

CHAPTER FOUR

DATA ANALYSIS

Introduction

The main objective of this study was to determine the information needs of the University of Malaya's academic staff members in a digital environment. The following research questions were addressed in the study:

- a. What are the information seeking patterns of academic staff at the University of Malaya?
- b. Does the university library in general, play a role in providing information for their professional needs? If so, are the academic staffs satisfied with the current resources and services provided by the library?
- c. How do the academic staff currently use information technology and to what extent they are able to use information technology to gather information?
- d. What are the expectations of the academic staff in relation to their information needs, in a digital environment?

A questionnaire was developed and mailed to a stratified random sample of academic staff to obtain the required data. Of the 328 questionnaires sent out, 113 (34.45%) were returned fully answered. Table 2 shows the distribution and the rate of return of the questionnaires by academy/center/faculty/institute.

Table 2
Distribution and Rate of Return of Questionnaires
by Academy/Center/Faculty/Institute

Academy/Center/Faculty/Institute	Number of questionnaires sent	Number of questionnaires returned	Percentage of total questionnaires
Academy of Islamic Studies	16	7	6.2
Academy of Malay Studies	8	1	0.9
Center for Foundation Studies in Science	7	5	4.4
Cultural Center	1	0	-
Faculty of Arts and Social Science	26	8	7.1
Faculty of Business and Accounting	10	2	1.8
Faculty of Computer Science & Information Technology	7	5	4.4
Faculty of Dentistry	18	7	6.2
Faculty of Economics & Administration	16	5	4.4
Faculty of Education	22	8	7.1
Faculty of Engineering	28	7	6.2
Faculty of Language & Linguistics	37	18	16.2
Faculty of Law	7	2	1.8
Faculty of Medicine	279	27	23.9
Faculty of Science	48	8	7.2
Institute of Postgraduate Studies and Research	3	3	2.7
Sports Center	1	0	-
Total	328	113	100

The findings are reported in the following sections under five main headings:

- Current information seeking patterns
- Perceptions on role, resources and services provided by UM library
- Information technology availability and usage
- Information needs in a digital environment
- Demographic information

Current information seeking patterns

The first aim of the study was to ascertain the information needs of academic staff in performing their day-to-day work. In question one, the academic staff were asked to indicate the work-related activities that required the most information seeking.

Table 3
Activity Which Requires Most Information Seeking

Activity	Frequency	Percent
Research	55	48.7
Teaching	33	29.2
Combination of activities	16	14.2
Publishing	6	5.3
Others	3	2.7

As can be seen from Table 3, research (48.7%) required the most information seeking. This was followed by teaching (29.2%), combinations of two activities (14.2%), publishing (5.3%) and others (2.7%). This finding is consistent with several other studies, which indicate that information is widely used for research activity. Razzaghi (1990) noted that information was mainly use for research purposes. Abels et.al (1996) reported that between research and teaching, research required the wide use of electronic networks to obtain information.

Cross tabulation was made against academic rank and most information seeking activity. The data is presented in Table 4.

Table 4

**Cross Tabulation of Academic Rank against Most Information Seeking Activity
(In Percentage)**

	Professor	Associate Professor	Lecturer	Language Teacher
Teaching	25.0	28.1	28.6	50.0
Research	56.3	43.8	51.8	16.7
Publishing	6.3	9.4	3.6	
Combination	12.5	15.6	18.2	16.7

Table 4 shows that a majority of the Professors (56.3%), Associate Professors (43.8%) and Lecturers (51.8%) found research as the most information seeking activity compared to language teachers (16.7%). However a majority of the language teachers (50.0%) found teaching as the most information seeking activity.

Question 2 asked the respondents to mark the information sources consulted to perform the activity marked in question one. The results are displayed in Table 5.

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Teaching	25.0	28.1	28.6	50.0
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Question 2 asked the respondents to mark the information sources consulted to perform the activity marked in question one. The results are displayed in Table 5.

Table 5

Use of Information Resources for Work-related Activity

Information Sources	Frequency	Percentage Of Respondents
Internet Resources	99	87.6
UM Library	95	84.1
Personal Materials	79	69.9
Professional Colleagues	32	28.3
Other Libraries	18	15.9
Others	6	5.4

Clearly, Table 5 shows that Internet resources and UM Library were highly consulted by academic staff when performing their work-related activity, with the scores of 87.6% and 84.1% respectively. Personal materials were also highly consulted by 69.9% of the respondents. Other libraries and professional colleagues are less consulted. A few respondents (5.4%) indicated using other sources such as friends abroad, overseas libraries, and news and government departments.

From the sources chosen in question two, respondents were then asked to indicate one most important source used in meeting their information needs.

