative study is often carried out before the survey as an exploratory first step that paves the way as well as offering a greater depth of information to complement the quantitative survey results. Alternatively, the qualitative study may be carried out after the main survey, which can then provide a rich sampling frame for selecting particular types of respondent for depth interviews. This type of linkage greatly extends the survey results, and it may be possible to set the qualitative results in a statistical context by directly linking the two sets of data."

(Hakim 1997, p.32)

These interviews, with heads of academic departments and senior librarians, were semi-structured and were conducted face-to-face (see Appendix 3.1, 3.3 and 3.5) in order to gather qualitative data. These data were intended, as mentioned above, to supplement the data collected via the questionnaire survey.

One of the advantages of the interview method is that it allows for superior flexibility to explore research issues, academic uses, knowledge and skills, during the interview. This means that the interviewer can ensure that the interviewees answer the questions in a suitable sequence or order. The interviewer here has the opportunity to probe

(Nachmias & Nachmias 2000, p.221). Peil *et al.* (1982, p.141) examined the idea of probing in more detail:

"It is needed whenever an answer is incomplete, vague, irrelevant, inconsistent, or otherwise inadequate. The basic problem in probing is deciding what went wrong, so that the probe can set it right."

(Peil et al. 1982, p.141).

The other advantage of the method interview is that it allows the interviewer to have greater control of the interview situation. An interviewer can ensure that the respondents answer the questions in the order and the sequence set in advance by the interviewer. Moreover, in an interview situation, the interviewer can guarantee that the interview questions have been answered by the potential respondents and not by anyone else. With such a technique, the interviewer can also take notes of detailed information which might be of significance, such as the exact time and the place of the interview, depending on the nature of the research (Bailey 1994, p.174).

A major disadvantage of the interview is that it costs more than a mail questionnaire. Expense must be allocated for the time spent in setting up the sample population and the time spent in making contact with the participants and interviewing them. Moreover, if the survey is to cover a large geographical area the interviewer has to arrange for more people to help him/her, in addition to the funds which are needed for their training, transportation and accommodation (Nachmias & Nachmias 2000, p.219). These disadvantages were not a major issue in this research due to the fact that the university campuses are close to each other and therefore there is no serious cost involved.

The interviews were carried out after the questionnaire survey. The researcher conducted semi-structured interviews (face-to-face) with two types of respondent: 24 heads of academic departments; and seven senior librarians, (a director and his deputy; three heads of library services divisions; and two supervisors of library services). The interviews were carried out in the interviewees' offices. During the interviews, the languages used were English and Arabic, with sometimes a mixture of

both languages. The reason for using both languages was to allow both the interviewer and the interviewees the freedom to express and describe the points or issues in a clear manner.

4.4.2.1 The Design and Structure of the Interviews

Three sets of interviews were designed for:

1. Heads of academic departments;
2. A library director and deputy director; and
3. Heads and supervisors of library service divisions.

The three sets of interviews outlined above had the same design and sections. The sections were selected to reflect the research's main objectives and to provide information to enhance the data from the questionnaires and document analysis. The interview was divided into five sections, each of which grouped together related questions (see Appendix 3.1, 3.3 and 3.5). The first section centred on the availability of EIR; the second section focused on the use of and need for EIR; Section Three focused on the knowledge and skills of the academic staff; Section Four focused on training; and the fifth section was concerned with future trends; a final question allowed the interviewee to raise any issues that related to EIR.

The first interview for the Head of Department contained nine questions while the interview designed for the library director and the deputy contained sixteen; there were also fourteen questions for the heads of library services.

4.4.2.2 Interview Procedure

All interviewees were first assured that all the responses would be strictly confidential. Then, after permission was granted, the interviews were tape-recorded. Tape-recording the interviews allowed the researcher to concentrate completely on the questions and the answers that were given (Moore 2006, p.149). The interview lasted between 45 minutes and an hour. At the end of each interview, the researcher thanked each respondent for his/her cooperation, in addition, a letter of appreciation was also sent to each participant (see Appendix 1).

The following procedure was adopted:

- The aims of the study and the purpose of the interview were explained at the beginning.
- Specific information was required from the interviewee. In this case, the information concerned the uses, skills, knowledge and training from the experience and points of view of the academic staff interviewees.
- In the event that the interviewee misunderstood the question, the researcher asked another question to clarify.
- The researcher, where necessary, investigated the accuracy of the answers given by the subjects.

In order for the interview to be effective, the researcher:

- Specified the time of the interview and stated how long it would last: 45 min. to 1 hour.
- Prepared a detailed plan of the interview, including a list of questions accompanied with a briefing about the purpose of the study for the subject.
- Chose the wording of the questions carefully.

4.4.3 Document Analysis

A documents analysis is an important way of collecting information so this research study analysed various documents (both official and non-official) in order to elicit further data with a view to enhancing the information that was collected using the other two tools, the questionnaires and the interviews. Thus, the document analysis constitutes the third aspect of the research's triangulation that will ensure that the data that have been collected are highly reliable.

Various documents, including official, non-official and regional documents, were first screened to establish if any related sources of information existed which could support the research. However, as this research study is the first of its kind in the Kingdom of Bahrain, a very limited number of documents were available.

4.4.3.1 Types of Document Analysed

The documents analysed in this research are briefly described below:

4.4.3.1.1 Annual Reports

Annual reports are an important source of information and those listed below illustrate what has been achieved during the past year, as well as outlining what plans have been made for the forthcoming year. The main problem with these annual reports is that they contain very little information on Electronic Information Resources (EIR).

The annual reports screened in this research were:

1. University of Bahrain Statistical Year Book, 2005
2. University of Bahrain Catalogue, 2005
3. College of Engineering Bulletin, 2003-2004
4. University Library Annual Report, 2005
5. AGU Catalogue, 1999
6. CHS Catalogue, 2004
7. Ministry of Information Annual Report, 1982
8. Ministry of Education Annual Report, 2002.
9. Alayam National Daily Newspaper, 2005

4.4.3.1.2 Organisational Charts

Bahrain University's organisational charts provided information regarding the organisation's structures and the responsibilities of employees. They also furnished statistics on the number of staff and the number of departments. (See Figure 3.1 in Chapter 3)

4.4.3.1.3 National Documents

National documents, including documents from the Ministry of Labour, the Ministry of Education and the Ministry of Information, were also examined in order to identify any material related to EIRs and information technologies.

4.5 Reliability and Validity

4.5.1 Reliability

Before analysing the data, reliability testing was conducted. Carmines and Zeller (1979, p.11) defined reliability as the “extent to which an experiment, test, or any measuring procedure yields the same results on repeated trials”. Reliability also refers to the purity and consistency of a measure (Oppenheim 1992, p.144). The approach used in this research was to measure the internal consistency of the data which is an appropriate method for scales with Likert type answers. Internal consistency was then measured using SPSS by calculating Cronbach's coefficient alpha, which is a statistic that “reflects the homogeneity of the scale” (Litwin 1995, p.24). Straub (1989, p. 151) noted that “high correlations between alternative measures or large Cronbach alphas are usually signs that the measures are reliable”.

It was found that the overall consistency reliability for the questionnaire was 0.86. This represents an acceptable reliability according to Sekaran (2003, p. 311) and (Litwin 1995, p.31). In other words, levels of 0.70 or more are accepted as representing good reliability.

4.5.2 Validity

Validity is “the degree that a particular indicator measures what it is supposed to measure rather than reflecting some other phenomenon” (Carmines & Zeller 1979, p.16). Validity is needed to ensure that the measured data reflect what they set out to measure (Oppenheim 1992, p. 160).

Content validity was used as a validation tool. Content validity refers to:

"The adequacy with which a measure or scale has sampled from the intended universe or domain of content."

(Pallant 2005, p. 6)

In other words, content validity depends on the "extent to which an empirical measurement reflects a specific domain of content" (Carmines & Zeller 1979, p.20). Content validity was achieved by using a pilot study, details of which are discussed in the next section. The questionnaire was distributed to twenty-two subjects from different samples.

4.6 Pilot Study

4.6.1 Pre-test Questionnaires

Before any questionnaire can be said to be effective as a data-gathering tool, it must be tested. Oppenheim (1992, p.47) stated that :

" Questionnaires do not emerge fully-fledged; they have to be created or adapted, fashioned and developed to maturity after many abortive test flights. In fact, every aspect of a survey has to be tried out beforehand to make sure that it works as intended."

Pre-testing is important in this type of research to establish the suitability of the questions and to explore any hidden problems that may face the main survey (Moser & Kalton 1985, pp. 50-51). Pilot testing allows authors the "time and opportunity to redesign problematic parts of the survey before it is actually used" (Litwin 1995, p.60).

Dillman (1978, pp.156-157) added that questionnaires should be pre-tested by different groups, including colleagues and potential respondents. In addition, it is better to pilot the survey on a group similar to the one that forms the population of the study (Bell 2005, p.147).

Therefore, two pilot studies were carried out in December 2004. The first was launched at Loughborough University in the UK and ten subjects were selected to participate. They were all Ph.D. students of the University, four of whom were from

the Gulf Countries. The second pilot was carried out with twelve academic staff members from various departments in the University of Bahrain. This was necessary as these respondents represented the research population. In this pilot the respondents were asked for their comments on the length, clarity and ease with which the questionnaire could be completed. Generally, there were no major comments about the pilot questionnaire except for minor recommendations concerning the wording of the questions and the layout of the questionnaire. For example, question number 9 was changed from “What barriers influence your use of Electronic Information Resources?” to “What limits your use of Electronic Information Resources?” Comments derived from the pilot study were incorporated into the final draft of the questionnaire. After these changes were carried out, the questionnaire was ready for the main study.

The data collected from the pilot study were analysed using SPSS to establish that the outcomes of the analysis reflected what was aimed at, to establish validity. The analysis shows that the outcomes were well within what was expected from the questionnaire.

4.6.2 Pre-test Interviews

Pre-testing interviews is aimed at examining what will happen when the interviews with the respondents actually take place. The procedure used in pre-testing the interviews was based on the same procedure used for the real interviews, as explained earlier.

In order to pre-test the interviews, three randomly selected academic staff members and one librarian at Bahrain University were interviewed. The researcher met with them and explained the purpose of the pilot study.

The interviews took place separately in the academic staff office of each, with each interview lasting between 45 minutes and 1 hour. Following the pre-testing, minor recommendations concerning the wording were established to avoid ambiguities and a lack of clarity. In addition, more probing questions were inserted in the schedule after

the pilot. For example, probing questions such as "why", "how" and "for what" were added to the schedule after the pilot.

4.7 Data Collection Processing and Analysis

4.7.1 Data Processing

This section presents and discusses the processes used in recording, cleaning and screening the collected data, together with the processes used in analysing the data.

4.7.1.1 Data Input and Recording

Two processes were used to record data from the collected questionnaires. The first process was to mark the responses for each question in the box located on the right hand side of the questionnaire while the second process was to enter the marked responses onto the SPSS, using the input menu.

Qualitative comments on the questionnaires were recorded separately. This was achieved by using the same identification number as that found on the questionnaire. Interview responses with heads of academic departments, the library director and the deputy director, and with heads of library service divisions, were recorded and transcribed.

4.7.1.2 Screening and Cleaning the Data

It is essential, before starting the analysis, to check the data that has been collected and entered into the Statistical Package for the Social Sciences (SPSS) to identify any errors that might have occurred during coding or from the questionnaire responses. Pallant (2005, p.40) emphasised the importance of this checking and suggested screening and cleaning processes that could be used to discover any errors.

There are a number of different ways to check for errors using SPSS (Pallant 2005, p.41). One way was to calculate the descriptive statistics of all the data variables: e.g. the frequencies, range, and maximum and minimum values. This is needed to identify any values that fall outside the range of the possible values of the questions. Any

identified values that are outside the range or do not make sense were checked by examining the questionnaire responses and correcting accordingly.

4.7.2 Data Analysis Methods

4.7.2.1 Quantitative Data Analysis

Non-parametric statistical techniques are the most appropriate to use in this research as the collected data are measured on nominal and ordinal scales (Pallant 2005, p.286; Bailey 1994, p.389).

SPSS was used to analyse the quantitative data collected from the questionnaires and the following table summarises the relevant statistical tests used in the study. See Table 4.3.

Table 4.3: Summarises of the relevant statistical test used in the study

Purpose	Test
Frequencies and Percentage	Descriptive Statistics
Comparing groups on nominal scale (Compare the responses of academic staff)	Chi-square
Comparing between two groups on ordinal scale (Male & Female)	Mann-Whitney <i>U</i>-test
Comparing groups more than two (Compare the University Colleges)	Kruskal-Wallis
To explore the relationships between two nominal variables (Correlation)	Cross-tabulation
To explore the relationships between two ordinal variables (Correlation)	Spearman's (rho)
To discover the strength of associations between two nominal variables.	Cramer's <i>V</i>

Figures 4.4 and 4.5 illustrate graphically the statistical techniques that have been used in this research for making comparisons and correlations between variables. The marked paths represent the techniques used by the researcher in this study.

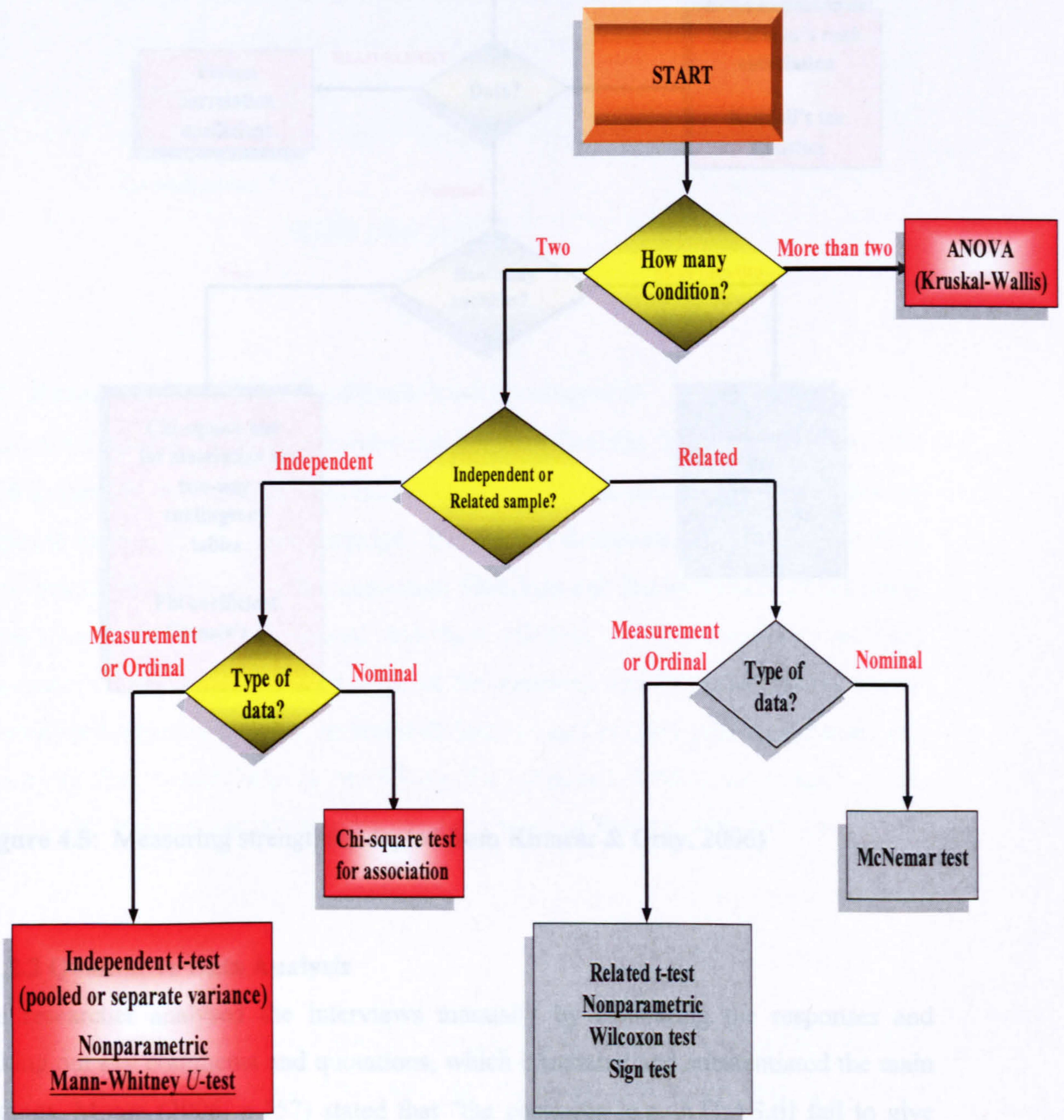


Figure 4.4: Tests used for comparisons and correlations between variables (adapted from Kinnear & Gray, 2006)

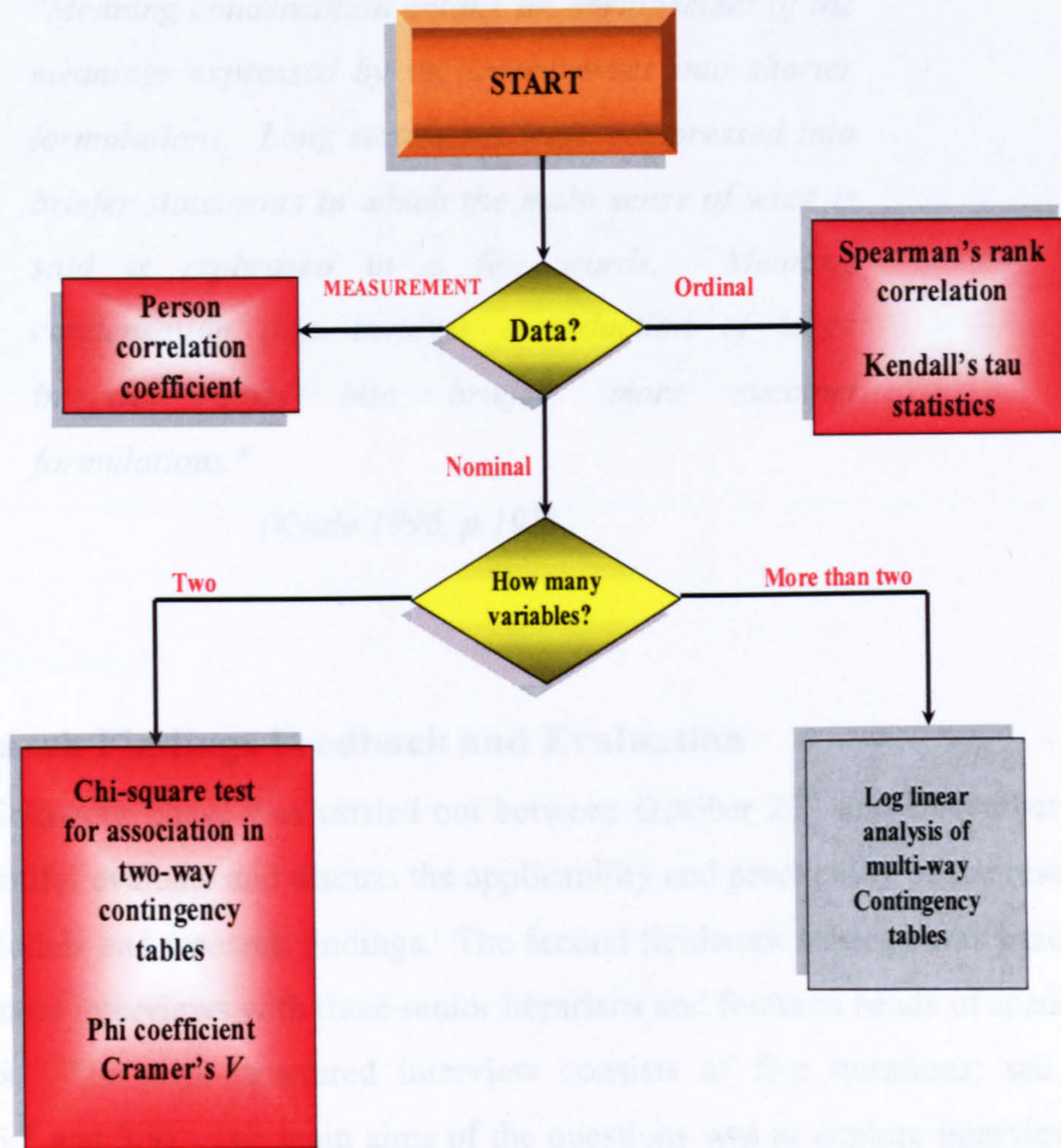


Figure 4.5: Measuring strengths (adapted from Kinnear & Gray, 2006)

4.7.2.2 Qualitative Data Analysis

The researcher analysed the interviews manually by evaluating the responses and picking out key comments and quotations, which illustrated and substantiated the main findings. Moore (2006, p.157) stated that "the packages [e.g. ATLAS.ti] fail to give them (people who come from a qualitative background) the intimate familiarity with the data that is so important in qualitative research". This process started with the interviews being transcribed and then the central theme was identified using Kvale's 'meaning condensation' approach described below:

"Meaning condensation entails an abridgement of the meanings expressed by the interviewees into shorter formulations. Long statements were compressed into briefer statements in which the main sense of what is said is rephrased in a few words. Meaning condensation thus involves a reduction of large interview texts into briefer, more succinct formulations."

(Kvale 1996, p.192)

4.8 Research Findings Feedback and Evaluation

A second fieldwork phase was carried out between October 20th and December 10th 2006 to identify, evaluate and discuss the applicability and practicality of the research proposed models and research findings. The second fieldwork strategy was based on semi-structured interviews with three senior librarians and fourteen heads of academic departments. The semi-structured interview consists of five questions; see (see Appendix 3.7 and 3.9). The main aims of the questions was to explore interviewees' opinions and attitudes towards the research findings and identify their suggestions and comments that would help in modifying the proposed models to make it more practical for its implementation within the University of Bahrain strategic plan.

4.9 Summary

This chapter has outlined the research's design, the methods that have been used to gather the study's empirical data, and the statistical techniques that have been employed to analyse these data. The next chapter discusses the analysis of the data elicited from the questionnaire survey.

CHAPTER FIVE

QUESTIONNAIRE ANALYSIS

5.1 Introduction

This chapter presents and analyses the fieldwork data. This includes analysing the use, needs, knowledge, skills, awareness and existing training of academic staff. The outcomes of this chapter are used in conjunction with the outcomes of the literature survey and the interview analysis to provide a framework for the research discussions. The Statistical Package for the Social Sciences (SPSS) was used to code and analyse the questionnaires.

The chapter divided into the following main sections:

- Section 1:** This section presents the demographic characteristics of the respondents in terms of their college, department, gender, age, academic ranking, academic qualifications and their number of years in service.
- Section 2:** This section presents the use and needs of academic staff regarding EIR.
- Section 3:** This section presents the awareness of academic staff of EIR.
- Section 4:** This section presents the knowledge and ability (skills) of academic staff in terms of EIR.
- Section 5:** This section presents the barriers and obstacles hindering the use of EIR.

Section 6: This section presents the publicity concerning EIR.

Section 7: This section presents the training in Electronic Information Resources.

Section 8: This section explores the relationships between certain variables.

5.2 Demographic Characteristics

5.2.1 Respondents by College

Table 5.1 illustrates the distribution of the responses from the academic staff in the seven selected colleges at the University of Bahrain. The distribution of academic staff respondents showed that 89.1% (74) from the Education College responded, 58.2% (109) from the College of Arts, 89.8% (62) from the Business College, 87.7% (50) from the IT College, 84.6% (22) from the Law College, 88.1% (67) from the Science College, and 86.3% (82) from the Engineering College. The response from the seven colleges was encouraging, as the respondents were quite willing to participate in this survey. This was probably due to the fact that the topic of this study appealed to them.

Table 5.1: The breakdown of responses by college

COLLEGES	SENT N	RECEIVED N	PERCENTAGE %
EDUCATION	83	74	89.1
ARTS	187	109	58.2
BUSINESS	69	62	89.8
IT	57	50	87.7
LAW	26	22	84.6
SCIENCE	76	67	88.1
ENGINEERING	95	82	86.3
TOTAL	593	466	78.5%

5.2.2 Respondents by Department

The questionnaires were distributed to 593 academic staff, from these, 466 questionnaires were returned, giving a response rate of 78.5% (466); this is satisfactory for data analysis. Table 5.2 shows the breakdown of respondents by department.

The response rate was an excellent, see Table 5.1 and Table 5.2. The excellent academic staff responses can be explained partly by to the good relations between the researcher and academic and non-academic staff including the administration staff and academic staff. Finally important a careful process was used to distribute and connect the questionnaires. This required patience, spending a lot of time in the fieldwork a lot of effort, choice of appropriate date, day and time in distributing the questionnaire.

Table 5.2: The breakdown of responses by departments

DEPARTMENTS	SENT	RECEIVED	PERCENTAGE (%)
FOUNDATION & CURRICULUM	21	19	90.4
EDUCATIONAL TECNOLOGY	21	19	90.4
PSYCHOLOGY	17	15	88.2
PHYSICAL EDUCATION	24	21	87.5
ARABIC & ISLAMIC STUDIES	53	46	86.7
INFORMATION, TOURISM & ART	25	22	88
SOCIAL SCIENCE	49	41	83.6
FOREIGN LANGUAGES & LITERATURE	60	0	0
MANAGEMENT & MARKETING	26	23	88.4
ACCOUNTING	17	15	88.2
ECONOMICS & FINANCE	15	13	86.6
OFFICE MANAGEMENT	11	11	100
COMPUTER SCIENCE	28	25	89.2
COMPUTER ENGINEERING	8	7	87.5
MANAGEMENT INFORMATION SYSTEMS	21	18	85.7
PUBLIC LAW	13	10	76.9
PRIVATE LAW	13	12	92.3
BIOLOGY	16	13	81.2
CHEMISTRY	13	13	100
PHYSICS	19	16	84.2
MATHEMATICS	28	25	89.2
MECHANICAL ENGINEERING	15	13	86.6
CHEMICAL ENGINEERING	22	19	86.3
ELECTRICAL ENGINEERING	24	20	83.3
CIVIL & ARCH. ENGINEERING	34	30	88.2
TOTAL	593	466	78.5%

5.2.3 Respondents by Gender

Table 5.3 shows the distribution of academic staff by gender. From the table, it can be seen that 67.9% were male and 32.1% were female. This result clearly shows that

there were more male than female academic staff members. This is not unexpected especially within a society like that of the University.

A further look at Table 5.3 shows that the Education College has 63.5% male and 36.5% female members; the College of Arts has 66.9% male and 33.1% female members; the Business College has 54.8% male and 45.2% female members; the IT College has 72% male and 28% female members and the College of Law has 90.9% male and 9.1% female members. In addition, 65.6% of staff in the Science College were male and 34.4% were female; while 74.4% were male and 25.6% were female in the College of Engineering. This reflects the general breakdown of the gender of academic staff in universities in Bahrain since, according to statistics from the Ministry of Labour (Ministry of Labour 2001), 74% of academic staff were male and 26% female. Such differences were confirmed using the cross-tabulation chi-square value ($\chi^2 = 22.48$, $df = 1$, $p = .000$); this suggests that there is a significant difference in the gender composition between academic staff departments at a .001 level of significance.

Table 5.3: Distribution of respondents by gender

COLLEGES	Gender			
	Male		Female	
	N	%	N	%
College of Education	47	63.5	27	36.5
College of Arts	73	66.9	36	33.1
College of Business	34	54.8	28	45.2
College of IT	36	72	14	28
College of Law	20	90.9	2	9.1
College of Science	44	65.6	23	34.4
College of Engineering	61	74.4	21	25.6
TOTAL	315	67.6%	151	32.4%

5.2.4 Respondents by Age

Table 5.4, which offers a summary of the distribution of respondents by age, shows that 27.2% of the respondents were aged over 50, 39.7% were between 41 and 50, and the largest group (65.2%) consisted of staff aged between 31 and 40. This illustrates that 92.4% of the respondents were aged between 31 and 50. This is understandable because this group consisted mainly of senior staff members, ranging from professors to assistant professors. This result is also presented graphically in Figure 5.1.

Table 5.4: Distribution of academic staff by age

Academic Staff Ranking	AGE					TOTAL	
	Under 25	25-30	31-40	41-50	Over 50	N	%
	N	N	N	N	N		
Professor	0	0	1	5	42	48	10.3
Associate Professor	0	0	0	59	39	98	21
Assistant Professor	0	0	98	99	27	224	48.3
Senior Lecturer	0	0	5	8	11	24	5.1
Lecturer	0	3	7	13	8	31	6.6
Assist. Res. & Teach	5	27	8	1	0	41	8.7

Around half of the academic staff (about 48.3%) were assistant professors, 21% held the position of associate professor, 10.3% were professors, 8.7% were teaching and research assistants, 6.6% were lecturers, and 5.1% were senior lecturers. The distribution of academic staff by position at the University of Bahrain is shown in Figure 5.2 and it can be seen that more than a quarter of the population are assistant professors.

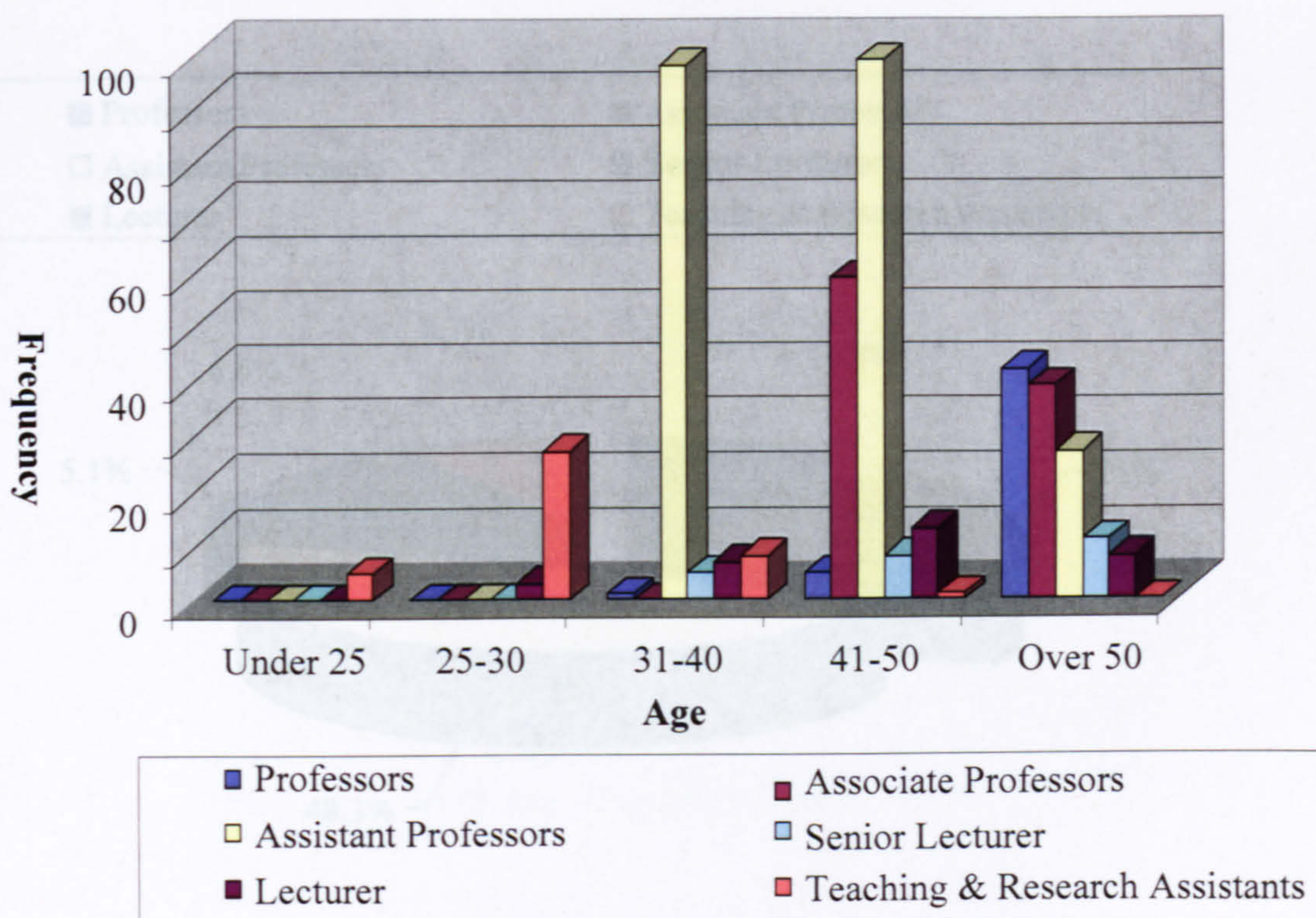


Figure 5.1: Distribution of academic staff by age

Figure 5.2: Distribution of academic staff ranking

5.2.5 Respondents by Academic Ranking

Before the qualifications of academic staff are considered, it is important to note that the ranking of qualifications in universities in Bahrain is different from that in UK universities. In Bahrain, professors head the academic hierarchy; these are followed by associate professors, assistant professors, senior lecturers, lecturers and then teaching and research assistants.

Table 5.2: Respondents by academic qualifications

Around half of the academic staff (about 48.3%) were assistant professors, 21% held the position of associate professor, 10.3% were professors, 8.7% were teaching and research assistants, 6.6% were lecturers, and 5.1% were senior lecturers. The distribution of academic staff by position at the University of Bahrain is shown in Figure 5.2 and it can be seen that about half of the population are assistant professors.

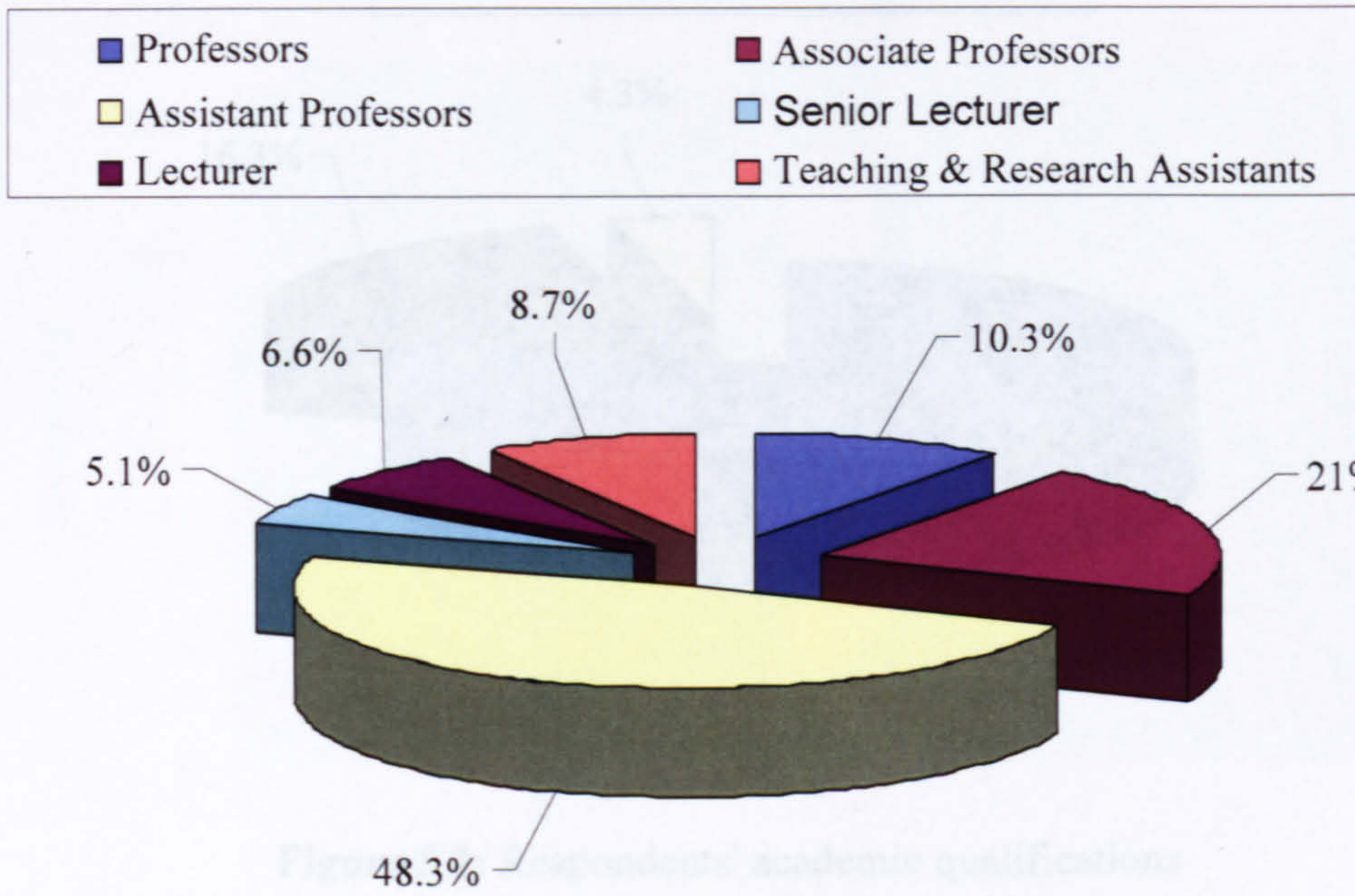


Figure 5.2: Distribution of academic staff ranking

5.2.6 Respondents by Academic Qualification

As shown in the table (Table 5.5) concerning academic qualifications below, 79.4% of the academic staff from the seven colleges at the University of Bahrain hold Ph.D. degrees, 16.3% have Masters degrees and 4.3% hold Bachelors degrees.

Table 5.5: Respondents' academic qualifications

Academic Qualification	N	%
Ph.D.	370	79.4
Master	76	16.3
Bachelor	20	4.3
Total	466	100

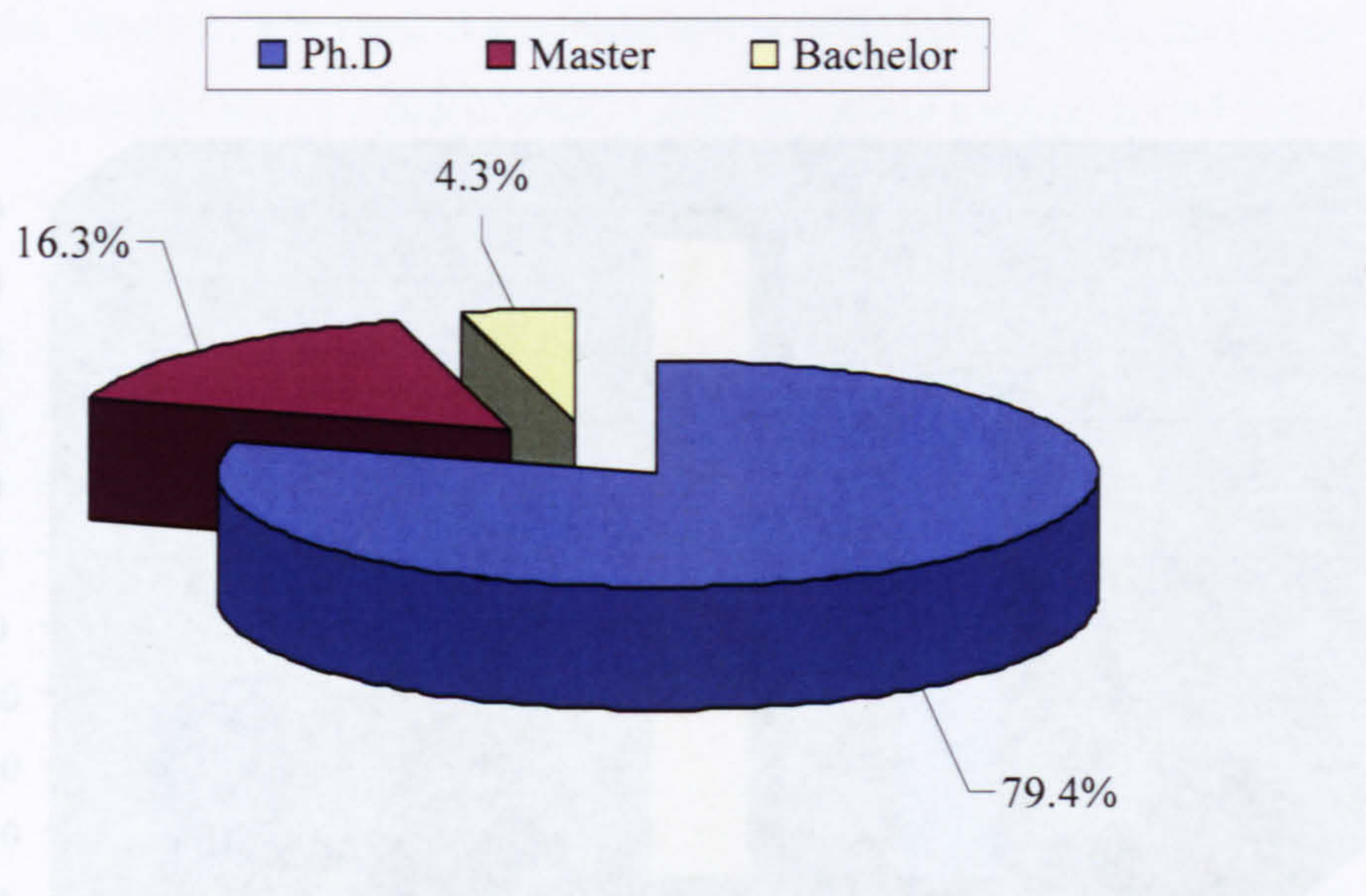


Figure 5.3: Respondents' academic qualifications

5.2.7 Respondents by Number of Years in Service

Regarding length of service (see Table 5.6 and Figure 5.4), almost half (39.9%) of the academic staff had between 11-20 years of experience, about a third (30.2%) had between 21-30 years, about tenth of the respondents (12.8%) had between 6-10 years of experience while a similar number (11.1%) had between 1-5 years work experience. Finally, 6% had between 31-40 years of experience. It can be said that the majority (70.1%) of the academic staff had between 11-30 years of work experience. This corresponds to the age profile of the respondents.

Table 5.6: Distribution of respondents by number of years in service

Number of Years in Service	N	%
1-5	52	11.1
6-10	60	12.8
11-20	186	39.9
21-30	140	30.2
31-40	28	6

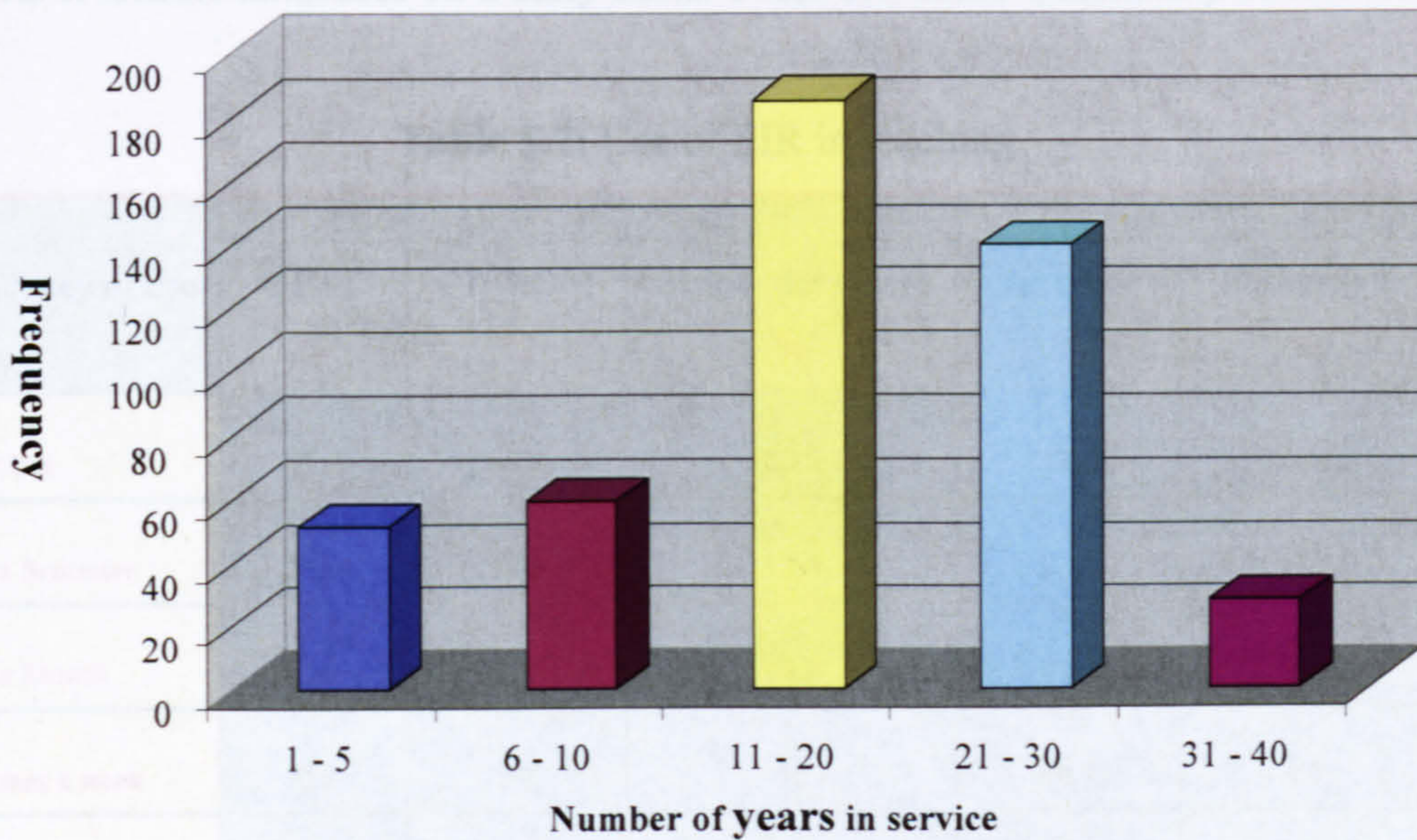


Figure 5.4: Distribution of academic staff by number of years in service

5.3 Academic Staff Use of and Need for EIR

5.3.1 Use of EIR in Teaching

Respondents were asked to indicate their use of Electronic Information Resources in teaching. The results show that most of the respondents (67.9%) never used OPAC, 64.4% never used CD-ROMs, 65.3% never used Online databases, 17.6% never used the Internet, and 65.4% never used E-journals. On the other hand, of those that used these resources once a semester, 21.9% used OPAC, 18.5% CD-ROM, 13.4% Online databases, 27.1% the Internet and 17.8% used E-journals. Those that used these resources once a month numbered: 7.4% OPAC, 8.1% CD-ROM, 11.3% Online databases, 13.8% the Internet and 8.1% E-journals while the figures for those that used it about two to three times a week were: 2.9% OPAC, 5.7% CD-ROM, 10% Online databases, 18.1% the Internet and 4.7% E-journals. The last group covers those respondents who used these resources on a daily basis and the study found that

23.3% used the Internet, 4% used E-journals, 2.9% used CD-ROMs, and none used OPAC or Online databases on a daily basis. Table 5.7 offers a summary of this result.

Table 5.7: Use of EIR in teaching

Frequency of use	OPAC %	CD-ROM %	Online databases %	Internet %	E-Journals %
Never Use	67.9	64.4	65.3	17.6	65.4
Once a Semester	21.9	18.5	13.4	27.1	17.8
Once a Month	7.4	8.1	11.3	13.8	8.1
2/3 Times a week	2.9	5.7	10	18.1	4.7
Daily	0	2.9	0	23.3	4

Table 5.7 shows that, on average, the Internet is the most highly used resource in teaching, particularly on a daily basis, and that it is used more than any other electronic resource. The table also shows that a large proportion of staff members never use these resources in teaching.

used OPAC, 42.8% never used CD-ROMs, 40.7% never used Online Databases, and 41.7% never used E-journals for the purpose of research.

5.3.2 Use of EIR in Research

When respondents were asked about their usage of Electronic Information Resources in research, the results of the survey show the following percentages of people who said that they never used these resources: 55.6% OPAC, 42.8% CD-ROM, 40.7% Online databases, 5% the Internet, and 41.7% E-journals. Those that used these resources once a semester totalled: 21.1% OPAC, 32.8% CD-ROM, 30.3% Online databases, 5.9% the Internet, and 29.2% E-journals while the breakdown of those who used it once a month was: 14.5% OPAC, 16.6% CD-ROM, 18.2% Online databases, 14.7% the Internet, and 17.3% E-journals. The fourth group, those that used these resources about twice or three times a week, numbered: 7.4% OPAC, 5.2% CD-ROM, 7.4% Online databases, 29.5% the Internet, and 6.4% E-journals. The last group consisted of those who used these resources on a daily basis. The distribution

of this group was: 1.4% OPAC, 2.6% CD-ROM, 3.4% Online databases, 44.9% the Internet, and 5.4% E-journals. Table 5.8 below presents a summary of these results.

Table 5.8: Use of EIR in research

Frequency of use	OPAC %	CD-ROM %	Online databases %	Internet %	E-journals %
Never Use	55.6	42.8	40.7	5.0	41.7
Once a Semester	21.1	32.8	30.3	5.9	29.2
Once a Month	14.5	16.6	18.2	14.7	17.3
2/3 Times a week	7.4	5.2	7.4	29.5	6.4
Daily	1.4	2.6	3.4	44.9	5.4

As can be seen from Table 5.8, the Internet is again the resource that is most highly used compared to the other resources; about 50% of the respondents used it for research on a daily basis. Nonetheless, again, a large proportion of academic staff do not use these resources for research purposes and the results showed that 55.6% never used OPAC, 42.8% never used CD-ROMs, 40.7% never used Online databases, and 41.7% never used E-journals for the purpose of research.

5.3.3 Demographic Characteristics of the Respondents

5.3.3.1 Use of EIR by Age

Table 5.9 shows the distribution of academic staff that never used EIR in teaching, according to their age. It seems that age is an important factor in using EIR. It shows that a high percentage of the academic staff that never used EIR are those aged 40 years and above. This may possibly be due to their educational background and resistance to change. This is closely followed by those aged below 25 years. This may possibly be due to lack of experience, training and education background.

Table 5.9: The percentage who 'never used' eir by academic staff age

Age	Never Used EIR (%)
Under 25	68.3
25-30	53.2
31-40	58.9
41-50	67.4
Over 50	69.0

5.3.3.4 Use of EIR by Academic Discipline (College)

5.3.3.2 Use of EIR by Gender

The study attempted to discover whether males and females differed in their usage of OPAC, CD-ROMs, Online databases, the Internet and E-journals for teaching and research. The results show that males (56.3%) used EIR more frequently than females (32.5%). (See Table 5.10.)

Table 5.10: The percentage who 'never used' EIR by gender

Gender	Never Used EIR (%)
Male	43.7
Female	67.5

5.3.3.3 Use of EIR by Academic Ranking

The results of the survey showed that the higher the qualifications, the less academic staff used EIR. This means that professors used EIR less than others as 64.3% said they never used them while 61.7% of associate professors, 60.1% of assistant professors, 47.5% of senior lecturers, 40.3% of lecturers and 40.1% of teaching and research assistants said that they never used EIR. This result is shown in Table 5.11.

Table 5.11: The percentage who 'never used' EIR
by academic ranking

Academic Staff Ranking	Never Used EIR (%)
Professor	64.3
Associate Prof.	61.7
Assistant Prof.	60.1
Senior Lecturer	47.5
Lecturer	40.3
Teach. & Research Assist.	40.1

5.3.3.4 Use of EIR by Academic Discipline (Colleges)

As can be seen in Table 5.12, there is a low usage of EIR in teaching and research among the staff of the University colleges. The majority of academic staff in the Humanities colleges did not use EIR in teaching or for research, while this figure was 80% in the College of Law. The percentages of staff who never used EIR in the remaining colleges are as follows: College of Education: 69%; College of Art: 75%; College of Science: 53%; College of Engineering: 51%; College of Business: 47%; and College of IT: 45%.

Table 5.12: The percentage of academic staff who
never used EIR in each college

Colleges	Never Used EIR (%)
Education	69
Art	75
Business	47
IT	45
Law	80
Science	53
Engineering	51

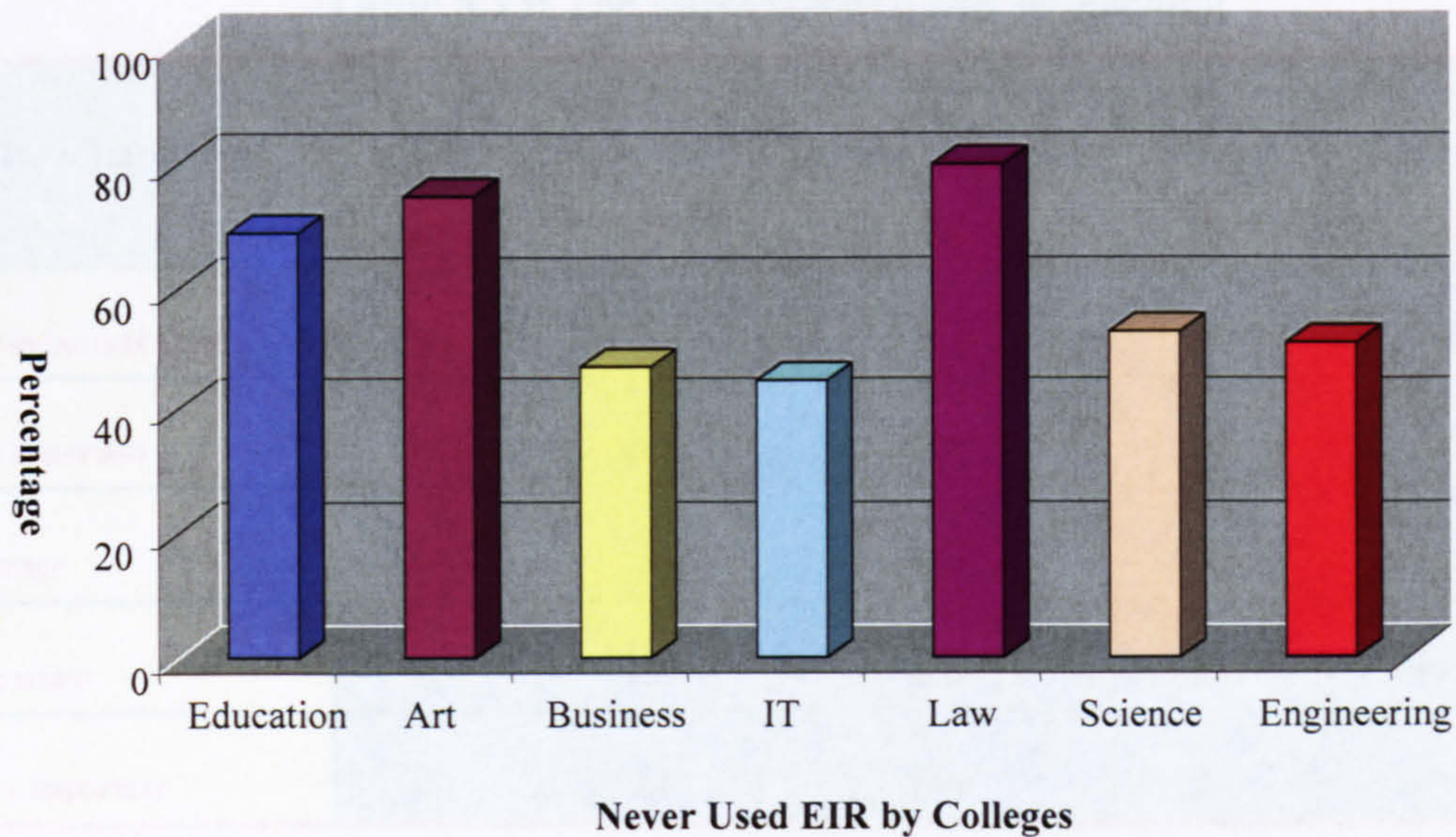


Figure 5.5: The percentage of academic staff who never used EIR in each college

5.3.4 The Importance of EIR in Teaching and Research

Respondents were asked how important they felt Electronic Information Resources were in aiding their teaching. The following statistics show the distribution of those who said the resources listed below are not at all important: 31.4% cited OPAC, 29.2% CD-ROMs, 7.4% Online databases, 23% the Internet and 15.9% E-journals. Those who said these resources were not important: 31.6% OPAC, 26.6% CD-ROMs, 10.7% Online databases, 27.3% the Internet and 33.5% E-journals. In addition, those who stated they were of average importance were: 26.4% OPAC, 23% CD-ROMs, 21.9% Online databases, 25.9% the Internet and 22.3% E-journals. While those who said these resources were important to them numbered: 8.3% OPAC, 18.1% CD-ROMs, 29% Online databases, 15.9% the Internet and 15.7% E-journals. The last group said that these resources were very important and the percentages for this group were as follows: 2.4% OPAC, 3.1% CD-ROMs, 31.1% Online databases, 7.8% the Internet and 12.6% E-journals. Table 5.13 presents a summary of this result.

Table 5.13: The importance of EIR in teaching

How Important	OPAC %	CD-ROM %	Online databases %	Internet %	E-journals %
Not important at all	31.4	29.2	7.4	23.0	15.9
Not important	31.6	26.6	10.7	27.3	33.5
Average	26.4	23.0	21.9	25.9	22.3
Important	8.3	18.1	29.0	15.9	15.7
Very important	2.4	3.1	31.1	7.8	12.6

Table 5.13 shows that Online databases (31.1%) and E-journals (12.6%) are very important in helping students to learn more about course content. In this study, the statistical data showed that there is a relationship between respondents who were less competent in the use of Electronic Information Resources as opposed to respondents who had never used or who had made little use of Electronic Information Resources in teaching, research and for course content. It was found that respondents who said they were less competent using EIR either never or rarely used such resources for these purposes ($p < .001$, $N = 466$).

With regard to the importance of EIR for the research needs of academic staff, the results of the survey show that the following percentages said these resources are not at all important: 21.1% OPAC, 13.1% CD-ROMs, 5.0% Online databases, 2.6% the Internet and 2.4% E-journals. Those who said these resources not important to them numbered: 29.2% OPAC, 32.5% CD-ROMs, 24.0% Online databases, 3.3% the Internet and 12.8% E-journals while those who said these resources were of average importance totalled: 20.7% OPAC, 25.2% CD-ROMs, 14.0% Online databases, 10.9% the Internet and 14.0% E-journals. The breakdown of those who said these resources were important are: 16.2% OPAC, 20.4% CD-ROMs, 26.4% Online databases, 19.2% the Internet and 22.6% E-journals and the last group, comprising those who said these resources were very important, numbered in percentage terms: 12.8% OPAC, 8.8% CD-ROMs, 30.6% Online databases, 63.9% the Internet and 48.0% E-journals. Table 5.14 below presents a summary of this result.

Table 5.14: Use of EIR in research

How Important	OPAC %	CD-ROM %	Online databases %	Internet %	E-journals %
Not important at all	21.1	13.1	5.0	2.6	2.4
Not important	29.2	32.5	24.0	3.3	12.8
Average	20.7	25.2	14.0	10.9	14.0
Important	16.2	20.4	26.4	19.2	22.6
Very important	12.8	8.8	30.6	63.9	48.0

Table 5.14 shows that the Internet (63.9%), E-journals (48.0%), and Online databases (30.6%) are very important for research.

5.3.5 What Might Increase the Use of EIR?

When asked about what might increase the usage of Electronic Information Resources, the most popular answers were: instruction/training in the use of EIR and more information about EIR. These responses were evenly balanced with 86.5% (64) stating that more instruction/training in the use of EIR would increase their usage, 84.6% asking for more information about EIR, and 75.8% stating that greater availability of hardware and software would be beneficial. This is summarised in Table 5.15.

Table 5.15: What might increase the use of EIR

	N	%
More Information about EIR	394	84.6
Instruction / training in the Use of EIR	403	86.5
Availability of Hardware & Software	353	75.8

5.3.6 Searching the EIR

Respondents were asked if they were able to find what they needed when they were searching the electronic resources for the purposes of teaching and research. Less than half of the academic staff (47.3%) stated that they always or usually found what they were searching for when using EIR. However, 51.5% of academic staff answered that they “sometimes” got what they were looking for, and 1.2% stated that they were “never” successful during their information searching. This result is summarised in Table 5.16 and presented graphically in Figure 5.6.

Table 5.16: Searching the EIR

Searching the EIR	N	%
Always	32	6.8
Usually	189	40.5
Sometimes	240	51.5
Never	5	1.2

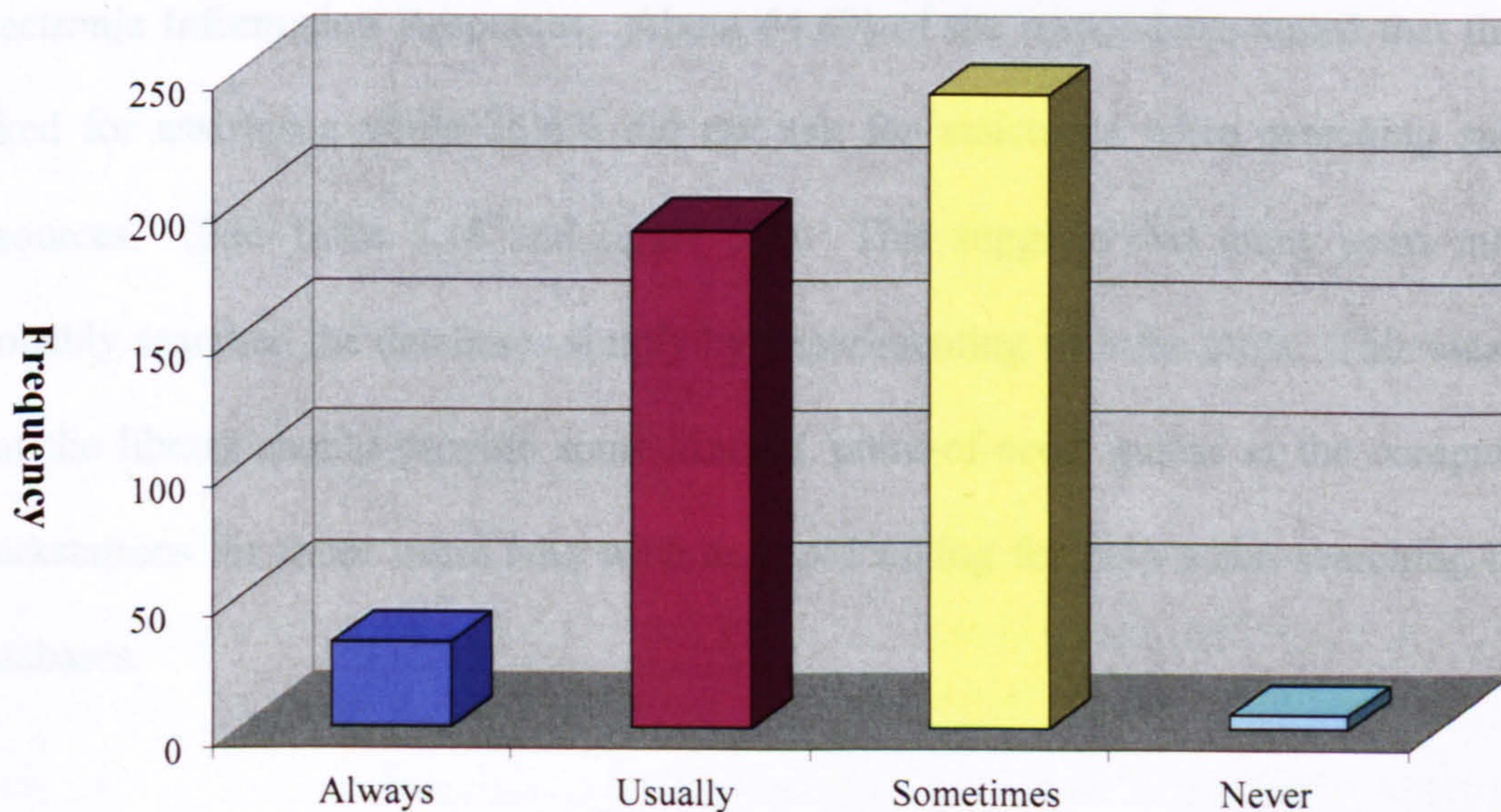


Figure 5.6: Searching the EIR

A Mann-Whitney *U*-test for gender and information searching using EIR, found that the female's mean rank score for information searching using EIR were lower than the male's, 200.68 compared to 215.01, $Z = -1.225$, $p > .05$. The test result suggests that there is no statistical difference between males and females in their information searching using EIR. Table 5.17 compares males and females information searching using EIR and it can be generally concluded that there is no difference between the two groups.

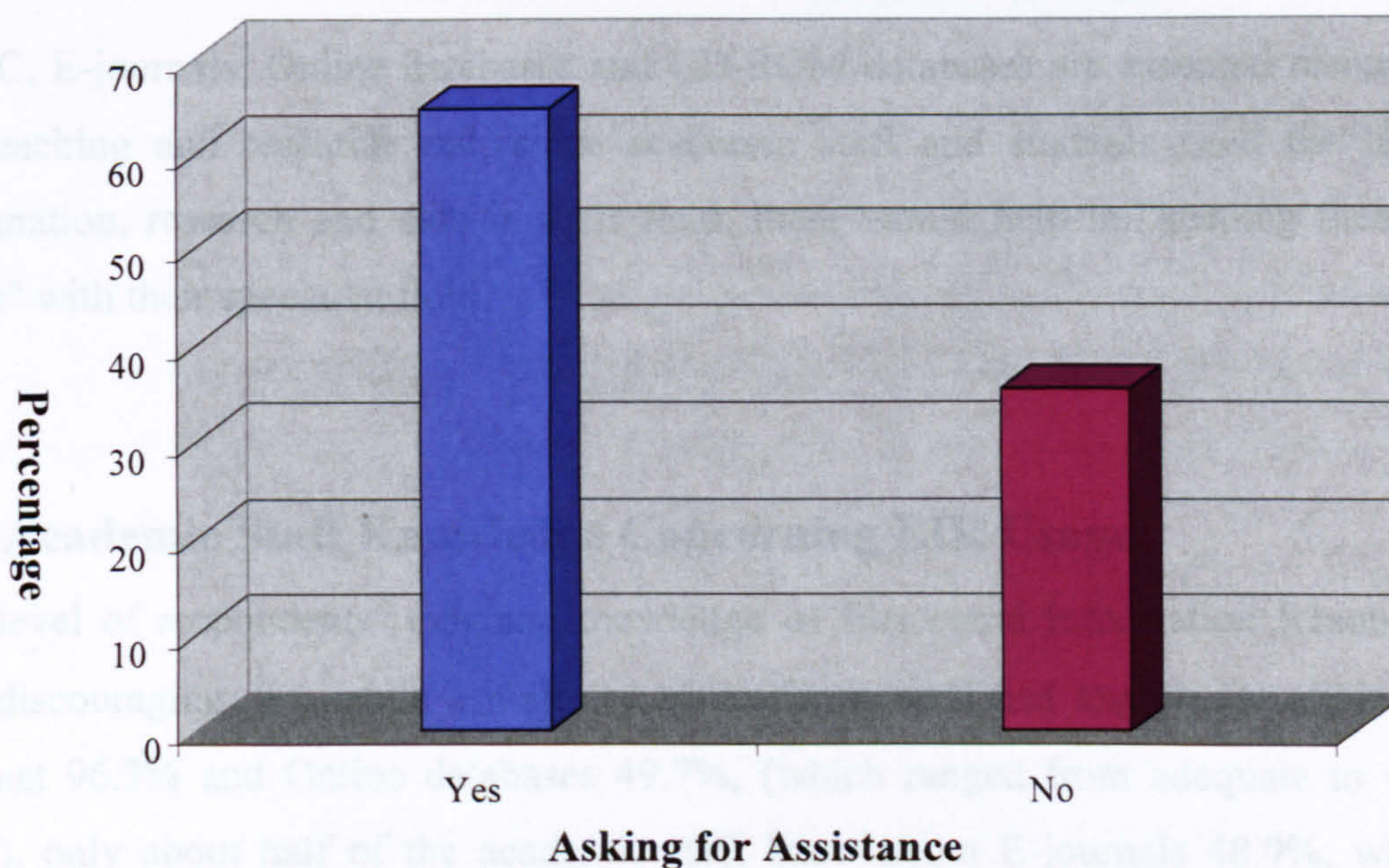
Table 5.17: Comparison between academic staff (male and female) on their success in searching the EIR

Searching the EIR	Male		Female	
	N	%	N	%
Always	22	7.5	10	6.6
Usually	142	45	47	31.2
Sometimes	151	47.5	89	58.9
Never	0	0	5	3.3

Respondents were also asked if they asked for assistance during searching the Electronic Information Resources. About 64.6% of the respondents stated that they asked for assistance while 35.4% did not ask for assistance when searching such resources. (See Table 5.18 and figure 5.7). This suggests that many users most probably searched the databases simply by experimenting with the tools. This means that the library should provide some kind of 'point-of-need' guides at the computer workstations for those users who wish to avoid asking for help when searching the databases.

Table 5.18: Asking for assistance while searching the EIR

Asking for Assistance	N	%
YES	301	64.6
NO	165	35.4

**Figure 5.7:** Asking for assistance while searching the EIR

5.4 Academic Staff Awareness

This research revealed a lack of awareness on the part of academic staff towards EIR and their potential role in teaching and research. This is clearly illustrated in Table 5.19, which shows that large proportions of such staff are not aware of EIR for teaching and research purposes. 65.4% were not aware of E-journals, 64.3% not aware of OPAC, 63.3% were not aware of Online databases, and 61.8% were not aware of CD-ROMs.

Table 5.19: Awareness of academic staff

EIR	Not aware	
	N	%
OPAC	300	64.3
E-Journal	305	65.4
Online database	295	63.3
CD-ROM Database	288	61.8

OPAC, E-journals, Online databases and CD-ROM databases are essential resources for teaching and research and, since academic staff and students need the latest information, research and data in their field, these would help in "keeping them in touch" with their specialist field.

5.5 Academic Staff Knowledge Concerning EIR Usage

The level of respondents' existing knowledge of Electronic Information Resources was discouraging. So, while a majority of academic staff had knowledge about the Internet 96.3% and Online databases 49.7%, (which ranged from adequate to very good), only about half of the academic staff knew about E-journals 48.9%, which again varied from adequate to very good. Slightly less than half 46.5% had knowledge of CD-ROMs and 47.4% had knowledge, which ranged from adequate to very good, of OPAC. It is encouraging to note, however, that the majority of academic staff knew about the Internet. Table 5.20 summarises the respondents' existing knowledge of Electronic Information Resources.

Table 5.20: Knowledge of EIR

Electronic Information Resources	N	%
OPAC	221	47.4
CD-ROM	217	46.5
Online Databases	232	49.7
Internet	449	96.3
E-journals	228	48.9

To find out whether males and females differed in their knowledge of the electronic resources referred to in this study (i.e. OPAC, CD-ROM, Online databases, the Internet and E-journals), the Mann-Whitney *U*-test was used. The test results, shown in Table 5.21, suggest that males and females differ very significantly in terms of their knowledge of Electronic Information Resources for all the five categories since the test showed a .001 level of significance.

Table 5.21: Mann-Whitney *U*-test result comparing academic staff (males and females) in terms of their knowledge of EIR

	Knowledge of OPAC	Knowledge of CD-ROM	Knowledge of Online Databases	Knowledge of the Internet	Knowledge of E-Journals
Mann-Whitney U	9733.000	13475.000	11952.000	14402.000	12130.000
Wilcoxon W	16636.000	20378.000	18855.000	21305.000	19033.000
Z	-7.629	-4.084	-5.561	-3.253	-5.330
Asymp. Sig. (2-tailed)	.000	.000	.000	.001	.000

It can be seen that, in general, male staff were more knowledgeable about these Electronic Information Resources than their female counterparts.

5.6 EIR Skills of Academic Staff

The overall EIR skills of the academic staff were discouraging, as can be seen in Table 5.22, which summarises skills of staff in using Electronic Information Resources. The following percentages of academic staff rated their skills from average to very competent concerning these resources: the Internet (90.1%), E-journals (46.1%), Online databases (45.4%), OPAC (43.1%), and CD-ROMs (42.9).

Table 5.22: Academic staffs' skills

Electronic Information Resources	N	%
To use OPAC	201	43.1
To use CD-ROMs	200	42.9
To use Online Databases	212	45.4
To use the Internet	420	90.1
To use E-journals	215	46.1

The Mann-Whitney *U*-test was applied to these variables in order to discover if males and females differed in their skills to use OPAC, CD-ROMs, Online databases, the Internet and E-Journals, see Table 5.23. It was found that the difference is statistically very significant for all five categories (the significance $p < .005$).

Table 5.23: Mann-Whitney *U*-test result comparing academic staff (males and females) in terms of their EIR skills

	using OPAC	searching CD-ROMs	searching Online databases	searching the Internet	searching E-Journals
Mann-Whitney U	9946.000	14189.500	12539.000	14797.000	12900.000
Wilcoxon W	16849.000	21092.500	19442.000	21700.000	19803.000
Z	-7.318	-3.338	-4.910	-2.853	-4.530
Asymp. Sig. (2-tailed)	.000	.001	.000	.004	.000

From the results, it can be seen that male academic staff members seem more competent than the female staff in using this range of EIR.

5.7 Publicising EIR in the University of Bahrain Library

In order to discover what were felt to be the most popular methods of publicising Electronic Information Resources at the University of Bahrain library, respondents were asked to indicate how they learned about such resources. It was found that the most common method was through publicity from the library itself (52.7%). This was followed by the print media (36.2%), a colleague (34.7%), electronic mail (26.1%) and overseas study (13.3%). Table 5.24 below shows the distribution of these responses.

Table 5.24: Source of information concerning EIR

Source of Information	N	%
Library	246	52.7
Print media	169	36.2
A colleague	162	34.7
Electronic mail	122	26.1
Overseas study	62	13.3

Cross-tabulation was then carried out to discover if academic staff from different colleges differed in terms of the way they were made aware of the existence Electronic Information Resources. The results of the chi-square test show statistically significant differences at the 0.001 and 0.005 level between colleges in two modes of publicity respectively: electronic mail ($\chi^2 = 55.454$, $df = 6$, $p < 0.001$) and the library ($\chi^2 = 44.717$, $df = 6$, $p < 0.001$). Furthermore, since the correlation is strong, (Cramer's $V = .000$ for electronic mail; and Cramer's $V = .000$ for the library), this suggests a relationship between these two variables.

These test results show that the library was quite successful in promoting new EIR to the College of IT, Science, Engineering and Business but that it was less successful in promoting the EIR services to the Colleges of Art, Education and Law. The results also show that many colleges learned of Electronic Information Resources from the print media and from colleagues.

5.8 Barriers and Obstacles to the Use of EIR

5.8.1 Reasons for the Limitations in the Use of EIR.

The respondents were asked what limited their use of Electronic Information Resources. The results show that the greatest barrier hindering the use of these resources was work overload and lack of time (76.2%). This was closely followed by lack of awareness (63.4%), then lack of training (49.6%), followed by lack of both hardware and software support (41.8%), and lastly, by a preference for print resources (38.5%). These results are summarised in Table 5.25

Table 5.25: Reasons for use of EIR limitations

Reasons for Use of EIR limitations	N	%
Work Overload	355	76.2
Lack of Awareness	295	63.4
Lack of Training	231	49.6
Lack of Support (Hardware & Software)	195	41.8
Preference for Print Resources	179	38.5

5.8.2 Problems Regarding Usage of EIR for Teaching and Research

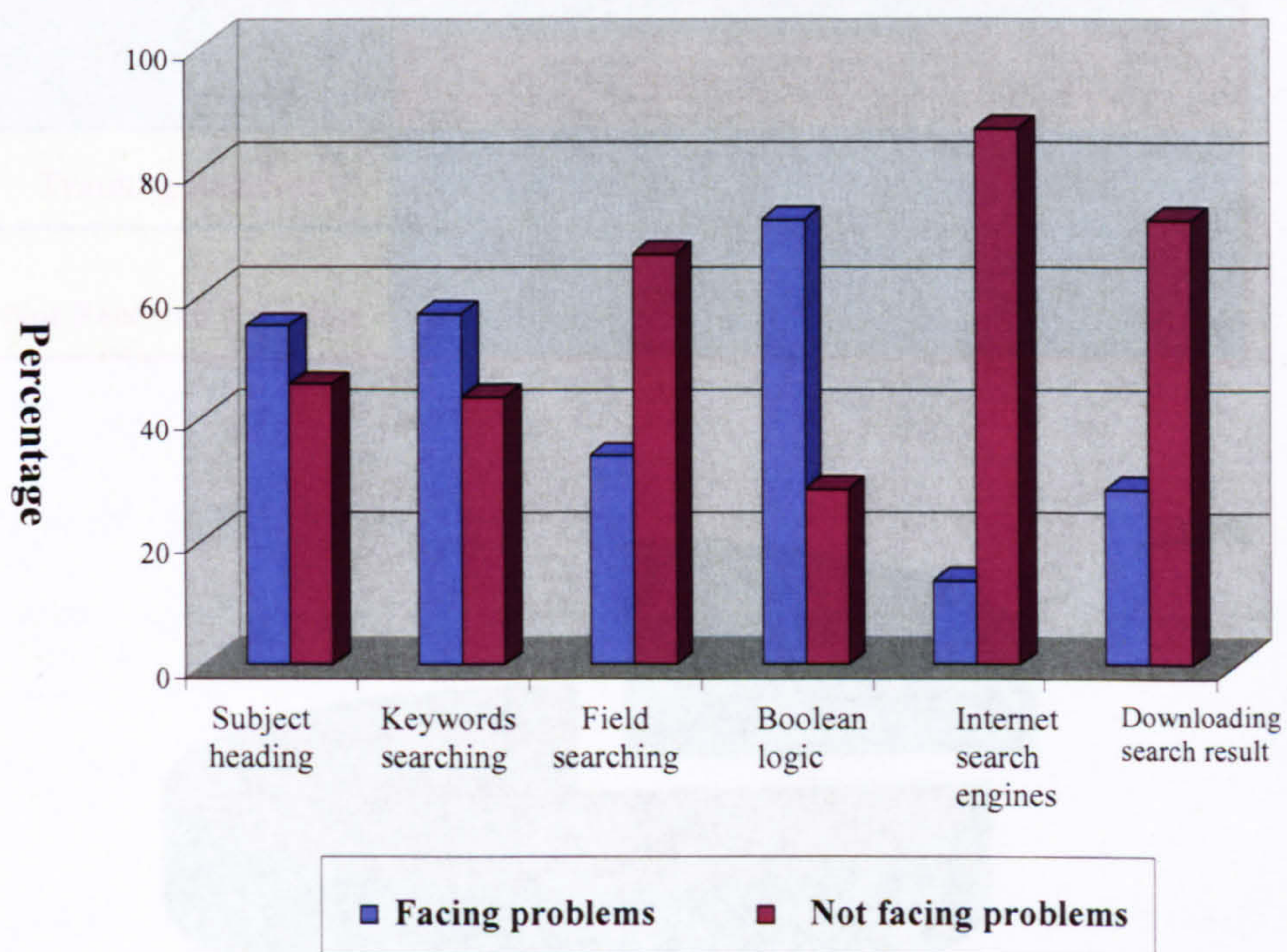
The six issues listed below, most of which were identified from the literature review, relate to searching skills required by academic staff in using Electronic Information Resources:

- ⇒ Subject headings
- ⇒ Keywords search
- ⇒ Field search (title, author, etc)
- ⇒ Boolean logic (AND, OR, NOT)
- ⇒ Internet search engines (e.g., Yahoo, Google, Alta Vista)
- ⇒ Downloading the search result

The results of this research indicate that three of these variables were most critical: “Subject headings”, “Keywords search” and “Boolean logic” as the majority of academic staff stated that they faced difficulties in these areas when using Electronic Information Resources. The areas that caused fewer difficulties were “Field search”, and “Downloading search result”. Figure 5.8 illustrates these problems in a graphic form (also see Table 5.26).

Table 5.26: Problems regarding the usage of EIR for teaching and research

Problems faced when using	Yes		No	
	N	%	N	%
Subject headings	256	54.9	210	45.1
Keywords search	265	56.8	201	43.2
Field search (title, author, year, etc)	156	33.5	310	66.5
Boolean logic (AND, OR, NOT)	336	72	130	28
Internet search engines (e.g., Yahoo, Google, Alta Vista)	63	13.5	403	86.5
Downloading search result	131	28	335	72

Table 5.27: Respondents who had or had not faced problems using EIR**Figure 5.8:** Problems faced regarding the usage of EIR in teaching and for research

5.9 Training in EIR

5.9.1 Training Received

The respondents were asked if they had received training regarding the five EIR (i.e. OPAC, CD-ROM, Online databases, the Internet and E-journals). Overall, responses to this question were quite disturbing because the majority stated that they had received no formal training in using EIR. This is shown in Table 5.27

As can be seen from the table, the majority of the respondents (76.2%) had received no training on the use of Electronic Information Resources, while only 23.8% had received some sort of training. This could possibly be one of the reasons for limited use of this resource.

Table 5.27: Respondents who had, or had not, received training on EIR

	Training received or not received	
	N	%
Training Received	111	23.8
Not Received Training	355	76.2

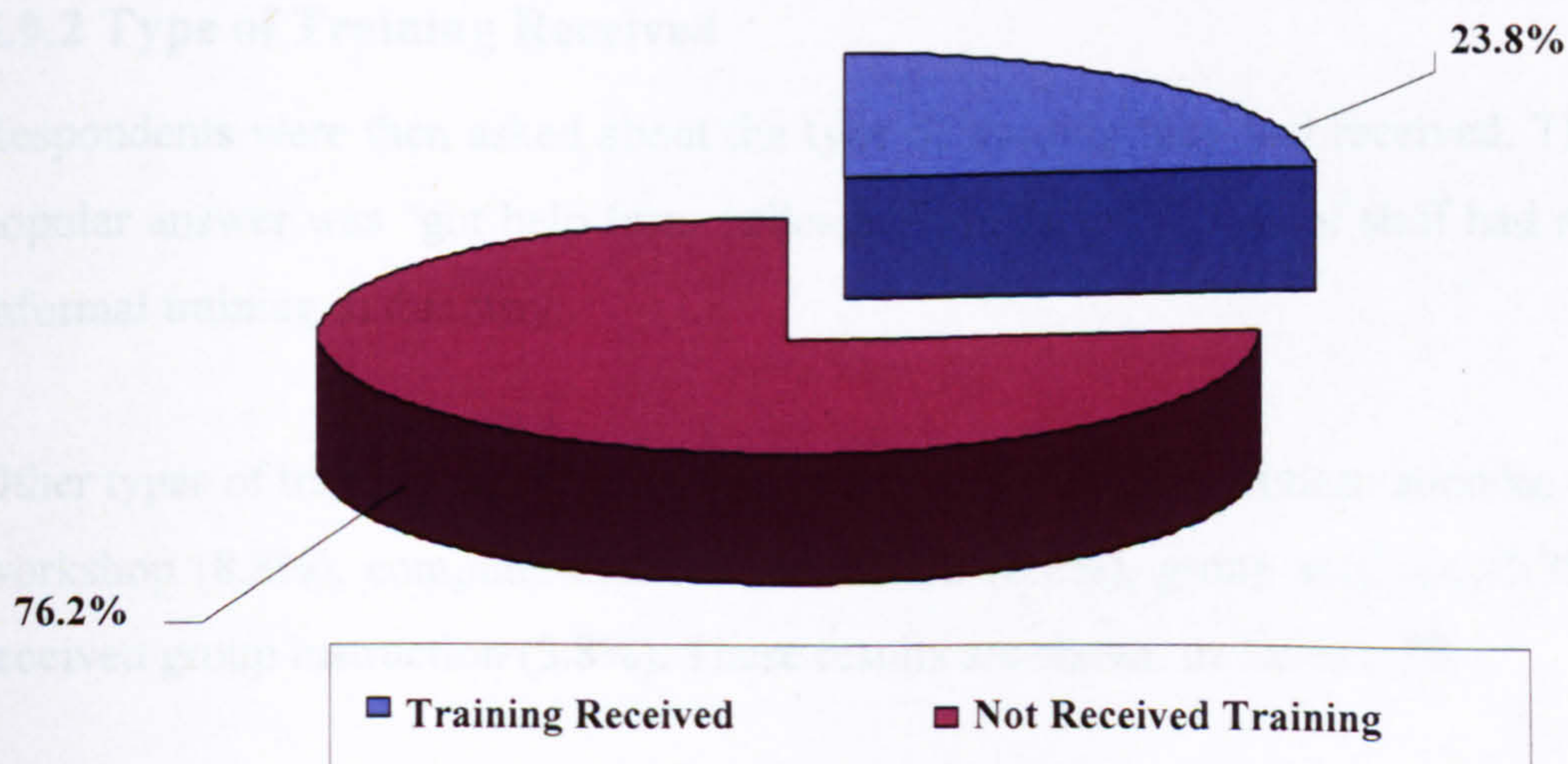


Figure 5.9: Number of academic staff who received or did not receive training

Table 5.28 compares the training received by academic staff in the seven colleges at the University of Bahrain. 16.2% from the Education College received some sort of training, 13.7% from the College of Arts, 33.8% from the Business College, 34% from the IT College, 18.8% from the College of Law, 26.8% from the Science College, and 29.2% from the Engineering College.

Table 5.28: Training received by academic staff in all seven colleges

COLLEGES	RECEIVED		NOT RECEIVED	
	N	%	N	%
EDUCATION	12	16.2	62	83.2
ARTS	15	13.7	94	86.3
BUSINESS	21	33.8	41	66.2
IT	17	34	33	66
LAW	4	18.8	18	81.2
SCIENCE	18	26.8	49	73.2
ENGINEERING	24	29.2	58	70.8

5.9.2 Type of Training Received

Respondents were then asked about the type of training they had received. The most popular answer was "got help from colleague"; in fact, (17.3%) of staff had received informal training in this way.

Other types of training were fairly even in terms of their distribution: attending library workshop (8.8%), computer-assisted instruction (6.2%), group sessions (5.7%), and received group instruction (3.8%). These results are shown in Table 5.29.

Table 5.29: Type of training received

Type of Training	N	%
Got help from colleague	81	17.3
Received group instruction	18	3.8
Computer-assisted instruction	29	6.2
Attending a library workshop	41	8.8
Group sessions	27	5.7

Table 5.30 shows the type of training received by academic staff. It shows there is the Information technology has scored higher than the rest in "Got help from colleague. This is understandable as the nature of the department activities is based on technology based skills and knowledge. There is no sharp significant among the college in 'received group instruction' and 'attending library workshop'. College of law is scored the highest in "Computer-assisted instruction' and 'group sessions'.

Table 5.30: Type of training received by academic staff in the seven colleges

Type of Training	COLLEGES %						
	Edu.	Art	Bus.	IT	Law	Sci.	Eng.
Got help from colleague	27	21.1	12.1	32.6	0	5.1	12.3
Received group instruction	6.8	4.4	6.9	0	0	3.4	1.4
Computer-assisted instruction	2.7	7.8	6.9	0	20	1.7	9.6
Attending a library workshop	8.1	8.9	13.8	10.9	0	0	1.4
Group sessions	13.5	4.4	6.9	0	23.8	1.7	0

Note: Total do not equal 100% because more than one answer could be chose

The chi-square tests that were performed on the five types of training against the respondents' variables indicated that only three types of training were highly significant at a 0.001 level. They are "Got help from colleague" ($\chi^2 = 10.405$, $df = 1$, $p = .001$), "Attending a library workshop" ($\chi^2 = 14.552$, $df = 1$, $p = .000$) and "Group sessions" ($\chi^2 = 8.011$, $df = 1$, $p = .005$).

5.9.3 Preferred Training Method

One of the objectives of this research was to determine the training method most preferred by the survey participants and this study found it to be one-to-one instruction (66.3%). (See Table 5.31).

Table 5.31: Training method preferred by academic staff

Preferred Training Method	N	%
One-to-one instruction	309	66.3
Library workshop	257	55.1
Computer-assisted instruction	250	53.7
Classroom/group demonstrations	168	36
Printed instruction	112	24.0

Note: Total do not equal 100% because more than one answer could be chose

The percentages for "Library workshop" (55.1%) and "Computer-assisted instruction" (53.7%) are similar but, since the percentage for "Printed instruction" is the lowest (24%), this clearly indicates that it is the least preferred method.

In order to find out if any differences existed between the colleges in terms of the training methods preferred by staff, a chi-square test was performed on the related variables. The results indicated that three methods were found to be statistically very

significant at a .001 level of significance: One-to-one instruction ($\chi^2 = 42.702$, $df = 1$, $p = .001$); Library workshop ($\chi^2 = 8.316$, $df = 1$, $p = .004$); and Computer-assisted instruction ($\chi^2 = 9.470$, $df = 1$, $p = .002$). This indicates that of the majority of academic staff who preferred one-to-one instruction, 32.3% (100) were from the Art College, 20.4% (63) were from the Education College, 12.2% (38) were from the College of IT, 11% (34) were from the Engineering College, 9.3% (29) were from the Science College, 7.5% (23) were from the College of Law, and 7.2% (22) were from the Business College. (See Table 5.32.)

Table 5.32: Comparison of the preferred training method among colleges

Training Methods	COLLEGES						
	Edu. (%)	Art (%)	Bus. (%)	IT (%)	Law (%)	Sci. (%)	Eng. (%)
One-to-one instruction	20.4	32.3	7.2	12.2	7.5	9.3	11.1
Library workshop	23.3	25.9	7.8	7.3	9.1	11.6	15.1
Computer-assisted instruction	21.7	23.9	14.6	7.5	5.3	13.3	13.7
Classroom/group demonstration	18.4	11.8	22.4	9.2	1.3	15.8	21.1
Printed instruction	13.9	12.9	23.8	6.9	6.9	13.9	21.8

5.9.4 Training Needs

Respondents were next asked if they would like more training on any of the five established Electronic Information Resources: OPAC, CD-ROMs, Online databases, the Internet and E-journals. The results indicate that majority of academic staff said they needed training on Online databases (98.7%), E-journals (95.2%) and OPAC (84.1%). (See Table 5.33.)

Table 5.33: Training needs of academic staff

Electronic Information Resources	N	%
OPAC	392	84.1
CD-ROM Databases	249	53.4
Online Databases	460	98.7
Internet	50	10.7
E-journals	444	95.2

5.10 Relationships Between Certain Variables

5.10.1 Demographic Variables and Awareness, Knowledge, Skills, Needs and Use of EIR

Cross-tabulations were carried out to find out if any correlation existed between certain demographic characteristics (gender, age, academic staff ranking, academic qualifications and number of years in service) and academic staff's awareness, skill, knowledge, needs and use of EIR. The test results showed that there is a significant relationship between gender and the awareness, skill, knowledge, needs and use of EIR (at a 0.005 level of significance).

- A significant relationship exists between age and the awareness, skill, knowledge and need to use two categories of Electronic Information Resource as follows:
 - OPAC (at a .005 level of significance)
 - The Internet (at a .001 level of significance)

However, many academic staff aged between 41-50 have the awareness, skill, knowledge, needs and use of EIR to use OPAC and the Internet (ranging from 'average' to 'very competent').

- There is a significant relationship (at a .005 level of significance) between the rank of academic staff and their awareness, skill, knowledge, needs and use of EIR;
- There is no correlation between academic qualifications and staff's awareness, skill, knowledge, needs and use of EIR (at a .005 level of significance);
- No correlation can be demonstrated between number of years in service and academic staff's awareness, skill, knowledge, needs and use of EIR (at a .005 level of significance);

A comparison was made between the colleges in terms of their academic staff's awareness, skill, knowledge, needs and use of EIR and this showed that significant differences existed for three categories of resource: Online databases, the Internet and E-Journals (at a 0.001 level of significance). The Colleges of Engineering, Business, IT and Science were able to use these EIR more than the other three colleges.

Significant correlation (at a .001 level of significance) was also observed between gender and all categories of Electronic Information Resources, (i.e. OPAC, CD-ROMs, Online databases, the Internet and E-Journals). This result showed that more male than female academic staff claimed to have the necessary knowledge and skills to use Electronic Information Resources.

5.10.2 Knowledge and Skills in Using EIR

Spearman's rank-order correlation coefficient was used to find out if a significant correlation existed between the skills to use Electronic Information Resources and their knowledge of such resources. The results from Spearman's coefficients and the two-tailed probability (p value) revealed a strong positive correlation at a .001 level of significance between the two variables for all five categories of EIR. This means that the two ordinal variables, i.e. knowledge of Electronic Information Resources and the skills to use them, are positively correlated at a .001 level of significance.

5.10.3 Skills and Use of EIR in Research and Teaching

A significant relationship (at a .001 level of significance) was found to exist between the skills to use Electronic Information Resources and the actual use of these resources in research. In addition, a significant relationship also existed between using EIR in teaching and the skills of academic staff to use these resources: this was at a .001 level of significance.

5.10.4 The Use, Knowledge and skills of EIR and Receiving Training

A significant relationship was found to exist between using EIR in teaching and having received training on these resources, at a .001 level of significance.

A significant relationship was discovered between using Electronic Information Resources for research and having received training on these resources. This was found to have a .001 level of significance.

A significant relationship was found between the knowledge of academic staff in using Electronic Information Resources for teaching purposes and having received training on these resources. This was at a .001 level of significance.