Table 6
Most Important Source Used for Work-related Activity
(n=108)

Information Sources	Frequency	Percentage of Respondents
UM Library	45	41.7
Internet Resources	35	32.4
Personal Collection	20	18.5
Professional Colleagues	3	2.8
Others	2	1.9
Combination	2	1.9
Other Libraries	1	0.9

As shown in Table 6, 41.7% of the respondents indicated the UM Library as the most important source in meeting their information needs. The second most important source was the Internet with a score of 32.4%. This was followed by personal collection, which scored 18.5%. Other sources, such as professional colleagues and other libraries represented less than 3% of the respondents, showing the least importance of these sources in meeting the academic staff information needs.

It appears from Table 6 that although Internet resources were highly consulted compared to the library, a majority of the respondents, when asked to mark one most important source, perceived the library as the most important source in meeting their

information needs. This suggests that although there is a vast development in networked information resources, the library is still considered as an important source of information among the academic staff in meeting their information needs.

A cross tabulation of academic rank against most important source was made to see the difference in use of information source among the academic ranks. The data is shown in Table 7.

Table 7**Cross Tabulation of Academic Rank against Most Important Source
(Percentage)**

	Professor	Associate Professor	Lecturer	Language Teacher
Personal Collection	18.8	22.6	19.2	-
UM Library	43.8	64.5	30.8	-
Other Libraries	-	-	1.9	-
Professional Colleagues	-	-	3.8	16.7
Internet	31.3	9.7	42.3	66.7
Others	-	-	1.9	16.7
Combination	6.3	3.2 ¹	-	-

As shown in Table 7, there is a difference in the use of UM Library among the respondents of different ranks. It was found that most of the Professors (43.8%) and Associate Professors (64.5%) consulted UM Library to obtain information compared to lecturers (30.8%). The language teachers did not rate UM Library as the most important

source in meeting their information needs. A majority of the lecturers (42.3%) and language teachers (66.7%) placed importance on the use of Internet compared to Professors and Associate Professors.

The next question required the respondents to mark the listed published information sources they used to perform the activity marked in question one.

Table 8
Use of Published Information Resources for Work-related Activity

Published Information Resources	Frequency	Percentage
Journals and periodicals	91	98.9
Books and monographs	76	67.3
Electronic resources (e.g. Internet)	69	61.1
Conference papers	56	49.6
Theses and/or dissertations	43	38.1
Others	4	3.5

As can be seen in Table 8, most of the respondents consulted almost all the listed published resources in performing their work-related activity. Among the published resources, almost all the respondents (98.9%) consulted journals and periodicals. The

second most consulted published resources were books and monographs (67.3%), with electronic resources (61.1%) closely following. This suggests that electronic information is also becoming a very important source for information among academic staff. Almost half of the respondents (49.6%) also chose to consult conference papers to perform their work-related activity. Theses or dissertations were one of the least consulted published resources with the percentage of 38.1%. A very small percentage (3.5%) of the respondents indicated consulting other published resources, including law reports, listservs and radio cassettes.

The last question in this section asked respondents to indicate one most important published information resources used in meeting their information needs.

Table 9
Most Important Published Information Resources

Published Information Resources	Frequency	Percentage
Journals and periodicals	50	47.2
Books and monographs	34	32.1
Electronic resources (e.g. Internet)	16	15.1
Conference papers	3	2.8
Theses and/or dissertations	1	0.9
Others	1	0.9
Combination	1	0.9

Table 9 shows that journals and periodicals were considered the most important published sources used in meeting their information needs with the score of 47.2%. The second most important published resources used by the respondents were books and monographs with the score of 32.1%. This result is similar to the studies conducted by Razzaghi (1990), Hartmann (1993) and Linton (1980). Hart (1997) in his study found that journals were widely used by scientists and monographic literature is widely used by humanities. Bancroft et. al. (1998) reported that when faculty members were asked to indicate materials which was most important to their work, it was found that a majority of them relied most heavily on research journals (39.2%) and research books (26.0%). This

supports the theory that academic staff, in meeting their information needs, heavily use journals, periodicals and books.

Cross tabulation of academic rank and most important published information resource were made. The data is shown in Table 10.

Table 10
Cross Tabulation of Academic Rank against Most Important
Published Information Resource (Percentage)

	Professor	Associate Professor	Lecturer	Language Teacher
Books and Monographs	43.8	32.3	28.8	25.0
Journals and Periodicals	50.0	54.8	42.2	
Conference Papers			5.8	
Theses and Dissertation			1.9	
Electronic Resources	6.3	6.5	19.2	75.0
Others		3.2		
Combination		3.2		

The findings shown in Table 10 indicate that Professor and Associate Professors

used the journals and periodicals the most with the percentages above 50% compared to lecturers (42.2%). The result also shows that among the academic ranks, Professors (43.8%) were high users of books and monographs. This was followed by Associate Professors (32.3%), Lecturers (28.8%) and Language Teacher (25.0%). As seen in Table 10 Language Teachers did not place journals and periodicals as the most important published information source in meeting their information needs. A majority of the language teacher noted electronics resources as the most important published information resource in meeting their information needs.