A significant relationship (at a .001 level) was found to exist between the knowledge of academic staff in using Electronic Information Resources for searching and receiving training on these resources.

A significant relationship also existed between the skills of academic staff to use Electronic Information Resources in teaching and having received training on these resources. This significance was at a .001 level.

A significant relationship (at a .001 level) was found to exist between the skills of academic staff in using Electronic Information Resources for searching and receiving training on these resources.

5.11 Summary of the Chapter

This chapter presented the questionnaire analysis. The findings of this chapter will be used with the outcome of chapter six, interviews analysis and the outcome of the literature survey as bases for the research discussions.

CHAPTER SIX

INTERVIEWS ANALYSIS

6.1 Introduction

In addition to data collected from the questionnaire, face-to-face semi-structured interviews were conducted immediately after the questionnaire survey to gather qualitative data. The interviews were carried out between February 2005 and the end of April 2005 and were conducted with two main groups within the University of Bahrain: the heads of academic departments and the senior librarians. The interviews were transcribed twice, first in Arabic and again in English, taking a great deal of time and effort.

These particular interviewees were selected for a number of reasons: first, the heads of academic departments are an important part of the decision-making process within their departments. They review and decide on requests for resources etc., made by members of their departments and they also have authority, which means they are able to gain access to and give information more easily. Heads of department also have useful connections with large numbers of other academics and university of Bahrain library staff; they are consulted about training needs and make decisions concerning such requirements. Secondly, senior librarians were chosen due to their position and role in selecting EIR processes. Senior librarians also have extensive experience in dealing with academic staff and how best to use EIR.

The intention of the face-to-face interviews with senior librarians was to seek their perceptions regarding the university academic staff's use, needs, knowledge and training needs of EIR. On the other hand, face-to-face interviews with the heads of

academic departments were also important to find out their opinions regarding the use of and need for electronic resources in teaching and research. It was also important to find out their training needs and preferred training methods.

The list of interview questions is included in Appendix 3.1. It should also be noted that some follow-up questions were asked at the interviews when more clarification was necessary. In addition, thematic analysis was adopted in presenting the results of the interviews. Qualitative data analysis from open-ended questions and semi-structured interviews were combined under related themes. All interviewees were asked the same questions, reflecting the research aims and objectives.

6.2 Interviewees' Demographic Characteristics

Thirty-one interviews were carried out to provide qualitative data to enhance and support the quantitative data. Twenty-four were with heads of academic departments, while the remaining seven were carried out with senior librarians. Academic staff members were the main focus of this study and Table 6.1 provides a breakdown of the heads of academic departments by department, gender, position and location.

Table 6.1: Profile of interviewees for Heads of Academic Departments

University of Bahrain Campus	Academic Departments	Positions	Gender
Sakhir Site	Foundation & Curriculum	Professor	Male
	Educational Technology	Assistant Prof.	Female
	Psychology	Associate Prof.	Male
	Physical Education	Assistant Prof.	Male
	Arabic & Islamic studies	Associate Prof.	Male
	Information, Tourism & art	Assistant Prof.	Male
	Social Science	Associate Prof.	Male
	Management & Marketing	Assistant Prof.	Male
	Accounting	Assistant Prof.	Female
	Economics & Finance	Assistant Prof.	Male
	Office Management	Assistant Prof.	Female
	Computer Science	Assistant Prof.	Male
	Computer Engineering	Assistant Prof.	Female
	Management Information Systems	Associate Prof.	Male
	Public Law	Associate Prof.	Male
	Private Law	Assistant Prof.	Male
Isa Town Site	Biology	Assistant Prof.	Female
	Chemistry	Assistant Prof.	Female
	Physics	Assistant Prof.	Male
	Mathematics	Assistant Prof.	Male
	Mechanical Engineering	Associate Prof.	Male
	Chemical Engineering	Professor	Male
	Electrical Engineering	Associate Prof.	Male
	Civil & Arch. Engineering	Associate Prof.	Female

The seven senior librarians comprised the director of the library, the deputy director, three heads of library divisions and two reference librarians from the University of Bahrain library. Table 6.2 provides the breakdown of the senior librarians by gender, position and location.

Table 6.2: Profile of interviewees for Senior Librarians.

University of Bahrain Campus	Position	Gender
Sakhir Campus	Director	Male
Isa Town Campus	Deputy Director	Female
Sakhir Campus	Head of Service Division	Male
Isa Town Campus	Head of Service Division	Male
Sakhir Campus	Supervisor of Information Unit (Reference)	Male
Isa Town Campus	Supervisor of Information Unit (Reference)	Female
Isa Town Campus	Head of Library Instruction Division	Female

6.3 Heads of Academic Departments' Perceptions

The heads of the academic departments who were interviewed were asked to indicate their opinion regarding the use of and need for electronic information resources, academic staff knowledge and skills, training needs and preferred training methods.

6.3.1 Use and Needs of EIR

The heads of academic departments were asked to indicate their current of use and need for electronic information resources in teaching and for research. The comments below show that in a number of areas electronic information resources were perceived to be of limited use or as less preferable to printed resources. Some of their comments are noted below:

For myself I prefer print resources because they are easy to use and it is easier to guide my students. The design of the curriculum of our department is based on print resources.

I never use Electronic Information Resources as part of my teaching and research activities. I believe the textbook I use is more than enough.

Furthermore, other comments in favour of the traditional print resources states:

I am happy in my teaching and research processes. My style is tried and tested and I do not need to gamble on a thing I have never used nor tried. Nobody can force me to change.

The main reason behind the above verbatim quotes is a fear that their own performance will suffer as a result of lack of f with ICT. They have experiences in the traditional approach, print resources, and they were successful in adopting this. Therefore, moving to EIR represents a shift that may lead to reduced teaching performance, which many academics find unacceptable since it may have a deleterious effect on the learning experience of their students. The other reason that the shift needs a change in teaching style, preparing electronic materials

Others commented:

I'm using online databases once or twice a semester but, most of the time I'm using the Internet and print sources, because most of our academic staff prefer print resources in teaching, because they are easy to use.

Experience in using the print resources is the main drive behind the above quotation.

Some time I use E-journals, when I want to know new studies about particular issue.

One of the main findings from the interviews was that EIR were not used because of the nature of the education process used. As one academic staff indicated EIR are not important for their department when he said:

No, these are not important for our department, because most of our course content is designed and built around print resources. Also 90% of our courses are theoretical.

This is a surprising comment from an academic in what is now an electronic information age. In addition, senior academic staff, particularly the heads of department have many management commitments beside their academic teaching and research responsibilities. These commitments led to them having little time for EIR training as indicated by one of the heads of department.

I believe my contribution to the university should be concentrated in the management of the university and planning its development.

Another important finding from the interviews was that most academic staff prefer to use the Internet rather than other electronic resource one head department stated:

Most of the time, I use the Internet, because it is easy to use and faster to get information around my teaching subject.

Another head of department elaborated on this issue:

The majority of our department's academic staff use the Internet almost daily. Searching for personal information.

While another head of department commented:

I use the Internet to search for the latest news, particularly on Gulf issues.

The main reasons behind the above quotes are that people are aware of the advantages and benefits of use of Internet. This awareness is created by the communication systems providers as well as the national media. The other reasons is that the academic staff have experience in using the Internet.

Furthermore, Google is a popular search engine and it seems academic staff have the necessary skills and knowledge in using it due to their personal use. As one academic staff member said:

I and my staff use Google, because it is easy to use and faster to get information about teaching materials.

Their views also confirmed the fact established by the questionnaire data that the Internet was shown to be the most useful of the electronic resources that they used.

Furthermore, heads of academic departments were asked about the use and need of electronic resources in their research, they pointed out a number of problems, including the limited nature of the e-resources that were available for the research. Some of their comments are noted below:

I have some favourite journals that I always refer to, to know recent studies about my research area.

Most of our databases are subscribed with abstracts only; very few of them have full texts.

In addition, heads of department stated that there was a lack of research activity within their departments. Some of their comments were:

Frankly some of our academic staff haven't published any articles since they joined the teaching staff in the department.

I think that, so far, there has been no real evaluation on the part of the department and the university's policy has not encouraged academic staff to publish articles.

The main drives for the above quotes is that academic staff feel they are overworked. They report that they do not have enough time for research and to develop themselves. The other important reasons is the University management incentives policies for encouraging academic staff for publications.

Furthermore, academic staff opinions and attitudes towards accepting EIR as an important part of teaching and research are important to promote the use of EIR. It seems some academic staff believe that there is no need for EIR as one academic staff suggested the following:

I do not think we need to be concerned about not using electronic resources, it is good idea to have them around but I do not think there is an urgent need to use them due to the effective use of traditional methods.

It seems that the main problems in using EIR may include the nature of the discipline, learning process, university's library and students as stated by one head of department.

The nature of the discipline, learning processes, university library, and students are the main factors for not using EIR as part of our departmental strategic planning.

Negative attitudes toward EIR are apparent and in some cases this resistance to change may be due to age.

I do not need to think about using EIR in teaching and research. I leave this to the young lecturers. I have too many responsibilities in administration and meeting with various external bodies. I represent the university in various external activities.

Another commented:

In my opinion the library should play an active role in promoting their services, as academic staff generally do not consider the library as very important to their activities.

These comments confirmed the views established by the questionnaire data which found that the majority of the academic staff do not heavily depend on electronic information resources in teaching and research.

One important point made by some of the academic staff who were interviewed, was that course textbooks were outdated and inadequate to meet the needs of students. Therefore, many students were directed to use e-resources by academic staff. One of their comments:

We concentrate on one or two textbooks only for teaching course content. This is not enough for finding information and for helping students with assignments and course projects. Therefore, we encourage our students to use e-journals and online databases.

There are departments in the university who drive their students towards the use of electronic resources as part of their learning process. This drive may be due to lack of traditional resources as stated by one of the heads of department.

Yes, we do have a problem because our department uses the American system in designing course content; we use one fixed textbook for each course. So, we guide students to go to the library and use more resources that will help them to complete their assignments and course projects.

In general, it seems that most of the academic staff considered online databases, e-journals and the Internet to be the most useful electronic information resources in helping students to learn course content for projects and assignments. This was also linked to the poor quality of the course content and the fact that there were no recent, up-to-date information and resources available for learning. The majority of academic staff stated that they were using a maximum of two textbooks for each course.

6.3.2 Knowledge and Skills

Academic staff experiences, knowledge and skills, seems to play an important role in EIR use. Academic staff believed that print resources were easy to use and useful to guide students. There are large a number of academic staff who lack basic ICT skills as stated by some academic staff. This may differ from one department

to another. This may be more evident in some of the humanity departments. Some of their comments:

Academic staff in this department need to know the basic ICT and EIR skills.

The above comment is based on the lack of ICT education and training in the educational background and the nature of the some disciplines, such as Humanities.

We need to improve our computer knowledge and skills; we need more training.

Effective use of EIR requires certain skills and knowledge. This can be obtained through years of experience or on specific training programmes. Heads of department realise that academic staff skills and knowledge need to be improved to use EIR effectively.

I know that our lecturers need more skills to use electronic information resources in teaching. However, they prefer print resources because they are familiar with these resources.

There are some academic staff who also lack information searching skills in order to use EIR effectively. Some of the heads of department commented the following:

I believe academic staff have Internet skills; however, their knowledge of using OPAC, online databases and e-journals is not sufficient to use EIR effectively.

Another head commented that academic staff lack knowledge to use EIR. He states:

Some of our academic staff don't have sufficient knowledge to use electronic resources so they pay more attention to print resources.

Other head of department commented on the lack of EIR by stating:

I have basic computer skills, but I'm not very competent in searching and using electronic resources.

The academic staff Internet skills gained from his personal effort due to his personal needs. It is also Internet experience can be gained from various methods, may be from his/her own family son or daughter for example. In other hand, OPAC and Database need proper training run by professional in the areas.

Searching skills that can be used to reduce the number of article searches is essential in saving time particularly for academic staff and heads of department who have a heavy workload. It seems academic staff lack searching skills as stated by one head of department:

Sometimes I retrieve too many hits when searching online databases, and it takes a long time to find specific information related to my topics.

While another head of department commented:

I face some difficulties when trying to search online databases and e-journals because each database has a different way to search.

One of the problems faced by the interview respondents was related to information retrieval skills. Some of the heads of academic departments who were interviewed experienced difficulties in using online databases, e-journals and the Internet. They were confused and had insufficient knowledge to select the appropriate electronic information resources. One of their comments was:

I always retrieve too many hits. I don't have time to go over all of them.

EIR access and searching skills represent an essential part of successful information searching. They also play a critical factor in individual motivation and sometimes their frustration. It seems there is a lack of skills and knowledge in searching and accessing EIR, as one head of department stated:

I tried to use electronic resources as part of my teaching plan; I found that the searching and accessing process was frustrating.

6.3.3 Barriers and Obstacles

There are a number of barriers faced by academic staff when using and accessing electronic information resources. Lack of time and lack of awareness are the major problems faced by academic staff as the following comments indicate:

Work overload is one barrier for not using electronic information resources. I have so many classes.

Another academic commented on the work over load by citing lack of time to use EIR, as follows:

I can't find time to use electronic resources.

A further comment in supporting the above quotes was the following:

To be honest, I know about them and am aware of EIRs, but where is the time? I take some work home with me every day to complete it and to prepare for the following day.

The main reasons behind the work overload is the small number of academic and non-academic staff compared with the expansion in number of students. The other reason is the lack of financial incentives. This has led many academic staff to increase their lecturing hours to gain extra financial income.

The other important issue raised is lack of competence and lack of publicity regarding availability of EIR in the library.

I do not have the competence or knowledge to access and use EIRs that will enable me to use them in my teaching and research, as I am not aware of any promotion from the library concerning this issue.

Other revealed lack of awareness of the availability of EIR:

I don't know that there are any electronic resources related to my discipline. I have not heard about it from the library. It is new for me.

Humanity colleges seem not to be aware of the EIR provided by the University library, as stated by one academic staff member:

I am not aware of the availability of EIR in my discipline that can help and enhance my

teaching and research. I have not heard anything about it from the library. It is new for me.

Another head of department from the Humanity College expressed their lack of awareness of e-journals by stating:

I am not aware e-journals are available, or accessible from our university of Bahrain library. Nobody told me about it.

Lack of training and promotion seem to contribute to low level of use of EIR. Most academic staff who were interviewed specified the need for training in using online databases and OPAC to improve their skills. Other heads of academic departments raised another problem faced by some academic staff that is the fear of a shift from the traditional method of teaching to using electronic resources. One academic staff member said:

There is no reason for me to change my teaching methods. My students are happy and familiar with this way and a shift towards more EIR takes time and effort.

One of the humanities department heads stated that the term EIR was new to him. He commented:

I have never been on any training course in electronic resources. This is truly new for me, I have no knowledge about it, in fact I heard the term from you today.

There have been constant changes in the development and use of ICT technology. These changes have helped in developing information related hardware and software. Unfortunately, at any stage of these changes, there is a need for users to adopt new

skills and knowledge to cope with these changes. This seems a barrier for some electronic resource users, as one academic staff member said:

I am really frustrated about accessing and using electronic information due to the continuous change. By the time I master the software and the technique, I am surprised by changes by the next time I try to use them. Usually the library is very slow to react to these changes.

The content of previous education has also contributed to lack of use of EIR. The Bahrain educational system allows for a limited delivery of basic ICT skills and use of EIR within the curriculum.

Previous education: the nature of our previous education system has contributed to our current teaching methods and this has contributed to our not using EIRs effectively.

One of the barriers facing the use of EIR is the medium of communication used by academic staff. Academic staff members are still using the traditional methods of communication. This may be due to lack of skills, awareness and departmental/university strategy. Heads of department were asked if they used the Internet for their communication with academic staff. Their reply was:

No, I send printed material on paper to their mailbox, they don't check their e-mail daily, and this includes myself as head of

department, because I'm busy and full of activity during office hours.

Another commented:

I do not open my University e-mail as I do not need it. I have been using Yahoo as the main tool for my e-mails for a long time. I have skills and knowledge on the Yahoo e-mailing system.

The limited nature of the e-resources that were available for use in research was also highlighted by some academic staff. Some of their comments are noted below:

Most of our databases are subscribed with abstracts; very few of them have full texts. To process through ILL takes more than two weeks and the onus for this are on us.

Another commented:

For myself, I prefer online databases and e-journals because I can find current information quickly, but the library has a limited number of full-text databases.

In addition, heads of department raised another problem related to social factors. This is particularly related to the female members of the academic staff, as can be seen from the comment below

Female lecturers have social commitments beside their departmental commitments. They need to balance their commitments. Sometimes, I have to change my plan due to their social commitments.

A social problem that older and higher ranking academic staff found, they found it difficult to accept training with new or young academic staff.

I believe there is a social factor: Older staff found it difficult to attend EIR training courses with younger staff.

The main reasons behind the above verbatim quotes are due to the family commitments and responsibilities women have within Bahraini society. Female member of academic staff have family duties reflects Bahrain's culture values and norms, and have to meet these demands as well as fulfilling their academic duties.

Access to EIR represents a crucial factor for the effective use of EIR. Availability, ease, passwords and speed of the access have impact on the user motivation to use EIR. There is a lack of off-campus facilities as one head of department said:

There are problems when using computers off campus. Most of the time you have to ask for remote access from the system librarian.

One of the problems is with the passwords.

We don't have a password to access the databases, and we need to contact a system librarian if we need a password.

The main reasons behind the above quotes are the lack of the infrastructure, lack of qualified manpower and lack of planning to meet academic staff needs .

Another problem with the university's library services is poor server performance. This includes accessing the university library's home page off campus. According to one interviewee, the ICT server was very slow. Comments to illustrate this include:

The computer server at the university is very slow and time consuming. This has led to academic staff frustration.

Other heads of department indicated that academic staff get frustrated due to slow Internet access and server breakdowns:

I had many complaints from my academic staff stating "The Internet is slow and time consuming to use; sometimes the server breaks down.

In summary, there are a number of reasons that affect the use of electronic information resources by academic staff. These are:

1. Work overload (lack of time), management and administration commitments beside teaching and research responsibilities;
2. Lack of ICT knowledge and skills;
3. Traditional teaching, preferring print resources (the curricula of most departments were designed using printed resources);
4. The University of Bahrain library has a shortage of full text databases;
5. There are problems when using electronic information resources off-campus (the server is slow and remote access has to be requested).

6.3.4 Training Need and Preferred Training Methods

Use of EIR in teaching and research needs a certain level of skill and knowledge to use them effectively. There is a large number of academic staff who lack basic ICT skills and some need advance skills. One of the humanities department heads stated that:

We need to improve our computer knowledge and skills; we need more training.

Another head of department stated:

At the moment I'm attending some courses offered by the IT centre, dealing with different computer programs. This gives me an opportunity to learn ICT skills and to search for information through online databases.

While another head of department commented:

I know that our academic staff need more skills in using electronic resources but I don't see that much concern or care on the part of academic staff.

Most academic staff who were interviewed specified the need for training in using online databases and OPAC to improve their library/information skills. Their comments were as follows:

We need training in using OPAC, searching online databases and searching e-journals.

Another head of department explored the competence needs in using ERIC database. He stated:

Academic staff of this department needs to be competent in ERIC database due to its value in teaching and research.

If the training is to be properly and consistently organised and delivered, effective evaluation is absolutely necessary. Some of the interviewees who have attended training sessions run by the university library have not been given opportunities for effective evaluation. As an example, a comment was made about training session time. It seems the trainers' training plan does not include adequate time to allow for questions. This is mentioned by one of the heads of department.

During the training sessions, they can't answer most of the questions because of time limitations.

One head of department responded to the question about his experience in the university library training sessions and raised his concern about the training place. He stated:

Yes, I attended training sessions at the library, but the place used for training is not suitable. It is not designed for training workshops.

It seems that the university library lacks qualified and competent trainers to train the academic staff:

I have received various responses from academic staff stating that the trainer failed to answer questions related to the training sessions on the use of EIR.

One of the main aims of the interviews was to explore the training methods preferred by academic staff. Heads of department expressed their perception by exploring

various methods. The first method preferred by some academic staff is one-to-one training. Some of their comments:

The vast majority of my department academic staff prefer one-to-one EIR training. This comment has arisen on more than one occasion during departmental meetings.

Other head of department confirmed the above quote by stating:

I prefer one-to-one training because I can easily ask the instructor if I have a problem.

However, other preferred small group training approach. This is clear from the below statement.

I like small group training and one-to-one training

The main reasons behind preferring one-to-one training are the trainer has more time to spend with the trainee, and no social barriers. These reasons represent the main reasons behind the reasons for the above quotes.

About one third of the heads of academic departments who were interviewed said that their preferred training method was library workshops. Comments to illustrate this include:

I prefer the workshop training. It is more practical and also it is hands-on. I can remember better this way.

Another commented:

Library workshops are more practical if they are hands-on.

Nevertheless, the interviewees perceived that whatever training method was used, it must include a practical aspect. As one of the heads of department commented:

It should include more practice on whatever we learn, especially for the Online Public Access Catalogue (OPAC), online databases and e-journals.

In summary, the interview data concerning the training method preferred by academic staff did not differ from the questionnaire data. In the questionnaire data, the training method most preferred by academic staff was the one-to-one training method. However, the university library needs more professional librarians who are able to train users effectively.

6.3.5 Future Trends

It seems that university departments do not have a clear strategic plan to implement and use EIR as part of their teaching and research strategy. This was drawn from the responses of several heads of department. One of these statements is:

We do not have a clear strategic plan for the use of EIR. This may be due to lack of knowledge and awareness towards the importance of EIR in teaching and research.

It seems that the university has a lack of experience and knowledge in developing a strategic plan for EIR. This is stated clearly by one head of department. He stated:

The senior management are aware of the importance of strategic planning to promote the use of EIR but so far, we do not have any. This may be due to lack of experience and knowledge of developing such a plan.

6.4 Senior Librarians' Perceptions

Librarians are the link in helping users reach the information they require. The university of Bahrain library needs more professional librarians and other library staff who need to be well trained to ensure the delivery of a high standard of service to the users.

6.4.1 Use and Needs of EIR

When senior librarians were interviewed and asked about their views regarding the use and need of electronic information resources by academic staff in teaching and research, they commented, based on their experiences with academic staff and departments, as follows:

In my view, there is no link of any sort between us as a library and the academic staff.

Another senior librarian, based on their communication experiences with academic staff, stated on this issue:

Academic staff are not motivated to take the challenge of shifting from the traditional resources used in teaching and research to the use of EIRs.

While another senior librarian commented:

There is a need for decisions from a higher level in the organisation to drive forward the

use of EIRs. Sometimes, the academic staff do not take our promotion of this seriously.

Traditional teaching seems to be the main problem in using EIR according to an experienced senior librarian:

From my personal experience, over 20 years in the university library, I believe the main problem in using EIR is the traditional method of teaching. The vast majority of the library enquiries of academic staff are based on traditional teaching.

Another commented:

Teaching methods in most departments at the University are built around print resources.

When librarians were interviewed and asked about their views regarding which departments are able to use electronic information resources most efficiently, they commented, based on their experience with academic staff, as follows:

The Engineering, Science, Business and IT departments make the most use of electronic and information resources because of their ability to access the English language resources. However, other departments show low levels of usage of electronic and information resources because of the language problem.

The Humanities College academic staff's main information resources still depend on hard copy materials and it is suggested that they still use traditional teaching and research processes. They demand hard copy resources.

Law and Art academic staff enquiries are restricted to traditional information resources. We have problems to meet their needs, particularly for the researchers, as they demand print copies of books and journals.

When senior librarians were asked about their views regarding which electronic resources academic staff, used most frequently they specified some online database and e-journals that were used by academic staff and students of some departments. Some of their comments

The Internet is heavily used by students and university staff. Most of the time our computer lab is full with different users. Because of that we ask students to book in advance to use the library computer lab.

Another commented:

ASFA, Science direct and ABI are the most heavily used databases.

Another commented:

Some academic staff come to the library to download e-journals.

The senior librarians believe that there is a need for a change led by the decision-makers. Decision-makers need to establish a strategic plan to introduce direction and motivation.

There is a need for decisions from a higher level of the organisation to drive the use of electronic resources. Sometimes, the academic staff do not take our promotion seriously.

On the other hand, university of Bahrain library staff are doing their best to inform users about electronic resources. Some of the methods used by the university of Bahrain library to provide such information are by e-mail and brochures. The university of Bahrain library provides brochures for their services. They send the brochures to the academic departments to increase their awareness of the university of Bahrain library services.

We send some brochures regularly to each department.

It seems that the university of Bahrain library lacks communication systems that facilitate the communication between the university of Bahrain library and the academic staff. This was made quite clear by one of the senior librarian's statements:

We do not have any mechanisms with which to communicate with the academic staff. It is difficult to know their needs. Our management structure does not allow us flexibility to communicate with the academic staff.

6.4.2 Knowledge and Skills

When senior librarians were interviewed and asked about their opinion regarding academic staff knowledge and skill in using electronic information resources, they indicated that academic staff were lacking in knowledge and skill in ICT. Some staff

even lack basic skills. This led to reluctance to use electronic resources in teaching and research.

The majority of academic staff are lacking in the basic ICT skills needed to deal with EIRs. I believe this is due to their educational background.

Another senior librarian commented on this issue:

When we update or upgrade our databases, users are not aware of what has happened and so they are shocked when they see something new or different.

Such issues are of concern to the head of the training division as she is responsible for training end-users. She made the following comment:

We are facing problems with some academic staff in some departments in terms of their ICT skills and their ability in using electronic resources.

It seems social factors are an issue in learning ICT skills. Senior librarians found, based on their experience with academic staff, that some senior academic staff were embarrassed to reveal their ICT skill weaknesses. They did not wish to be embarrassed by their academic colleagues. Senior academic staff should be familiar with any change in technology.

Some senior academic staff who are not aware of electronic resources or who have inadequate skills in using electronic resources feel a sense of shame or embarrassment.

In brief, the skills of academic staff need to be improved as most senior librarians said. While some of these skills are needed at a basic level, some are also required at a more advanced level. The perceptions of the senior librarians were broadly comparable to the views concerning training needs expressed by the heads of academic departments during their interviews.

6.4.3 Barriers and Obstacles

When senior librarians were asked about the type of problems faced by academic staff when using and accessing electronic information resources, they gave some problems which were mentioned earlier by academic staff. One of them is the language.

Arabic is the main language used in teaching and research in several of the departments in the university. There is a very limited use of the English language within some of these departments. Competence in English language seems a critical factor among academic staff who use EIR, as the vast majority of the resources are English language-based resources.

However, other departments show low levels of usage of electronic and information resources because the language of learning in their subjects is Arabic.

Access to electronic resources off-campus is another problem mentioned by a senior librarian. It seems off-campus services are not effective as there are several databases not connected to the university web. Academic staff need to attend in person to the university of Bahrain library to access these databases.

Some of the online databases can't be accessed off campus. Staff need to contact the system librarian to gain offsite access.

The librarians, based on their experience with academic staff, also raised the culture and tradition of the society. They believe the society norm has made females reluctant to ask for help and advice in an environment dominated by males.

To be honest, there is a gap between male and female lecturers from a social point of view as there are social barriers. I believe females are reluctant to ask for help and advice from male staff and colleagues.

6.4.4 Training

When senior librarians were asked about the methods of training they used, they confirmed that the training methods used in the two libraries were library workshops, group training, classroom lectures and sometimes one-to-one training. Some of their comments:

Most training is on the use of OPAC, searching online databases and searching e-journals. Group training sessions and also one-to-one training are given sometimes.

Classroom lectures, together with hands-on, workshop and one-to-one methods are used.

Classroom lectures are generally used as a method of training large number of people. This approach is valid to develop awareness and knowledge in one of the library services but is seem as more appropriate for students for academic staff.

Senior librarians indicated that they deliver lectures with a handout about library facilities and their future plan is to enhance academic staff awareness, knowledge and skill in using EIR.

There is no formal programme or plan concerning the extent of training provided by the university library. As the head of training division said when asked about the schedule and frequency of training provision for academic staff:

Yes, we have a training programme but it is not a fixed programme; it depends on the number of academic staff who need training.

It seems the university library react to the specific needs of academic staff. They design, manage and deliver specific training when asked to do so. Some of their comments:

If they ask for any specific training, we try to conduct this for them.

Another comment stressed the response to a training request stated:

Sometimes we organise short one-to-one training sessions at the time of the request.

The frequency of delivering training is once or twice during the academic semester. This was stated clearly by a senior librarian when asked about the frequency of EIR training. He stated:

Training takes place once or twice during the semester. Sometimes we organise short one-to-one training sessions at the time of the request.

All the librarians interviewed disclosed that they have not carried out any actual evaluation concerning their training programmes. The effectiveness of training is therefore only subjectively judged. One of their comments:

So far there has been no real evaluation of training programmes, but we plan to do this in the future.

Another senior librarian commented on the training feedback and evaluation by stating:

We do not have feedback and evaluation systems in the library. We still try to build our strategy on reactions towards the complaints of individuals and groups.

Although the university library is not using any formal training feedback, as the senior librarians said, they can find out what their users want through communications, suggestion cards and subject librarians etc.

The shortage of professional librarians also was raised by two senior librarians, based on their experience. It seems that library staff need to be trained. The library tried to train their staff in a short time to reduce shortages and respond to specific training needs. Senior librarians highlighted this issue by stating:

I think our staff need more training so they can run training effectively.

Another senior librarian commented:

We need to train our staff how to train others.

6.5 Summary

Chapter six presents the findings of semi-structured interviews with both academic staff and senior librarians. The interviews with senior librarians was important to find out their perceptions regarding the use of electronic information resources and the training needs of the university academic staff. In addition, the interviews with academic staff were also important to find out their perceptions and experiences concerning use of electronic information resources, barriers and obstacles, training needs and preferred training methods. By interviewing these two groups, the researcher discovered how academic staff and library staff worked with each other, and the extent of cooperation.

CHAPTER SEVEN

DISCUSSION OF THE STUDY

7.1 Introduction

EIR have become an important tool in the learning processes in higher education and research institutes as they provide wide access to e-books, e-journals and multimedia academic resources that can be used to help, enhance and support lectures, teaching and research activities.

As outlined in Chapter One, the main aims of this research are to investigate, analyse and discuss the use of and need for EIR in promoting and enhancing the quality of teaching and research activities amongst academic staff at the University of Bahrain; the existing training in EIR is also investigated.

In order to achieve these aims, the researcher used a two-phase research design approach. Phase One consisted of a questionnaire survey (a quantitative method) and Phase Two comprised interviews (a qualitative research strategy) to collect the relevant data. The questionnaires were completed by mail by academic staff at the University of Bahrain. In-depth interviews were also conducted on a small sample of respondents to gather qualitative data in order to complement the quantitative data collected through the questionnaires. In addition, the professional librarians responsible for EIR and for training were also interviewed in order to gather their opinions about the awareness and usage of EIR by academic staff in teaching and for research; the training needs and preferred training methods of academic staff were also investigated.

This chapter integrates the results of the questionnaires and interviews, as presented in Chapter Five (Questionnaire) and Chapter Six (Interviews), and provides explanations of the findings in light of the previous research taken from Chapter Three (Literature Review).

7.2 The Need for and Use of EIR of Academic Staff

It is essential for the University's academic staff to use EIR for teaching and research in order to enhance the learning processes and research activities. The research reveals a low usage of EIR in teaching among the University's academic staff. Table 7.1 shows the use of and need for EIR of academic staff. It shows more than two-thirds of the respondents never used OPAC with almost the same percentage for E-journals, CD-ROMs and online databases. This indicates that there is a large number of academic staff who have never used the EIR provided by the University for teaching and research processes.

However, the table reveals that 70% of the academic staff believed that there is a need for E-journals for their research. While this belief is quite understandable among the academic staff, this need is not reflected in the use of the EIR provided by the University, as over two-thirds of the staff have never used this facility. This is in contrast to Renwick's findings on his study at the University of the West Indies (Renwick, 2005). He found that faculty members used electronic resources in teaching 65%, research 83% and clinical practice 37%. The findings of this study, on the other hand, support Applebee, Clayton and Pascoe (1997) who found that electronic resources were little used for teaching.

In teaching, the academic staff expressed the opinion that OPAC 10%, E-journals 28%, CD-ROMs 21% are important. This may explain the high percentages of respondents who never used these EIR. The reasons for this attitude may be related to other factors, such as skills and knowledge. These will be discussed and correlated with these finding in the next sections.

The table also shows that the use of the Internet for research is quite high 83%, compared with the other EIR, the use of which was either low or never used. The low

usage in teaching is mainly due to the extensive use of the traditional teaching method, which involves the use of a textbook, a one resource approach that academic staff are using. In research, researchers are driven to find information from various resources. For example, an Internet search engine is a useful tool to use at least as a researcher's primary research method. Another significant point that needs to be mentioned is that the skills and knowledge in using the Internet may be important factors contributing to this high rate of use and the need for such a facility in research.

Table 7.1: Use of and need for EIR among academic staff

	Never Use	Importance	
		Needs (Teaching)	Needs (Research)
OPAC	67.9%	10.7%	23%
E-Journals	65.4%	28.3%	70.6%
CD-ROMs	64.4%	21.2%	29.2%
Online Databases	65.3%	60.1%	57%
Internet	17.6%	23.7%	83%

This finding was confirmed by various interview statements. A lecturer in the College of Art stated, in response to an open question:

*I never use Electronic Information Resources
as part of my teaching and research activities.*

*I believe the textbook I use is more than
enough.*

The only high level of usage among the academic staff was use of the Internet. This may be due to two main reasons: the first is the skill and knowledge in using Internet search engines, such as Google, since the vast majority of academic staff seem to have basic skills in using these engines. The second is personal interest as respondents may have searched for personal information or news, for example. This was indicated

when the interviewees were asked why they used the Internet. A head of department stated:

The majority of our department academic staff use the Internet almost daily. Searching for personal information.

A lecturer from the College of Education stated, in response to an open question, that he used the Internet because of a personal interest in political news.

I use the Internet to search for the latest news, particularly on Gulf issues.

Hewitson (2002, p.51) confirmed that: "the Internet was the most popular information source, irrespective of skill levels."

7.2.1 Impact of Age on EIR Use

The analysis of the fieldwork (Chapters 5 and 6) shows that age is an important factor on the use of and need for EIR. For example, the percentages of those who never used EIR is highest for academic staff over 50 years old: 74.2% never used OPAC; 69% never used online databases; and 55.2% never used e-journals. Wiberley and Jones (2000, p.429) argued that senior scholars normally began to experience EIR by using OPAC in their library. This is not consistent with the finding in this study. This may be due to a lack of motivation to use the library and/or a lack of library training programmes. Rosen, Sears, and Weil (1987, p.178) anticipated that older staff might make less use of the Internet (computer) than their younger colleagues but Applebee, Clayton and Pascoe (1997, p.91) found this not to be the case. The difference between two sets of findings may be due to the fact that information education, particular concerning the Internet, improved between 1987 and 1997. The other factor is the social and information environment of the organisation. For the

University, there are two important factors: the first is educational background and the second concerns social aspects.

A user's previous educational background may be important as the vast majority of the respondents graduated from a traditional system of education, which was based on a single textbook approach that tends not to encourage information seeking as part of the learning process. The traditional curriculum in the education system lacks the application ICT and ICT key skills programmes.

Social factors are an important influence in the lack of use of EIR. Using such resources requires academic staff to become involved in a series of training courses to establish their skills and knowledge, as well as necessitating social interaction with various levels of information-seeking stakeholders, including librarians, administrators, and academic and technical staff. It is part of Arabian culture in general to be reluctant to admit to a lack of skill or knowledge, especially at higher levels or at a more advanced age. Thus, many staff do not wish to admit that they do not know how to use EIR. This was illustrated by a head of department when he stated:

I believe there is a social factor: Older staff found it difficult to attend EIR training courses with younger staff.

For the above reasons, older staff tend to shift what they do more to administrative activities; they prefer to be more involved in supervising work placement activities, organising examination panels, and so on.

This might explain the concerns of the university library regarding the non-attendance of older staff on their EIR training courses. As one of the senior librarians stated:

It is very rare to see older academic staff attending our EIR training courses.

7.2.2 Impact of Gender on EIR Use

From a gender point of view, usage of EIR was lower for women than for men as the results indicate: 67.5% of the female university academic staff had never used the EIR provided by the university compared to 43.7% of their male counterparts. This gap is partly due to social barriers and women need to break down such social barriers before they can improve their usage of EIR. The social interaction between males and females in Bahraini society is conservative due to cultural and religious factors and this fact may be reflected, to some extent, in the women's information behaviour in the university. Women need to interact with various EIR stakeholders in order to use EIR effectively and, since the vast majority of this interaction needs to occur with males at various levels, this represents breaking social values and norms for many women. This may contribute to the lack of use of EIR among the female academic staff. This social barrier was identified by a senior librarian who stated:

To be honest, there is a gap between male and female lecturers from a social point of view as there are social barriers. I believe females are reluctant to ask for help and advice from male staff and colleagues.

Another social barrier is that Bahraini society is male-dominated. Women still have to carry out domestic duties within the home and family; they still have social commitments besides work commitments, and these require both time and effort. This may shift the priorities of female academic staff onto aspects of their personal lives; looking after children and a husband may be more important than work.

Female lecturers have social commitments beside their departmental commitments. They need to balance their commitments. Sometimes, I have to change my plan due to their social commitments.

Applebee, Clayton and Pascoe (1997, p.91) indicated that men made greater use of e-mail than women and made greater use of their access to the World Wide Web. In this case, social problems may not explain the differences. The authors stated that: "there appears a clear need to ensure that women are included in training and other access programmes in the university" (Applebee, Clayton & Pascoe 1997, p.91).

7.2.3 Impact of Academic Ranking on EIR Use

The research reveals that the usage of EIR decreases as we move up the academic rankings. The lowest level of usage of EIR was found among professors where over 60% indicated that they had not used any EIR. This figure fell to 40.3% for lecturers. This is due to two main factors: the first factor is age and the second factor is management responsibilities. The result is similar to a previous study conducted by Adams and Bonk (1995). They found that the percentage of assistant professors who frequently used the catalogue (especially index/abstract databases) was between 10 and 15 percentage points higher than colleagues who were full professors. The vast majority of the high-ranking staff members are over 50 years of age and the education systems they were a product of lacked an ICT curriculum and ICT training programmes as shown before and therefore, they do not have the skills and knowledge needed to use EIR.

This finding is consistent with results from Renwick (2005) who noted that:

"... assistant lecturers and the most recent graduates rated themselves with the highest level of computer use, and all had computers at home with Internet access."

(Renwick 2005, p.21)

The second factor is that the university authority seems to use high-ranking academic staff as part of their senior management. The university is in the process of developing its departments in order to cope with the demands of the society by introducing new courses to reflect the needs of communities and to cope with changes in the learning and research processes, particularly concerning the pressure generated

from the use of ICT in learning and research. This was indicated by a high-ranking head of department who stated:

I never use EIRs as I have so many management commitments. I believe my contribution to the university should be concentrated on the management of the university, planning to develop the university.

7.2.4 Impact of Disciplines (Colleges) on EIR Use

The Colleges of Law, Art and Education had the highest percentages (80%, 75% and 69% respectively) of those who said they had never used EIRs compared with the Colleges of Information Technology 45%, Business 47% , Engineering 51% and Science 53%. This low rate of usage is mainly due to the traditional methods used in teaching and research in these departments, and the lack of awareness, skill and knowledge of staff.

Teaching methods in Humanities' Colleges are based on rigid systems that do not encourage students to search for information from different resources; instead, the system relies on fixed textbooks and sets of handouts. This has led the staff and students to shift towards the use of traditional information resources and printed materials.

Law and Art academic staff enquiries are restricted to traditional information resources. We have problems to meet their needs, particularly for the researchers, as they demand print copies of books and journals.

One of the main concerns regarding the lack of use of EIRs among Humanities Colleges is the attitude of senior management in these colleges. Some have the attitude that EIR are not needed in their teaching and research, and that traditional information resources are efficient and effective. This attitude is generated because of three factors. The first is that the vast majority of the senior staff have no experience

of the use of EIRs in learning, teaching and research, and have no background in information education. Secondly, they are older staff and are unwilling to change; in fact, they are resistant to change. Thirdly, the university lacks motivation, policies, training, and information literacy programmes in EIR. This attitude was made clear in one of the statements by a member of a Humanities department when he said:

I do not think we need to be concerned about not using electronic resources. It is good idea to have them around but I do not think there is an urgent need to use them due to the effective use of traditional methods.

The nature of the discipline and its learning processes, university libraries and students are the main factors that affect the lack of use of EIR, according to the opinion of another head of a Humanities department. These factors are not insurmountable if the attitudes of senior staff are supportive and if there is effective strategic planning. However, these factors, in fact, reflect the negative attitudes and the lack of strategic planning in adopting EIR in teaching and research.

The nature of the discipline, learning processes, university library, and students are the main factors for not using EIR as part of our departmental strategic planning.

Adams and Bonk's findings (1995) were contradictory with regard to the SUNNY University faculty in New York. They stated that:

"10% to 20% of the Humanities faculty reported daily or weekly use of online catalogues from both local and distant libraries. This was more than their colleagues in other disciplines."

(Adams & Bonk 1995, p.126)

However, Tomney, H. & Burton, P., (1998, p.423) stated that academic staff in Science and Engineering departments of Strathclyde University, Glasgow, were making better use of e-journals than staff in the Education and Art departments while Rowley *et al.* (2001, pp.13-14) noted that staff in Applied Science and Clinical Medicine departments make better use of Web databases than those in Humanities and Art. Another study conducted by Lazinger, Bar-Ilan and Peritz (1997, 511-512) at the Hebrew University of Jerusalem found that Internet use was consistently higher among faculty members in the sciences and agriculture than among those in the humanities or social sciences.

Ibrahim (2004, p.24) in a study of the use of e-resources by UAEU staff found no significant differences across the university colleges. Although, he noted that the Engineering College was the lowest in terms of EIR use. He explained this by referring to the workload of academic staff and stated that the low level of EIR use among academic staff was related to their teaching loads.

“The low use of e-resources in the UAE may have a relationship with increasing academic staff loads There was no significant difference in usage across the colleges of the campus, with the College of Engineering having the least usage.”

(Ibrahim 2004, p.24)

7.2.5 Impact of EIR Needs and Use

The research found that the main driver for EIR use is to meet the needs of academic staff. This is represented in Figure 7.1. As can be seen from the figure, the needs and their effect on the use of EIR, illustrates that the drive to use EIR is strong when academic staff use the Internet and that this drive is based on their own personal interest and motivation. The other important factor is that the Internet search engine is well established in the information market. This has led many users to acquire the skills and knowledge in how to use the Internet in order to meet their needs; Google is

a good example. Unfortunately, the drive for using EIR in teaching and research was weak because of the lack of internal motivation to encourage academic staff.

The drive created by need is the most important area that the University management needs to explore in order to enhance the use of EIR in teaching and research.

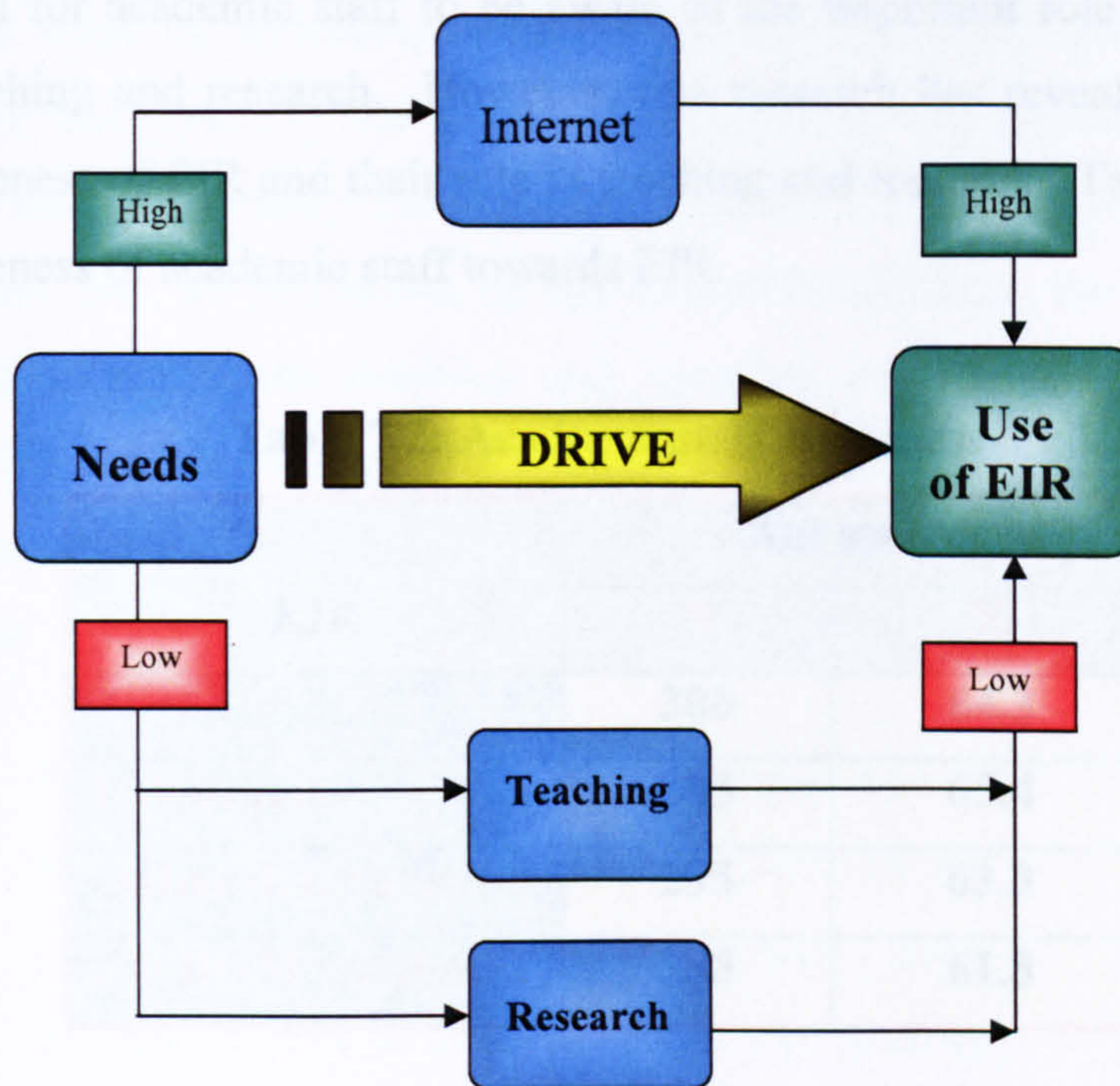


Figure 7.1: Drivers to use EIR

The above findings, which show that the usage of EIR among the University academic staff is low, are shared by various researchers in the Gulf States. Ibrahim (2004, p.24), for example, showed a low level of use of EIRs among academic staff in the United Arab Emirates University; Rehman and Ramzy (2004b, p.155) showed that the use of EIR at Kuwait University was low; and Marghalani and Hafez (1993, p.39) indicated a low level of use of EIR among academic staff at King A. Aziz University, Saudi Arabia. These findings, which are consistent with this research, may be due to similarities in the social, teaching and research environment.