Perceptions on Role, Resources and Services Provided by UM Library

Section B of the questionnaire was designed to identify the role of UM Library in providing information for the academic staff professional needs. Respondents were also asked to rate the collection and services of the UM Library or any of its branch libraries.

Table 11 illustrates the number of academic staff who used UM Library during 1998/99 academic year.

Table 11
Use of UM Library by Respondents

Use of UM Library	Frequency	Percentage
Yes	98	90.7
No	10	9.3

As might be expected, the majority of academic staff (90.7%) had visited/used UM Library or any of its branch libraries during the 1998/99 academic year. This finding correlate with Linton's (1980) survey among faculty use of library materials and services, which indicated that a majority of the faculty do use the college library. A total of 9.3% indicated that they did not use any of the UM libraries within the past year. The reasons given by the respondents for not using the library included availability of information through other sources such as Internet, own collections, and bookstores. Some indicated difficulties in obtaining resources and needed references as reasons for not using the library.

A cross tabulation of academic rank against the use of UM Library during 1998/1999 was made. The data is shown in Table 12.

Table 12

**Cross Tabulation of Academic Rank against the use of UM Library during
1998/1999 (Percentage)**

Used UM Library in 1998/1999	Professor	Associate Professor	Lecturer	Language Teacher
Yes	87.5	96.8	92.3	50
No	12.5	3.2	7.7	50

Table 12 showed that a majority of the Associate Professors (96.8%) used the UM Library in 1998/1999 academic year compared to other academic ranks. Lecturers and Professors followed this, with 92.3% and 87.5% respectively. The results showed that among the academic ranks Language Teachers are the least users of UM Library.

Respondents who used the UM Library were then asked to indicate the frequency of use of UM Library and/or its branch libraries. The data are represented in Table 13.

Table 13

Frequency of Use of the UM Library or its Branch Libraries

Frequency of Use	No of Respondents	Percentage of Respondents
More than once a day	1	1.0
Approximately once a day	2	2.0
Between 2 and 5 times a week	23	22.8
Approximately once a week	31	30.7
Less than once a week	36	35.6
Other	8	7.9

As can be seen in Table 13, the largest segment of faculty members used the library less than once a week, while the second largest group (30.7%) used the library approximately once a week. A total of 23 respondents (22.8%) used the library between 2 and 5 times a week. The findings show that slightly more than half (56.5%) of the academic staff used the library at least once a week. Overall the findings suggest that a majority of academic staff do use the UM Library and quite frequently.

The following question asked respondents to mark the reasons for using the UM Library or its branch libraries. The reasons for using the library are detailed in Table 14.

Table 14
Purpose of Use of the UM Library

Reasons for Campus Library Use	No of Respondents	Percentage of Respondents
Examine new materials (Books, journals, etc.)	81	71.7
Borrow or return materials	69	61.1
Photocopy materials	27	23.9
Others	10	9

A majority (71.1%) of respondents used the library mainly to examine new materials (e.g. books, journals, etc.). The next highest reason (61.1%) for using the library was to borrow or return materials. Only 23.9% of the respondents used the library to photocopy materials. Other reasons indicated by 9% of the respondents for the use of UM Library included searching databases, library OPAC systems, CDNet, CD-ROM and for conducting research.

Items 9 and 10 in the questionnaire sought to elicit the information on the library's collection and services. Respondents were asked to rate the collections and services according to 6-point scale, ranging from no opinion (score of 1), very poor (score of 2) to very good (score of 6). The data in Table 15 presents the mean scores of the collection rating.

Table 15
Rating of the UM Library Collection

Collection	No of Respondents	Mean Score
Journals and periodicals	101	3.83
Books and monographs	94	3.80
Theses and dissertations	93	3.53
Conference papers	92	3.28
Electronic resources	89	3.51
Media resources	85	2.82

As displayed in the table, the print collection and electronic resources were rated close to fair with mean scores ranging from 3.28 to 3.83. The highest mean score was for journals and periodicals with a mean score of 3.83, followed by books and monographs with a mean score of 3.80. These scores are almost reaching the scale of 4, which represent “fair”. Theses and dissertations were rated as 3.53 and electronic resources as 3.51. Conference papers had a mean score of 3.28, which was rated the lowest among the collection, except for the media collection. Media collection was rated as “very poor” with the mean score of 2.82.

Table 16 presents the data on the rating of services provided by UM Library.

Table 16
Rating of Services Provided by UM Library

Services	Frequency	Mean
Reference Services	99	3.85
Circulation	98	3.64
Inter-Library Loan	96	3.02
Photocopying	95	3.32
Internet Classes	82	2.65

As can be seen in Table 16 the survey respondents gave high marks to the library reference service and circulation service. The respondents regarded the general quality of this service between “poor” and “fair” with the mean score of 3.85 which is close to the score of 4 or “fair”. This was followed by circulation service, which was also rated as “fair” with the mean score of 3.64. Respondents in Bancroft’s (1998) findings gave library services and circulation services the highest rate of satisfaction. Photocopying (3.32) and inter-library loan (3.02) then followed it. The findings of this study also correlate with those of Wenxian (1998) where the survey respondents gave high marks to the library reference service but rated it between “good” (63%) and fair (15%). This is followed by circulation service. As shown in the table the respondents rated Internet classes’ services as “very poor”. This could be because the UM Library offers internet classes mainly for students, therefore the respondents of this study which represents the academic staff may

not have any opinion over this service as they were not exposed to this service widely compared to the students.

Table 17 and 18 presents results of the rating of UM Library by the respondents in percentage and mean score. In question 11, respondents were asked to give an overall rating of satisfaction with the role of the library in meeting their information needs base on six-point scale, ranging from:

- 1 = No Opinion
- 2 = Very Dissatisfied
- 3 = Dissatisfied
- 4 = Fair/Average
- 5 = Satisfied
- 6 = Very Satisfied

Table 17
Rating of UM Library

Rating	Frequency	Percentage of Respondents
1 (No Opinion)	4	3.8
2 (Very Dissatisfied)	2	1.9
3 (Dissatisfied)	19	18.3
4 (Fair/Average)	44	42.3
5 (Satisfied)	31	29.8
6 (Very Satisfied)	4	3.8

Table 17 shows that more than 72% of the respondents regarded the library as either “fairly satisfied” (42.3%) or “satisfied” (29.8%) in meeting their information needs. Only 3.8% perceived it as very satisfying, while 20.2% of the respondents found the library as either dissatisfying (18.3%) or very dissatisfying (3.8%) in meeting their information needs.

Table 18

Mean Score of the Overall Rating of UM Library

Rating	No of Respondents	Mean Score
1 to 6	104	4.04

Based on the overall measure of satisfaction with the role of library in meeting their information needs using the mean score was 4.04, implying that overall the respondents are fairly satisfied with the library in meeting their information needs. Studies conducted by Regina and Pearce (1997) shows different results. Regina's (1997) study found that although the lecturers recognised the importance of library, however they made little use of library due to inadequate library services, resources and facilities. Pearce's (1997) findings showed that academic staff found that their library did not fulfil all their needs due to its rural setting. They noted facing various problems when dealing with the library and its staff.

Item 12, 13 and 14 were open-ended questions which sought the opinion of the respondents regarding the areas of library that need to be improved or reduced and new resources and services that need to be introduced.

A majority of the respondents, requested for more relevant, current and up to date journals, periodicals and books to be purchased by the library. This result is similar to Bancroft's (1998) study, where most of the respondents in the study want to see journal holdings improved. Some of the respondents even requested for increased copies of a

single book and subscription to a variety of journals. In order to select relevant and up-to-date publications, one respondent suggested that the library can request all the lecturers to purpose new titles of books.

The areas of the library which most respondents felt that needed to be improved were circulation, photocopying and inter library loan services. Some respondents encountered problems in locating books. They found that some books, which were recorded available on the shelves, were missing. Respondents wanted circulation services to be improved, as well as shelving of books to be done promptly and correctly. Besides this, they wanted the library to upgrade the online circulation service and provide training on the use of online services to help searchers from their own office. More photocopy systems were requested by the respondents to be made available in the library. Most respondents' wanted the library to speed up inter-library loan and extend the loan duration from two to eight weeks.

A small percentage of respondents placed importance on the improvement of electronic resources. They wanted these resources to be improved and increased especially electronic journals. Some respondents wanted to see improvements in the customer service, mainly in assisting them to locate journals and use Internet and electronic media.

Two of the respondents noted the need of centralising the UM Library system. They found that there were too many individual libraries in UM where the resources are located all around the campus, which made the finding of information difficult and time consuming.

Question 13 sought the respondents opinion on the areas of the library which could

be reduced. Very few respondents responded to this question. Those who responded would want the library to reduce or replace outdated materials especially books and journals. Other areas perceived by the respondents to be reduced were the card catalogue section and the microfilms or microfiches. Some respondents even suggested that librarians who were not customer friendly and those who are sitting at the entrance to be reduced or eliminated.

In question 14, respondents were asked to give opinion on new resources and/or services that need to be introduced in the library. A large number of the respondents gave one or more suggestions. A majority of them requested for more online access to journals or full text journals in digital form and increase of CD-ROMs. Generally the respondents wanted the library to increase number of materials stored in electronic or digital form.

Besides providing access to electronic resources respondents also want printing facilities for electronic publications to be made available in the library.

Since electronic resources and facilities are provided in the library and office by the university, a number of respondents wanted the library to provide help or training on how to use CD-ROM and electronic facilities, as many were not computer literate. Other training requested included demonstration of certain skills, for instance teaching, conducting meetings, interviews, counselling and many more.

A small percentage of respondents placed importance on audio-visual resources. They want the library to allow audio and videotapes to be loaned for teaching and testing purposes. Other opinions included the increase of CDs, audio and video collections, indexes either in book or CD form, which should be placed at more strategic locations so that

they were easily accessible, update almanacs and dictionaries, bigger computer labs, more help centers for serving users needs, and more keen and helpful staff.