However, a similar research study at Glasgow University, carried out by Vicente, Crawford and Clink (2004, p.401) showed a higher level of use. The Internet, in particular, was most widely used and this view was also shared by Jirojwong, S. & Willian, M., (2001, p.73) who carried out research at an Australian regional

university. Although, Renwick's study (2005, p.24) showed that there was a low usage of EIR among members of the medical science faculty at the University of the West Indies.

7.3 Academic Staff Awareness

It is essential for academic staff to be aware of the important role played by EIR if used for teaching and research. However, this research has revealed that there is a lack of awareness of EIR and their role in teaching and research. Table 7.2 shows the lack of awareness of academic staff towards EIR.

Table 7.2: Academic staff awareness

EIR	Not aware	
	N	%
OPAC	300	64.3
E-Journals	305	65.4
Online databases	295	63.3
CD-ROM databases	288	61.8

OPAC, E-journals, online databases and CD-ROM databases are essential resources for teaching and research. Academic staff need access to the latest information, research and data in their field to support and enhance their teaching and research activities; this helps them to "keep in touch" in their field. Nevertheless, a lack of awareness of the academic staff stems from various factors.

The fieldwork analysis indicated that female lecturers were less aware of the availability of EIRs in the university that can be used in their teaching and research, with 60% of females and 57% of males saying that they were unaware of these. This gap, at 3%, however, is not massive and the reason may not be anything to do with the nature of the women themselves but may be due to two main reasons. The first reason is the fact that female lecturers work mainly in the Humanities' colleges (61%). These colleges have fewer ICT activities within the curriculum and follow traditional teaching and research methods. The second reason concerns social factors

in that Bahraini society is still male-dominated and women still have family and social commitments as discussed earlier.

From academic point of view, this result is related to the needs and use of EIR. EIR awareness decreases as we move up the academic ranking, (62.5% of professors were not aware; 62% of associate professors; 54% of assistant professors, 47% of senior lecturers and 46% of lecturers). It seems strange that professors and associate professors are less aware of the availability of EIR in the university but the main problem for this is probably the university culture. Unfortunately, the university culture dictates that, as you move up the academic rankings, the rankings become more prestigious with less teaching and research, and more administration and protocol. This means shifting from largely educational processes and duties to administration and protocol activities, as can be seen from the comments of one head of department:

I do not need to think about using EIR in teaching and research. I leave this to the young lecturers. I have too many responsibilities in administration and meeting with various external bodies. I represent the university in various external activities.

The other important factor is the fact that the vast majority of the senior ranks have been educated using traditional learning processes; they did not have the opportunity to learn about and use EIRs in teaching and research when they were young. There is also a fear of change and this leads to a lack of motivation to learn new methods. Since they have rank and prestige, there is no other motivation to change.

The College of Humanities was less aware of the availability of EIR at the university. For example, in the College of Law, 75.6% were unaware of the EIR whereas the figure was 43% for the College of IT. This can also be explained with regard to the teaching and research processes used in the colleges with Humanities' teaching processes which rely on traditional print-based methods, while the Science

departments are being pushed to use EIR due to the nature and demands of the curriculum.

Similarly years of experience in teaching and research have a negative correlation with awareness of EIR as lecturers with 31-40 years of experience are the least aware of EIRs. Just over two-thirds (67.4%) of the lecturers were not aware of the EIR, while only 39.2% of those with 6-10 years experience were not aware of them. The more experienced lecturers tend to use a traditional teaching style and have not experienced using EIR in teaching and research before. They are not willing to change and may even be resistant to change. One experienced lecturer stated, in response to an open question.

I am happy in my teaching and research processes. My style is tried and tested and I do not need to gamble on a thing I have never used nor tried. Nobody can force me to change.

(Lecturer with over 30 years' experience)

Figure 7.2 shows the awareness model and illustrates the various factors that contributed to this lack of awareness. The main factors are: the educational system, the teaching methods used, university decision-making and the university library.

1. Role of the library

One of the main factors contributing to the lack of awareness is both the lack of staff education and the promotion of EIR by the library. This finding was echoed in previous research.

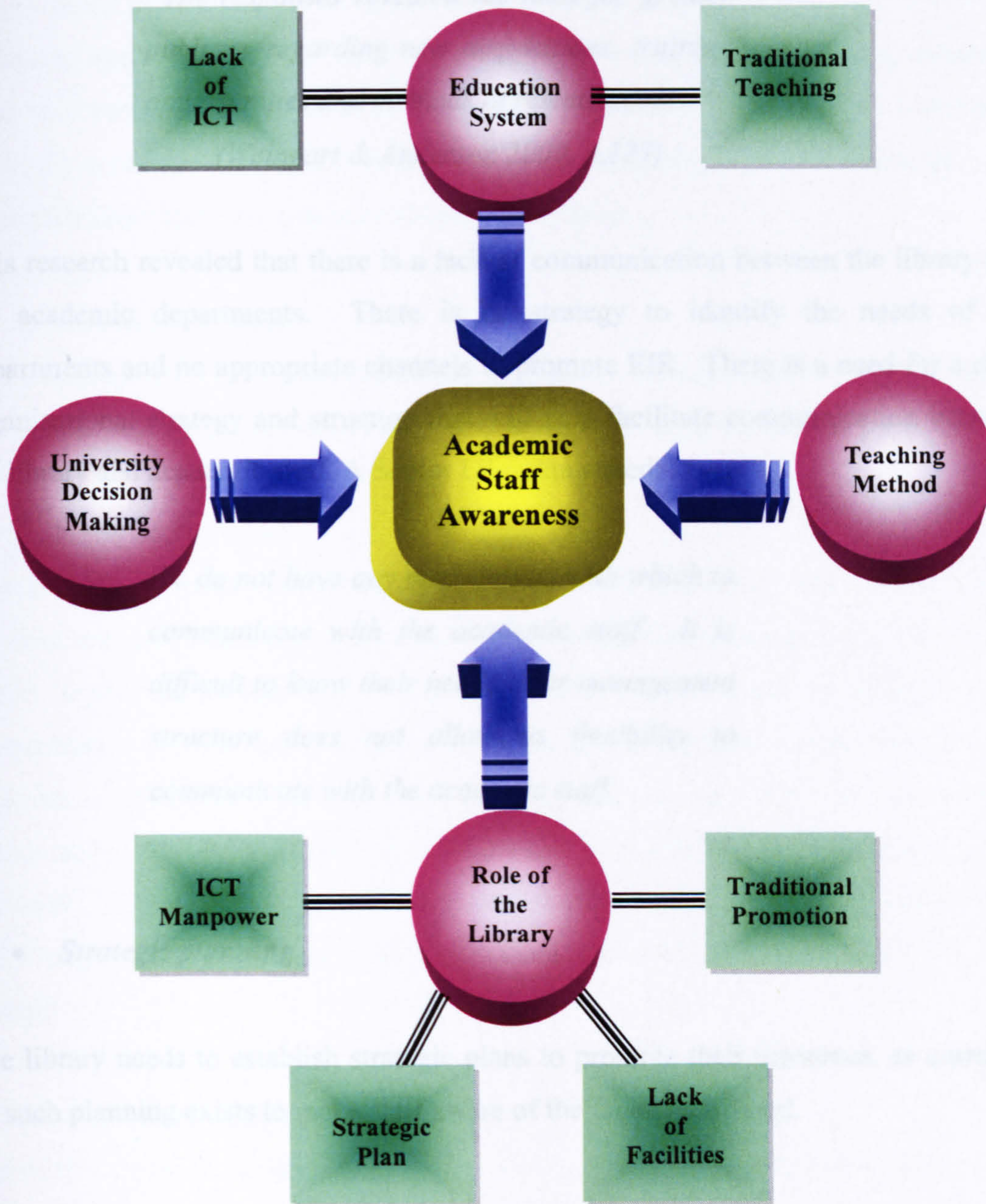


Figure 7.2: Model showing the lack of awareness of EIR

1. Role of the library

One of the main factors contributing to the lack of awareness is both the lack of staff education and the promotion of EIR by the library. This finding was echoed in previous research.

“The responses revealed the need for greater publicity regarding new acquisitions, training opportunities and methods of remote access.”

(Weingart & Anderson 2000, p.127)

This research revealed that there is a lack of communication between the library and the academic departments. There is no strategy to identify the needs of the departments and no appropriate channels to promote EIR. There is a need for a clear organisational strategy and structure that will help facilitate communication between the library and academic staff. A Senior Librarian stated:

We do not have any mechanisms with which to communicate with the academic staff. It is difficult to know their needs. Our management structure does not allow us flexibility to communicate with the academic staff.

- ***Strategic planning***

The library needs to establish strategic plans to promote their resources, as currently no such planning exists to make staff aware of the facilities offered.

- ***ICT skilled manpower***

The library is also lacking librarians with good ICT skills who could demonstrate the potential and the role of EIR in teaching and research.

- ***Traditional methods of promotion***

The library needs to play a much bigger role in increasing the awareness of EIR among the academic staff. There is a need for more effective approaches to increase this awareness, as the traditional leaflet on the library desk is no longer successful.

- ***Lack of facilities***

A major contributor is the lack of off-campus communication since, currently, academic users need to be on-site to access the library's EIR. This is not convenient for many academic staff as the university culture and tradition allows staff to go home once their daily teaching commitments are completed.

2. Education system

The vast majority of academic staff at the University have not seen or experienced the use of EIR in teaching and research as they have been taught by traditional methods.

3. Teaching method

The teaching methods used by academic staff are still traditional: textbooks or written handout are used and work is recorded on traditional black/whiteboards. There is no Smart board in the university; and no e-mail system exists to support group discussions, communication between academic staff, department administration and students. Furthermore, students are not required to use EIR for assignments, presentations and projects and therefore, there is a need to change these teaching methods. This is not easy as it requires learning new skills and acquiring new knowledge. Some resistance may come from academic staff who have a fear of change.

4. University decision-makers

University decision makers need to establish a strategic plan to implement EIR in teaching and research. This needs to include a plan to motivate academic staff to use EIR as well as the time and mechanisms to gain this knowledge.

7.4 Academic Staff Knowledge and Skills

One of the main issues in shifting from traditional, print-type collections to digital collections is the skill needed to access and use EIR effectively. Accessing and processing digital publications needs certain software and hardware and the end-user therefore needs certain levels of skill and knowledge in accessing and processing before being able to use the resources. Other necessary skills are searching, navigating and printing electronic documents.

The first step in using EIR is to acquire knowledge from the information provider, the library, concerning what EIR are available and then users must be to use these for a specific purpose.

Adams and Bonk (1995, p.129) indicated that, most often, what hinders the use of electronic information resources is lack of knowledge. They stated:

“The most common obstacle to the use of electronic information resources reported by faculty is a lack of knowledge about what is available.”

(Adams & Bonk 1995, p.129)

This research reveals that the vast majority of the academic staff has basic computer skills; this includes skills in using the Internet. This skill may be due to searching to fulfil home internet needs, rather than work needs and also because of, to some extent, the news-searching behaviour that has occurred in the majority of the Gulf States. One of the lecturers stated, in a response to an open question:

News searching was the main driver for me to learn the basic skills of using the Internet.

This is valid, as the majority of mature people in Arab states are interested in politics, particularly the political situation in the area. The region's current issues: Iraq, Iran and Palestine, for example, are reinforcing this. Other researchers have identified similar behaviour, in terms of Internet use, on the part of academic staff at the University of Bahrain, as Elayan and Al-Qessi (1999, p.24) found the main motives for using the Internet were for accessing news and for entertainment. They stated:

"The study revealed that 95% of the respondents used the Internet for information searches, e-mail, browsing newspapers, accessing the news, and for entertainment."

(Elayan & Al-Qessi 1999, p.24)

As stated before this research has revealed a discouraging level of skills in EIR in teaching and research. The vast majority of the academic staff revealed that they are not competent in using EIR and 45% responded that they had no skills in using EIR in teaching and research. The only high response (90%) was for skills in using the Internet. This is due to various factors, including a lack of training and awareness. These will be discussed in more detail in the following sections.

Unfortunately, the lack of skills concerning EIR has led to frustration. It is quite understandable that attempting to use EIR without competence is a difficult option and can lead to frustration and to negative attitudes towards such resources. One university lecturer stated:

I tried to use electronic resources as part of my teaching plan; I found the searching and accessing process frustrating.

The gender analysis of skills showed that females were less competent (67%, not skilled) and had fewer skills than male staff (42%, not skilled).

Academic ranking and years of experience correlate negatively with the level of skills in using EIRs. In other words, the skills in using EIRs decrease as academic ranking increases. 62% of professors rated their skills as poor or very poor compared with 46% of lecturers while 67.4% of academic staff with 31-40 years of experience had poor or very poor in skills compared with 39% for staff with 6-10 years of experience.

Staff in the Humanities' Colleges demonstrated the lowest levels of competence in using EIRs. 80% of those in the College of Law stated that their skills were poor or very poor compared with Art 72%, Education 69%, College of IT 39% and the College of Business 44 %.

The findings regarding years of experience showed that older staff rated the lowest in terms of skills with over 58% of academic staff aged 50 and over responded that their skills were poor or very poor. This finding is similar to that found in a previous study carried out by Majid and Abazova (1999, p.104). They discovered that the use of Electronic Information Resources and services was influenced by factors such as the computing skills of academic staff. So, a majority of faculty members with "very good" and "excellent" skills had stated that they frequently used such resources and services while their use was minimal among faculty members with poor computer literacy skills.

The Digital Information culture within the State of Bahrain in general, and at Bahrain University in particular, is a new phenomenon and so education in Digital Information, especially in the early stages and at an undergraduate level, is still lacking as there are no training courses available concerning electronic information. This has led to the vast majority of academic staff at the university being without the knowledge they need to help them use EIR in teaching and research. This was made quite clear when a head of department stated:

I have never been on any training course in electronic resources. This is truly new for me, I have no knowledge about it, in fact I heard the term from you today.

The research shows that, for over half of the academic staff, knowledge concerning EIR is poor or very poor (online database: 51.1%; e-journal: 53%; CD-ROM: 54%; OPAC: 53%). However, their knowledge of the Internet was very encouraging, with 96% of respondents rating their knowledge good or very good. This is due to other factors not related to teaching and research, as explained earlier.

The lack of knowledge has an impact on the level of EIR use by academic staff and these findings, showing how poor academic staff rate their skills to be can be cited as one cause that explains their lack of use of EIRs. For example, 67% said they never used OPAC, 64% did not use CD-ROMs, 58% Online databases, and 65% never used e-journals.

One explanation for these low levels of knowledge on the part of academic staff is their age. The majority of the academic staff (66%) is over 40 years old and the research shows that over 56% of them rated their knowledge as poor or very poor. This links to the fact that they are used to the traditional approaches in teaching and research and they may also fear change. It also indicates that they have not received any form of EIR training throughout the process of their education.

The research also reveals that staff at the Humanities' Colleges had the poorest levels of knowledge of EIR. 80% of staff at the College of Law and 73% at the College of Art rated their knowledge of EIR as poor or very poor while only 34% of staff in IT, 39% in Business, and 43.3% in Engineering said the same. This is perhaps due to the teaching and research processes used.

As stated, the knowledge of EIR decreases the higher the academic ranking. Professors, 59% of whom rated poor or very poor on knowledge of EIR, scored the lowest in terms of knowledge while lecturers were better at 41%. The same correlation occurs between knowledge of EIR and academic experience. The most experienced, those with 31-40 years' service, were the lowest rated with 58% and those rated best were lecturers with 6-10 years of experience. These findings may be explained by the fact that more experienced and high-ranking academic staff were used to certain processes and methods in teaching and research and are not willing to

change these; they may also fear change or lack the drive and motivation to make changes: the use of EIRs in teaching and research, for example.

Males are more knowledgeable about EIR than their female counterparts as 67% of females rated poor or very poor compared with 43% of males. This is due to two main reasons. The first is the discipline; the majority of women teach in Humanities areas and they use traditional methods in teaching and research, while the men work mainly in the field of science and technology and, as such, have a greater need to search for materials. The second reason is the social factor. There are social barriers that prevent women interacting with male. This contributes to her limited opportunities in seeking and support to improve her knowledge.

This lack of knowledge raises concerns and there is a need to overcome this problem in order to promote the use of EIR in teaching and research.

7.5 Relationship between the Demographic Variables and Awareness, Knowledge, Skills, Needs and Use of EIR

7.5.1 Gender

Figure 7.3 indicates that there is a gap between the need for and use of EIR, and the awareness, skills and knowledge of the academic staff in terms of gender, showing that the awareness, skills and knowledge do not reflect the needs and use of EIR for academic staff. In each of the areas illustrated below, the percentages for males are higher than for their female counterparts on use and needs. The reason for this gap is due to social factors, and teaching and research processes. Therefore, there is a need to reduce the gap between the needs and use of EIR and the awareness, skills and knowledge in order to achieve the effective use of such resources and justify the University's investment in them.

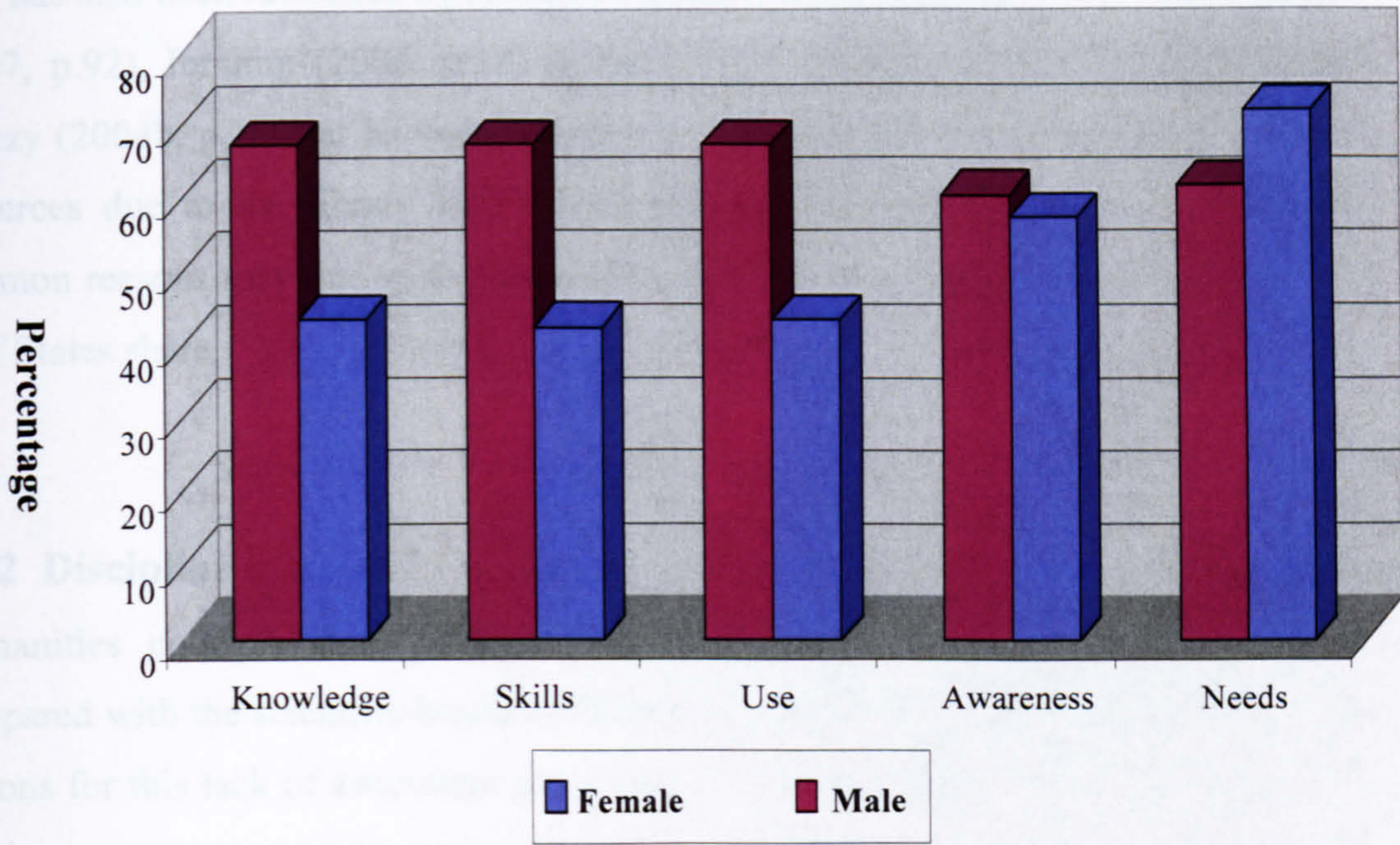


Figure 7.3: Relationship between the genders

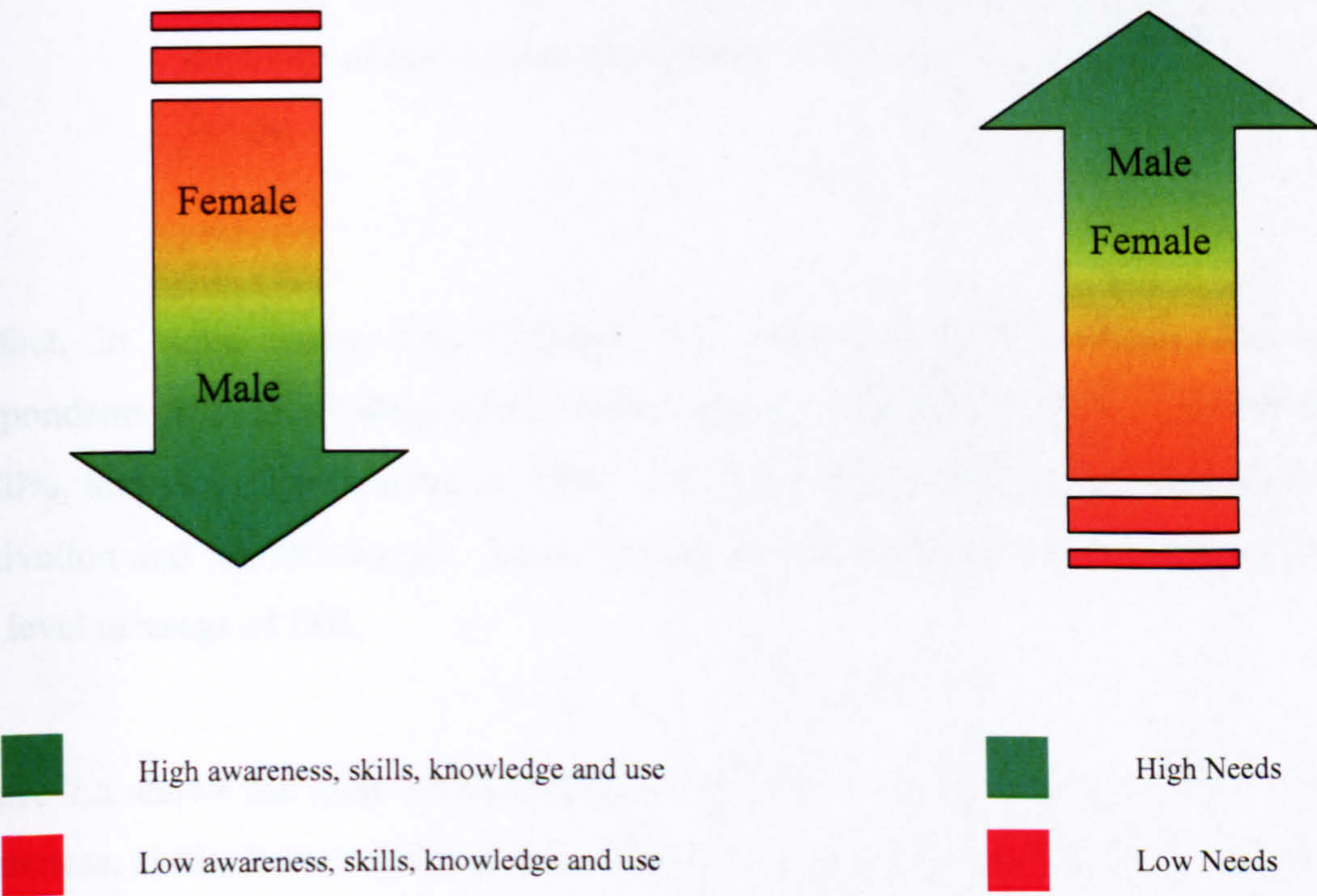


Figure 7.4: Relationship between the genders

This has also been identified by research carried out by Applebee, Clayton and Pascoe (1997, p.92), Ibrahim (2004, p.18) in the United Arab Emirates, and Rehman and Ramzy (2004b, p.150) at Kuwait University. They identified low levels of use of e-resources due to the library staff's lack of awareness of e-resources. These two common reasons may be due to the similarities in culture and education systems that the Gulf States share.

7.5.2 Discipline

Humanities colleges show a lack of awareness, skills and knowledge of EIR compared with the scientific-based colleges and lag well behind in this area. The main reasons for this lack of awareness are a lack of drive in terms of needs; a lack of EIR training programmes to increase awareness; and a lack of strategic planning by the departments and the University as a whole to adopt a strategy to use EIR in teaching and research. This point was stated by one of the Art lecturers in response to an open question.

I am not aware of the availability of EIR in my discipline that can help and enhance my teaching and research. I have not heard anything about it from the library. It is new for me.

In fact, in some Humanities Colleges, the percentage raises serious concerns. Respondents from the College of Law rated lack of skills at 80%, lack of knowledge at 80%, and lack of awareness at 75%. This is due to traditional teaching, lack of motivation and fear of change. There is a need to change these in order to ensure a fair level of usage of EIR.

Figure 7.5 shows the relationship between the colleges, the perceived need for EIR, awareness, skills, knowledge and use. It is clear that these are negatively correlated as skills, knowledge and use decrease as needs increase.

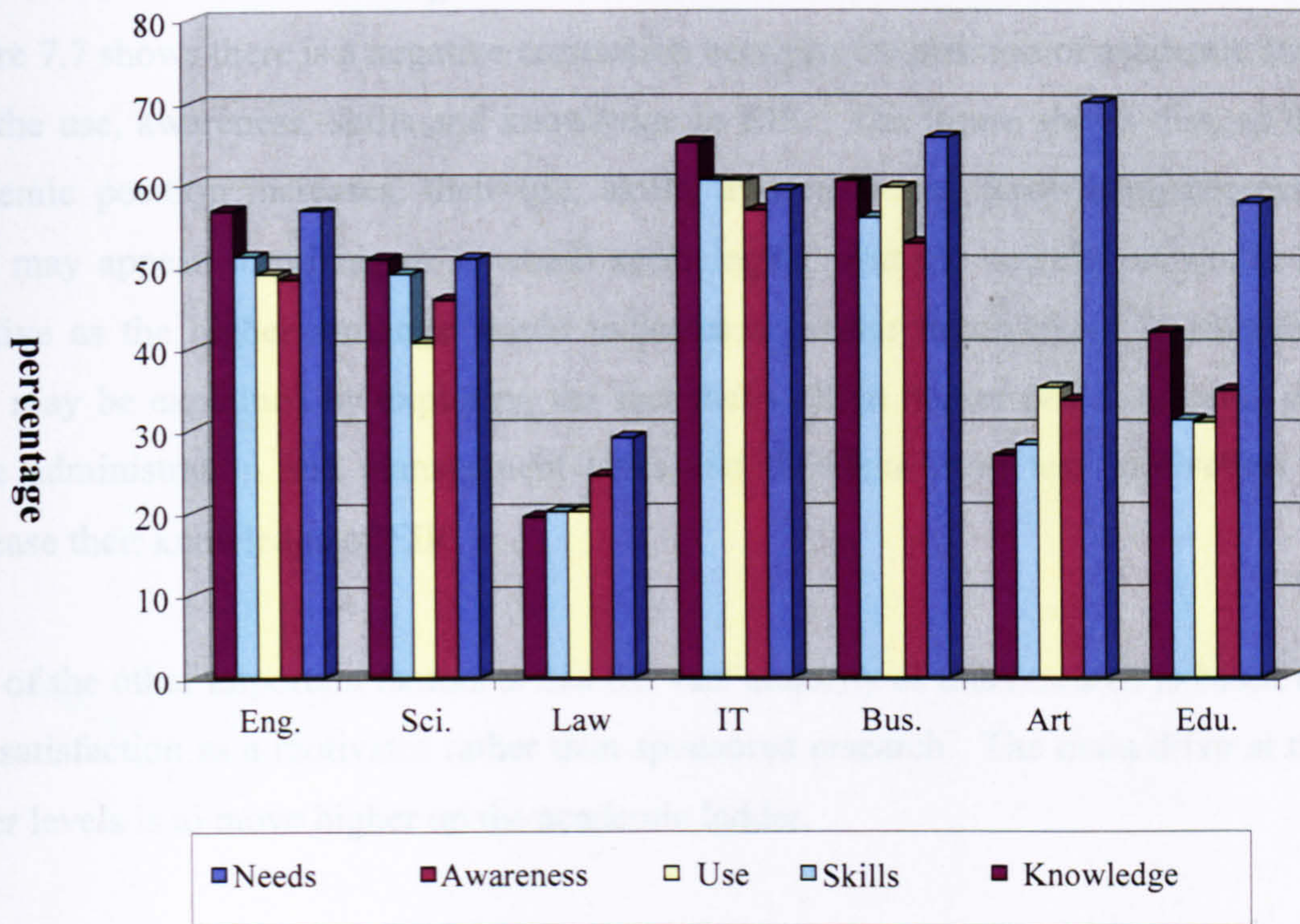


Figure 7.5: Relationship between colleges

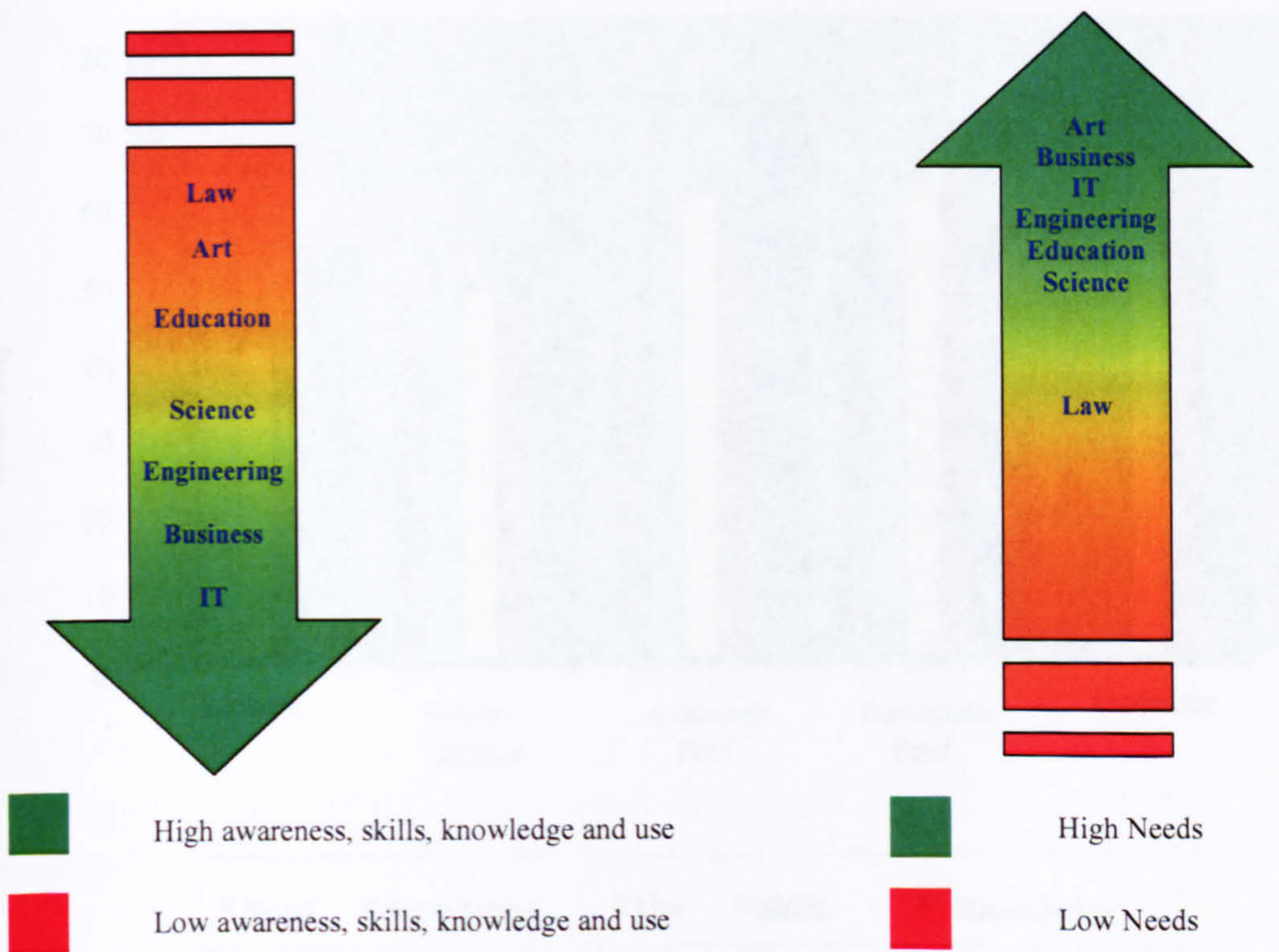


Figure 7.6: Relationship between colleges

7.5.3 Academic Staff Ranking

Figure 7.7 shows there is a negative correlation between the position of academic staff and the use, awareness, skills and knowledge in EIR. The figure shows that, as the academic position increases, their use, skills, awareness and knowledge decrease. This may appear surprising as it would seem logical that the correlation would be positive as the higher rankings would indicate a greater involvement in research. This may be explained by exploring the fact that staff in higher positions carry out more administration and management tasks and therefore have less motivation to increase their knowledge of EIR.

One of the other important factors is that the vast majority of this research is based on self-satisfaction as a motivator rather than sponsored research. The main drive at the lower levels is to move higher up the academic ladder.

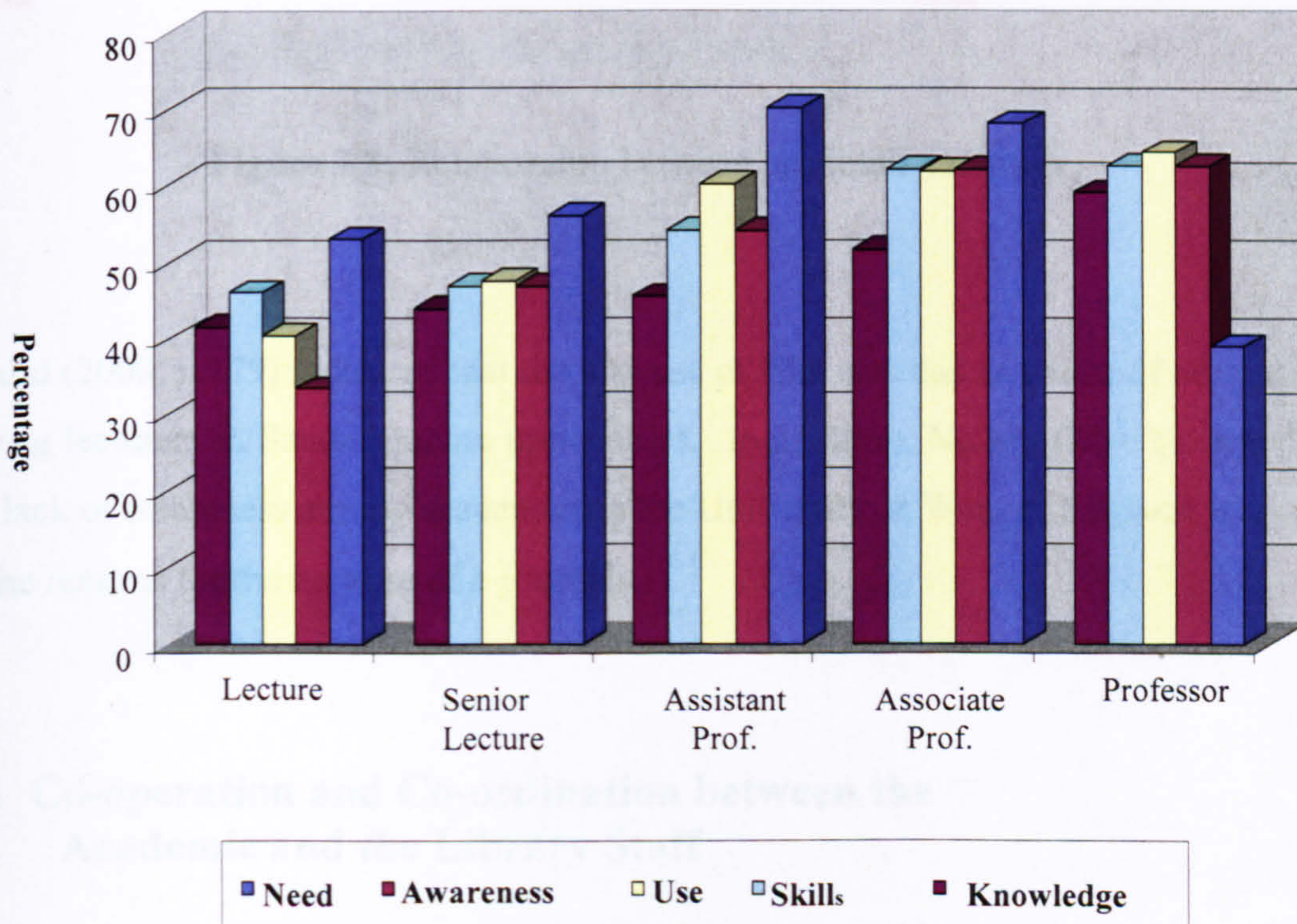


Figure 7.7: Relationship between academic rankings

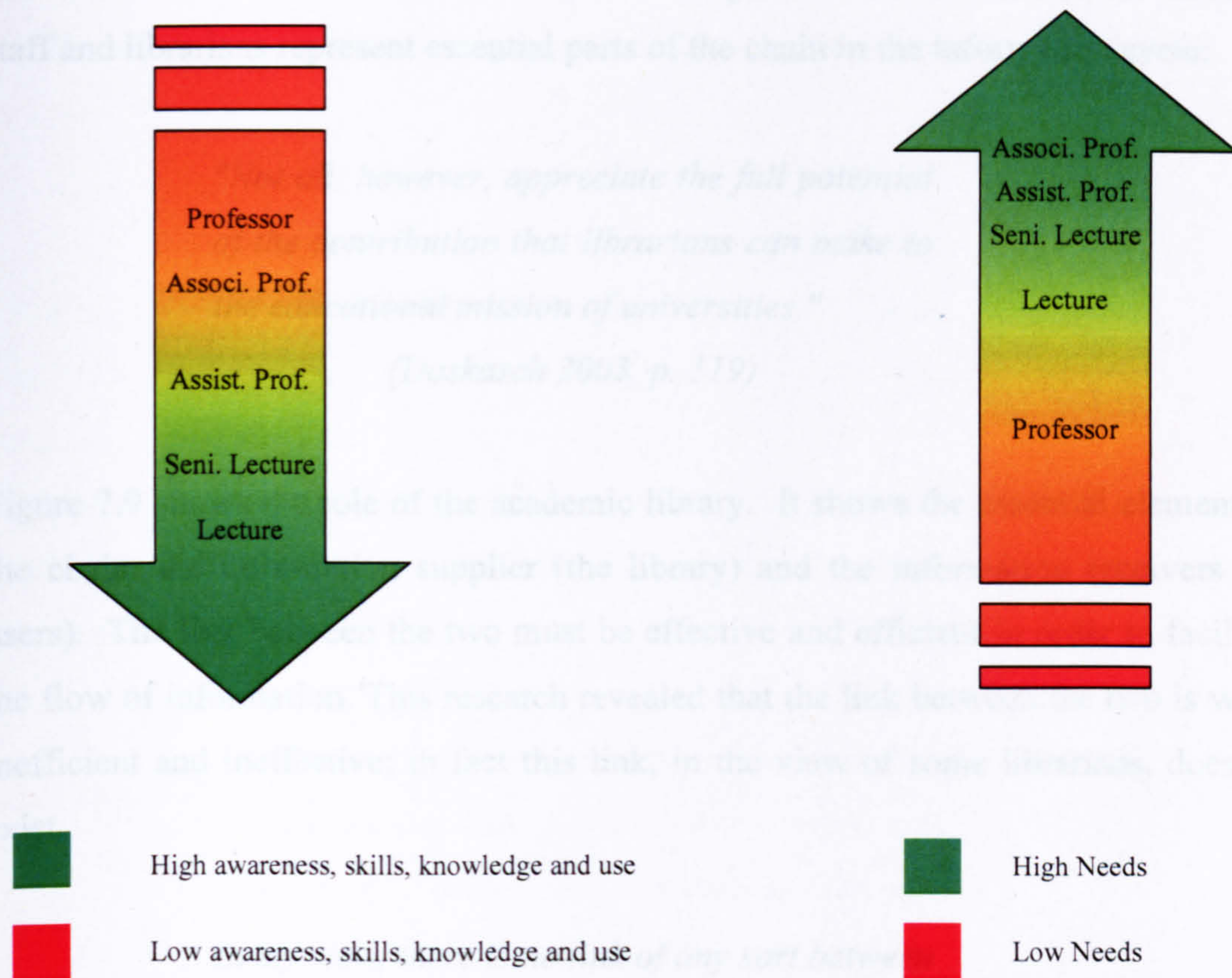


Figure 7.8: Relationship between academic rankings

Khalid (2000, p.179) indicated that the low use of EIR was due to a lack of awareness among lecturers in Saudi Arabian universities. In addition, Nelson (2001) noted that the lack of awareness among academics at the University of West of England was one of the reasons for the non-use of e-journals.

7.6 Co-operation and Co-ordination between the Academic and the Library Staff

7.6.1 Factors Impacting on Cooperation and Coordination.

The main activity of the University is teaching and research and these require access to and the use of information in teaching and research. University library is the centre

for managing information resources and the academic staff are the main users who access and use this information for their teaching and research. Therefore, academic staff and librarians represent essential parts of the chain in the information cycle.

"Not all, however, appreciate the full potential of the contribution that librarians can make to the educational mission of universities."

(Doskasch 2003, p. 119)

Figure 7.9 shows the role of the academic library. It shows the essential elements of the chain: the information supplier (the library) and the information receivers (the users). The link between the two must be effective and efficient in order to facilitate the flow of information. This research revealed that the link between the two is weak, inefficient and ineffective; in fact this link, in the view of some librarians, does not exist.

In my view, there is no link of any sort between us as a library and the academic staff.

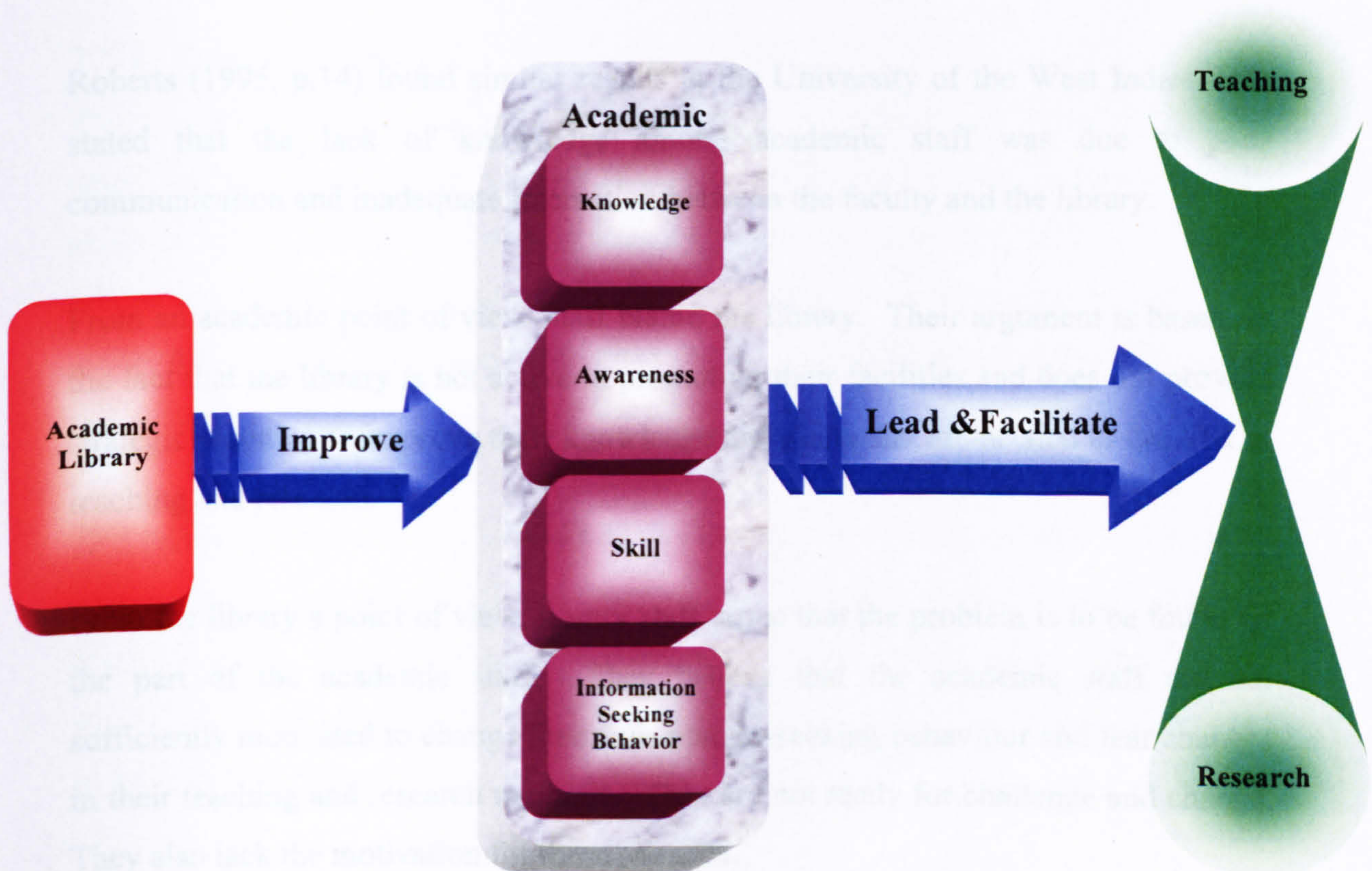


Figure 7.9: Role of the academic library

The weak link, communication, has contributed to the lack of awareness of EIR among academic staff. In other words, academic staff are not aware of the availability of EIR and their usefulness in helping and supporting their teaching and research.