Information Technology Availability and Usage

Section C of the questionnaire was designed to obtain information on current availability and usage of information technology by academic staff. The first question from this section examined academic staff accessibility to electronic technologies. Table 19 presents the percentage of respondents who had access to a computer with Internet facilities, either from office or other convenient location.

Table 19
Users’ Accessibility to Computer with Internet Facilities

Accessibility	Frequency	Percentage of Respondents
Yes	105	92.9
No	6	5.3
Did not respond	2	1.8

A total of 105 (92.9%) respondents reported having Internet facilities either from the office or other convenient place. In a similar study conducted by Budd and Connaway (1997), it was reported 91.6% of the respondents did have access to an Internet connected at work and almost 87% accessed the Internet more than once a week. About 5.3%

reported not having such facilities. The result shows a large percentage of the academic staff is actually exposed to electronic technologies.

Cross tabulation of academic rank and the access to computer with Internet facilities. The data is presented in Table 20.

Table 20
Cross Tabulation of Academic Rank against the Access to Computer with Internet Facilities (Percentage)

Access to Computer with Internet Facilities	Professor	Associate Professor	Lecturer	Language Teacher
Yes	93.8	93.5	94.6	100
No	6.3	6.5	5.4	-

The results showed that all the Language Teachers had access to computer with the Internet facilities either from office or other convenient place. The findings showed that majority (above 90%) of the Professors, Associate Professors and Lecturers also has access to computer with the Internet facilities either from office or other convenient place.

Respondents were then asked to identify and mark stand-alone activities they perform using the computer. The results are shown in Table 21.

Table 21**Use of Computer for Stand-alone Activities**

Activities	Frequency	Percentage of Respondents
Word-processing	98	86.7
Graphics and presentations	76	67.3
Spreadsheets (Data keeping and analysis)	49	43.4
Databases (Data and records management)	42	37.2
Statistical analysis	42	37.2
Others	10	9.0

As shown in Table 21 most of the respondents used the computer for word-processing (86.7%), followed by graphic and presentations (67.3%). About 43.4% of the respondents use the computer for spreadsheet activity and 37.2% use it for databases and statistical activities, while 9% use it for other activities.

The following question asked respondents to mark the network activities they performed using the computer. Table 22 presents the data.

Table 22**Use of Computer for Networked Activities**

Activities	Frequency	Percentage of Respondents
Searching for information through the Internet	101	89.4
E-mail	98	86.7
Downloading files from remote sources	59	52.2
Online discussions and participation in newsgroups	27	23.9
Others	3	2.7

The results in Table 22 revealed that a large percentage (89.4%) of the respondents use the computer for their information search through Internet. The second highest network activity performed by the respondents was electronic mail. Lazinger et.al (1997) study found most of their respondents use the Internet for e-mail. In this study, 52.2% use the computer for downloading files from remote sources and 23.9% of respondents used the computer for online discussions and participation in newsgroups. A small percentage of respondents used the computer for other activities such as publishing and news.

Question 18 of this section asked respondents to mark the electronic resources they used for their work. The data is displayed in Table 23.

Table 23

Use of Electronic Resources for Work-related Purpose

Electronic Resources	Frequency	Percentage of Respondents
Reference resources (e.g. library catalogs)	77	68.1
Secondary resources (e.g. online journals and texts)	73	64.6
Primary resources (e.g. databases, digital images)	34	30.1
Mixed media applications (e.g. computer-based learning)	19	16.8
Others	3	2.7

The results displayed in Table 23 revealed that over 60% of the respondents used reference such as library catalogs (68.1%) and secondary resources such as online journals and texts (64.6%) for their work. As seen in the table, primary resources (e.g.databases, digital images), mixed media applications and other electronic resources are also used but by a very small percentage of respondents.

The last question form this section asked the respondents to mark the barriers they experienced when finding information through the computer for their work. Table 24 presents the data for this question.

Table 24

Barriers in Finding Information through Computer

Barriers	Frequency	Percentage of Respondents
Lack of time	54	47.8
Unaware of availability of such information	49	43.4
Lack of training/skills	46	40.7
Required information does not exist	39	34.5
Others	10	9.0

As seen in Table 22, between 40% and 48% of the respondents found that lack of training/skills (40.1%), unaware was of the availability of such resources (43.4%) and lack of time (47.8%) as the barriers they faced when finding information through the computer. 'Required information does not exist' was seen as not a major obstacle by the respondents when findings resources through the computer. Only 10% indicated other barriers, such as not knowing how to search effectively, journal articles were not in full text and too many fee based accesses for required information.

The following section presents the information on the information needs and expectations of the respondents in a digital environment.

Information Needs in a Digital Environment

Section D of the questionnaire sought information on the respondent’s awareness, access, use and importance of digital resources. Question 20, asked respondents if they were aware of the digital information resources in their area of specialisation such as Internet, newsgroups, electronic journals, electronic dissertations, online databases and others.

Table 25
Awareness of Digital Information Resources in Area of Specialisation

Awareness	Frequency	Percentage of Respondents
Yes	101	90.2
No	11	9.8

As seen in Table 25, a majority (90.2%) of the respondents was aware of the digital resources in their area of specialisation, and only 9.8 % responded ‘no’ to this question.

Cross tabulation of academic rank and awareness of digital information resources in area of specialisation were made. The data is presented in Table 26.

Table 26

Cross Tabulation of Academic Rank against the Awareness of Digital Information Resources in Area of Specialisation (Percentage)

Awareness of Digital Information Resources in Area of Specialisation	Professor	Associate Professor	Lecturer	Language Teacher
Yes	87.5	90.6	91.1	83.3
No	12.5	9.4	8.9	16.7

The findings shown in Table 26 indicate that among the academic ranks, majority of the Lecturers and Associate Professors were aware of the digital resources in the area of specialisation with the percentage above 90%. Professors closely followed this with 87.5%. Although the access to computer with Internet facilities were made available to all the Language Teachers compared to other academic ranks however Language Teachers showed the lowest percentage in the awareness of digital resources in the area of specialisation.

The following question asked respondents to indicate if they had accessed any of the digital information resources within the last 12 month. The data is presented in Table 27.

Table 27

Have Access Digital Information Resources in the Last 12-Month

Have Access	Frequency	Percentage of Respondents
Yes	92	82.1
No	20	17.9

As indicated in Table 27, 82.1% of the respondents had accessed digital information resources within the last 12 months while 17.9% of the respondents did not access any digital information resources.

Cross tabulation of academic rank and access to digital information resources in the last 12-month. The data is presented in Table 28.

Table 28

**Cross Tabulation of Academic Rank against Access to Digital Information
Resources in the last 12-Months (Percentage)**

Access to Digital Information Resources within last 12-Months	Professor	Associate Professor	Lecturer	Language Teacher
Yes	75	87.5	82.1	66.7
No	25	12.5	17.9	33.3

The findings in Table 28 showed that majority of the Associate Professors had accessed digital information resources within the last 12-months with 87.5%. This is followed by Lecturers (82.1%), Professors (75%) and Language Teachers (66.7%). The findings showed that although majority of the Language Teachers has access computer with Internet facilities either from office or other convenient place compared to Lecturers, Professors and associate Professors, however a very low percentage of Language Teachers (66.67%) had actually accessed the digital information resources within the last 12-months compared to other academic ranks.

They were also asked to indicate the types of digital resources if they answered 'yes' to the question and barriers from accessing these digital resources if they answered 'no'. A majority of them indicated accessing electronic journals and Internet sites. Some respondents indicated accessing only to Internet sites, which were related to their area of

specialisation. The next most accessed digital resource was news groups. Other digital resources include research materials, reference materials, academic articles, digital publications of conference papers, electronic dissertations, online databases, online digital libraries, libraries catalogues and electronic bookshops.

Respondents who did not access to any digital resources within the last 12 months were asked in question 21b, to give reasons, which prevented them from accessing digital resources.

Among most common barriers cited by most of the respondents was the lack of knowledge about the availability of electronic resources, and training and skills in use of computer or IT. Some of the respondents perceived finding information from the internet to be slow and therefore, lack of time to access prevented them from using digital resources. Adams' (1995) study found the common obstacle to the use of electronic resources among the respondents was is lack of knowledge about the availability of electronic information resources.

Other barriers cited by the respondents included not knowing the existence of digital resources or not familiar with digital resources, website was no longer available, no line or no Internet connection, and lack of information.

Respondents were asked in Question 22, if they used digital information resources available on the Internet through the UM Library. The data is presented in Table 29.

Table 29

Use of Digital Information Resources via Internet through UM Library

Use of Digital Resources	Frequency	Percentage of Respondents
No	63	57.8
Yes	46	42.2

Table 29 shows 57.8% of the respondents did not use digital information resources via Internet through UM Library, while 42.2% use digital information resources via Internet through UM Library.

Cross tabulation of academic rank and use of digital information resources on the Internet through UM Library. The data is shown in Table 29.

Table 30

Cross Tabulation of Academic Rank against Used of Digital Information

Resources on the Internet through UM Library (Percentage)

Used of Digital Information Resources on the Internet through UM Library	Professor	Associate Professor	Lecturer	Language Teacher
Yes	31.3	46.9	42.6	33.3
No	68.8	53.1	57.4	66.7

The results shown in Table 30 indicate that there is a low use of digital information resources on the Internet through UM library among the academic ranks with percentage below 50%. However there is a slight difference in the use of digital information resources among the academic ranks. Associate Professors are users of the digital information resources on the Internet through UM Library with 46.9%. This is followed by Lecturers (42.6%), Language teachers (33.3%) and Professors (31.3%).