I am not aware e-journals are available, or accessible from our university of Bahrain library. Nobody told me about it.

The research also identified the fact that vast majority of academic staff, particularly academic staff from Humanities Colleges, lacked the competence and knowledge to access and use EIR.

I do not have the competence or knowledge to access and use EIR that will enable me to use them in my teaching and research as I am not aware of any promotion from the library concerning this issue.

Roberts (1995, p.14) found similar results at the University of the West Indies. He stated that the lack of knowledge among academic staff was due to poor communication and inadequate interaction between the faculty and the library.

From an academic point of view, staff blame the library. Their argument is based on the fact that the library is not active in promoting their facilities and does not provide strategic planning to improve their knowledge and skills that are needed to use EIR in teaching and research.

From the library's point of view, library staff argue that the problem is to be found on the part of the academic staff. They believe that the academic staff are not sufficiently motivated to change their information-seeking behaviour and fear changes in their teaching and research methods. They are not ready for challenge and change. They also lack the motivation for these changes.

Academic staff are not motivated to take the challenge of shifting from the traditional resources used in teaching and research to the use of EIR.

To strengthen the links and reduce the conflict, the University authority could play an important role in this issue and take this issue seriously. This could be achieved by formulating a strategic plan which would take in consideration both the librarians and academic staff. One of the main issues regarding strategic planning is that it should encompass the motivation and behaviour of both the librarians and the academic staff as outlined in this thesis.

7.7 Barriers and Obstacles to the Effective Use of EIR

This section discusses and analyses the main barriers and obstacles that hinder the effective use of EIR in teaching and research among academic staff at the university.

7.7.1 Education System

The education systems in both schools and in the University have contributed negatively to the use of EIR because ICT skills are still not viewed as important key skills in schools and as part of a University education. Including ICT key skills at school and during the first year of University education are important in helping to promote awareness, knowledge and skills in ICT and EIR and their use in teaching and research.

This problem constitutes an obstacle to the current use of EIRs as well as impeding any strategy to implement EIRs in teaching and research in the future. The vast majority of the academic staff have been educated via traditional systems, systems which did not include ICT as part of the curriculum. This view is shared by the staff in the university library.

The majority of academic staff are lacking in the basic ICT skills needed to deal with EIR. I believe this is due to their educational background.

This has contributed to the presence academic staff who are less skilled, less aware, and have a poor knowledge of EIR. This view is consistent with the opinions of academic staff and such a view was stated by a head of department.

Previous education: the nature of our previous education system has contributed to our current teaching methods and this has contributed to our not using EIR effectively.

7.7.2 Organisation

The University authorities therefore need to clarify their strategic planning for ICT and to introduce and implement an EIR strategy concerning teaching and research and to justify the investment in EIR. It seems that there is also a lack of strategic initiatives to promote the awareness, skills and knowledge of females compared with their male colleagues, and a lack of strategic planning in relation to information literacy and the promotion of EIR.

Although the University has equal opportunities policies in place, this research has revealed that there is a gap between males and females in their skills, knowledge and the use of EIR in teaching and research.

There is a need for decisions from a higher level in the organisation to drive forward the use of EIR. Sometimes, the academic staff do not take our promotion of this seriously.

One method the organisation could adopt to encourage the use of EIR is to incorporate training in EIR in Continuing Professional Development (CPD) policy.

This could include offering incentives to join training courses. This may contribute to increasing the awareness, knowledge and skills of staff in the use of EIR for teaching and research.

7.7.3 Academic Staff

Academic staff constitute the main target for increasing the use of EIR and there are three factors that influence them: The University and the library; the culture and background of users; and motivation. (See Figure 7.10)

The second issue concerning academic culture is the fact that the staff are used to traditional methods of teaching and research so moving toward using EIR represents a shift in their information behaviour, moving them to the unknown. This creates a sense of inner concern that can lead to fear of change which may drive staff to stick to their current activities rather than risk moving into unknown territory which may well require extra effort.

The third factor is a psychological one. Currently, academic staff lack the psychological drive and motivation to use EIR.

Figure 7.11 below shows the main barriers and constraints revealed by this study. These barriers concern language, time (work overload), traditional teaching methods, a lack of motivation and the continuous change of ICTs.

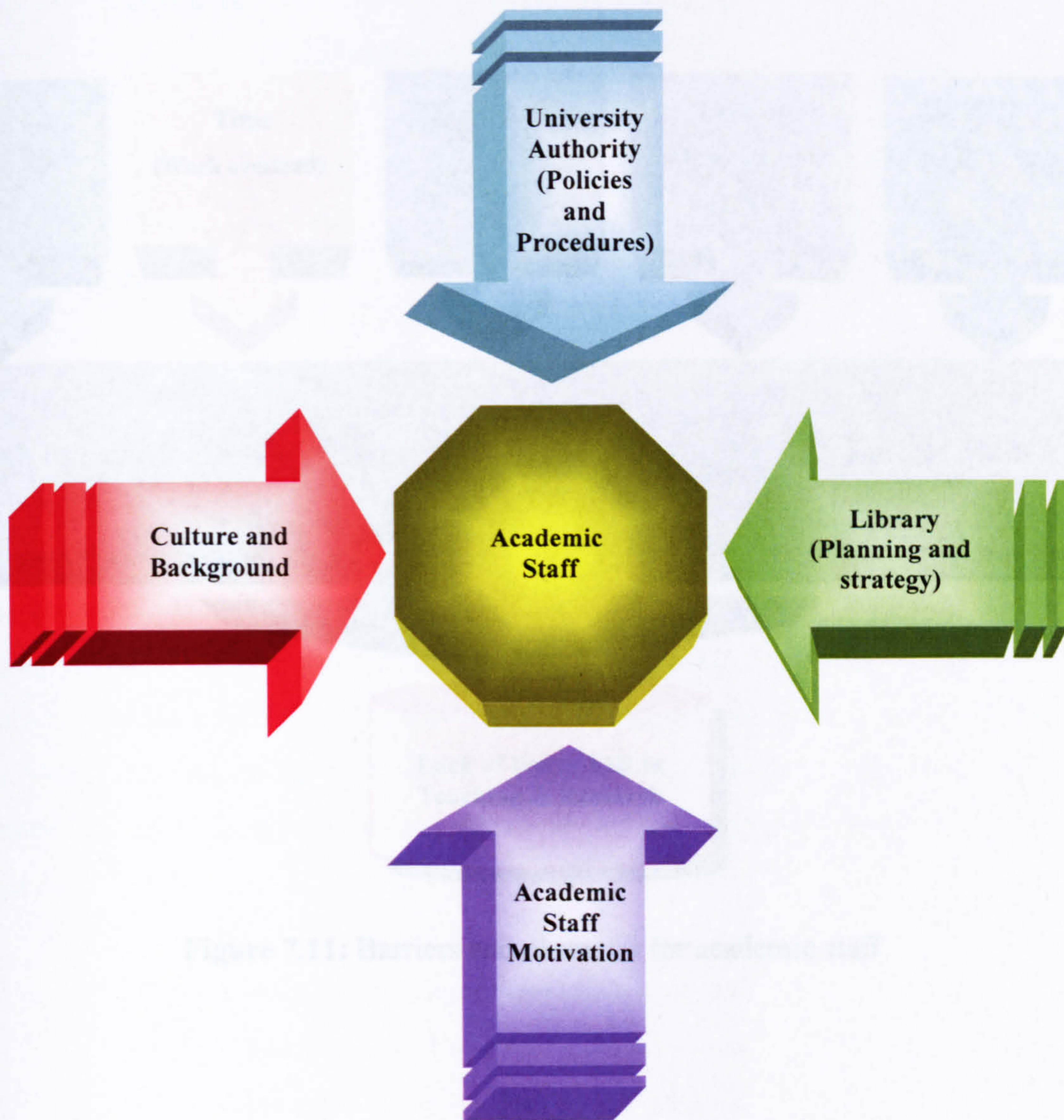


Figure 7.11: Barriers and constraints to academic staff

7.7.3.1 Language Barriers

The academic staff lack the competency in the English language that is needed in the vast majority of cases to access and use IIR effectively. This problem is most pronounced among Qatari staff whose education has included nothing or very little to do with ICT. Gattafar (2004, p.24) also found that language was a barrier to using e-resources among academic staff at the University of the United Arab Emirates. He stated:

Figure 7.10: Factors that influence academic staff

Figure 7.11 below shows the main barriers and obstacles revealed by this study. These barriers concern: language, time (work overload), traditional teaching methods, a lack of motivation and the continuous change of ICT.

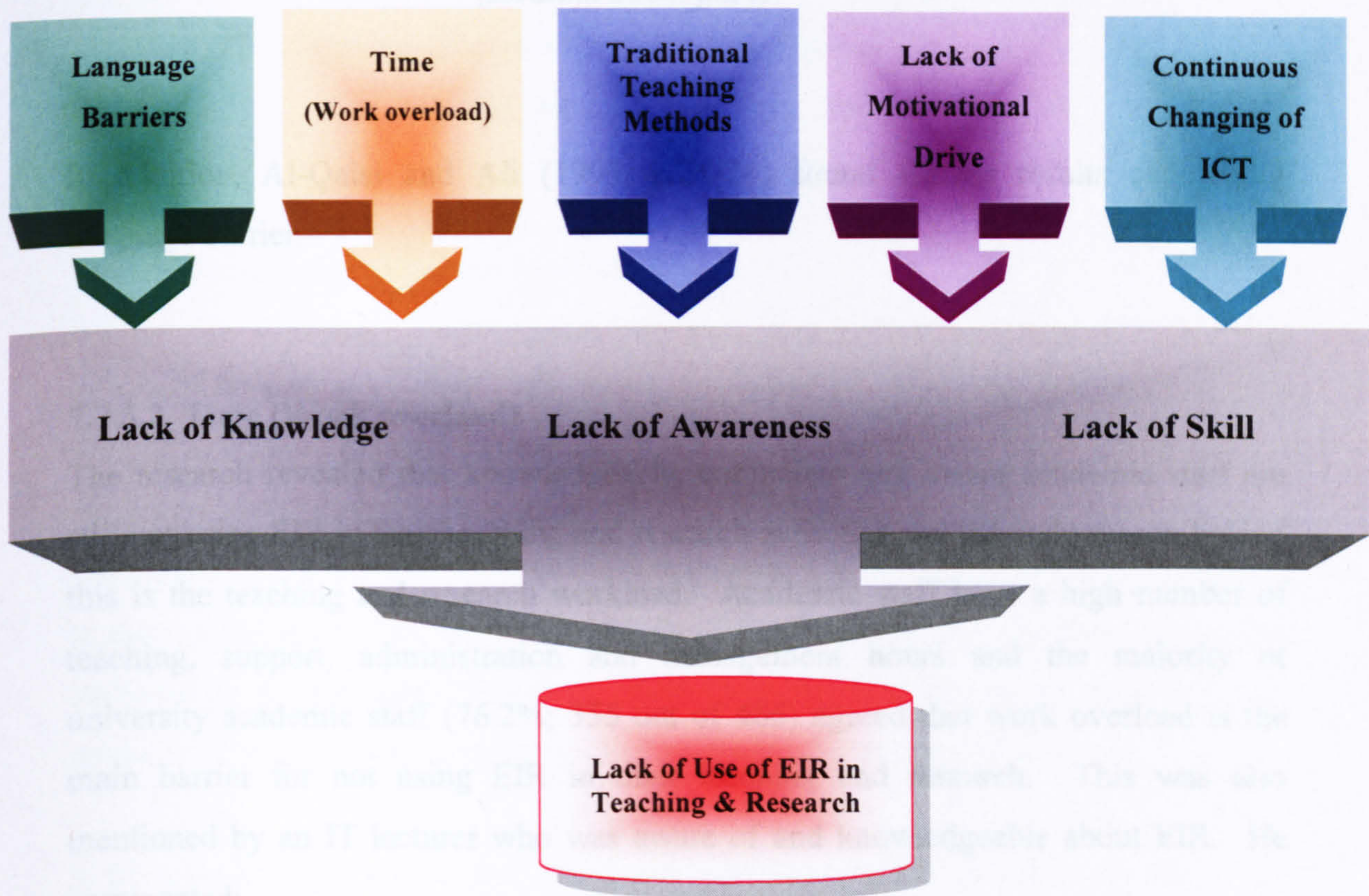


Figure 7.11: Barriers and obstacles for academic staff

7.7.3.1 Language Barriers

The academic staff of the Art, Law and Education Colleges generally lack the competency in the English language that is needed in the vast majority of cases to access and use EIR effectively. This problem is more pronounced among the older staff whose education has included nothing or very little to do with ICT. Ibrahim (2004, p.24) also found that language was a barrier to using e-resources among academic staff at the University of the United Arab Emirates. He stated:

“The medium of e-resources being English was an obstacle to faculty members who had their degrees from the Arab world and conducted teaching and research in the Arabic language.”

(Ibrahim 2004, p.24)

In addition, Al-Qaisi and Ali (1995, p.24-26) found similar results concerning language barrier.

7.7.3.2 Time (Work overload)

The research revealed that knowledgeable, competent and aware academic staff are still not using EIR in their teaching and research activities and the main reason behind this is the teaching and research workload. Academic staff have a high number of teaching, support, administration and management hours and the majority of university academic staff (76.2%; 355 out of 466) agreed that work overload is the main barrier for not using EIR in their teaching and research. This was also mentioned by an IT lecturer who was aware of and knowledgeable about EIR. He commented:

To be honest, I know about them and am aware of EIR, but where is the time? I take some work home with me every day to complete it and to prepare for the following day.

Lack of time also seemed to be an obstacle hindering the use of EIR at Kuwait University (Rehman & Ramzy 2004b, p.154) and at Glasgow Caledonian University Vicente, Crawford & Clink (2004, p.403), stated:

“The reasons given for using EIR less than once a month include lack of time to use electronic abstracts and electronic journals.”

(Vicente, Crawford & Clink 2004, p.403)

7.7.3.3 Traditional Teaching Methods

Within the university departments, the vast majority of teaching and learning processes are still carried out using traditional methods. These methods are based on a rigid teaching system with students following one textbook or the lecturer's handouts, which does not encourage the use of EIR. Over the years, this has created a teaching environment among both the learners and the academic staff that is difficult to move away from; each one of the stakeholders in this teaching and learning process understands his/her role. Therefore, there is a need to challenge the traditional methods of teaching and learning in order to make effective use of EIR.

A librarian strongly agreed that traditional methods of teaching constitute one of the main barriers to the use of EIR.

From my personal experience, over 20 years in the university library, I believe the main problem in using EIR is the traditional method of teaching. The vast majority of the library enquiries of academic staff are based on traditional teaching.

7.7.3.4 Lack of Motivation

Moving from traditional methods of teaching and research towards using EIR for these purposes involves changes in the individual's information-seeking behaviour and also changing the educational culture in the institution.

Therefore, there is a need for the motivation or drive to achieve, enhance and support this shift. This drive must take into consideration the nature of the stakeholders involved in this process, as human factors are fundamental in the process of change. Three important stakeholders in this shift are human: academic staff, librarians and the learners and one of the key issues in the learning process, from a human point of view, is motivation or encouragement.

Decision makers in the University's management team therefore need to take steps to motivate staff to move towards accessing and using EIR in their teaching and research and such encouragement can take various forms. One of these forms is to offer incentives, which can be achieved through academic staff's Continuing Professional Development (CPD). The need to provide some form of encouragement can be seen from the reluctance to change expressed by the respondent below.

There is no reason for me to change my teaching methods. Shifting more towards EIR takes time and effort and I cannot see any motivation to change my teaching methods and my access and use of information resources.

The University management should also motivate and encourage librarians and learners to use EIR.

7.7.3.5 Continually Changing ICT

One of the main problems concerning EIR resources is the need to cope with the frequent and rapid changes in ICT that need to be assimilated if EIR are to be used effectively. Methods of accessing, formatting and handling EIR are changing all the time and this means that new skills must be learned in order to cope with these

changes; the cost of such changes must also be recognised. These changes present a problem for three important elements of higher education institutions: University librarians, academic staff and the University authorities. The authorities of the University may face budget problems as changing hardware and software needed for the effective use of EIR requires a certain budget and this may represent a difficulty, particularly if the changes occur over a short period of time. Bahrain University is a government institution and needs to work on a fixed budget.

The librarians need to be trained to train academic staff and this requires the librarians themselves learning new skills and acquiring new knowledge, which also represents a budget problem for the library.

These changes can lead to frustration for academic staff who want to access and use EIR (see Figure 7.12). One academic staff member commented on these changes:

I am really frustrated about accessing and using electronic information due to the continuous change. By the time I master the software and the technique, I am surprised by changes by the next time I try to use them. Usually the library is very slow to react to these changes.

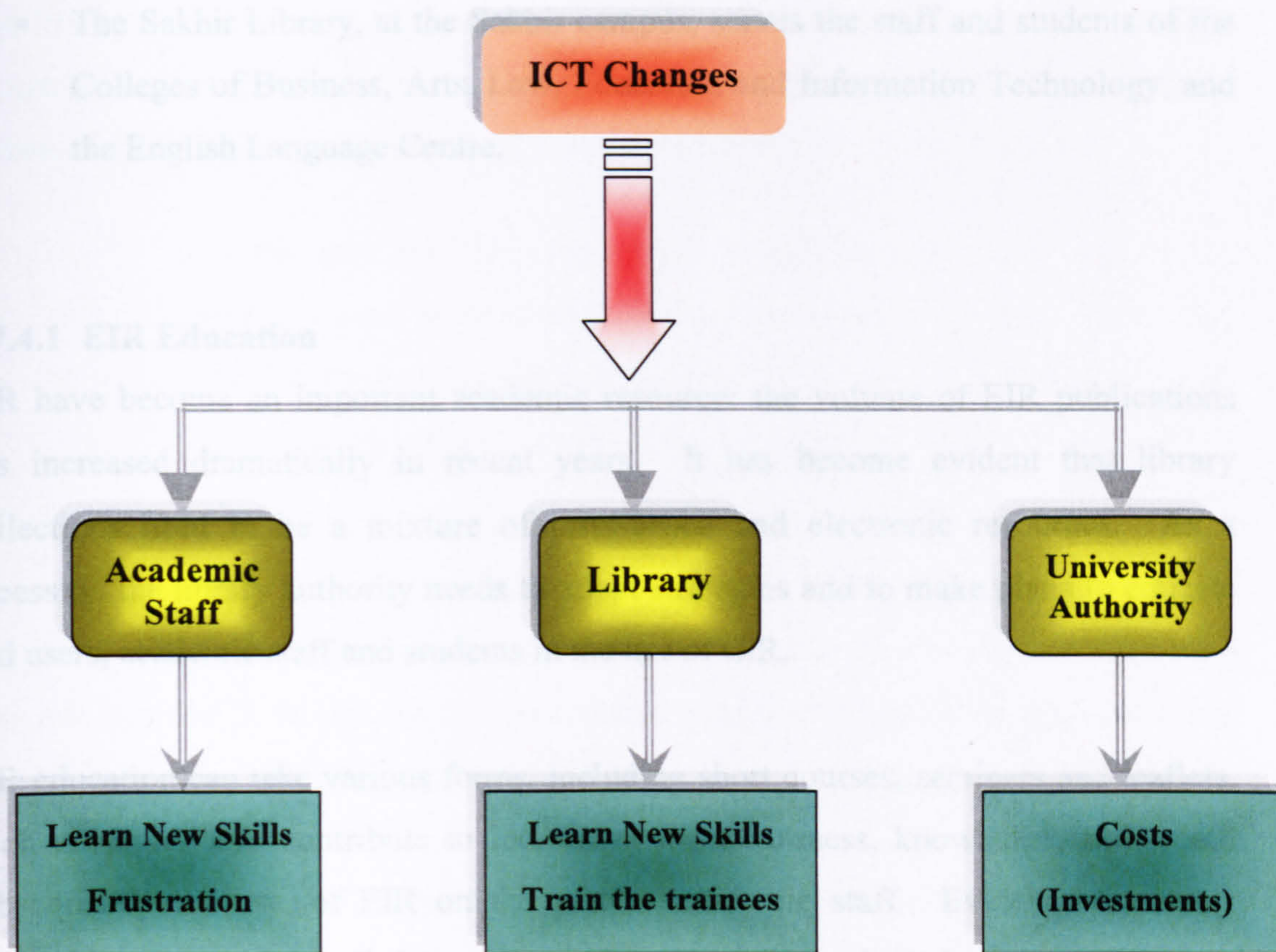


Figure 7.12: The continuous changing of ICT

7.7.4 The University Library

The University Library was established in 1986 and its role is to plan, make available, and provide access to appropriate information resources in various formats, in order to support the teaching, learning and research activities of the University. The library strives to improve both the relevance and effectiveness of its collections and its services in order to support and promote high academic standards in undergraduate and postgraduate courses, and in research. The University Library is made up of two libraries:

- The Isa Town Library accommodates materials and services to support the Colleges of Engineering and Science, the Deanship of Scientific Research, and the Evening Programme.

- The Sakhir Library, at the Sakhir campus, serves the staff and students of the Colleges of Business, Arts, Law, Education and Information Technology, and the English Language Centre.

7.7.4.1 EIR Education

EIR have become an important academic resource; the volume of EIR publications has increased dramatically in recent years. It has become evident that library collections need to be a mixture of print-based and electronic resources. As a necessity, the library authority needs to adopt strategies and to make plans to educate end users, academic staff and students in the use of EIR.

EIR education can take various forms, including short courses, seminars and leaflets. Such strategies will contribute to increasing the awareness, knowledge, skills, and subsequently the use, of EIR on the part of academic staff. Evidence from this research leads to the belief that the library is falling short in its provision of educational programmes, particularly with regard to training to promote EIR education. This lack of education programmes has contributed to the lack of academic staff using the library's EIR. This will be discussed in more detail in the next section.

7.7.4.2 Communication between the Library and the University Departments

The main strategy of the University library in terms of communication with academic staff is based on: 1. direct e-mailing; 2. using Web-sites; and 3. via traditional, print-based communication.

E-mailing system

The university has its own e-mail system. The library tries to communicate with the academic staff by sending them direct e-mails but this process has two main problems, as revealed by the fieldwork. The first problem is the ICT culture that has been built among the academic staff and the second problem is their information-seeking behaviour.

The fieldwork revealed that the academic staff do not open their university e-mails regularly and, surprisingly, they prefer Yahoo, Google and Hotmail as tools in communication rather than using the University system.

I do not open my University e-mail, as I do not need it. I have been using Yahoo as the main tool for my e-mails for a long time. I have skills and knowledge on the Yahoo e-mailing system.

The main reason behind this may include the fact that the academic staff have personal knowledge of, and the skill to use the e-mail facilities of these popular search engines, particularly the three mentioned above.

The other issue here is the library itself as it lacks an evaluation system within its management. There is no evidence of the existence of any evaluation and feedback system to help understand and be aware of the effectiveness of its services, particularly concerning its communication system with academic staff.

We do not have feedback and evaluation systems in the library. We still try to build our strategy on reactions towards the complaints of individuals and groups.

Web-site

The library has its own Web-site but unfortunately this has not been used as a tool for promoting its facilities; particularly, it has not been used to promote the library's educational training programmes.

Traditional, print based communication

The library still uses a traditional communication system to promote its facilities and particularly to market the training courses that are needed to improve the skills, knowledge and skills of academic staff. There is therefore a need to shift from these

traditional methods to using ICT for the promotion of activities to improve skills and knowledge. This shift is important as the academic staff are still expecting traditional promotional materials and are ignoring the library's attempts to use ICT.

7.8 Electronic Information Training

Training represents an important tool for promoting EIR. However, training methods, trainers themselves and training materials remain important elements in the learning process during such courses. Training programmes have become an essential part of the objective of the University authorities and its library to ensure that the academic staff and students participate in the programmes and benefit from the courses.

This section discusses the training programmes in EIR at the University. This includes the training received, the types of training offered, the preferred training methods and the training needs of the University's academic staff.

7.8.1 Training Received

The University needs to establish a strategic plan for training that will match the introduction, changes and developments in the University's information environment. Although the University's strategic plan promotes the use of EIR in teaching and learning, this research revealed a serious lack of EIR training as only 23.8% of the University's academic staff have received any training in EIR. This is not encouraging in an electronic era and particularly in the light of the University's mission and vision.

The University has seven colleges: Education, Art, Law, Business, Engineering, Science and IT. The research shows that colleges covering humanities subjects have received more training. The proportions are as follows: Art 36.7%, Education 25.7%, and Law 23% while the percentage for Science was 5.1% and Engineering 19.2%. This is due to several factors. It was stated earlier that the low take up of training is due to the fact that the majority of academic staff were not taught any IT skills during their education as there was no IT on the curriculum at that time.

The College of IT, however, showed a high percentage (32.6%) had received training; this is due to the nature of the activities, research and teaching at this college.

7.8.2 Type of Training Received

The types of training received by the academic staff are quite varied and this would seem to indicate a lack of cohesive training approaches, and particularly a lack of strategic planning. The most common type of training received by the academic staff was help from colleagues 17.3% while only 3.8% received group instruction/training. This indicates that most academic staff used colleagues in information seeking and this is not an appropriate approach as this takes up the time of the colleague, time that needs to be focused on research and teaching. In addition, colleagues may often have limited knowledge and skills in information resources compared with staff expertise in the library.

7.8.3 Preferred Training Methods

The most popular method for training among academic staff was one-to-one instruction (66.3%), which is consistent with the findings of previous studies (Allen, 1990, p.88; Hegart *et al.* 2004, p.293; Rehman & Ramzy 2004a, p.57) which discovered that respondents preferred one-to-one instruction when learning about CD-ROM databases. This is quite understandable as EIR training usually involves a series of instructions and a certain software environment. This can be frustrating for trainees, particularly new users. However, this method is usually not practical from the library's point of view as the number of academic staff at the University is high and therefore, the amount of training needed annually is also quite high. The library therefore needs to adopt a method that will meet the needs of trainees, while keeping within its limited resources. This could be achieved by using ICT as a tool in the library's training to demonstrate instructions and show the steps to follow on a monitor screen.

An encouraging outcome from this research from a training point of view is that there is a shift from traditional printed instruction methods (24%) to more computer-based

assistance training at 53.7%. This indicates that there is a shift in attitudes towards using ICT for training.

7.8.4 Training Needs

The first step in strategically planning training in any information environment is identifying users' training needs. Therefore, the academic library at Bahrain University needs to identify the EIR needs of its academic users. The research revealed that there is quite a high level of need for EIR training as 98.8% of respondents said they needed training on online databases, while this figure was 95.2% for E-journals and 84.1% for OPAC. Only 10.7% said they needed Internet training. This was due to the fact that accessing the Internet from home for entertainment and business use is becoming more popular in Bahraini society and people have learnt to use it.

CHAPTER EIGHT

CONCLUSIONS AND RECOMMENDATIONS

8.1 Introduction

Bahrain University has made a significant investment in providing EIR for its academic staff in order to meet their teaching and research needs. The University also plans to improve and develop its academic resources to help, support and enhance teaching and research.

Bearing in mind this context, this chapter presents the main conclusions of this research and provides recommendations for practical solutions. The chapter also provides recommendations for further work in the research subject.

8.2 Conclusions

This section presents the main research findings based on the following research objectives:

Objective One: To assess, identify and investigate the current use of electronic information resources in the teaching and research process and the training strategies and implementation processes within the Bahrain University.

Objective Two: To develop a theoretical framework and model practical solutions that can be applied to Bahrain University and can be used as a framework to

encourage the usage of EIR for future investigations in other universities to improve and promote teaching and research activities.

The above research objectives aim to answer the main research questions that the following section attempts provide answers for. The main research questions are:

1. What is the current situation regarding the use of and need for electronic information resources in teaching and research?
2. Are there any distinctions between academic staff in terms of using electronic information resources when age, gender, years of experience, qualifications, academic ranking and disciplines are considered?
3. What are the barriers to using electronic information resources in teaching and research?
4. What are the perceptions of academic staff towards the need for training and use of electronic information resources in teaching and research?
5. What are the EIR training needs and methods preferred by academic staff?
6. What are the EIR training strategies of the University of Bahrain's academic library?

8.2.1 Academic Staff Needs and their Use of EIR

Information is moving towards the electronic age and there is a sharp increase in the use of electronic information resources. Publishers and authors are moving towards adopting the use of electronic technology to publish academic work. In the University of Bahrain in particular, this research has shown that there is a need for EIR in research and teaching. This is for two reasons. The first reason is the increased use of EIR for teaching and research due to developments in digital technology. Such developments include high-speed hardware, which has a large memory capacity, as well as developments in communication systems. Secondly, senior management and the university librarian believe in the importance of EIR and have invested in it. Yet,

it should be noted that, there is a lack of databases in the library in certain areas, particularly in the field of Arabic and Islamic Studies.

However, the research also reveals the low use of EIR generally among academic staff for their teaching and research and there was a large number of academic staff who have never used EIR at all. This low usage was greater among females, older staff and those staff in the Humanities Colleges.

8.2.2 Academic Staff Awareness, Knowledge and Skills

There is therefore a need for EIR but a low use of it among the academic staff. The research findings indicate that almost two-thirds of academic staff were not aware of EIR and awareness is, of course, fundamental in terms of the usage of such services. This was explained in part by the lack of promotion of these resources by the University library and senior management, and the lack of awareness among the academic staff.

This situation was compounded by the lack of academic staff's knowledge of how to use EIR. The research showed that over half of the academic staff have poor knowledge and skills in this area. The research also indicated that there is gap between males and females. Males were, to some extent, more knowledgeable, aware and skilled in using EIR than females; the main reason for this gap is social.

The research also showed that awareness varied between the university colleges. The Humanities Colleges were, for example, well behind the Colleges of IT, Business and Science in the use of EIR. These differences were due to the lesser or greater integration of EIR in teaching and research, the degree of strategic planning that ensured fair use of EIR among the colleges, and language barriers.

It was also found that there was a negative correlation between the seniority of academic staff and their use, awareness, skills and knowledge (i.e. senior staff made less use of EIR). The main reasons for this, mentioned by heads of department during interviews, are: lack of time, administration and management commitments,

educational backgrounds, and the lack of an ICT curriculum in school and in higher education. A similar finding was put forward by Jallal (2005) who wrote about university education in Bahrain. Older staff who tended to be senior staff were less

keen to use EIR in their teaching and research for similar reasons. Recently qualified staff had often received training overseas when undertaking their postgraduate studies.

As mentioned before female academic staff were less keen to use EIR. The main reason for this may be the fact that Bahrain is still has an Arabian culture. There are still social barriers that prevent women interacting with males; hence they do not take part in training to extend their EIR knowledge by visiting or studying abroad or attending conferences or taking part in training.

8.2.3 Role of the University Library in Promoting the Use of EIR

The library plays an important role in promoting the use of EIR among academic staff. In fact, it is one of their commitments to support and enhance the learning and research processes. A key strategy in achieving this objective is to increase the awareness of academic staff towards EIR. The library currently relies on e-mailing members of staff through the University's e-mail system. Unfortunately, academic staff do not use the e-mail facility for communication on a daily basis. In addition, staff tend to use their own e-mail provider, particularly Hotmail, and use Google, as they stated during the interviews, because of familiarity and a lack of encouragement from the University to do otherwise.

8.2.4 Impact and Role of EIR Training

Successful and effective EIR training needs first to establish training needs and the preferred training methods of the academic staff. This research investigated these two important elements and found that there had been a shift in preferred training methods from traditional print-based training towards computerised training.

Academic staff indicated that they preferred one-to-one training. This is quite understandable in that this allows a high interaction ratio between the trainer and the trainee compared with group training. Furthermore, it is more discrete and people may feel self-conscious about exposing their lack of knowledge publicly. However, the main problem with this method is the lack of resources to achieve this preferred method of training.

8.2.5 Barriers and Obstacles to EIR Use

There were several barriers and obstacles that contributed to the low usage of EIR among academic staff. The main barriers were:

- The education system in Bahrain. The system is lacking in the promotion of ICT key skills from early education to university level.
- The University lacks a strategic plan or guidelines for adopting and promoting the use of EIR in teaching and research.
- Academic staff were themselves a barrier because of their lack of motivation, educational background, language barriers, their inclination to use traditional teaching and research methods, and their workload.
- The rapidly changing nature of ICT, which exacerbates the need for new skills and knowledge.
- The lack of adequate promotion of the EIR resources by the library, as well as a lack of training in their use.

8.3 Recommendations for Practical Solutions

There is a need to foster the use of EIR at the University of Bahrain. This would include the promotion of the EIR services to academics and administrative staff and also means increasing the skills and knowledge of the academic staff in the use of EIR as well as how to incorporate these services in their teaching. There are three elements that need to be brought together: these are the university as an organisation, the university library and the academic staff. They are interrelated and any problem in any one of them will affect the others. The following sections provide recommendations for the changes that need to take place in order to promote the use, skills and awareness of EIR among academic staff. These sections also provide

models or frameworks that show how factors are interrelated and how they influence each other. These models, in addition to helping to understand the situation in

Bahrain, could be used to evaluate other academic contexts and plan necessary interventions.

8.3.1 University (Organisation)

Bahrain University is a governmental education institute and the University's management is the sole decision-maker and employer of academic staff. As a result

centralised strategic planning, for the university as a whole and for academic staff in particular, is crucial if the integration of EIR is to be successful. Figure 8.1 presents a model that illustrates the factors or drivers that would have an impact on the integration and use of EIR in the University.

The key to change, at a high level, is the mission statement of the University. The mission statement should reflect the University's ambition to develop its teaching and research and it is from this statement that a strategic plan for the University can be drawn. The University's strategic plan should include the three key elements of the University's activities: teaching, scientific research and community services. Strategic planning should favour the use of EIR to help and support teaching and research activities as well as to cope with EIR external environments both nationally and internationally. These external environments include the availability of EIR that can be used in teaching and research, as the market moves towards e-information. This would help the University library, the EIR providers, to align their strategic plans to reflect the University's mission. The University therefore needs to introduce certain policies and guidelines to support and enhance the use of EIR in research and teaching. These would include policies regarding a strategy for teaching delivery, a strategy for training academic and other staff, and policies concerning the investment in EIR hardware and software, and the establishment of an appropriate infrastructure. They should also establish policies that will motivate academic staff to use EIR. This would include financial and moral support.

When evaluating an academic organisation the following questions could be asked:

1. Does the university's strategic plan incorporate an EIR strand that defines the role of EIR in teaching and research?
2. Does the university's strategic plan define the role of the library in supporting and encouraging the use of EIR?
3. Does the university's strategic plan make allowances for the identification of resources and infrastructure to support EIR use as well as guidelines for implementation and incentives to motivate staff?
4. Does the mission statement of the library and academic departments encourage the use and promotion of EIR?
5. Does the curriculum show evidence of the importance of EIR?
6. Do the resources available to the library reflect the importance of EIR?

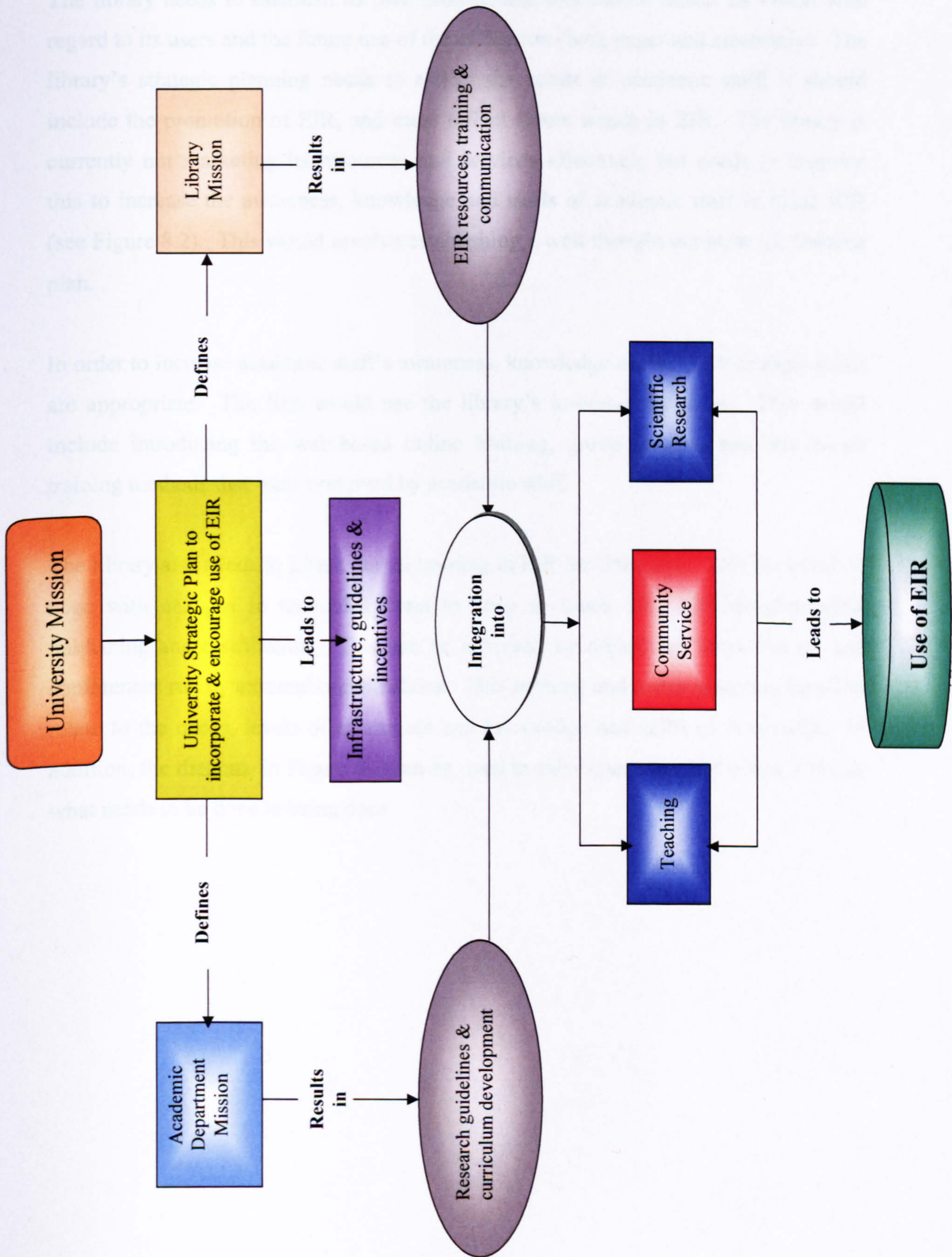


Figure 8.1: Organisation strategy to encourage use of EIR

8.3.2 The University Library

The library needs to establish its own mission and this should reflect its vision with regard to its users and the future use of the collection (both paper and electronic). The library's strategic planning needs to reflect the needs of academic staff, it should include the promotion of EIR, and must reflect future trends in EIR. The library is currently not marketing its resources and services effectively but needs to improve this to increase the awareness, knowledge and skills of academic staff in using EIR (see Figure 8.2). This would involve establishing a well thought out strategic training plan.

In order to increase academic staff's awareness, knowledge and skills, two approaches are appropriate. The first would use the library's in-house resources. This would include introducing the web-based online training, group training and one-to-one training methods that were preferred by academic staff.

The library also needs to plan external training in EIR for librarians. This is needed to cope with changes in technology and to keep in touch with EIR developments, publishing and distribution. This can be achieved by organising short courses and conferences run by external organisations. This training and communication needs to relate to the needs, levels of awareness and knowledge and skills of academics. In addition, the diagram in Figure 8.1 can be used to raise questions and assess whether what needs to be done is being done.

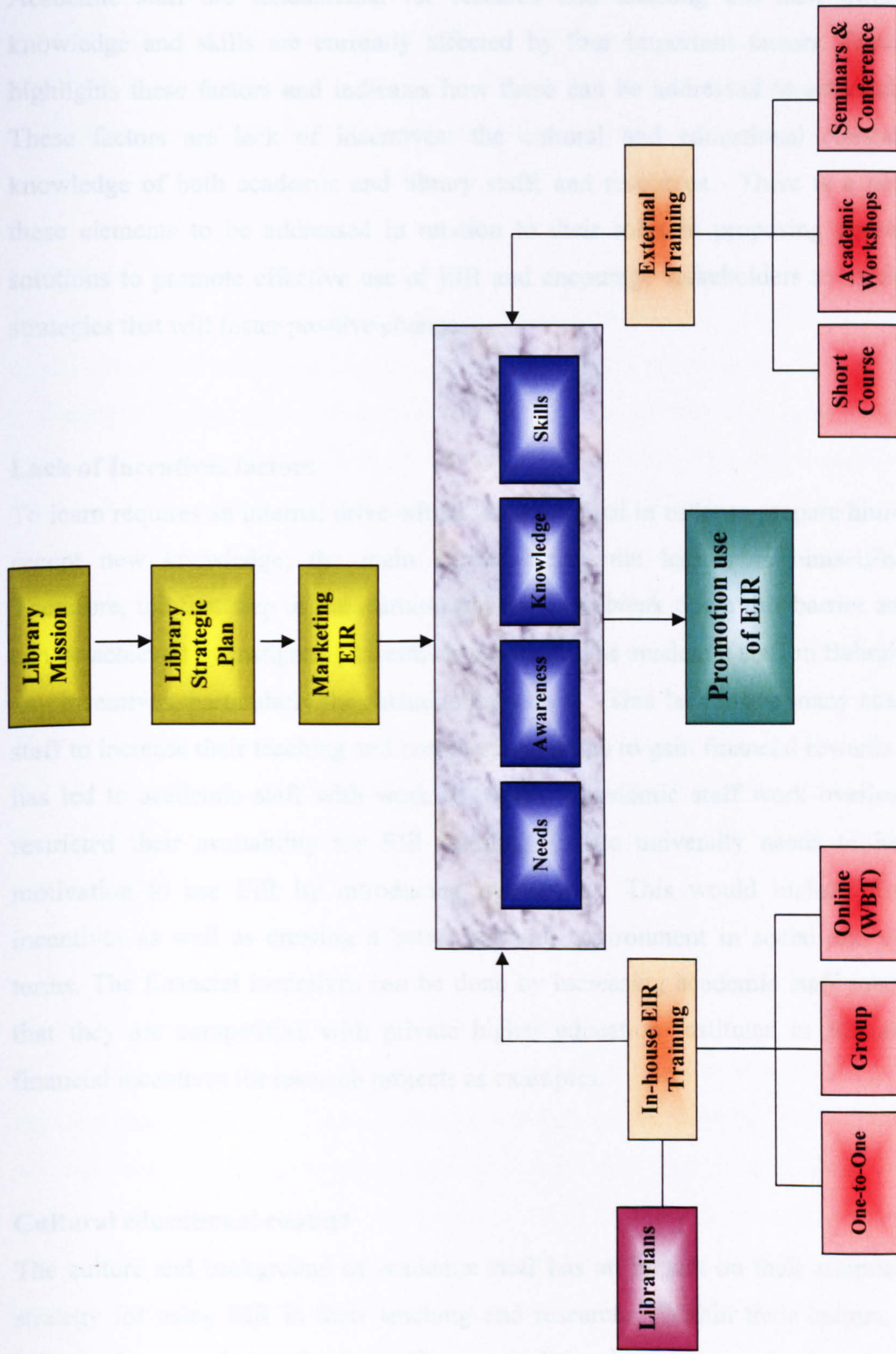


Figure 8.2: Library strategy to encourage use of EIR

8.3.3 University Academic Staff

Academic staff are fundamental for research and teaching but their awareness, knowledge and skills are currently affected by four important factors. Figure 8.3 highlights these factors and indicates how these can be addressed to effect change. These factors are lack of incentives; the cultural and educational context; the knowledge of both academic and library staff; and resources. There is a need for these elements to be addressed in relation to their roles in proposing appropriate solutions to promote effective use of EIR and encourage stakeholders to implement strategies that will foster positive change.

Lack of Incentives factors

To learn requires an internal drive within the individual in order to prepare him/her to accept new knowledge; the main barrier facing the learner is himself/herself. Therefore, the first step in the learning process is to break down this barrier and this can be achieved by instigating incentives strategy. The academic staff in Bahrain lack any incentives, particularly the financial incentives. This lack drove many academic staff to increase their teaching and non-teaching hours to gain financial rewards. This has led to academic staff with work overload. Academic staff work overload has restricted their availability for EIR training. The university needs to increase motivation to use EIR by introducing incentives. This would include financial incentives as well as creating a better learning environment in social and cultural terms. The financial incentives can be done by increasing academic staff salaries so that they are competitive with private higher education institutes in Bahrain and financial incentives for research projects as examples.

Cultural educational context

The culture and background of academic staff has an impact on their adoption of a strategy for using EIR in their teaching and research. Within their culture, it has become the norm for academic staff to use traditional teaching methods and this has built up a fear of change towards the use of EIR. Moving towards the use of EIR requires academic staff to learn new skills and knowledge; this needs time, effort and

the most importantly individual motivation. This is compounded by the educational background of academic staff who have traditionally relied on printed resources for their teaching and research. There is, therefore, a need to change the attitudes of academic staff towards EIR. One way to achieve this would be to promote visits and staff exchanges with other well-known institutes or organisations that use EIR.

Knowledge of academic staff

The University itself has an impact on the academic staff's use of EIR. As indicated earlier the organisation as a whole needs to play a more effective role in encouraging and supporting academic staff in the use of EIR by enhancing their knowledge. The lack of EIR knowledge on the part of academic staff is crucial in preventing them from using EIR effectively but this problem could be solved by establishing policies for introducing and adopting EIR in teaching and research, investing in EIR, and organising both academic staff training and incentives. The University also needs a plan to improve academic staff teaching and the research culture. This could be achieved by establishing group work activities, group exchanges and social activities. This would help in increasing staff EIR knowledge and awareness.

It is also important to explore drives behind academic staff reluctance to adopt EIR on their teaching and research. The main drives behind the reluctance can be summarised in the following:

Fear of negative impact on classroom performance

Use of EIR effectively in teaching and research represents a shift from traditional teaching and research. This requires academic staff to change their information seeking behaviour, skills and the way of delivering their courses and how to manage their classes' activities. There are academic staff fear that their will decline as a consequence of poor performance in case of masteries of EIR activities. This would have an impact on their students, their image and professional standards.

Inadequate Support

It is essential to recognise that EIR expands and develops in short of time. Academic staff need to cope with EIR expansions and development to achieve effective benefit of EIR. This needs support from university management and library. The support should include increase their awareness towards the availability of the new EIR, skills and knowledge on the newly developed and introduced EIR.