In the following question, respondents were asked if they would use digital information resources relevant to their needs if made available by the UM Library in the future. Table 31 shows the results of the question.

Table 31

**Use Digital Information Resources via Internet if made
Available by UM Library**

Use	Frequency	Percentage of Respondents
Yes	100	93.5
No	7	6.5

As noted before only half of the respondents indicated currently using digital resources available on the Internet through the UM Library. However when respondents were asked if they would use digital resources relevant to their needs if made available in the future by the UM Library through the Internet, 93.5% of the respondents indicated that they would use these resources, while only 6.5% of the respondents did not want to use digital resources if are made available.

Cross tabulation of academic rank and use of digital information resources on the Internet through UM Library. The data is shown in Table 32.

Table 32

Cross Tabulation of Academic Rank against Used of Digital Information Resources if made Available in Future by UM Library (Percentage)

Use Digital Information Resources through Internet if made available in future by UM Library	Professor	Associate Professor	Lecturer	Language Teacher
Yes	93.8	90.6	96.2	83.3
No	6.3	9.4	3.8	16.7

The results showed that among the academic rank, majority of the Lecturers (96.2%) indicated that they would use digital resources relevant to their needs if made available in the future by UM Library through the Internet compared to Language Teachers with 83.3%. Slightly more than 90% of the Professors and Associate Professors also would want to use digital resources relevant to their needs if made available in the future by UM Library through the Internet.

Those who choose not to use these resources were asked to give reasons for preventing them from using these resources. Only a few of the respondents answered this question and the main reason given was that they did not know how to access these resources.

In Question 24, respondents were asked if they had created any digital resources available in the Internet. Table 33 shows the results of the findings.

Table 33

Create Digital Resources on the Internet

Create Digital Resources	Frequency	Percentage of Respondents
No	95	86.4
Yes	15	13.6

Amazingly although a majority of the respondents had access to Internet facilities (see Table 18) however, as seen in Table 32, very few of the respondents (13.6%) had actually created digital resources on the Internet. When asked to indicate the type of materials they had placed on the Internet, a number of them had placed or created course outline/information for students (controlled access), homepages, lecture series, research activities, related sites, research papers, webpages/course website for research group, notes, tutorial, and research projects.

Respondents who indicated not creating any digital resources on the net were asked to indicate barriers for doing so. A majority of them stated that they did not know how to create digital resources on the Internet due to lack of skills, motivation, time and related knowledge. However some noted that they were willing and had the interest to learn how to place materials on the net. Other reasons given included, not having a computer in the office, lack of interest, preferred writing on papers and some even

perceived that they did not need to create or place materials on the net as it was not relevant to their needs.

Cross tabulation of academic rank and create digital resources in the Internet. The data is presented in Table 34.

Table 34
Cross Tabulation of Academic Rank against Create Digital Resources in the Internet (Percentage)

Create Digital Resources in the Internet	Professor	Associate Professor	Lecturer	Language Teacher
Yes	25	12.5	13	-
No	75	87.5	87	-

The results shown in Table 34 indicate that a majority of the Professors (25%) have created digital information resources on the Internet compared to Lecturers (13%) and Associate Professors (12.5%). Amazingly none of the language teachers have actually created digital information resources on the Internet. Overall the findings showed that among the academic rank a very low percentage of respondents has actually created digital information resources on the Internet. This may be due to lack of skills, time and training in doing so.

The following question asked respondents to indicate if they have placed their

teaching materials on the Internet through the University of Malaya Multimedia Development Centre (MDC). The results are presented in Table 35.

Table 35
Place Teaching Materials on the Internet through UM MDC

Place Teaching Materials	Frequency	Percentage of Respondents
No	96	86.5
Yes	15	13.5

As shown in Table 35, only 13.5% of the respondents had placed teaching materials on the Internet through the UM MDC, while a majority (86.5%) of the respondents did not do so. When asked to give reasons for preventing them to do so, most of the respondents noted that they did not have the time to place teaching materials as well as knowledge and skills in doing so. Some of the respondents noted that they did not have any information or even heard of MDC as well as its function.

Cross tabulation of academic rank and place teaching materials on the Internet through UM MDC. The data is presented in Table 36.

Table 36

Cross Tabulation of Academic Rank against Place Teaching Materials on the Internet through UM MDC (Percentage)

Place Teaching Materials on the Internet through UM MDC	Professor	Associate Professor	Lecturer	Language Teacher
Yes	12.5	6.3	19.6	-
No	87.5	93.8	80.4	100

Among the academic ranks Lecturers showed the highest percentage in placing the teaching materials on the Internet through UM MDC with 19.6% compared to Professors (12.5%) and Associate Professors (6.3%). Again none of the Language Teachers had placed teaching materials on the Internet through UM MDC. Overall the findings showed that very low percentage of the respondents from the entire academic ranks place teaching materials on the Internet through UM MDC with percentage below 50%.

Question 26 asked respondents if they would consider digital resources as an asset in their teaching, research or other professional work-related activities if they were to produce their own digital resources. Table 37 gives an overview of the results.