Inadequate Training

Training is one of the important tools in changing strategy. Training can play an important role in changing academic staff EIR fear. This can be achieved by a well plan in academic staff EIR awareness, EIR skills and knowledge and personal confidence.

Management Change

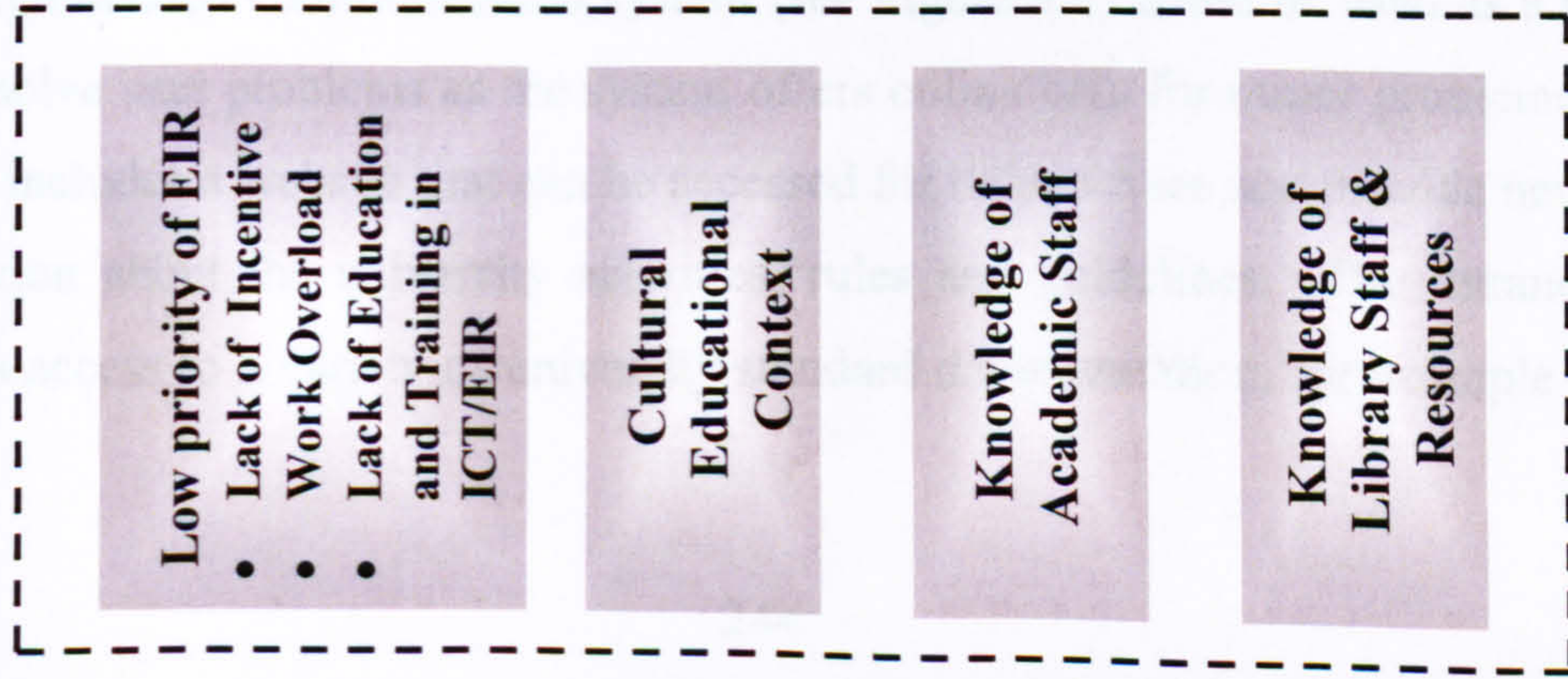
There is a need to change in management. This change should include change in attitudes towards the role of EIR in teaching and research. There is also need to change in management style and approaches. These needed to provides academic support the right environment and appropriate tools to use EIR efficiently and effectively.

Knowledge of library staff, and resources

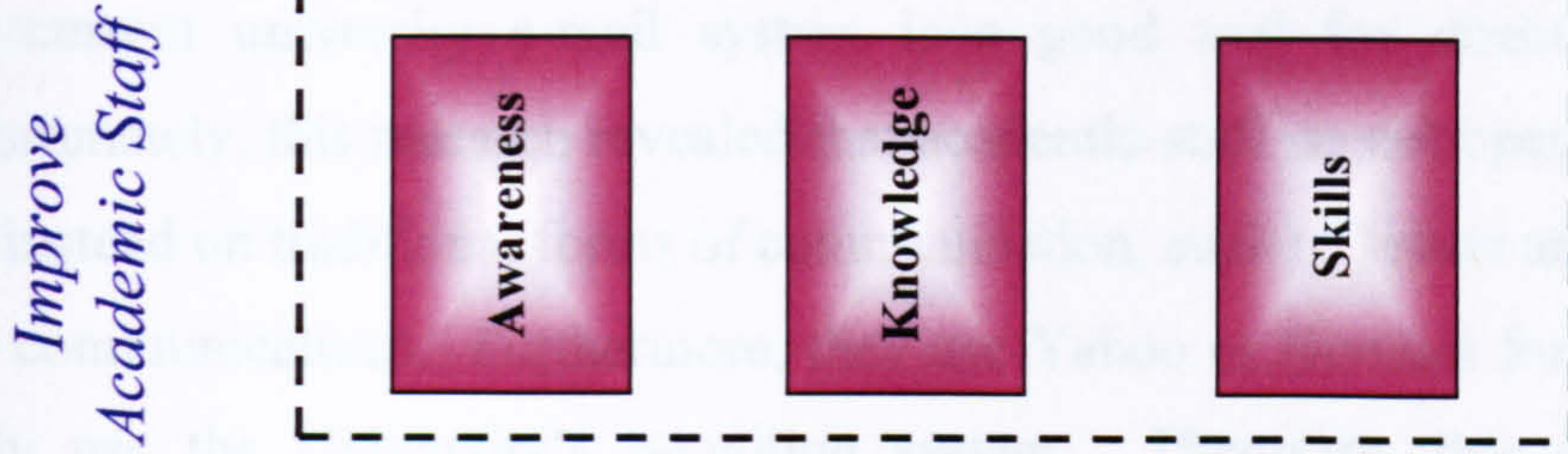
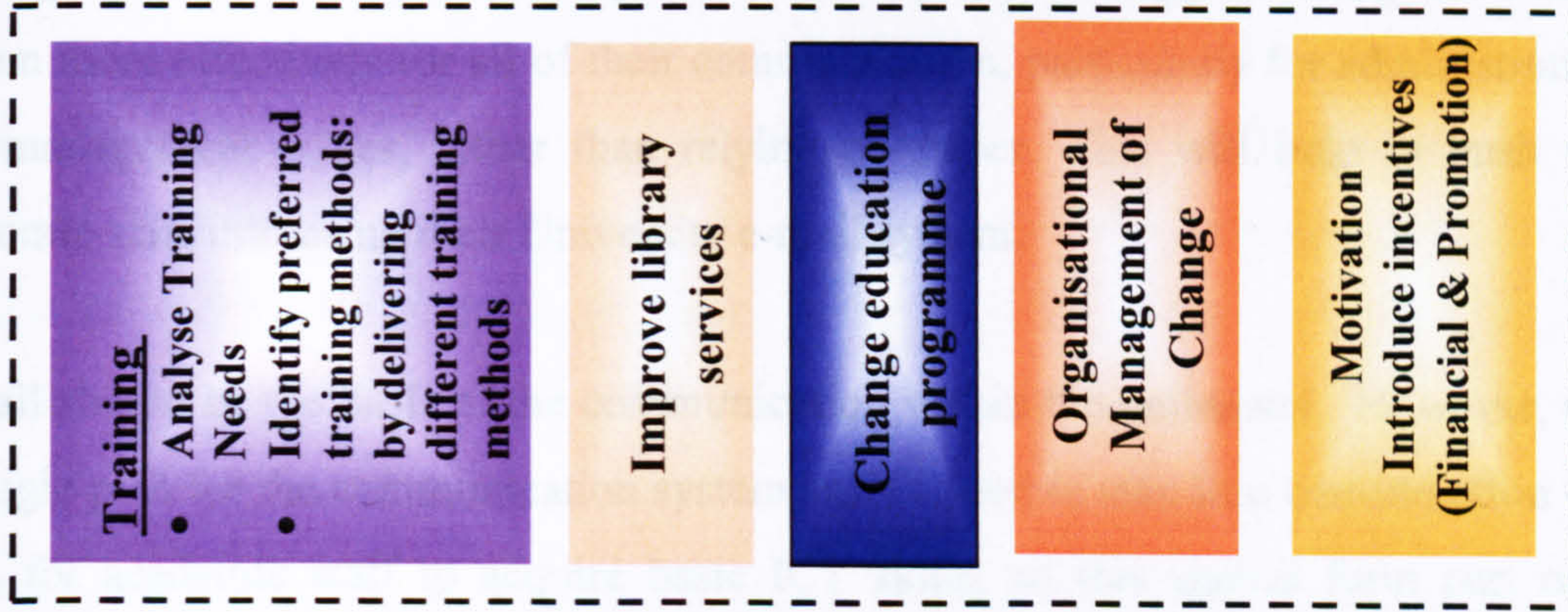
The University library is the information centre of the institution and it plays a fundamental role in promoting EIR use. The library therefore needs to change its strategy for promoting its services. Firstly, library staff need to understand marketing principles such as "how to promote their resources and meet the needs and satisfaction of their customers". Academic staff are key customers for the library and any marketing strategy, as mentioned above, must meet customers' needs. This can be achieved by understanding clearly the library's resources and how they relate to the information needs of their users; hence these can be effectively marketed. The library needs to improve its communication systems, particularly the website, in order to facilitate communication more effectively and to allow access to both their internal

and external users. This can be achieved using the staff's own expertise, together with support from external expertise, in website design and development for the academic environment. Library staff need to interact regularly with their customers to identify their needs, skills levels, knowledge and awareness of the library's services. This will also contribute towards the library's strategic planning to meet the needs of both academic staff and students.

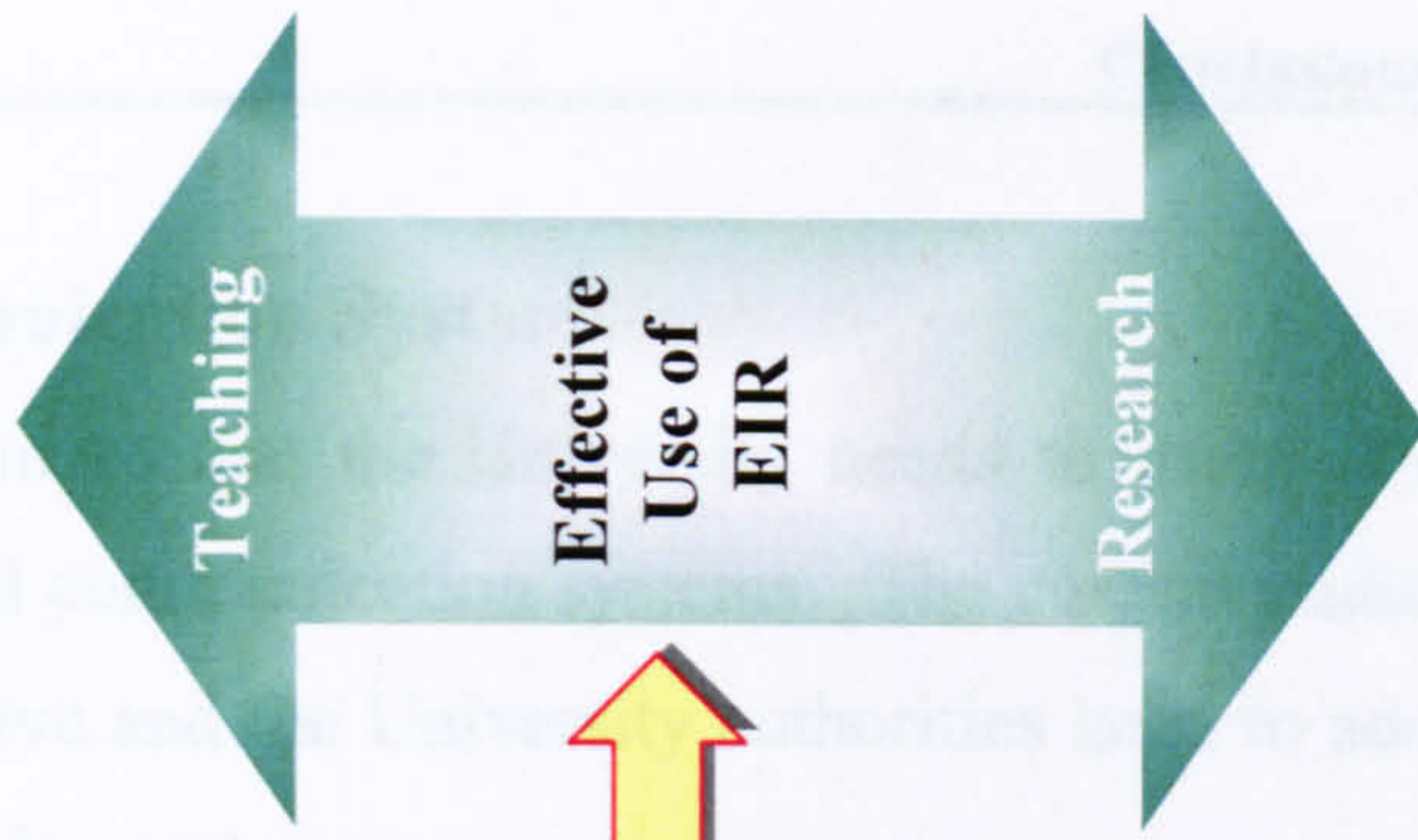
*Current Situations
(Barriers & Obstacles)*



Proposed Solutions



Improve Academic Staff



Outcome

Figure 8.3: Current barriers and possible future interventions

8.3.4 The Communication System

One of the key changes that the University needs to make is to change its current internal and external communication systems. The current traditional communication system is not effective and the University authorities need to adopt a strategic plan to enable a more effective system.

The current university e-mail system is a good tool for direct communication. Unfortunately, this research revealed that academic staff do not open their e-mails but rely instead on traditional forms of communication, such as letters and verbal, face-to-face communications. Furthermore, they use Yahoo or Hotmail for e-mails and very rarely use the University's e-mailing system. Therefore, this research suggests changing user behaviour. This could be achieved by introducing a communication system within the University that would help in changing the user information-seeking behaviour. The University needs to adopt the strategy of using the e-mail system more effectively for all of their communication, particularly for administration and management issues, rather than relying on paper. This will help to push the academic staff into using their University e-mail system.

E-mail should be the basis of the communication within the university. However, the strategic plan for the communication system would need to take into consideration the need for academic staff to acquire basic ICT skills, so this should form part of a training programme that should be implemented in parallel with the introduction of any new system. The system should facilitate the information flow between academic staff, the academic library, and information providers (e.g. publishers and hardware suppliers). The system should include a list of the potential providers, their services and e-mails. This will contribute towards creating a better understanding of the roles of each of them in the teaching and research processes.

The recommended communication system (see Figure 8.4) could be used as a tool to help to solve user problems as the system offers online help for minor problems. The Intranet includes a website that can be accessed for help, advice and provide news and information about the university activities, rules and guidelines. The intranet also provides access to a variety of university standard documentation, for example lesson

plans. The system could also provide video links and a chat-line to aid staff members in solving their EIR problems. This will help in promoting academic staff EIR knowledge.

E-mail can also be used to inform staff of on-line e-learning training, together with any changes and developments in the EIR services. This will help to enhance the awareness of academic staff and will help in promoting the use of EIR in teaching and research activities. Academic staff can use the website to access on-line EIR resources, publish their lectures for students to access, and to publish their module schemes of work and assessments, as examples.

Therefore, promoting and encouraging academic staff to use the communication system via the Intranet to solve problems and to engage in discussion and training will help in promoting EIR knowledge and awareness. See Figure 8.4.

The recommended communication system, figure 8.4, was discussed with senior university librarians to get their opinions and views about the model and take their suggestions and advice in the final version of the model, see section 8.4.1. This was achieved by second fieldwork. The model will be proposed to the University authorities for implementation.

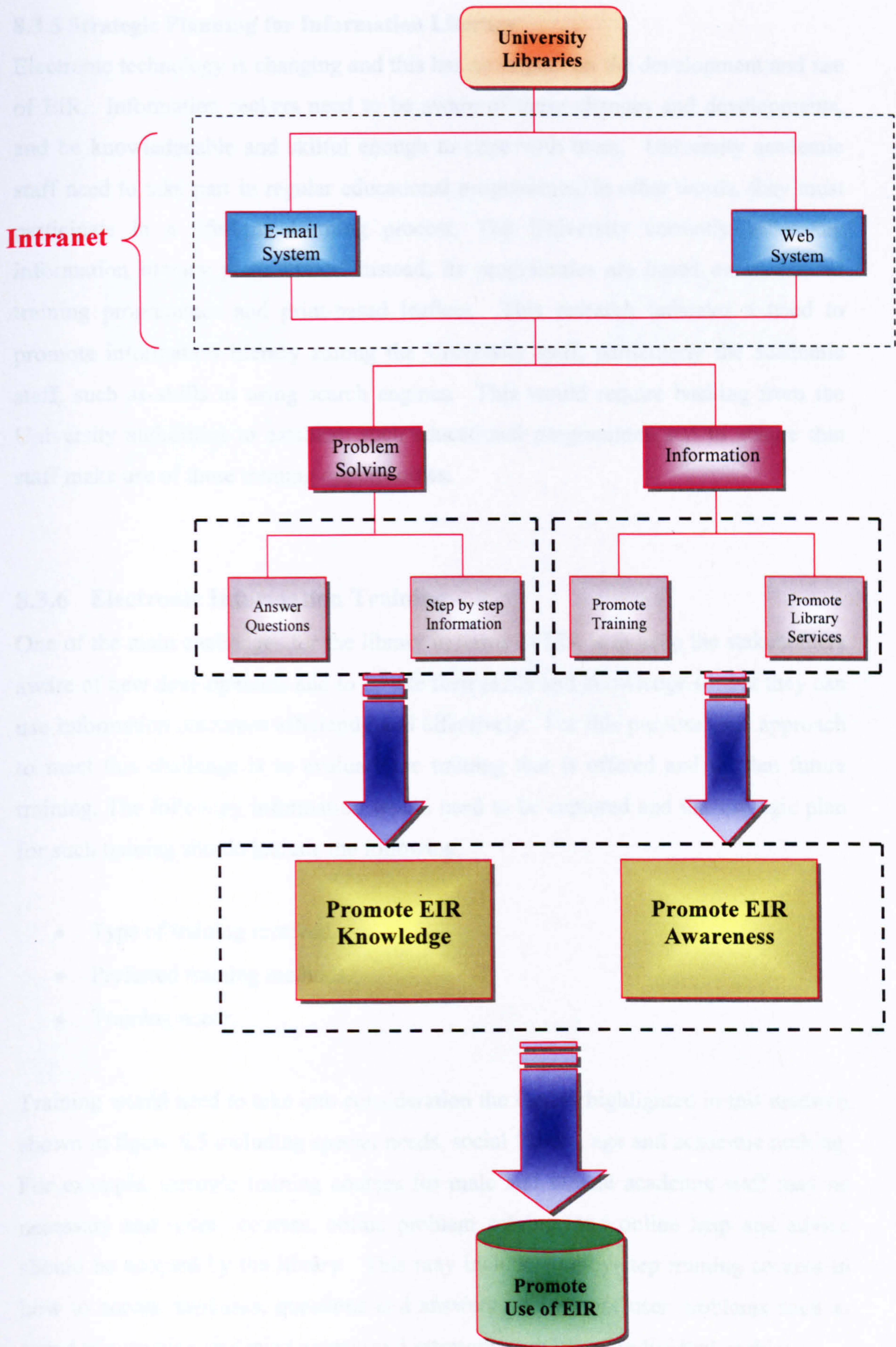


Figure 8.4: Recommended communication system

8.3.5 Strategic Planning for Information Literacy

Electronic technology is changing and this has an impact on the development and use of EIR. Information seekers need to be aware of these changes and developments, and be knowledgeable and skilful enough to cope with them. University academic staff need to take part in regular educational programmes; in other words, they must participate in a life-long learning process. The University currently lacks any information literacy programmes. Instead, its programmes are based on traditional training programmes and print-based leaflets. This research indicates a need to promote information literacy among the University staff, particularly the academic staff, such as skills in using search engines. This would require backing from the University authorities to establish such educational programmes and to ensure that staff make use of these training opportunities.

8.3.6 Electronic Information Training

One of the main challenges for the library in terms of EIR is to keep the stakeholders aware of new developments and to update their skills and knowledge so that they can use information resources efficiently and effectively. For this purpose, one approach to meet this challenge is to evaluate the training that is offered and to plan future training. The following information would need to be captured and the strategic plan for such training should include the following:

- Type of training received,
- Preferred training methods,
- Training needs.

Training would need to take into consideration the factors highlighted in this research shown in figure 8.5 including special needs, social factors, age and academic ranking. For example, separate training courses for male and female academic staff may be necessary and online courses, online problem solving, and online help and advice should be adopted by the library. This may include step-by-step training courses in how to access databases, questions and answers on frequent user problems such as speed of accessing or denied access, and interactive advice on individual problems.

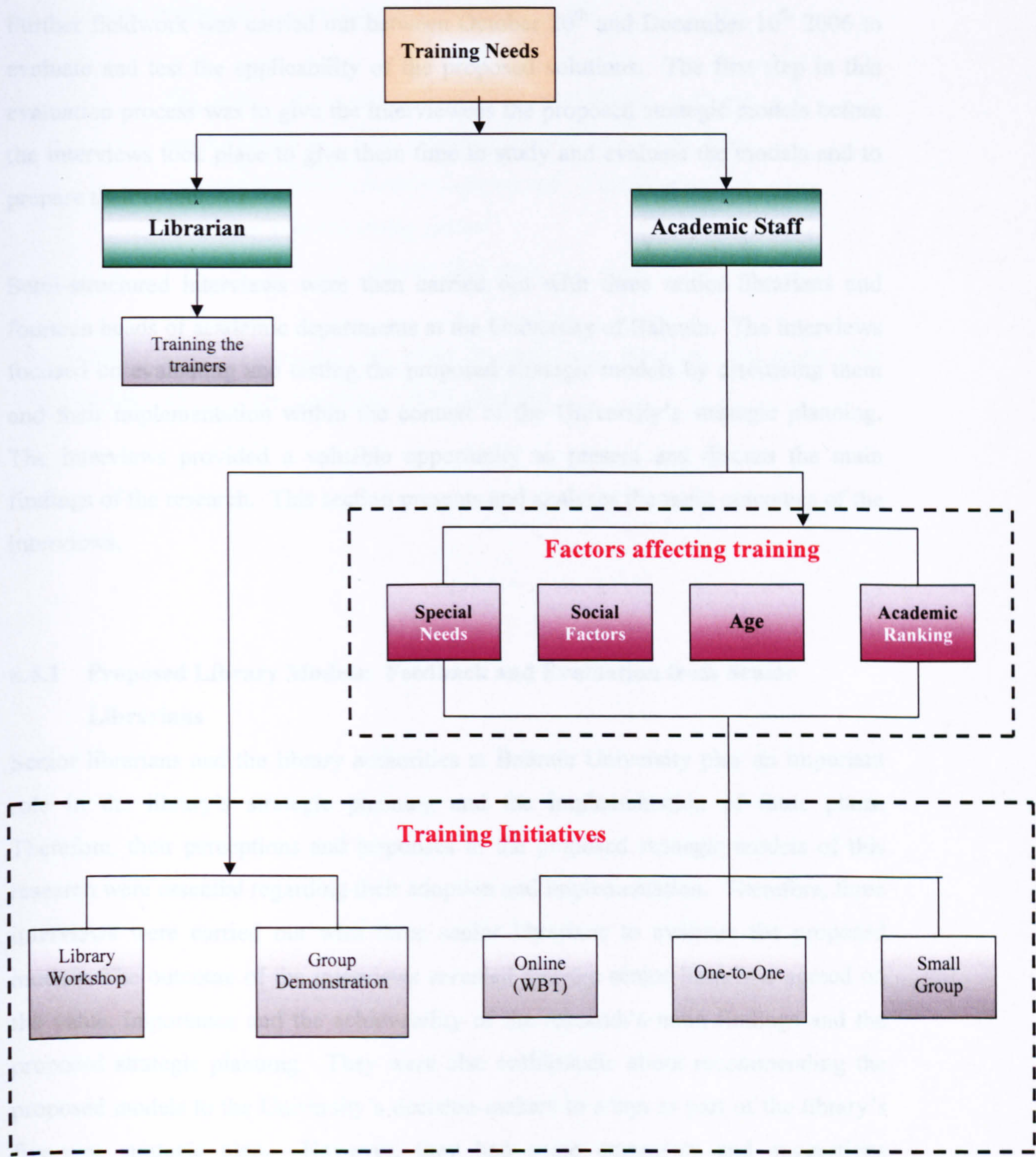


Figure 8.5: Proposed strategic training for Bahrain University Library

8.4 Implementations of the Proposed Models: Feedback and Evaluation

Further fieldwork was carried out between October 20th and December 10th 2006 to evaluate and test the applicability of the proposed solutions. The first step in this evaluation process was to give the interviewees the proposed strategic models before the interviews took place to give them time to study and evaluate the models and to prepare their comments.

Semi-structured interviews were then carried out with three senior librarians and fourteen heads of academic departments at the University of Bahrain. The interviews focused on evaluating and testing the proposed strategic models by discussing them and their implementation within the context of the University's strategic planning. The interviews provided a valuable opportunity to present and discuss the main findings of the research. This section presents and analyses the main outcomes of the interviews.

8.4.1 Proposed Library Models: Feedback and Evaluation from Senior Librarians

Senior librarians and the library authorities at Bahrain University play an important role in the library's strategic planning and the implementation of these plans. Therefore, their perceptions and responses to the proposed strategic models of this research were essential regarding their adoption and implementation. Therefore, three interviews were carried out with three senior librarians to evaluate the proposed models. The outcome of the interviews revealed that the senior librarians agreed on the value, importance and the achievability of the research's main findings and the proposed strategic planning. They were also enthusiastic about recommending the proposed models to the University's decision-makers to adopt as part of the library's five-year strategic plan. However, they had some comments and suggestions regarding the models. The following section offers a brief summary of their comments and suggestions.

One of the senior librarians suggested changing the term “Web System”, used in the recommended communication system, to “e-learning system” as the second term is the term used within the University’s activities.

The term “Web system” used in the model is a bit confusing for us. I do not know exactly how it fits with our system and the terminology we use. I think you need to change it to e-learning system.

(Senior Librarian)

This suggestion was discussed in the interview and it was agreed to change the term “Web System” to “e-learning system”. See Figure 8.6.

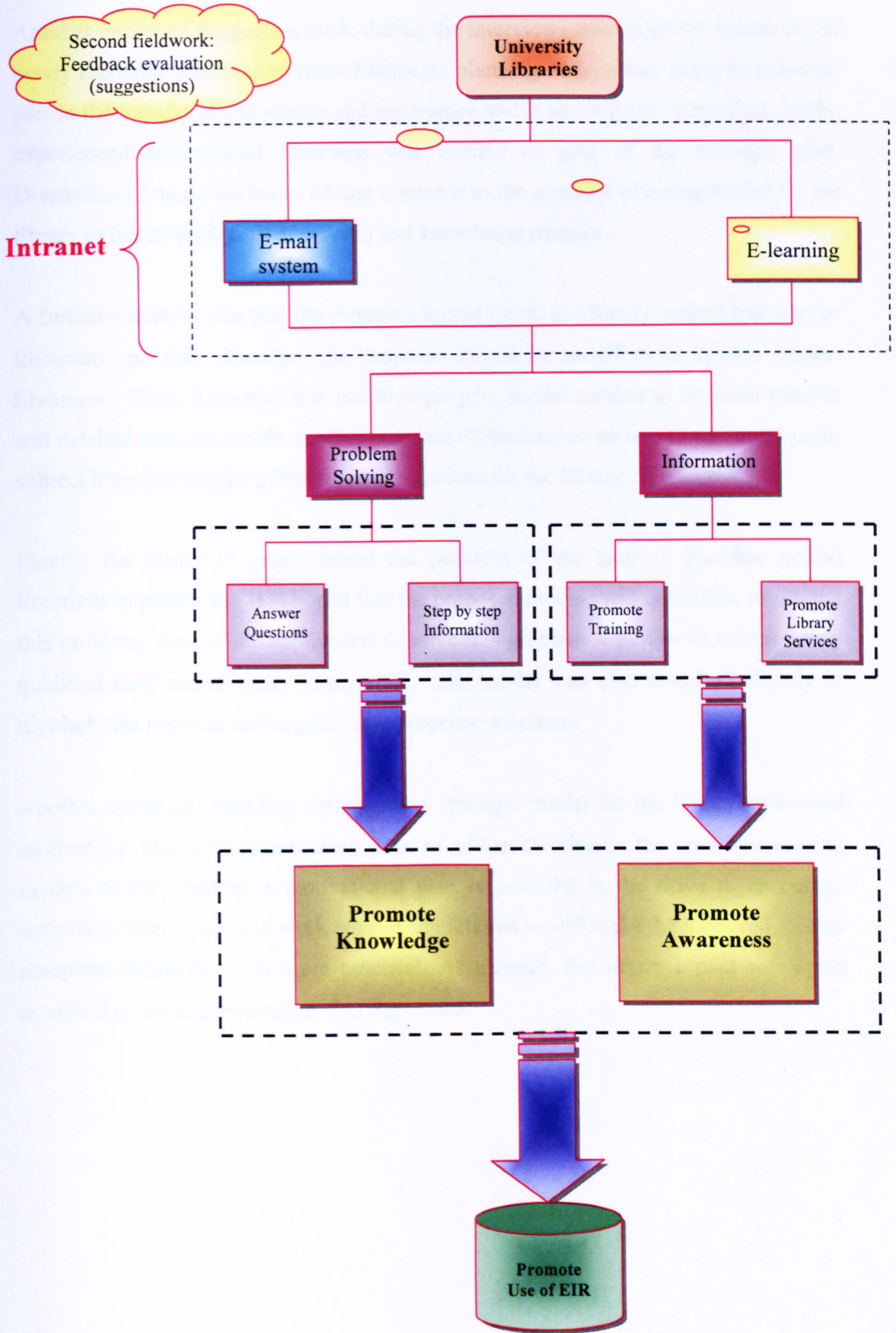


Figure 8.6: Recommended communication system (Modified)

Another important suggestion made during the interviews concerned the mentoring of newly recruited librarians as part of strategic planning. Mentoring plays an essential part in the transfer of knowledge and experience and it was felt that mentoring, led by experienced professional librarians was needed as part of the strategic plan. Discussion of this issue led to adding a mentor to the strategic planning model for the library to improve education, training and knowledge transfer.

A further comment was that the proposed model needs to identify subject training for librarians and that, therefore, the proposal should be modified to include subject librarians. Thus, it seemed that the strategic plan model needed to be more specific and detailed and, as a result, another outcome of the interviews was to add training for subject librarians as part of the recommendations for the library. See Figure 8.7.

Finally, the senior librarians raised the problem of the lack of qualified skilled librarians in particular. It is hoped that the proposed models will contribute to solving this problem. One of the approaches to solve this problem would be to recruit newly qualified staff and to train library staff. The model was also modified slightly to highlight the problem and to provide appropriate solutions.

Another comment regarding the proposed strategic model for the library concerned motivation. The interviewees were keen to add motivation to the proposed training models as they believe a motivational plan is essential in the drive to encourage individual training and the work ethic. They felt this would make the proposed models complete, achievable and more practical. As a result, the strategic plan was again modified by adding motivation. See Figure 8.8.

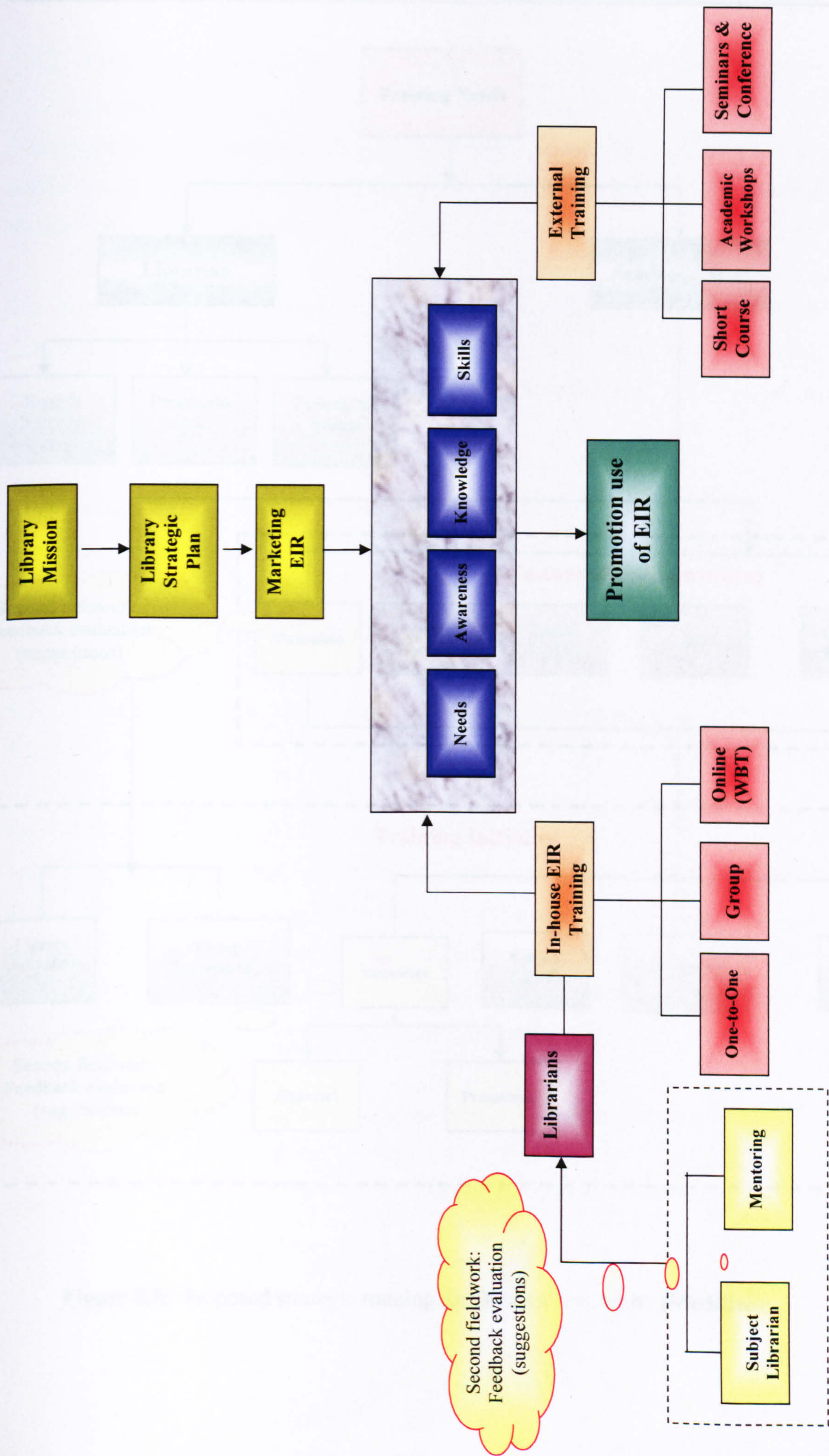


Figure 8.7: Recommendations for Bahrain University Library (Modified)

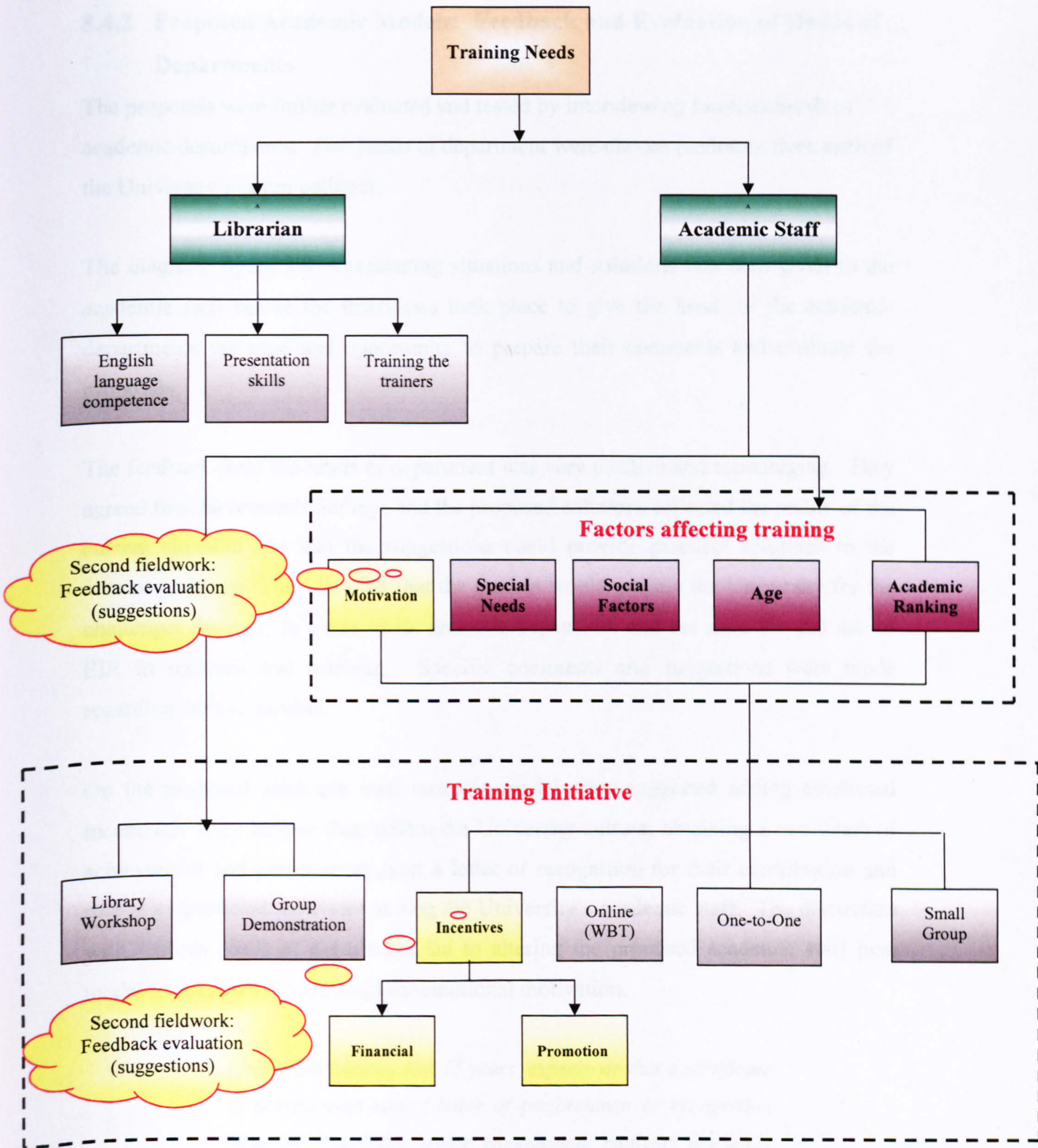


Figure 8.8: Proposed strategic training for Bahrain University (Modified)

8.4.2 Proposed Academic Models: Feedback and Evaluation of Heads of Departments

The proposals were further evaluated and tested by interviewing fourteen heads of academic departments. Two heads of department were chosen randomly from each of the University's seven colleges.

The diagram, figure 8.9, representing situations and solutions was then given to the academic staff before the interviews took place to give the heads of the academic departments the time and opportunity to prepare their comments and evaluate the proposals.

The feedback from the heads of department was very positive and encouraging. They agreed that the research findings and the proposed solutions reflected the reality of the current situation and that the suggestions could provide practical solutions to the current problems. They also felt that the models would prepare the University for the challenges facing it in terms of its dramatic expansion, and the need for and use of EIR in research and teaching. Specific comments and suggestions were made regarding the two models.

On the proposed academic staff strategic model, they suggested adding emotional incentives. They believe that, within the University culture, obtaining a certificate of achievement and performance, and a letter of recognition for their contribution and role is a significant motivator among the University's academic staff. The discussion with various heads of department led to altering the proposed academic staff plan model to acknowledge the need for emotional motivation.

I found out from my last 15 years' experience that a certificate of achievement and a letter of performance or recognition from the University senior management motivate academic staff.

(Head of academic staff)

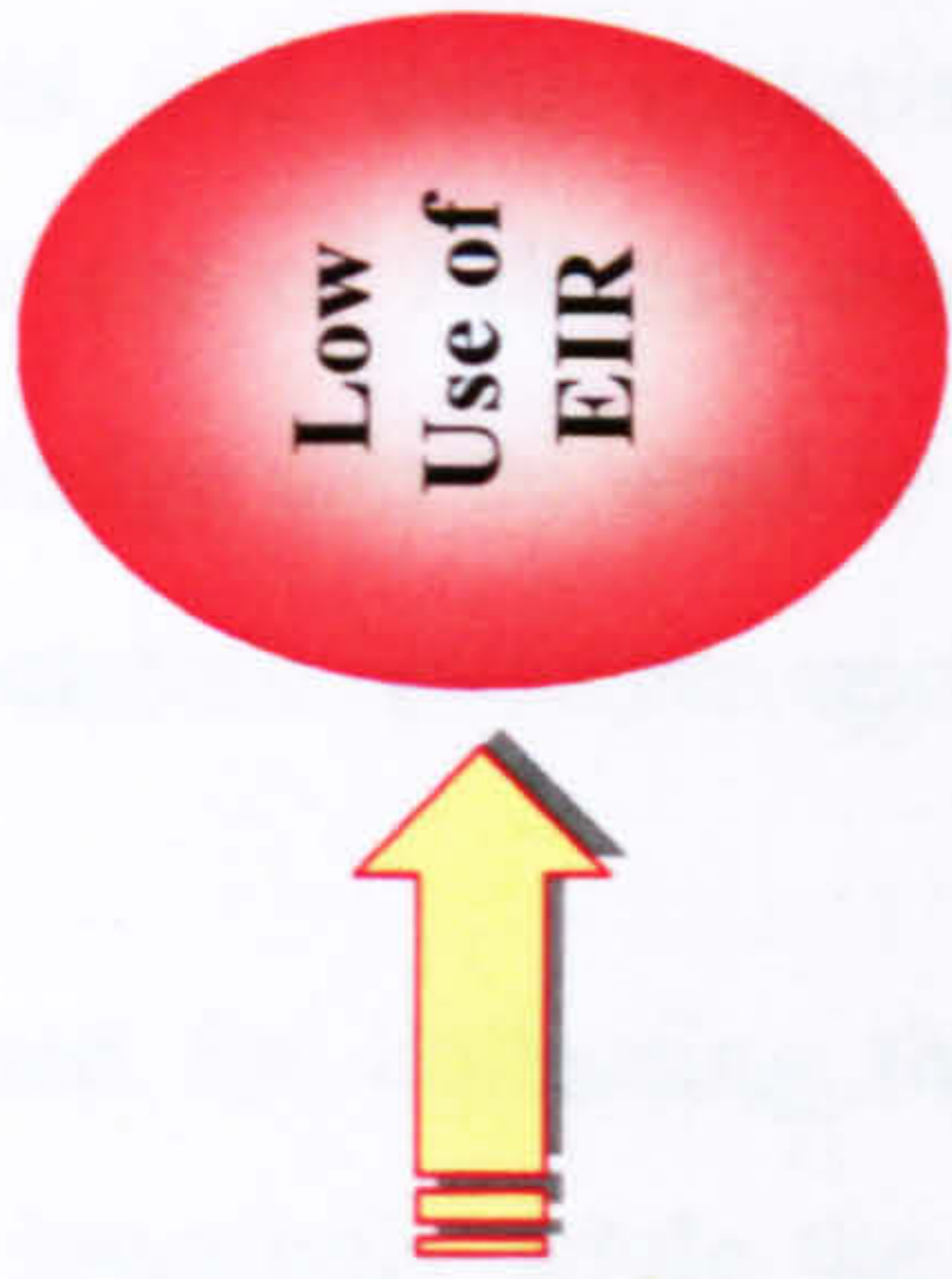
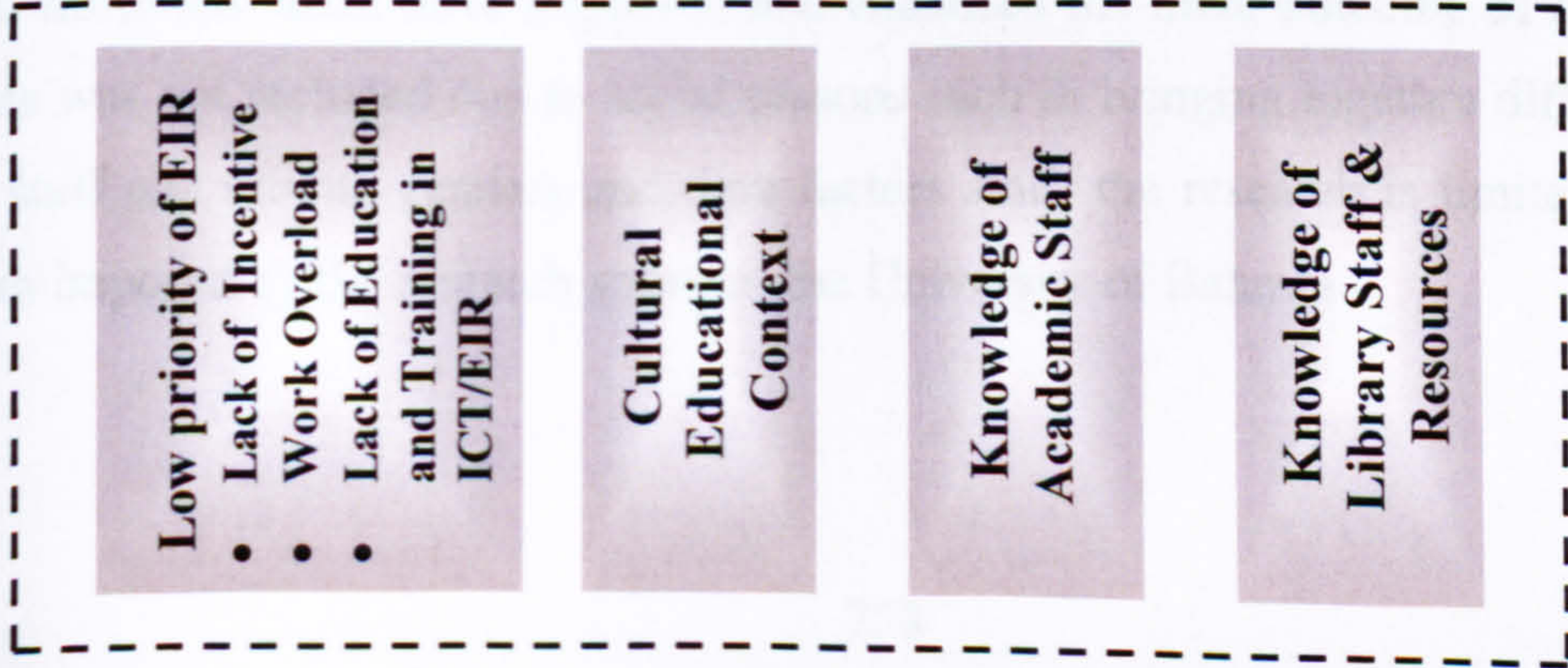
The interviewees also raised the issue of the importance of social factors. There was a feeling among the heads of department that it is important to encourage social relations among the academic staff community. This social atmosphere, it was felt, would help to improve the motivation and productivity of academic staff through social activities in general and this could have an impact on the use of EIR.

I feel that there are distances between academic staff. I feel the academic staff are working a bit in isolation. I think we need to increase social activities to help and encourage staff relations.

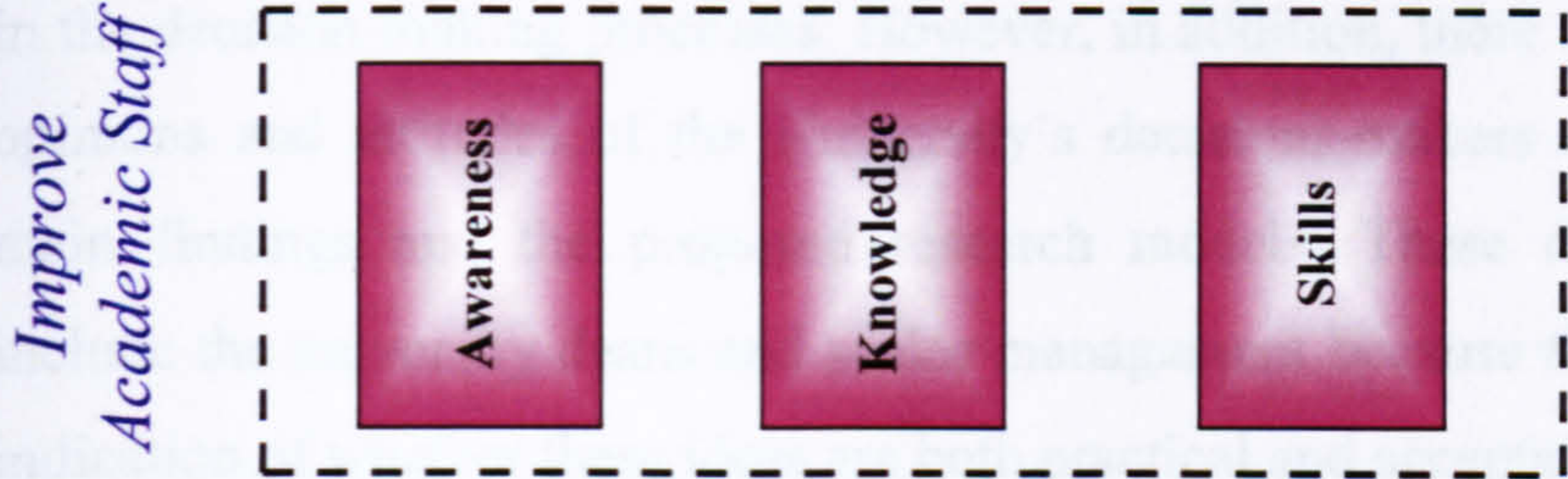
(Head of academic department)

Thus, the proposed academic staff model was modified to include the use of emotional and social factors as motivational drivers. See Figure 8.9. The social factor based on the feedback is needed to improve social environment that will help in use of EIR, such as improve males' and females' interactions as an example.

*Current Situations
(Barriers & Obstacles)*



Proposed Solutions



Improve Academic Staff



Outcome

Teaching
Effective Use of EIR
Research

Figure 8.9: Current barriers and possible future interventions (Modified)

8.5 Research Limitations

One of the main research strategies was to evaluate and test the research findings and offer the proposed models as solutions for the University. However, the evaluation and testing was limited only to the heads of academic departments and the University's senior librarians. They play an important role in strategic planning and in the decision-making processes. However, in addition, there is a need to explore the opinions and attitudes of the University's decisions-makers towards the research's main findings and the proposed research models. These decision-makers would include the university deans and senior management because this would give a better indication of whether these ideas are both practical and acceptable.

The research focused on the University's full time academic staff yet there are several part-time lecturers who contribute in teaching and research and this research excluded all part-time lecturers. The main reason for this exclusion was the lack of any official records for the University's part-time lecturers as they are on short-term contracts. It might be beneficial for future research to add the part-time academic staff members and to evaluate their knowledge and use of EIR, and distinguish any differences between them and the full-time members.

The research also excluded both undergraduate and postgraduate students from the study due to lack of time. It is often the attitude of the academic staff that affects students' use of libraries and their materials (Barrett 1995, p.191). Therefore, students' knowledge and use of EIR are essential in the environment of academic activities and their knowledge can be used to assess the influence of academic staffs' knowledge and use of electronic resources upon their students.

The research strategy used for collecting the data and information was based on questionnaires and interviews only while the use of focus groups for academic staff and librarians could have improved and enhanced the main outcome of the research. This was not included due to social reasons such as bringing together different levels of staff and mixing genders and time factors since the research is limited by a time plan imposed by the research sponsor, the University of Bahrain.

8.6 Recommendations for Further Research

The experience gained throughout this research, combined with the main outcomes, suggests the following areas for further research:

- A study that investigated decision-making generally is warranted and particularly where governmental control plays a critical role in the introduction and implementation of e-resources within their institutes. This could focus on policies, procedures and guidelines. Therefore, this research recommends a comprehensive research study to investigate and analyse decisions made by Bahrain University in terms of its EIR mission and policies, and its awareness, knowledge and use of e-resources. This will help to reduce the gap between the three important elements of learning activities within the University: namely, students, staff and librarians.
- There is a need to investigate and analyse the students' needs, skills, knowledge and awareness of EIR at Bahrain University.
- Bahrain is member of the Gulf States Council. The Council is moving towards integrating and sponsoring various cooperative activities among the States' members. This research recommends further study to investigate how cooperation and coordination among the GCC nations, with regard to EIR sharing, training, promoting awareness, knowledge, and use of EIR, could take place.
- The Arabic language is the main language of teaching and research in many colleges at Bahrain University and electronic Arabic resources have increased in recent years. However, one of the main barriers revealed in this research is the language barrier due to the fact that the vast majority of electronic resources are non-Arabic. Therefore, further research is required into what Arabic services need to be created. This would include investigating possible support from interested parties in the Arab world, including the Arab League, Arab universities, publishers, writers and ICT companies.

Bibliography

- Adams, G., 1985. *Understanding research methods*. New York: Longman.
- Adams, J. & Bonk, S., 1995. Electronic information technologies and resources use by university faculty and faculty preferences for related library services. *College and Research Libraries*, 56(2), 119-131.
- Adams, J. A. *et al.*, 1993. *Electronic information access technologies: a faculty needs assessment*. Albany and Buffalo, N.Y.: State university of New York, university center libraries, pp.1-88.
- Adika, G., 2003. Internet use among faculty members of universities in Ghana. *Library Review*, 52(1), 29-37.
- Almughairi, A., 2006. *Information behaviour of researchers at Sultan Qaboos University*. Ph.D thesis, Loughborough University.
- Al-Baridi, S. & Ahmed, S., 2000. Developing electronic resources at the KFUPM library. *Collection Building*, 19(3), 109-116.
- Al-Dosary, F. & Ekrish, A., 1991. The state of automation in selected libraries and information centers in Saudi Arabia. *Libri*, 41(2), 109-120.
- Al-Qaisi, M. & Ali, N., 1995. Searching CD-ROM databases for non-English-speaking users. *New Library World*, 96(4), 24-27.
- Ali, S. & Young, H., 1992. Information access through CD-ROM and its impact upon faculty research output: a case of university in third world countries. *Microcomputers for Information Management*, 9(3), 177-189.
- Allen, G., 1990. CD-ROM training: what do the patrons want? *RQ*, 30(1), 88-93.

Anderson, B. & Huang, S., 1993. Impact of new library technology on training paraprofessional staff. *Reference Librarian*, 39(1), 21-29.

Applebee, A., Clayton, P. & Pascoe, C., 1997. Australian academic use of the Internet. *Internet Research*, 7(2), 85-94.

Arabian Gulf University, 1999. *AGU catalogue*. Bahrain: University Press.

Arabnet! Map of the Arabian Peninsula States, 2006.

<<http://www.arabnet.com>>, [accessed 07.12.2006]

Armstrong, C. *et al.*, 2001. The JISC usage surveys: trends in electronic information services (JUSTEIS) project-supply and demand in higher education. *Library & Information Briefings*, 106/107, 1-18.

Ashoor, M., 1983. Planning for Library Automation at the University of Petroleum and Minerals. *Journal of Information Science*, 5(1), 193-198.

Ashoor, M., 2000. Planning the electronic library – suggested guidelines for the Arabian Gulf region. *The Electronic Library*, 18(1), 29-39.

Ashoor, M. & Kanamugire, A., 1996. Responding to researchers and faculty use patterns and perception of CD-ROM services. *Online CD-ROM Review*, 20(4), 171-180.

Ashoor, M. & Khurshid, Z., 1987. User Reactions to the Online Catalog at the University of Petroleum and Minerals Library. *The Journal of Academic Librarianship*, 13(4), 221-225.

Babu, R. & O'Brien, A., 2000. Web OPAC interface: an overview. *The Electronic Library*, 18(5), 316-327.

Bailey, K., 1994. *Methods of social research*. 4th ed. New York: Free Press.

- Balas, J., 1998. Online training resources. *Computers in Libraries*, 18(1), 36-38.
- Bane, A. & Milheim, W., 1995. Internet insights: how academic are using the internet. *Computers in Libraries*, 15(2), 32-36.
- Banwell, L. *et al.*, 2004. Providing access to electronic information resources in further education. *British Journal of Educational Technology*, 35 (5), 607-616.
- Bao, X., 1998. Challenges and opportunities: a report of the 1998 library survey of Internet users at Seton Hall University. *College and Research Libraries*, 59(6), 535-543.
- Barrett, J., 1995. User education in academic libraries: an evaluation of current techniques. *The Irish Library*, 2(4), 181-193.
- Bar-Ilan, J., Pertiz, B. & Wolman, Y., 2003. A survey on the use of electronic databases and electronic journals accessed through the Web by the academic staff of Israeli Universities. *The Journal of Academic librarianship*, 29(6), 346-361.
- Basager, M., 2001. *Evaluation of electronic information services in academic Libraries*. Ph.D thesis, Loughborough University.
- Begum, R. & Jean, W., 1999. Internet use in libraries in South East Asia with special reference to the role of the University Sains Malaysia Library in promoting the use of the Internet for teaching and learning, *In: IFLA, ed. The 65th IFLA Council and General Conference Bangkok, Thailand*. <<http://www.ifla.org/IV/ifla65/papers/020-129e.htm>>, [accessed 29.10.05]
- Bell, A., 1997. The impact of electronic information on the academic research community. *New review of Academic Librarianship*, 3(1), 1-24.
- Bell, J., 2005. *Doing your research project: a guide for first time researchers in education, health and social science*. Buckingham: Open University Press.

Berger, K. & Hines, R., 1994. What does the user really want? The library user survey project at Duke University. *The Journal of Academic Librarianship*, 20(5/6), 306-309.

Blake, M., 1998. A case apart?. *Information world Review*, 135(4), 29-30.

Boakye, J., 1999. Users' awareness and use of science and technology collections at the University of Science and Technology (UST) libraries. *Journal of Librarianship and Information Science*, 31(4), 204-211.

Bradley, P., 1997. *Going online, CD-ROM and the Internet*. 10th ed. London: Aslib.

Brinkley, A., et al., 1999. *The Chicago handbook for teachers: a practical guide to the college classroom*. Chicago: University of Chicago Press.

Britz, J. et al., 2006. Africa as a knowledge society: a reality check. *International Information and Library Review*, 38(1), 25-40.

Bruce, C., 2001. Faculty-librarian partnerships in Australian higher education: critical dimensions. *Reference Services Review*, 29(2), 106-115.

Bu-Merafi, B., 2001. Use of Internet by the teaching staff at the University of Al-Sharqa. *Risalat Al-Maktaba*, 36(1/2), 74-90.(Arabic)

Busha, C. & Harter, S., 1980. *Research methods in librarianship: techniques and interpretation*. San Diego: Academic Press.

Callahan, D. & Watson, M., 1995. Care of the organization: training and development strategies. *The Journal of Academic Librarianship*, 21(5), 377-381.

Campbell, D., 2000. Australian subject gateways: political and strategic issues. *Online Information Review*, 24(1), 73-77.

Carmines, E. & Zeller, R., 1979. *Reliability and validity assessment. Series: quantitative application in the social sciences.* London: Sage Publications.

Central Information Organisation, General Directorate of Statistics & population Registry, Directorate of Statistics, 2004. *Bahrain in Figures.* Bahrain: Ministry of Interior press.

Chrisman, C., & Beccue, B., 1990. Training for users as a management issue. *Journal of Information Management*, 7(3), 56-62.

Clark, J. & Lai, V., 1998. Internet comes to Morocco. *Communications of the ACM*, 41(2), 21-23.

Clark, J. & Silverman, S., 1989. What are students hearing about online searching? A survey of faculty. *RQ*, 29(2), 230-238.

Cohen, L. & Calsada, M., 2003. Web accessible databases for electronic resources collections: a case study and its implications. *The Electronic Library*, 21(1), 31-38.

College of Health and Science, 2004. *CHS catalogue.* Bahrain: Ministry of Health Press.

Cousins, S., 1997. COPAC: new research library union catalogue. *The Electronic Library*, 15(3), 185-188.

Cox, A., 2003. Choosing a library portal marketplace. *Vine*, 33(1), 37-41.

Crawford, J., 1999. A qualitative, comparative study of the use of electronic information and other services at Universitäts-und Landesbibliothek Münster. *Liber Quarterly*, 9(3), 352-365.

Crawford, J., 2003. The use of electronic information services by students at Glasgow Caledonian University: background to the project and introductory focus groups. *Library and Information Research News*, 27(86), 30-36.

Cullen, R. & Cheng, H., 1999. The use of new technologies in reference and information work: A survey of training needs in China and New Zealand. *Asian Libraries*, 8(6), 195-214.

Culpepper, J., 2000. Watch out and listen: faculty assess electronic resources. *Acquisitions Librarian*, 12(24), 29-40.

Dadzie, P., 2005. Electronic resources: access and usage at Ashesi University College. *Campus-Wide Information Systems*, 22(5), 290-297.

Deemer, S., 1982. Online in Saudi Arabia. *Information Technology and Libraries*, 1 (1), 37-41.

Denscombe, M., 2003. *The good research guide for small-scale social research projects*. 2nd ed. Maidenhead: Open University Press.

Detlor, B., 1999. Leveraging the corporate library through Web user training. *Library management*, 20(7), 393-400.

Dillman, D., 1978. *Mail and telephone surveys*. New York: John Wiley & Sons.

Doskatsch, I., 2003. Perceptions and perplexities of the faculty-librarian partnership: an Australian perspective. *Reference Services Review*, 31 (2), 111-121.

Eager, C. & Oppenheim, C., 1996. An observational method for undertaking end-user needs studies. *Journal of Librarianship and Information Science*, 28(1), 15-24.

Efthimiadies, E., 1994. A study of end user behavior in searching CD-ROM bibliographic databases. *In: Williams, M., ed. Proceeding of the 15th National Online Meeting*, New York: Learned Information. May 10-12, pp.113-120.

Elayan, R. & Al-Qessi, M., 1999. The use of the Internet at university libraries: a case study of Bahrain University library. *Risalat Al-Maktaba*, 34(4), 4-28.(Arabic)

Falk, H., 2003. Electronic campus. *The Electronic Library*, 21(1), 63-66.

Farha, A., 2001. End-user training in a virtual medical library setting – a case study of an academic medical library in Lebanon. *Library Management*, 22(8/9), 351-356.

Flatten, K., 1997. Training librarians and information specialists to support academic staff using networks. *Librarian Career Development*, 5(1), 23-29.

Galbraith, J., 1991. At the mercy of the military. *Guardian*, 6(8), 17.

Garrod, P., 2001. Staff training and end-user training issues within the hybrid. *Library Management*, 22(1/2), 30-36.

Ghnaim, O., 1996. Geography of Bahrain. Bahrain: Fakhrawi Bookshop.

Glazier, J. & Powell, R., 1992. *Qualitative research in information management.* Englewood, Colorado: Libraries Unlimited.

Gorman, G. & Clayton, P., 2005. *Qualitative research for the information professional.* A practical handbook. 2nd ed. London: Facet Publishing.

Groenewegen, D. & Huggard, S., 2003. The answer to all our problems? trialling a library portal. *Library Review*, 52 (9), 452-459.

Hakim, C., 1997. *Research design: strategies and choices in the design of social research.* London: Routledge.

Hamshari, O. & Bouazza, A., 2000. Use of the Internet by faculty members at Sultan Qaboos University, *Journal of Educational Science Studies*, 27(2), 328-342. (Arabic)

Hart, J., Coleman, V. & Yu, H., 2000. Marketing electronic resources and services: surveying faculty use as a first step. *Reference Librarian*, (67/68), 41-56.

Hassan, B., 2002. *Using electronic information resources :a study of end-user training needs and methods in selected public university libraries in Malaysia*. Ph.D thesis, Loughborough University.

Hazari, S., 1991. Computer Literacy Training Model for Higher Education faculty. *Computers Education*, 17(2), 163-167.

Hegarty, N. *et al.*, 2004. On the cat-walk: WIT libraries learning support model. *Library Management*, 25(6-7), 293-299.

Hepworth, J., 1990. The training implications of library automation: approaches to staff and end-user training in health libraries. *Health Libraries Review*, 7(4), 210-213.

Hepworth, M., 2000. Approaches to providing information literacy training in higher education: challenges for librarians. *The New Review of Academic Librarianship*, 6(1), 21-34.

Heterick, B., 2002. Faculty attitudes toward electronic resources. *EDUCAUSE Review*, 37(July/August), 10-11.

Hewitson, A., 2002. Use and awareness of electronic services by academic staff at Leeds Metropolitan University: A qualitative study. *Journal of librarianship and Information Science*, 34 (1), 43-52.

History of Bahrain, 2006. <<http://www.newarabia.net/history.htm>>, [accessed 07.12.2006]

Houissa, A., 2000. The Internet predicament in the Middle East and North Africa: connectivity, access and censorship. *Journal of Librarianship and Information Science*, 32(2), 56-63.

Hsieh-Yee, I., 1997. Access to OCLC and Internet resources: LIS educators' views and teaching practices, *RQ*, 36(4), 569-584.

Hu, C., 1996. *Network Literacy: New Task for Librarians on User Education*. 62nd IFLA General Conference – Conference Proceeding – August 25-31, 1996.

<<http://ifla.inist.fr/IV/ifla62/62-huch.htm>>, [accessed 27.10.05]

Huber, J. *et al.*, 2003. Woman to woman: community health information project. *Journal-Medical Library Association*, 91(4), 404-410.

Iannuzzi, P., 1998. Faculty development and information literacy: establishing campus partnerships. *Reference Services Review*, 26(3) 97-102.

Ibrahim, A., 2004. Use and user perception of electronic resources in the United Arab Emirates University. *Libri*, 54 (1), 18-29.

Information about Bahrain, 2006. <<http://www.arab.net>>, [accessed 07.12.06]

Jallal, A. 2005. Has university education lost its creditability. *Alayam National daily Newspaper*, 11 December, p.7.

< <http://www.alayam.com/Category.asp>>, [accessed 20.01.06]

Jirojwong, S. & Wallin, M., 2001. Use of formal and informal methods to gain information among faculty at an Australian regional university. *The Journal of Academic Librarianship*, 28(1), 68-73.

Johnston, B. & Webber, S., 2004. The role of LIS faculty in the information literate university: taking over the academy. *New Library World*, 105(1196/1197), 12-20.

Joint, N., 2003. Staff development and training in the digital library environment, *Library Review*, 52(9), 417-421.

Jordan, W., 2000. My gateway at the University of Washington Libraries. *Information Technology and Libraries*, 19(4), 180-185.

Kaczor, S. & Jacobson, T., 1996. Bibliographic instruction for the Internet: implications of an end-user survey. *Research Strategies*, 14(4), 214-223.

Kaser, R., 1998. User Behavior on the POPLINE CD-ROM Database. *International Information and Library Review*, 30(1), 249-265.

Kendall, K. & Kendall, L., 1998. *System Analysis and Design*. New Jersey: Prentice Hall.

Kennedy, P., 2004. Dynamic web pages and the library catalogue. *Electronic Library*, 22(6), 480-486.

Khalid, H., 2000. The use of technology for housekeeping and bibliographic searching activities in university libraries of Saudi Arabia: the need for acceleration. *Library Review*, 49(4), 179-185.

Kinnear, P. & Gray, C., 2006. *SPSS 14 Made Simple*. Hove : Psychology Press.

Kirkpatrick, T., 1998. The training of academic library staff on information technology within the libraries of the Minnesota State Colleges and Universities System. *College & Research Libraries*, 59(1), 51-59.

Kvale, S., 1996. *Interviews : an introduction to qualitative research interviewing*. London : Sage.

Labska, H., 1994. Functioning of the communication media in consumers market. *Ekonomicky Casopis*, 42(7-8), 583-594.

Lapp, E., 1996. Information services and user training in the electronic library. *Library Management*, 17(7), 31-36.

Lazinger, S., Bar-Ilan, J. & Pertiz, B., 1997. Internet use by faculty members in various disciplines: a comparative case study. *Journal of the American Society for Information Science*, 48(6), 508-518.

Lipow, A., 1991. Outreach of faculty: why and how. In: Shirato, L., ed. *Working with faculty in the new electronic library*. Michigan: Pierian Press, pp.7-13.

Litwin, M. 1995. *How to measure survey reliability and validity*. London: Sage Publications.

Looney, M. & Lyman, P., 2000. Portals in higher education. What are they, and what is their potential? *Educause Review*, 35(4), 29-37.

Lumande, E. & Mutshewa, A., 1999. Information-seeking behaviour among University of Botswana science faculty. *Information Development*, 15(2), 107-112.

Majid, S., 1998. Managing CD-ROM service in Malaysian academic libraries. *Australian Academic and Research Libraries*, 29(4), 200-216.

Majid, S. & Abazova, A., 1999. Computer literacy and use of electronic information sources by academics: A case study of International Islamic University Malaysia. *Asian Libraries*, 8(4), 100-111.

Majid, S. & Tan, A., 2002. Usage of information resources by computer engineering students: a case study of Nanyang Technological University, Singapore. *Online Information Review*, 26(5), 318-325.

Marghalani, M. & Hafez, A., 1993. Online search service at the King Abdulaziz University Library, Jeddah, Saudi Arabia. *International Information and Library Review*, 25(1), 27-41.

Marmion, D., 1998. Facing the challenge: technology training in libraries. *Information Technology and Libraries*, 17 (4), 216-218.

Mathews, P., 1997. An investigation into Internet training for academic library staff. *New Library World*, 98(3), 84-97.

McCarthy, C., Krause, S. & Little, A., 1997. Expectations and effectiveness using CD-ROMs: What do patrons want and how satisfied are they? *College & Research Libraries*, 58(2), 128-142.

Meer, V. *et al.*, 1997. Are library users also computer users? a survey of faculty and implications for services. *The Public-Access Computer Systems Review* [online], 8(1), 6-31. <<http://epress.lib.uh.edu/pr/v8/n1/vand8n1.html>>, [accessed 15.01.07].

Ministry of Cabinet Affaires & Information, 1997. *Bahrain to the way of development*. Bahrain: Ministry of Cabinet Affaires & Information Press.

Ministry of Cabinet Affairs & Information, 2004. *Kingdom of Bahrain*. Bahrain: Ministry of Cabinet Affairs & Information Press.

Ministry of Education, 2003. *Ministry of Education news letter*. Bahrain: Ministry of Education Press.

Ministry of Information, 1982. *Statistical year book*. Bahrain: Ministry of Information Press.

Ministry of Labour., 2001. *Women Empowerment*.

<<http://www.womengateway.com/en/default.asp?action=articale&id=234>>, [accessed 19.09.05].

Moore, N., 2006. *How to do research: the complete guide to designing and managing a research project*. 3rd. ed. London: Facet Publishing.

Moser, C. & Kalton, G., 1985. *Survey Methods in Social Investigation*. London: Heinemann Educational Books.

Moyo, L., 1996. Training needs for internet usage in a learning environment: University of Botswana Case. *International Forum on Information and Documentation*, 21(4), 25-33.

Nachmias, C. & Nachmias, D., 2000. *Research Methods in the Social Sciences*, 6th ed. New York: Worth Publishers.

Nelson, D., 2001. The uptake of electronic journals by academics in the UK, their attitudes towards them and their potential impact on scholarly communication. *Information Services & Use*, 21(3/4), 205-214.

Notess, G., 1998. *On the net: the year databases moved to the Web*. <<http://www.onlineinc.com/database/DB1998/net12.html>>, [accessed 03.01.04].

Oduwole, A., 2000. A study of the use of CD-ROM databases in Nigerian academic libraries. *Journal of Information Science*, 26(5), 364-369.

Ohchr! Map of Kingdom of Bahrain. 2006.

<<http://www.ohchr.org/english/countries/maps/bahrain.pdf>>, [accessed 07.12.06]

Oppenheim, A., 1992. *Questionnaire design, interviewing and attitude measurement*. London: Pinter.

Pallant, J., 2005. *SPSS survival manual : a step-by-step guide to data analysis using SPSS for Windows*. Buckingham : Open University Press.

Patton, M., 2002. *Qualitative research and evaluation methods*. 3rd ed. London: Sage.

Peil, M., et al., 1982. *Social science research methods: an African handbook*. London: Hodder and Stoughton.

Perdue, B. & Piotrowski, C., 1991. Online database use in psychology: a survey of academic libraries. *Collection Management*, 14(1/2), 133-137.

Pullinger, D., 1999. Academic and the new information environment: the impact of local factors on use of electronic journals. *Journal of Information Science*, 25(2), 164-172.

Qari, A., 1999. Training for information technology at King Abdulaziz University Library. *Journal of Librarianship and Information Science*, 31(1), 39-44.

Quinlan, C., 1991. Libraries and computing centers. In Pitkin, G., ed. *The evolution of library automation: management issues and future perspectives*. Westport, Connecticut: Meckler Publishing, pp. 91-106.

Rader, H., 2000. Information literacy in the reference environment: preparing for the future. *Reference Librarian*, 71(1), 25-33.

Ramsden, A., 2003. The library portal marketplace. *Vine*, 33(1), 17-24.

Ray, K. & Day, J. 1998. Student attitudes towards electronic information resources. *Information Research* [online], 4 (2), 1-16.

<<http://informationr.net/ir/4-2/paper54.html>>, [accessed 15.01.07].

Rehman, S., 2006. IT applications in Kuwaiti financial companies: an analysis. *Information Management and Computer Security*, 14(5), 467-484.

Rehman, S. & Al-Ansari, H., 2003. The digital marketplace and library and information education in the GCC member nation: a critical review. *Library Review*, 52(4), 170-179.

Rehman, S., & Al-Obaidali, L., 2000. Internet use and capabilities of library and information professionals at the Kuwaiti University Libraries: results of survey. *Program*, 34(2), 177-186.

Rehman, S. & Ramzy, V., 2004a. Internet use by health professionals at the Health Sciences Centre of Kuwait University. *Online Information Review*, 28(1), 53-60.

Rehman, S. & Ramzy, V., 2004b. Awareness and use of electronic information resources at the health sciences center of Kuwait University. *Library Review*, 53(3), 150-156.

Renwick, S., 2005. Knowledge and use of electronic information resources by medical sciences faculty at The University of the West Indies. *Journal- Medical Library Association*, 93(1), 21-31.

Rhodes, H. & Chelin, J., 2000. Web-based user education in UK university libraries results of a survey. *Program*, 34(1), 59-73.

Riggs, D., 1991. The library perspective. In Pitkin, G., ed. *The evolution of library automation: management issues and future perspectives*. Westport, Connecticut: Meckler Publishing, pp.19-38.

Roberts, J.M., 1995. Faculty knowledge about library services at the University of the West Indies. *New Library World*, 96(1119), 14-22.

Rockman, I., 1999. End-user services in academic libraries: a 1999 perspective. *Reference Service Review*, 27(3), 254-258.

Rosen, L., Sears, D. & Weil, M., 1987. Computer-phobia. *Behavior Research Methods Instruments and Computers*, 19(2), 167-179.

Rothera, H., 2001. From trainees to backers and agents: a programme of electronic information searching skills training for academic staff in health care. *Vine*, 122(3), 22-28.

Rowley, J. *et al*, 2002. JISC user behaviour in relation to electronic information services within the UK higher education academic community. *Journal of Educational media*, 27(3), 107-122.

Sadeh, T. & Walker, J. 2003. Toward the semantic Web. *New Library World*, 104 (1/2), 11-19.

Schauder, D., 1994. Electronic publishing of professional articles: attitudes of academic's and implications for the scholarly communication industry. *Journal of the American Society for information Science*, 45(2), 37-100

Sekaran, U., 2003. *Research methods for business: a skill-building approach*. 4th ed. New York: John Wiley.

Shim, W., & McClure, C., 2002. Data need and use of electronic resources and services at academic research libraries. *Portal: Libraries and the Academy*, 2(2), 217-236.

Siitonen, L., 1996. Information literacy: Gaps between Concept and Applications. In: IFLA, ed. *The 62nd IFLA General Conference-Conference-Proceedings*, August 25-31. < <http://www.ifla.org/IV/ifla62/62-siil.htm> >, [accessed 20.01.07]

Steed, C., 1999. *Web-based training*. Hampshire: Gower.

Straub, D., 1989. Validation instruments in MIS research. *Management Information System Quarterly*, 13(2), 147-170.

Swain, L. & Cleveland, D. 1994. Overview of the Internet: Origins, Future, and Issues. *IFLA Journal*, 20 (1), 16-21.

Tobin, T. & Kesselman, M., 1999. Evaluation of Web-based library instruction programmes. *Paper presented at the 65th IFLA Council and General Conference*, Bangkok, Thailand, August 20-28, pp.2-6.

<<http://www.ifla.org/VII/d2/inspel/00-2tote.pdf>>, [accessed 20.01.07]

Tomney, H. & Burton, P., 1998. Electronic journals: a study of usage and attitudes among academics. *Journal of Information Science*, 24(6), 419-429.

Vicente, A., Crawford, J. & Clink, S., 2004. Use and awareness of electronic information services by academics at Glasgow Caledonian University. *Library Review*, 53(8), 401-407.

University of Bahrain., 2005. *Directory of libraries and information services*. Bahrain: University Press.

University of Bahrain., 2005. *Statistical Yearbook*. Bahrain: University Press.

University of Bahrain., 2004. *University of Bahrain statistical bulletin*. Bahrain: University Press.

University of Bahrain Personal Department, 2002. *University of Bahrain organization chart*. Bahrain: University Press.

University of California. Division of Academic Affairs, 1995. *Survey of University of California faculty use of technology as a tool in instruction*.

<<http://www.ucop.edu/planning/survey.html>>, [accessed 16.03.04]

Wade, A., 1996. Training the end-user: Case Study 1-academic libraries. In: Biddiscombe, R., ed. *The end-user revolution: CD-ROM, Internet and the changing role of the information professional*. London: LAPL, pp.97-109.

Wanjun, W., 1998. Information service, students and the Internet. *Electronic Library*, 16(2), 87-88.

Washington-Hoagland, C. & Clougherty, L., 2002. Faculty and staff use of academic library resources and services: a University of Iowa Libraries' Perspective. *Portal: Libraries and the Academy*, 2(4), 627-646.

Weingart, S. & Anderson, A., 2000. When questions are answers: using a survey to achieve faculty awareness of library's electronic resources. *College & Research Libraries*, 61(2), 127-134.

Wiberley, S. & Jones, W., 2000. Time and technology: a decade-long look at humanists' use of electronic information technology. *College and Research Libraries*, 61(5), 421-431.

Younis, A., 2002. The perception and administrative effect of Internet usage in Jordanian university libraries. *Online Information Review*, 26(3), 193-208.

APPENDICES

APPENDIX 1

Letters Concerning the Study

Department of Information Science
Loughborough University Leicestershire LE11 3TU UK
Switchboard: +44 (0) 1509 263171 Department: +44 (0) 1509 223052



Dr. Fatima Al-Balooshi
Dean of Education College
University of Bahrain
Kingdom of Bahrain

20th December 2004

Dear Dr. Al-Balooshi,

This is to inform you that Mustafa Al-Abbasi will be conducting his field work for his PhD in February 2005. This will include conducting interviews and distributing questionnaires to academic and library staff at the University of Bahrain.

I would be very grateful if you can provide him with necessary support and help to ensure he receives the collaboration necessary for effective data collection.

Yours sincerely,

Dr. Mark Hepworth

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Reminder Letter

Dear Sir or Madam,

I am aware of and highly appreciate your time and commitment to your profession. Please may, I would like to remind you that I have not received your response to the questionnaire mailed it to your department. Your response is highly valued and is very important to our research and for our University. I would like reemphasis that your response will be dealt with confidentially and the final outcome of the research will be made available to you.

I look forward to receiving your response. If you need another copy of the questionnaire please contact me. I can be contacted either by e-mail **M.M.Al-Abbasi2@lboro.ac.uk** OR at **Educational Technology Department.**

Mustafa Al-Abbasi
PhD Candidate
Loughborough University
Department of Information Science

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Arrangement for Interview Appointment

Dear Sir, Madam,

I am a PhD research student at Loughborough University, United Kingdom. I am currently carrying out a survey on the use of electronic information resources by academic staff at University of Bahrain. Your contribution to the research is valuable and important to the outcome of the research. Therefore, I would like to arrange an interview with you at a time and place which is convenient to you. Your contribution will be greatly appreciated and will support my research.

All your comments, responses and criticism will be treated confidentially.

If you need further information, please contact me via e-mail

M.M.Al-Abbasi2@lboro.ac.uk OR Telephone **39343118**

I will be contacting you in the near future to arrange an appointment.

MUSTAFA AL-ABBASI

PhD Candidate

Loughborough University

Department of Information Science

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Thanks for Attending the Interview

Dear Sir or Madam

I would like to express my sincere thanks and appreciation for your time, valuable comments and frank opinions during my interview. Your comments and views will be treated with complete confidentiality. I promise you I will inform you of the main outcome of the field work.

I look forward to seeing you soon.

**MUSTAFA AL-ABBASI
PhD Candidate
Loughborough University
Department of Information Science**

APPENDIX 2

Questionnaires

Department of Information Science
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Questionnaire

Dear Participant

This survey concerns your personal opinion about assess and use of Electronic Information Resources at the University of Bahrain library. The information that you provide relates to your own library, so the more information you supply, the more benefit this research will be for your library.

Please complete the attached questionnaire at your convenience. There is no need to write your name when you complete this questionnaire, as this survey only requires anonymous responses.

I would like to confirm the confidentiality of the research study, and that your response will only be used for academic purposes. I would like to thank you for your time, effort and co-operation.

Would you kindly return your questionnaire as soon as possible to the secretary of your department.

Yours sincerely,

**Mustafa AL-Abbasi
PhD Candidate
Department of Information Science
Loughborough University**

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ALL INFORMATION GIVEN WILL BE TREATED WITH STRICT CONFIDENTIALITY

Section 1: Electronic Information Resources

Electronic Information Resources (EIR) refer to information available in electronic formats such as CD-ROM, Internet, e-journals, online databases and Online Public Access Catalogue (OPACs).

Note: Internet refers to (search engines, email and WWW page other than library home page)

1- How frequently do you use the computer? (Please TICK one)

- a- Daily
- b- Weekly
- c- Monthly
- d- Infrequently
- e- Never

2- How often do you use the library? (Please TICK one)

- a- Daily
- b- At least once every week
- c- At least once every month
- d- At least once every 3 months
- e- Never

3- Are you aware of the following EIR at University of Bahrain that enhance teaching and research?

(Please TICK all that apply)

- a- OPAC
- b- CD-ROM
- c- Online databases
- d- Internet
- e- E-journals

4- How would you rate your personal knowledge of the following electronic information resources? (Please CIRCLE the appropriate number)

	Very poor	Poor	Adequate	Good	Very good	
a-OPAC	1	2	3	4	5	<input type="checkbox"/>
b-CD-ROM	1	2	3	4	5	
c-Online databases	1	2	3	4	5	
d-Internet	1	2	3	4	5	
e-E-journals	1	2	3	4	5	

5- How did you find out about the existence of the electronic information resources?
(Please TICK as many as appropriate)

- a- Library
- b- Print media (e.g., Magazine, Journal)
- c- A colleague
- d- Electronic mail
- e- Overseas study
- f- Other.....
(Please specify)

6- How would you rate the following in terms of importance and meeting your research needs?

(Please CIRCLE the appropriate number)

	Not important at all	Not important	Average	Important	Very important	
a-OPAC	1	2	3	4	5	<input type="checkbox"/>
b-CD-ROM	1	2	3	4	5	
c-Online databases	1	2	3	4	5	
d-Internet	1	2	3	4	5	
e-E-journals	1	2	3	4	5	

7- How often do you use the following for research? (Please CIRCLE the appropriate number)

	Never use	Once a semester	Once a month	2/3 times a week	Daily	
a-OPAC	1	2	3	4	5	<input type="checkbox"/>
b-CD-ROM	1	2	3	4	5	
c-Online databases	1	2	3	4	5	
d-Internet	1	2	3	4	5	
e-E-journals	1	2	3	4	5	

8- To what extent do you now use the following electronic information resources in teaching?

(Please CIRCLE the appropriate number)

	Never use	Once a semester	Once a month	2/3 times a week	Daily	
a-OPAC	1	2	3	4	5	<input type="checkbox"/>
b-CD-ROM	1	2	3	4	5	
c-Online databases	1	2	3	4	5	
d-Internet	1	2	3	4	5	
e-E-journals	1	2	3	4	5	

9- How would you rate the following in term of importance and meeting the needs of your students to learn the course content?

(Please CIRCLE the appropriate number)

	Not important at all	Not important	Average	Important	Very important	
a-OPAC	1	2	3	4	5	<input type="checkbox"/>
b-CD-ROM	1	2	3	4	5	
c-Online databases	1	2	3	4	5	
d-Internet	1	2	3	4	5	
e-E-journals	1	2	3	4	5	

10- What limits your use of electronic information resources?

(Please TICK as many as appropriate)

- a- Work overload
- b- Lack of ICT
- c- Lack of awareness of EIR
- d- Lack of training
- e- Preference for print resources
- f- None
- g- Others

(Please specify)

11- Which of the following might increase your use of electronic information resources?

(Please TICK all that apply)

a- More information about EIR

b- Instruction/training in the use of EIR

c- Availability of hardware and software

d- Others
(Please specify)

Section 2: Searching Skills

12- Do you find what you need when searching the EIR for teaching and research?

a- Always b- Usually c- Sometimes d- Never

13- Do you face problems when you use (Please CIRCLE as appropriate)

	Yes	No
a-Subject headings to search for information	1	2
b-Keywords (search term) to find information	1	2
c- Field searching (title, author, year) to find articles	1	2
d-AND, OR, NOT (Boolean logic) to combine terms	1	2
e-Internet search engines (e.g., Yahoo, Google, Alta Vista)	1	2
f-Downloading (copying your search results to a disk)	1	2

14- Have you ever asked for assistance during searching?

a- Yes b- No

15- Overall how competent do you consider yourself on the following?

(Please CIRCLE the appropriate number)

	Not competent at all	Less competent	Average	competent	Very competent
a-Using OPAC	1	2	3	4	5
b-Searching CD-ROM	1	2	3	4	5
c-Searching Online databases	1	2	3	4	5
d-Searching Internet	1	2	3	4	5
e-Searching E-journals	1	2	3	4	5

Section 3: Training

16- Have you received training in any of the electronic information resources?

a- Yes

b- No (GO TO QUESTION 19)

17- What type of training have you received? (Please TICK as many as appropriate)

a- Attending a library workshop

b- Group instruction

c- Computer-assisted instruction

d- Got help from colleague

e- Group sessions

f- Others.....

(Please specify)

18- If you have received training in any of the following, how good was the training?

(Please CIRCLE the appropriate number)

	Very poor	Poor	Adequate	Good	Very good	
a-Using OPAC	1	2	3	4	5	<input type="checkbox"/>
b-Searching CD-ROM	1	2	3	4	5	
c-Searching Online databases	1	2	3	4	5	
d-Searching Internet	1	2	3	4	5	
e-Searching E-journals	1	2	3	4	5	

19- Would you like more training on any of the following?

(Please CIRCLE the appropriate number)

	Yes	No	
a-Using OPAC	1	2	<input type="checkbox"/>
b-Searching CD-ROM	1	2	
c-Searching Online databases	1	2	
d-Searching Internet	1	2	
e-Searching E-journals	1	2	

20- If you were to participate in training related to electronic information resources which type(s) of training would you prefer? (Please TICK all that apply)

a- Library workshops(hands-on)

b- Printed instruction sheet/manual

c- Computer-assisted instruction

d- Classroom/group demonstrations

e- One-to-one instruction

f- No training is necessary

g- Other (please specify)

Section 4: Personal Record

21- College

22- Department

23- Gender

a- Male

b- Female

24- Age:

a- Under 25 years old

b- Between 25 and 30

c- Between 31 and 40

d- Between 41 and 50

e- Over 50

25- Academic Ranking:

a- Professor

b- Associate professor

c- Assistant Professor

d- Senior Lecturer

e- Lecturer

f- Teaching & Research Assistant

g- Other.....

(Please specify)

26- Number of years in service:

a- 1-5

b- 6-10

c- 11-20

d- 21-30

e- 31-40

27- Your highest academic qualification

a- Doctorate (e.g., PhD, EDD)

b- Master (e.g., M.A., M.Sc.)

c- Bachelor (e.g., B.A., B.Sc.)

d- Other.....

(Please specify)

28- Please offer any comments you might have regarding electronic information resources.

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Thank you for taking the time to complete this survey

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إستبانة حول مدى استخدام أعضاء الهيئة الأكاديمية لمصادر المعلومات الإلكترونية بجامعة البحرين

الزميل / عضو هيئة التدريس بجامعة البحرين.

يهدف هذه الإستبانة الى معرفة رأيك الشخصي حول مدى استخدام أعضاء الهيئة الأكاديمية لمصادر المعلومات بجامعة البحرين. (Electronic Information Resources) الإلكترونية

ولهذا الغرض يرجى التكرم بتعبئة الإستبانة في أسرع وقت ممكن, وستكون ملاحظاتك وتعليقاتك الواردة في هذه الإستبانة ذات أهمية كبيرة بالنسبة لموضوع رسالة الدكتوراة التي أقوم باعدادها حاليا في جامعة لفيره البريطانية. شكري وتقديري الخالص لتعاونكم أود أن أؤكد لكم حرصي على المحافظة على سرية إجاباتكم لأنها سوف تستخدم فقط لأغراض البحث العلمي.

أخوكم

أ. مصطفى محمد العباسي
مساعد بحث والتدريس
قسم تكنولوجيا التعليم

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أولاً: مصادر المعلومات الإلكترونية

1- ما مدى استخدامك لجهاز الحاسوب؟ (يرجى اختيار الخانة المناسبة)

- يوميا
 أسبوعيا
 لا أستخدمة على الإطلاق
 أحيانا
 شهريا

2- ما مدى استخدامك لمكتبة الجامعة؟ (يرجى اختيار الخانة المناسبة)

- يوميا
 مرة في الأسبوع على الأقل
 لا استخدمها على الإطلاق
 مرة في الفصل الدراسي
 مرة في الشهر على الأقل

3- هل أنت على معرفة بمصادر المعلومات الإلكترونية الآتية في جامعة البحرين؟

(يرجى اختيار الخانة/الخانات المناسبة)

- الفهرس الآلي (OPAC)
 الأقراص المدمجة (CD-ROM)
 قواعد المعلومات الإلكترونية المباشرة (Online Databases)
 شبكة الإنترنت (Internet)
 المجلات الإلكترونية (E-journals)

4- كيف تقيم معرفتك الشخصية بالمصادر المعلومات الإلكترونية الآتية؟ (يرجى اختيار الرقم المناسب)

ممتاز	جيد	متوسط	ضعيف	ضعيف جدا	
5	4	3	2	1	استخدام الفهرس الآلي (OPAC)
5	4	3	2	1	البحث في الأقراص المدمجة (CD-ROM)
5	4	3	2	1	البحث في قواعد المعلومات الإلكترونية المباشرة (Online Databases)
5	4	3	2	1	البحث في شبكة الإنترنت (Internet)

5- كيف علمت بوجود مصادر المعلومات الإلكترونية في جامعة البحرين؟ (يرجى اختيار الخانة/الخانات المناسبة)

- عن طريق إعلانات المكتبة
 عن طريق وسائل الإعلام المطبوعة (المقروءة) المجلات, الصحف.....الخ
 بواسطة أحد زملاء العمل
 بواسطة البريد الإلكتروني
 من خلال دراستي في الخارج
 وسائل أخرى (يرجى تحديدها).....

6- ما مدى أهمية مصادر المعلومات الإلكترونية الآتية بالنسبة لنشاطك البحثي الأكاديمي؟
(يرجى اختيار الرقم المناسب)

مهم جدا	مهم	مهم إلى حد ما	غير مهم	غير مهم إطلاقا	
5	4	3	2	1	الفهرس الآلي (OPAC)
5	4	3	2	1	الأقراص المدمجة (CD-ROM)
5	4	3	2	1	قواعد المعلومات الإلكترونية المباشرة (Online Databases)
5	4	3	2	1	شبكة الإنترنت (Internet)
5	4	3	2	1	المجلات الإلكترونية (E-journals)

7- ما مدى استخدامك للمصادر الآتية في نشاطك البحثي الأكاديمي؟
(يرجى اختيار الرقم المناسب)

يومية	مرة في الأسبوع	مرة في الشهر	مرة في الفصل الدراسي	لا أستخدمة مطلقا	
5	4	3	2	1	الفهرس الآلي (OPAC)
5	4	3	2	1	الأقراص المدمجة (CD-ROM)
5	4	3	2	1	قواعد المعلومات الإلكترونية المباشرة (Online Databases)
5	4	3	2	1	شبكة الإنترنت (Internet)
5	4	3	2	1	المجلات الإلكترونية (E-journals)

8- ما مدى استخدامك للمصادر الإلكترونية الآتية في التدريس؟
(يرجى اختيار الرقم المناسب)

يومية	مرة في الأسبوع	مرة في الشهر	مرة في الفصل الدراسي	لا أستخدمة مطلقا	
5	4	3	2	1	الفهرس الآلي (OPAC)
5	4	3	2	1	الأقراص المدمجة (CD-ROM)
5	4	3	2	1	قواعد المعلومات الإلكترونية المباشرة (Online Databases)
5	4	3	2	1	شبكة الإنترنت (Internet)
5	4	3	2	1	المجلات الإلكترونية (E-journals)

9- ما مدى أهمية المصادر الآتية في مساعدة طلابك على استيعاب محتوى المقرر الدراسي؟
(يرجى اختيار الرقم المناسب)

مهم جدا	مهم	مهم إلى حد ما	غير مهم	غير مهم إطلاقا	
5	4	3	2	1	الفهرس الآلي (OPAC)
5	4	3	2	1	الأقراص المدمجة (CD-ROM)
5	4	3	2	1	قواعد المعلومات الإلكترونية المباشرة (Online Databases)
5	4	3	2	1	شبكة الإنترنت (Internet)
5	4	3	2	1	المجلات الإلكترونية (E-journals)

10- ما معوقات استخدامك لمصادر المعلومات الإلكترونية؟ (يرجى اختيار الخانة/الخانات المناسبة)

- أعباء العمل
- عدم معرفتي بوجود مصادر المعلومات الإلكترونية
- غياب التدريب المهني المناسب
- عدم وجود الدعم التقني المناسب (Hardware & Software)
- منح الأفضلية للمصادر المطبوعة
- لا توجد معوقات
- معوقات أخرى (يرجى تحديدها).....
-
-

11- أي من الإجراءات الآتية يمكن أن يرفع من وتيرة استخدامك لمصادر المعلومات الإلكترونية بالجامعة؟ (يرجى اختيار الخانة/الخانات المناسبة)

- حصولي على معلومات أكثر عن هذه المصادر
- إعطائي التدريب اللازم على استخدامه
- توفر الدعم التقني (Hardware & Software)
- إجراءات أخرى (يرجى تحديدها).....

ثانياً: مهارات البحث

12- ما مدى حصولك على المعلومات التي تبحث عنها باستخدام مصادر المعلومات الإلكترونية؟ (يرجى اختيار الخانة المناسبة)

- دائماً غالباً أحياناً نادراً مطلقاً

13- هل تواجه صعوبات عند استخدامك (يرجى الإجابة بـ نعم أو لا)

- | لا | نعم | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | رؤوس الموضوعات (للبحث عن المعلومات) |
| <input type="checkbox"/> | <input type="checkbox"/> | الكلمات المفتاحية (مصطلح البحث) للحصول على المعلومات |
| <input type="checkbox"/> | <input type="checkbox"/> | البحث في المجال (العنوان, المؤلف, السنة) للحصول على المقالات |
| <input type="checkbox"/> | <input type="checkbox"/> | كلمات على شاكلة (AND, OR, NOT) للربط بين المصطلحات |
| <input type="checkbox"/> | <input type="checkbox"/> | ماكينات البحث في شبكة الإنترنت مثل (Yahoo, Google, Alta Vista) |
| <input type="checkbox"/> | <input type="checkbox"/> | التحميل (Downloading) عن طريق نسخ نتائج البحث على قرص |

14- هل طلبت قط المساعدة أثناء البحث في المصادر المعلومات الإلكترونية؟ (يرجى اختيار الخانة المناسبة)

لا

نعم

15- ما مدى تقييمك لدرجة كفاءتك في البحث باستخدام مصادر المعلومات الإلكترونية الآتية؟

(يرجى اختيار الرقم المناسب)

في غاية الكفاءة	كفؤ	كفؤ إلى حد ما	أقل كفاءة	غير كفؤ على الإطلاق	
5	4	3	2	1	الفهرس الآلي (OPAC)
5	4	3	2	1	الأقراص المدمجة (CD-ROM)
5	4	3	2	1	قواعد المعلومات الإلكترونية المباشرة (Online Databases)
5	4	3	2	1	شبكة الإنترنت (Internet)
5	4	3	2	1	المجلات الإلكترونية (E-journals)

ثالثاً: التدريب

16- هل تلقيت تدريب ما على استخدام أي من المصادر المعلومات الإلكترونية؟ (يرجى اختيار الخانة المناسبة)

لا (يرجى الانتقال إلى السؤال رقم 19)

نعم

17- ما نوع التدريب / التعلم الذي تلقيته؟ (يرجى اختيار الخانة/الخانات المناسبة)

الالتحاق بورشة عمل نظمتها مكتبة الجامعة

التعلم من خلال التدريب ضمن مجموعة تدريبية

التعلم بمساعدة الحاسوب

التعلم بمساعدة من الزملاء

دورة تدريبية جماعية

أخرى (يرجى ذكرها).....

.....

.....

18- ما درجة جودة التدريب الذي تلقينته في أي من المجالات الآتية؟ (يرجى اختيار الرقم المناسب)

ممتاز	جيد	متوسط	ضعيف	ضعيف جدا	
5	4	3	2	1	استخدام الفهرس الآلي (OPAC)
5	4	3	2	1	البحث في الأقراص المدمجة (CD-ROM)
5	4	3	2	1	البحث في قواعد المعلومات الإلكترونية المباشرة (Online Databases)
5	4	3	2	1	البحث في شبكة الإنترنت (Internet)
5	4	3	2	1	البحث في المجلات الإلكترونية (E-journals)

19- هل أنت بحاجة إلى المزيد من التدريب في أي من المجالات الآتية؟ (يرجى الاجابة بـ نعم أو لا)

لا	نعم	
<input type="checkbox"/>	<input type="checkbox"/>	استخدام الفهرس الآلي (OPAC)
<input type="checkbox"/>	<input type="checkbox"/>	البحث في الأقراص المدمجة (CD-ROM)
<input type="checkbox"/>	<input type="checkbox"/>	البحث في قواعد المعلومات الإلكترونية المباشرة (Online Databases)
<input type="checkbox"/>	<input type="checkbox"/>	البحث في شبكة الإنترنت (Internet)
<input type="checkbox"/>	<input type="checkbox"/>	البحث في المجلات الإلكترونية (E-journals)

20- لو عرض عليك الانخراط في تدريب على استخدام مصادر المعلومات الإلكترونية, فما نوع التدريب الذي

تفضله؟ (يرجى اختيار الخانة/الخانات المناسبة)

- ورش عمل تنظمها مكتبة الجامعة
- تعليمات / مطويات مطبوعة
- التدريب باستخدام الحاسوب
- العروض الصفية الجماعية
- التدريب الفردي (وجها لوجه)
- ليست هناك حاجة للتدريب
- أنواع أخرى من التدريب (الرجاء ذكرها).....
-
-

رابعاً: المعلومات الشخصية

21- الكلية : 22 - القسم:

23- الجنس: ذكر أنثى

24- العمر:

أقل من 25 30 - 25 40 - 31

50 - 41 أكثر من 50

25- الرتبة الأكاديمية:

أستاذ أستاذ مشارك أستاذ مساعد محاضر أول

محاضر مساعد بحث وتدریس أخرى (يرجى التحديد).....

26- عدد سنوات الخدمة:

5 - 1 10 - 6 20 - 11

30 - 21 40 - 31 أكثر من 40

27- أعلى مؤهل علمي:

الدكتوراة

الماجستير

البكالوريوس

مؤهلات أخرى (الرجاء ذكرها).....

28- أذكر تعليقاتك وملاحظاتك الخاصة باستخدام أعضاء الهيئة الأكاديمية لمصادر المعلومات الإلكترونية

في جامعة البحرين؟

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شكراً على تعاونك معنا في تعبئة هذه الاستبانة

الرجاء إعادته إلى سكرتيرة قسمكم

Heads of Academic Departments Interview

Introduction

Aims and objectives of interview

Confidentiality

Use and Needs of Electronic Information Resources

Q1- What do you think about the current situation with regard to the use and need of electronic information resources in teaching and research in your department?

Q2- Which electronic information resources do you use for teaching and research?

APPENDIX 3

Academic Staff Knowledge & Skills

Q3- How would you rate your academic staff's knowledge and skills in using electronic information resources?

Q4- What is the department strategy for promoting academic skills and knowledge?

Training

Q5- In your opinion, what type of training do academic staff in your department need?

Q6- Which training methods do you prefer for your academic staff and why?

Q7- What is the departmental strategy for promoting EIR training?

Heads of Academic Departments Interview

Introduction

Aims and objectives of Interview

Confidentiality

Use and Needs of Electronic Information Resources

- Q1- What do you think about the current situation with regard to the use and need of electronic information resources in teaching and research in your department?**
- Q2- Which electronic resources do academic staff use most often in teaching and research in your department and why?**

Academic Staff Knowledge & Skills

- Q3- How would you rate your academic staff's knowledge and skills in using electronic resources in teaching and research?**
- Q4- In your opinion, what are the main barriers faced by academic staff when using electronic resources?**
- Q5- What is the department strategy for promoting academic skills and knowledge?**

Training

- Q6- In your opinion, what type of training do academic staff in your department need?**
- Q7- Which training methods do you prefer for your academic staff and why?**
- Q8- What is the department strategy for promoting EIR training?**

Future Trends

Q9- What are the main strategies used in your department for encouraging and motivating academic staff to use electronic resources in teaching and research?

Finally, are there any further issues/points that you would like to raise in connection with this interview?

Thank you for your time and cooperation

المقابلة الشخصية لرؤساء الأقسام الأكاديمية

المقدمة

❖ أهداف وغايات المقابلة الشخصية

❖ السرية

احتياجات واستخدامات المصادر المعلومات الالكترونية

س1- ماذا عن الحالة الراهنة فيما يتعلق باستخدام واحتياج المصادر المعلومات الالكترونية في التدريس والبحث العلمي في قسمكم؟

س2- ماهي المصادر المعلومات الالكترونية التي يقوم هيئة التدريس في معظم الأحيان باستخدامها في التدريس والبحث العلمي في قسمكم؟ ولماذا؟

المعرفة والمهارات للأكاديميين

س3- كيف تقومون بتقييم المعارف والمهارات هيئة التدريس في استخدام المصادر المعلومات الالكترونية في التدريس والبحث العلمي في قسمكم؟

س4- في رأيكم الشخصي ماهي أهم العوائق التي تواجه هيئة التدريس عند استخدامهم للمصادر المعلومات الالكترونية؟

س5- ما هي الإدارة الاستراتيجية في قسمكم لتعزيز المهارات والمعارف لدى هيئة التدريس؟

التدريب

س6- في رأيكم الشخصي أي نوع من التدريب هيئة التدريس بحاجة في قسمكم؟

س7- ماهي أساليب التدريب التي تفضلها لهيئة التدريس في قسمكم ولماذا؟

س8- ماهي الإدارة الاستراتيجية في قسمكم في تشجيع التدريب للمصادر المعلومات الالكترونية؟

س9- ما أهم الاستراتيجيات المستخدمة في قسمكم لتشجيع وتحفيز هيئة التدريس لاستخدام المصادر المعلومات الالكترونية في التدريس والبحث العلمي؟

وأخيراً، هل هناك قضايا أخرى أو النقاط تود إثارتها في هذا الصدد في هذه المقابلة؟ وفي الختام أود أن أشكر على وقتك الثمين و تعاونك؟

Library Director, Deputy Director Interview

Introduction

Aims and objectives of Interview

Confidentiality

Electronic Information Resources

- Q1- What electronic information resources do you provide at your site?
- Q2- How do you provide academic staff with access to electronic information resources?
- Q3- What is your preferred methods for informing academic staff about the availability of electronic information resources?

Use and Needs of Electronic Information Resources

- Q4- Which departments in each college make the most use of electronic information resources? Why do you think this is?
- Q5- Which electronic resources do academic staff use most often? Why do think this is?
- Q6- What is your opinion about academic staff needs of electronic information resources in teaching and research?

Academic Staff Knowledge and Skills

- Q7- How would you rate or describe academic staff knowledge and skills in using electronic information resources at your library?
- Q8- What problems do academic staff encounter in accessing and using electronic information resources? If any, why do you think this is?

Training

- Q9- What training methods do you use?
- Q10- Which training methods are preferred by academic staff?
- Q11- How do you evaluate your training programme?
- Q12- Are library staff trained how to train? If so, how is this done?

Future Plans

- Q13- What is the library's long-range plan regarding its future provision of EIR?**
- Q14- What limits are there to your future plans?**
- Q15- What are your future plans for academic staff training?**
- Q16- How could you encourage academic staff to use electronic information resources for teaching and research?**

Finally, are there any further issues/points that you would like to raise in connection with this interview?

Thank you for your time and cooperation

المقابلة الشخصية لمدير المكتبة ونائبه

المقدمة

❖ أهداف وغايات المقابلة الشخصية

❖ السرية

مصادر المعلومات الالكترونية

- س1. ماهي مصادر المعلومات الالكترونية تقدمها في مكتبتكم؟
- س2. ماهي الطريقة التي توفرها للمدرسين للدخول لهذه الخدمة؟
- س3. ماهي الطرق التي تستخدمها لإعلام المدرسين عن توافر المصادر المعلومات الإلكترونية؟

احتياجات واستخدامات المصادر المعلومات الالكترونية

- س4. أي يقسم في كل كلية من كليات الجامعة يقوم باستخدام المصادر المعلومات الإلكترونية أفضل؟ ولماذا تعتقد ذلك؟
- س5. أي من هذه المصادر المعلومات الإلكترونية التي يقوم هيئة التدريس في معظم الأحيان باستخدامها؟ ولماذا تعتقد ذلك؟
- س6. ماهو رأيكم حول احتياجات هيئة التدريس من المصادر المعلومات الإلكترونية في التدريس والبحث العلمي؟

المعرفة والمهارات للأكاديميين

- س7. ماهو تقييمك أو وصفك لمعارف ومهارات هيئة التدريس في استخدام المصادر المعلومات الإلكترونية المتوفرة في المكتبة التدريس والبحث العلمي؟
- س8. في رأيكم الشخصي ماهي أهم العوائق أو المشاكل التي تواجه هيئة التدريس عند استخدامهم والدخول للمصادر المعلومات الإلكترونية؟ إن وجدت, لماذا تعتقد ذلك؟

التدريب

س9. ماهي أساليب التدريب تستخدمها؟

س10. ماهي أساليب التدريب التي يفضلها هيئة التدريس؟

س11. ماهي الأساليب التي تتخذها لتقييم برامج التدريب؟

س12. هل موظفي المكتبة متدربين على كيفية التدريب؟ إذا كان نعم، فكيف ذلك؟

الرؤيا المستقبلية

س13. ماهي الخطة المستقبلية للمكتبة لتوفير المصادر المعلومات الالكترونية؟

س14. ماهي المعوقات التي تقيد خططك المستقبلية؟

س15. ماهي الخطة المستقبلية لتدريب هيئة التدريس؟

س16. كيف تقوم بتشجيع هيئة التدريس على استخدام المصادر المعلومات الالكترونية المتوفرة في المكتبة للتدريس والبحث العلمي؟

وأخيراً، هل هناك قضايا أخرى أو النقاط تود إثارتها في هذا الصدد في هذه المقابلة؟ وفي الختام أود أن أشكرك على وقتك الثمين و تعاونك؟

Heads of Library Services Divisions Interview

Introduction

Aims and objectives of Interview

Confidentiality

Electronic Information Resources

- Q1- What are the main electronic information resources you provide at your division?**
- Q2- How do you provide academic staff with access to EIR?**
- Q3- What is your preferred methods for informing academic staff about the availability of EIR?**

Use and Needs of Electronic Information Resources

- Q4- Which departments in each college make the most use of EIR? Why do you think this is?**
- Q5- Which EIR resources do academic staffs use most often? Why do think this is?**
- Q6- What is your opinion about academic staff needs of electronic information resources in teaching and research?**

Academic Staff Knowledge and Skills

- Q7- How would you rate or describe academic staff knowledge and skills in using electronic information resources at your library?**
- Q8- What problems do academic staff encounter in accessing and using the electronic information resources? If any, why do you think this is?**

Training

- Q9- What training methods do you use?**
- Q10- Which training methods are preferred by academic staff?**
- Q11- In what way do you obtain academic staff feedback on EIR and how do you use such feedback?**
- Q12- Are library staff trained how to train? If so, how is this done?**

Future Plans

Q13- What is the library's long-range plan regarding its future provision of EIR?

Q14- What are your future plans for academic staff training?

Finally, are there any further issues/points that you would like to raise in connection with this interview?

Thank you for your time and cooperation

المقابلة الشخصية رؤساء الشعب والخدمات المكتبية

المقدمة

❖ أهداف وغايات المقابلة الشخصية

❖ السرية

مصادر المعلومات الالكترونية

- س1. ماهي مصادر المعلومات الالكترونية الرئيسية المتوفرة في وحدتكم؟
- س2. ماهي الطريقة التي توفرها للمدرسين للدخول لهذه الخدمة؟
- س3. ماهي الطرق التي تستخدمها لإعلام المدرسين عن توافر المصادر المعلومات الإلكترونية؟

احتياجات واستخدامات المصادر المعلومات الالكترونية

- س4. أي قسم في كل كلية من كليات الجامعة يقوم باستخدام المصادر المعلومات الإلكترونية أفضل؟ ولماذا تعتقد ذلك؟
- س5. أي من هذه المصادر المعلومات الإلكترونية التي يقوم هيئة التدريس في معظم الأحيان باستخدامها؟ ولماذا تعتقد ذلك؟
- س6. ماهو رأيكم حول احتياجات هيئة التدريس من المصادر المعلومات الإلكترونية في التدريس والبحث العلمي؟

المعرفة والمهارات للأكاديميين

- س7. ماهو تقييمك أو وصفك لمعارف ومهارات هيئة التدريس في استخدام المصادر المعلومات الإلكترونية المتوفرة في المكتبة التدريس والبحث العلمي؟
- س8. في رأيكم الشخصي ماهي أهم العوائق أو المشاكل التي تواجه هيئة التدريس عند استخدامهم والدخول للمصادر المعلومات الإلكترونية؟ إن وجدت، لماذا تعتقد ذلك؟

التدريب

س9. ماهي أساليب التدريب تستخدمها؟

س10. ماهي أساليب التدريب التي يفضلها هيئة التدريس؟

س11. ماهي الأساليب التي تتخذونها لتقييم أداء هيئة التدريس في استخدام المصادر المعلوماتية الإلكترونية؟ وكيف تستفيدون من هذا التقييم؟

س12. هل موظفو المكتبة متدربون على كيفية التدريب؟ إذا كان نعم، فكيف ذلك؟

الرؤيا المستقبلية

س13. ماهي الخطة المستقبلية للمكتبة لتوفير المصادر المعلوماتية الإلكترونية؟

س14. ماهي الخطة المستقبلية لتدريب هيئة التدريس؟

وأخيراً، هل هناك قضايا أخرى أو النقاط تود إثارتها في هذا الصدد في هذه المقابلة؟ وفي الختام أود أن أشكرك على وقتك الثمين و تعاونك؟

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Stage 2: Interview Academic Authorities

- Q1. What is your opinion about the proposed strategy plan (academic staff model, recommendation for university organisation)?**
- Q2. Can this proposed strategy model be achieved for the university academic departments in teaching and for research?**
- Q3. Do you have any suggestions (else to be done) to improve the strategy model?**
- Q4. Would you recommend the proposed model to senior management for adoption in the university academic plan?**

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المرحلة الثانية للرحلة التعليمية : المقابلة الشخصية للسلطات الاكاديمية التنفيذية

- س1- ماهو رأيكم حول الاستراتيجية المقترحة (خطة نموذجية لهيئة التدريس) لإدارة الجامعة؟
- س2- هل من الممكن لهذه الاستراتيجية المقترحة تحقق رغبة الأقسام الأكاديمية بالجامعة للتدريس ولبحث العلمي؟
- س3- هل لديكم أية اقتراحات أخرى لتطوير وتحسين هذه الاستراتيجية؟
- س4- هل توصي النموذج المقترح للإدارة العليا لاعتمادها في خطة الجامعة الأكاديمي؟

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Stage 2: Interview Senior Librarian

Q1. What is your opinion about the proposed training model?

Q2. Do you have any suggestions to improve the model?

Q3. Do you believe the proposed model is applicable and achievable at your library?

Q4. Can you accept the model as a strategic model for your five year strategic plan?

Q5. Would you recommend the proposed model to senior management for adoption in your five year strategic plan?

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المرحلة الثانية للرحلة التعليمية : المقابلة الشخصية للسلطات المكتبة التنفيذية

- س1- ماهو رأيكم حول الاستراتيجيه المقترحة لمكتبة الجامعة؟
- س2- هل تعتقد أن النموذج المقترح يمكن تطبيقها وتحقق رغبة المكتبة؟
- س3- هل يمكنكم قبول النماذج المقترحة للخطة الاستراتيجيه الخمسيه للمكتبة؟
- س4- هل لديكم أية اقتراحات أخرى لتطوير وتحسين هذه الاستراتيجيه؟
- س5- هل توصي النموذج المقترح للإدارة العليا لاعتمادها في خطة المكتبة الخمسية؟

APPENDIX 4

Poster Contest

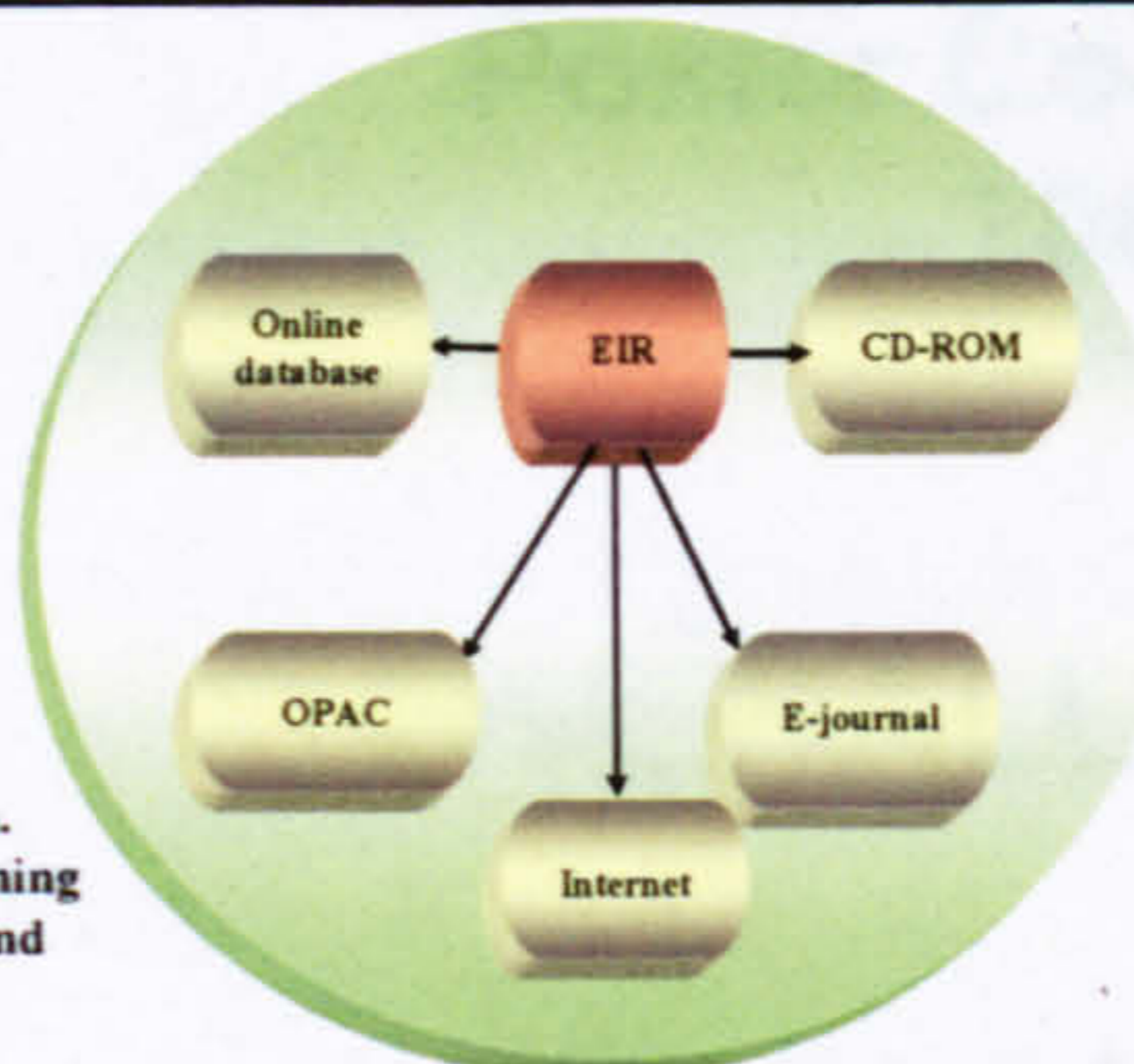


Academics' Knowledge & Use of Electronic Information Resources (EIR) at the University of Bahrain



Introduction

Electronic Information Resources (EIR) can be seen as an invaluable teaching and research tool, which complement print-based resources and enhance the learning and research processes in any academic institutions. EIR provide access to information that might be restricted to the user because of geographical location, physical, social or financial. Bahrain University is the main higher Education institution in Bahrain. It represents an important pillar in the Bahrain national planning Bahrain University has invested in EIR to support teaching and research activities within the university.



Aims

The aims of this research are to investigate, analyse and discuss the use and needs of EIR and existing training in promoting and enhancing the quality of teaching and research activities amongst academic staff at the University of Bahrain

Objectives

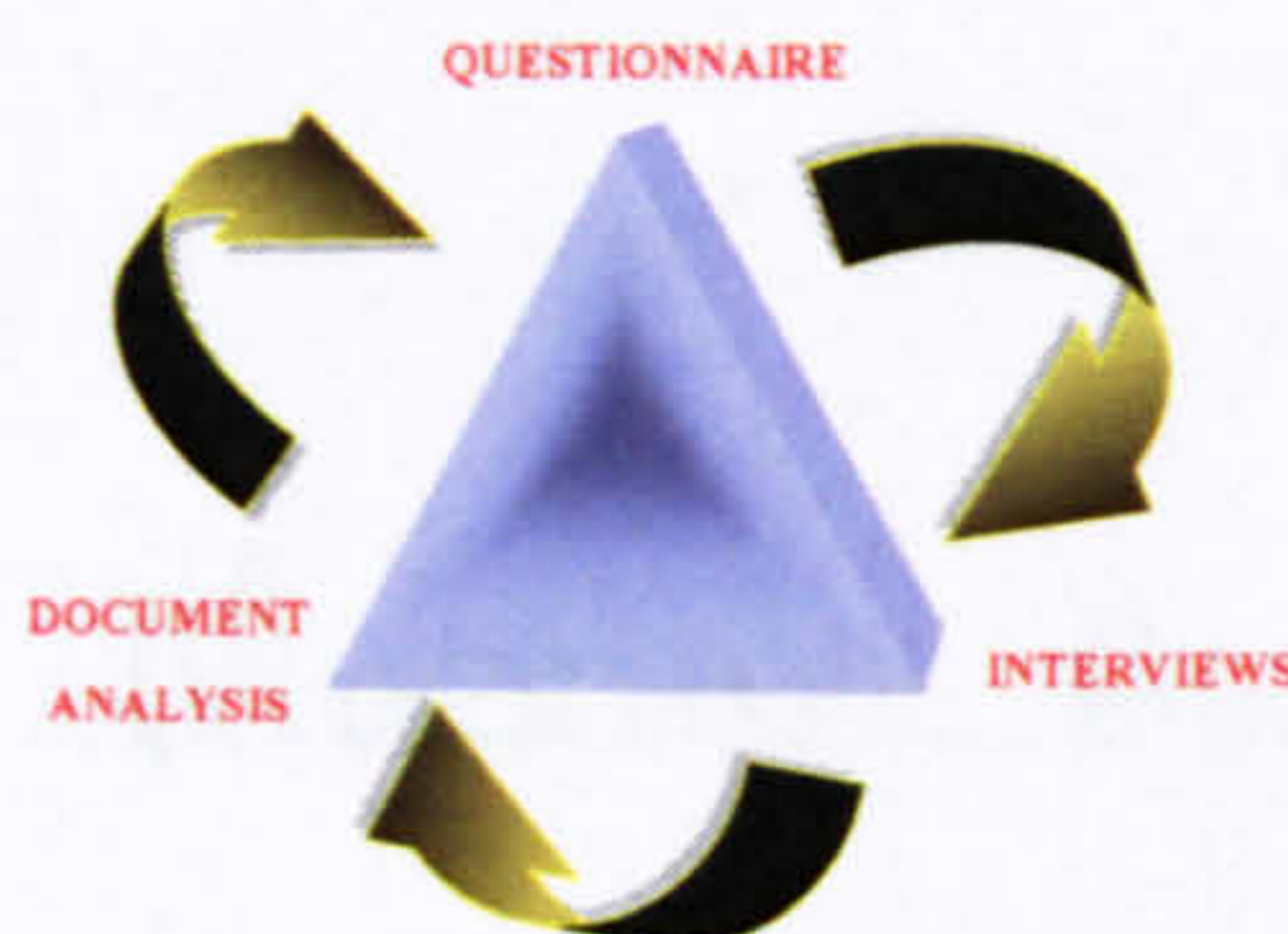
Objective 1

To assess, identify and investigate the current use of electronic information resources (EIR) in the teaching and research process and the training strategies and implementation processes within the Bahrain University .

Objective 2

To develop a theoretical framework and model practical solutions that can be applied to Bahrain University and could be used by other universities to, improve and promote teaching and research activities

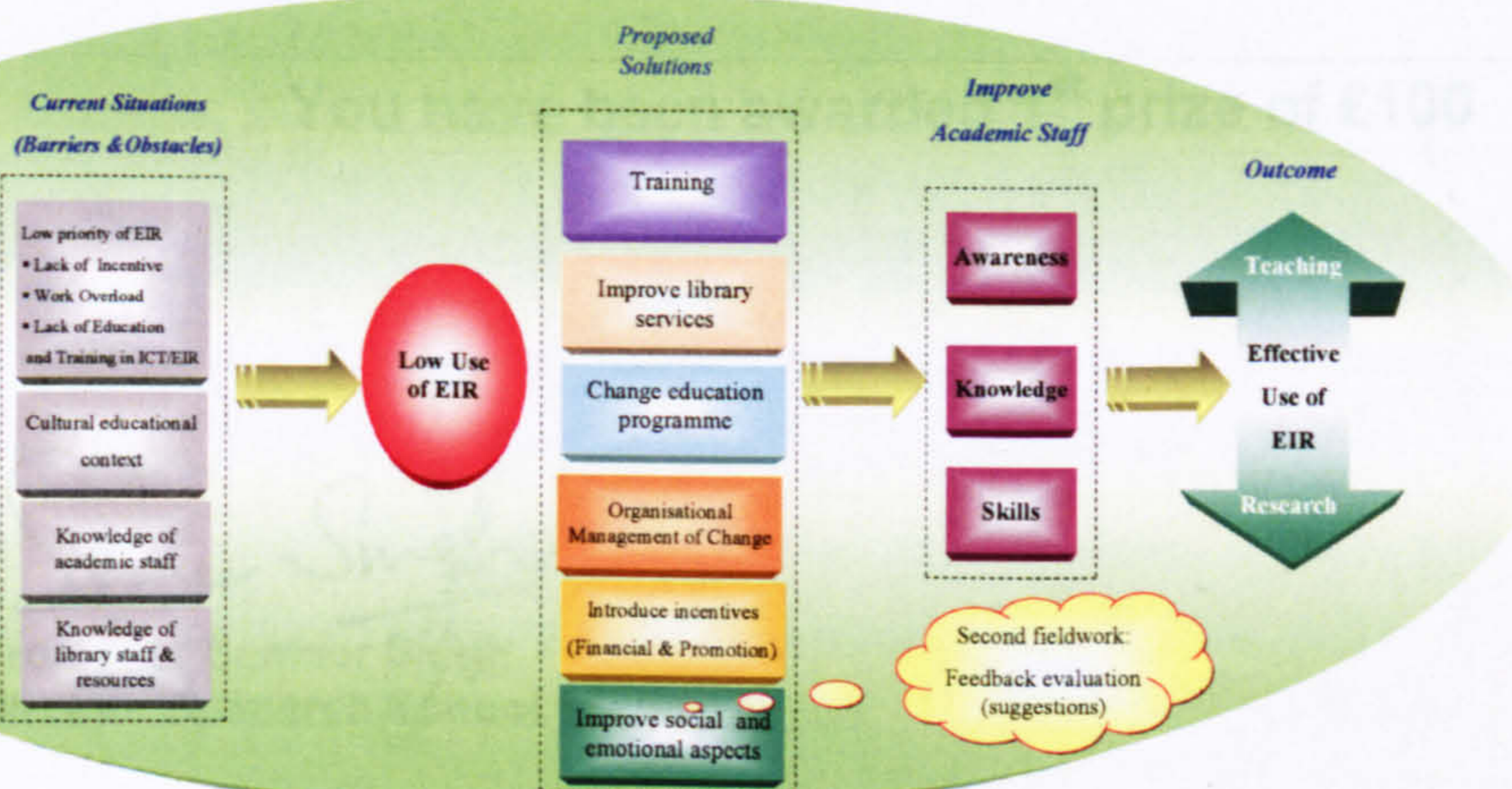
Research Methods



Research Questions

1. What is the current situation regarding the use and needs of electronic information resources in teaching and research?
2. Are there any distinctions between academic staff in terms of using electronic information resources when age, gender, years of experience, qualifications, academic ranking and disciplines are considered?
3. What are the barriers to using electronic information resources in teaching and research?
4. What are the perceptions of academic staff towards training and use of electronic information resources in teaching and research?
5. What are the training needs and methods preferred by academic staff?
6. What are the current academic library EIR training strategies?

Current Barriers and Possible Future Interventions



Findings

- 1-The research reveals a low usage of EIR in teaching and research among the University's academic staff.
- 2-The use of the Internet for research is quite high (83%), compared with other electronic resources.
- 3-The percentages of those who never used EIR is highest for academic staff over 50 years old.
- 4- 67.5% of the female university academic staff had never used the EIR provided by the university compared with 43.7% of the males.
- 5- More than half of the university professors had never used EIR in teaching and for research.
- 6-The colleges of Law, Art and Education had the lowest percentages of usage of EIR compared with other colleges.
- 7- 45% of respondents reported that they had no skills in using EIR in teaching and for research.
- 8- Over half of the academic staff's knowledge concerning EIR is poor.
- 9- As the ranking academic rises, the use, skills, awareness and knowledge decrease.

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Loughborough University

Supervisor: Dr. Mark Hepworth
M.Hepworth@lboro.ac.uk



Research School of Informatics

Poster Competition
2006

OVERALL WINNER

Congratulations

.....MUSTAFA AL ABBASI.....

You have been awarded 1st prize of £100

A handwritten signature in cursive script that reads 'Sameer Singh'.

Professor Sameer Singh
Director Research School of Informatics

Please take this document to your departmental finance officer



**SAUDI ARABIAN CULTURAL BUREAU IN LONDON
SAUDI STUDENTS CLUBS IN THE UK
AND IRELAND TERM 26**



The Organisation of the Saudi Innovation Conference

Issues the present

Author certificate

To Mustafa Al-Abbasi

With the poster entitled

“Academics’ Knowledge & Use of Electronic
Information Resources (EIR) at the University of
Bahrain)”

For his participation in the

Saudi Innovation Conference (SIC 2007)

Organised by the Saudi Students Clubs and Schools in UK and Ireland, and
taken place in Newcastle University, Newcastle, UK, May 12th, 2007

The Conference Chairman
Dr. Ahmed Alzahrani

A handwritten signature in black ink, appearing to be 'A. Alzahrani', is written over the printed name of the conference chairman. The signature is fluid and cursive, with a large initial 'A'.

اندية ومدارس الطلاب السعوديين في المملكة المتحدة وايرلندا (الدورة ٢٦)



مؤتمر الإبداع العلمي

The Saudi Innovation Conference

شكراً

تتقدم الملحقية الثقافية والصيفية الادارية لاندية الطلاب السعوديين في المملكة المتحدة وايرلندا
ممثلة في الدورة السادسة والعشرون بأسمى آيات الشكر والتقدير

للأستاذ / مصطفى محمد العباسي

وذلك نظير جهوده المتميزة في إنباع مؤتمر الإبداع السعودي والمقام بمدينة نيوكاسل في
الفترة من 11-12 مايو 2007 والتي كان لها الأثر في اظهار فعالياته والمشكل المأمول متمنين له
مزيجاً من التوفيق والسداد

توقيع

الملحق الثقافي بالمملكة المتحدة وايرلندا
عبدالله الناصر

الرئيس العام لاندية الطلاب السعوديين
بالمملكة المتحدة وايرلندا للدورة (٢٦)

احمد بن صالح الزهراني

APPENDIX 5

Tables of Summary of Previous Research

Table 3.1: Summary of previous research outcomes and methodology used in GCC Countries

Authors	Country	Main Outcomes and Research sample	Research Method used	Sample Population
Al Mughairi, 2006	Oman	<p>Main Outcomes: Lack of clear information policies, lack of partnership between university authorities and academic research, insufficient funds for academic research, lack of efficient training and lack of IT infrastructure.</p> <p>Research Sample: Academic staff of Sultan Qaboos University</p>	Interview and Observation	1 Government University
Rehman & Ramzy, 2004a	Kuwait	<p>Main Outcomes: Low use of Internet due to lack of time and facilities. It also found that the large number of academic staff wanted formal training</p> <p>Research Sample: Academic staff of health sciences colleges in Kuwait University.</p>	Questionnaire	1 Government University
Rehman & Ramzy, 2004b	Kuwait	<p>Main Outcomes: Low awareness and low skills in EIR are the main reasons for lack of use of EIR.</p> <p>Research Sample: Academic staff of health sciences colleges in Kuwait University.</p>	Questionnaire	1 Government University
Ibrahim, 2004	UAE	<p>Main Outcomes: Low use of EIR due to lack of time, lack of awareness, ineffective communication with the academic library and language barriers.</p> <p>Research Sample: Academic staff of United Arab Emirates University.</p>	Questionnaire	1 Government University

Rehman & Al-Ansari, 2003	Kuwait	<p>Main Outcomes: The majority are deficient in the use of hardware, software and other technological resources needed for the instruction of courses dealing with electronic systems resources and facilities, also found that the academic staff are large deficient in their research and publication.</p> <p>Research Sample: Academic staff of 6 GCC Universities.</p>	Questionnaire	6 GCC Governments Universities
Bu-Merafi, 2001	UAE	<p>Main Outcomes : Lack of training, lack of time, lack of the needed information, language problem and slow server are the main reasons for low use of Web.</p> <p>Research Sample: Academic staff of Al-Sharqa University.</p>	Questionnaire	1 Government University
Basager, 2001	Saudi Arabia	<p>Main Outcomes : Lack of funding, lack of qualified staff, lack of computer programme and difficult to access off campus. Science discipline make better use of technology than others.</p> <p>Research Sample: Academic staff, Librarian and University authorities</p>	Questionnaire & Interview	7 Governments Universities
Hamshari, & Bouazza, 2000	Oman	<p>Main Outcomes : Low use of Internet in teaching, research and for the communication due to the slow server.</p> <p>Research Sample: Academic staff of Sultan Qaboos University</p>	Questionnaire	1 Government University
Rehman, & Al-Obaidali, 2000	Kuwait	<p>Main Outcomes: Low use of Internet due to lack of time, lack of skills, lack of Arabic language resources and lack of training.</p> <p>Research Sample: Professional librarians of Kuwait University</p>	Questionnaire Interview	1 Government University

Al-Baridi, & Sajjad, 2000	Saudi Arabia	<p>Main Outcomes: Provided an overview of the development of electronic resources at KFUPM Library.</p> <p>Research Sample: KFUPM Library</p>	Review	1 Government University
Ashoor, 2000	Saudi Arabia	<p>Main Outcomes : To shift from traditional library environment into an electronic library environment, this requires financial support and provide training programme for library staff and the user</p> <p>Research Sample: GCC Academic Libraries</p>	Review	6 GCC Governments Academic Libraries
Qari, 1999	Saudi Arabia	<p>Main Outcomes: Help the librarians and the users to deal with the new IT, and provide a different methods of training to help them to cope with the ever changing environment of the library</p> <p>Research Sample: Academic staff, students and librarians of King Abdulaziz University</p>	Review	1 Government University
Elayan, & Al-Qessi, 1999	Bahrain	<p>Main Outcomes: Academic staff made very low use about (15%) for information searching, e-mail, browsing newspapers, accessing the news, and for entertainment.</p> <p>Research Sample: Academic staff and students of Bahrain University</p>	Questionnaire	1 Government University
Ashoor & Kanamugire, 1996	Saudi Arabia	<p>Main Outcomes: Academic staff felt that there was a strong need for user training in order to make best use of the resources</p> <p>Research Sample: Academic staff of KFUPM</p>	Questionnaire	1 Government University

Al-Qaisi & Ali, 1995	Bahrain	<p>Main Outcomes: Lack of language are the main problems in using EIR published in English.</p> <p>Research Sample: Academic staff and students</p>	Review	1 Government University
Ali & Young, 1992	Bahrain	<p>Main Outcomes: There is a strong relationship between the use of CD-ROMs and an increase in academic staff publication. Elect. Engineering and Physics department making a better use than other departments.</p> <p>Research Sample: Academic staff University of Bahrain</p>	Questionnaire	1 Government University
Al-Dosary & Ekrish, 1991	Saudi Arabia	<p>Main Outcomes: Arabization of hardware/ software continue to be a problem although visible progress has been made.</p> <p>Coordination and cooperation, followed by standardization of Arabic records are dominant among the problems explored.</p> <p>Research Sample: Libraries & information centers</p>	Questionnaire Field visit	Selected Saudi Libraries
Ashoor, & Khurshid, 1987	Saudi Arabia	<p>Main Outcomes: Lack of use of search due to language barriers.</p> <p>Research Sample: Academic Staff of KUPM</p>	Questionnaire	1 Government University
Ashoor, 1983	Saudi Arabia	<p>Main Outcomes: Get continuous support from the vendor which can be maintained by PDF staff.</p> <p>Research Sample: KFUPM Library</p>	Review	1 Government University

Table 3.2: Training needs

Authors	Training Needs
Rehman & Ramzy, 2004a	Developing skills for Web searching such as develop skills in Web site design, learning about FTP and chat applications, Telnet and discussion groups and learning about e-mail
Garrod, 2001	User education (IT literacy)
Khalid, 2000	Staff training (increase staff awareness and skills)
Cullen & Cheng, 1999	Level of staff competence regarding new technologies
Majid & Abazova, 1999	Develop users' basic computer skills
Bao, 1998	Learning advanced Internet searching skills, gateway Internet resource listings and subscription databases
Lazinger, Bar-Ilan & Peritz 1997	Learn about the Internet advanced protocols such as (gopher, WWW, and graphic interfaces)
McCarthy, Krause & Little 1997	How to develop a search strategy, how to choose the right CD-ROM database, how to use the various software interfaces, and how to limit searches
Meer <i>et al.</i> , 1997	Traditional computer skills
Lapp, 1996	Introduction to the library; online training for OPAC searching; searching bibliographic and subject databases; finding relevant information on the Internet; and evaluating activities
Anderson & Huang, 1993	In-house training sessions
Allen, 1990	Training in developing search strategies, search procedures, Boolean logic, and how to use the equipment

Table 3.3: Training methods used

Authors	Training methods used
Hegarty <i>et al</i> , 2004	Training Methods Used: Walk-round library tours; one-hour library tutorials; training on specific databases; and one-to-one training sessions Institute: Waterford Institute of Technology
Rehman & Ramzy, 2004a	Training Methods Used: One-to-one training, online training and the use of printed documentation Institute: University of Kuwait
Rehman & Ramzy, 2004b	Training Methods Used: formal training Institute: University of Kuwait
Huber <i>et al.</i> , 2003	Training Methods Used: Women to Women training Institute: community-based health agencies in Houston, Texas, USA.
Joint, 2003	Training Methods Used: Line-managers learning Institute: University of Strathclyde
Farha, 2001	Training Methods Used: Orientation sessions, seminars, course-related instruction, and Web-based instruction Institute: American University of Beirut
Ashoor, 2000	Training Methods Used: Short courses, workshops, local seminars, visits by professionals and Web-based classes and Web-based tutorials Institute: King Fahad University of Petroleum and Mineral
Hart, Coleman and Yu 2000	Training Methods Used: Small group sessions, printed help-manuals, and online tutorials Institute: Texas A&M University
Rader, 2000	Training Methods Used: Individual basis and groups training Institute: University of Louisville
Rhodes & Chelin, 2000	Training Methods Used: Web training and face-to-face contact Institute: 68 UK university libraries
Detlor, 1999	Training Methods Used: Web technology Institute: University of Toronto

Qari, 1999	Training Methods Used: Manual, computer-based training and video tape Institute: King Abdulaziz University
Steed, 1999	Training Methods Used: W-based training and Internet-based training Institute: for university academic staff
Tobin & Kesselman, 1999	Training Methods Used: Self-paced instruction (Web-based training) Institute: Rutgers University
Balas, 1998	Training Methods Used: Videos, CD-ROMs, books, and online training resources Institute: Monroeville Public Library
Bao, 1998	Training Methods Used: Web-based Institute: Seton Hall University
Wanjun, 1998	Training Methods Used: Cascade (train to train others) Institute: Shanghai Second Polytechnic University
McCarthy, Krausse & Little, 1997	Training Methods Used: Personal assistance and hands-on workshops Institute: University of Rhode Island
Hu, 1996	Training Methods Used: Classroom lectures and presentations with computer demonstrations; workbooks and printed texts; multimedia and computer-assisted instructional programs (CAI); point-of-use signage; individual instruction; and electronic user guides. Institute: University of Wisconsin-Whitewater
Kaczor and Jacobson, 1996	Training Methods Used: Self-training, from a friend and hands-on instruction over demonstration classes. Institute: University at Albany
Barrett, 1995	Training Methods Used: User education (Instruction) Institute: University College Dublin
Anderson & Huang 1993	Training Methods Used: Such as visual, auditory, and tactile or kinesthetic Institute: North Illinois University

Allen, 1990	Training Methods Used: One-to-one assistance Institute: University of Illinois
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