Table 37

Importance of Digital Resources for Work-related activities

Importance	Frequency	Percentage of Respondents
Yes	92	86.0
No	15	14.0

Table 37 shows that 86% of the respondents did feel that digital resources, which they had produced themselves, were asset in their teaching, research or other professional work-related activities. Only 14% did not agree to the statement.

Cross tabulation of academic rank and usefulness/importance of digital resources for work-related activities. The data is presented in Table 38.

Table 38

Cross Tabulation of Academic Rank against Usefulness/Importance of Digital Resources for Work-related Activities (Percentage)

Usefulness/Importance of Digital Resources for Work-related Activities	Professor	Associate Professor	Lecturer	Language Teacher
Yes	93.3	86.2	85.7	83.3
No	6.7	13.8	14.3	16.7

A majority of the respondents from the academic ranks agreed to the usefulness of digital resources for work-related activities. Professors found the usefulness of digital resources for work-related activities the most compared to other academic ranks.

Respondents were asked in question 27 if they had their own homepage or website either through the university or through an external web-hosting service. The findings are stated in Table 39.

Table 39**Have own Homepage/WebSite**

Have own Homepage/Website	Frequency	Percentage of Respondents
No	89	81.7
Yes	20	18.3

As seen in Table 30, a small percentage (18.3%) of the respondents had their own homepage or website, while 81.7% did not have their own homepage or website.

Cross tabulation of academic rank and have own homepage/website. The data is presented in Table 40.

Table 40**Cross Tabulation of Academic Rank Have Own Homepage/Website (Percentage)**

Have Own Homepage/Website	Professor	Associate Professor	Lecturer	Language Teacher
Yes	13.3	18.8	21.8	-
No	86.7	81.3	78.2	100

As shown in Table 40, a small percentage of the respondents from all the academic

ranks have created their own homepage. Among the academic ranks, majority (21.8%) of the Lecturers has their own homepage compared to Associate Professors (18.8%) and Professors (13.3%), while none of the Language Teachers have created their own homepage.

The last question of this section sought to ask respondents' views on the hopes, expectations and concern they had in relation to their information needs in a digital environment which they felt the university should keep in mind as it plans for the future. Some of the respondents wanted the university to improve computer facilities for teaching and research activities and maintenance of computer labs. Other respondent wanted the library to provide more direct links to other resource centers especially overseas universities. Others wanted easier access to titles in the library, changing and discharging loaned books without going to the library. Some of the respondents requested for training and workshops on the use of digital information and information technology at suitable time to encourage participation from academic staff, which was currently not done. Other requests from the respondents included provision of updates on IT especially in branch libraries, more interlibrary linkage with major libraries of the world, regular updates of computer hardware and software, more information on university's website and regular updates especially of events and courses available in the university. Easy access to online databases and publications as well as e-mail server and library resources from distance computer, full text articles and CD-ROM proceedings were also requested by the respondents.

Demographic Information

The final section of the questionnaire presents information on the respondents' current faculty affiliation, rank and years of teaching experience at the University of Malaya. Table 2 presents data on the respondent's affiliation. As seen in the table, the largest number of respondents was from the Faculty of Medicine 23.9%, followed by Faculty of Language and Linguistics with 16.2%.

Table 41 indicates the academic rank of the respondents surveyed.

Table 41
Academic Rank of Respondents

Academic Rank	Frequency	Percentage of Respondents
Professor	16	14.5
Associate Professor	32	29.1
Lecturer	56	50.9
Language Teacher	6	5.5

As shown in the table, the vast majority (50.9%) of academic staff responding were lecturers. This is followed by associate professors (29.1%), professors (14.5%) and language teachers (5.5%). It was expected that the majority of respondents were lecturers as most of the university academic staff is of this rank. Moreover the number of subjects chosen at each rank and faculty were not equal.

The teaching experience of respondents was measured by the number of years they served at University of Malaya. This result is shown in Table 42.

Table 42
Distribution of Respondents by Number of Years of Teaching Experience

Years of Teaching Experience	Frequency	Percentage of Respondents
1 to 5	33	29.7
6 to 10	28	25.2
11 to 15	19	17.1
16 to 20	16	14.4
More than 20	15	13.5

As seen in Table 42, 29.7% of the respondents had between 1 to 5 years of teaching experience, 25.2% had taught for between 6 to 10 years, 17.1% had 11 to 15 years of teaching experience and 14.4 taught for between 16 to 20 years. 13.5% of the respondents are highly experienced academic staff with over 20 years and more of teaching experience.

Summary

The findings of this study show that research requires the most information seeking among the academic staff. The UM Library was perceived to be the most important source in meeting their information needs. Internet resources were also highly used by majority of the respondents, especially electronic journals. Journals and periodicals were highly used among the published information resources by the academic staff.

Overall the findings shows that a majority of academic staff did use the UM Library and at least between once and five times a week, mostly for examining new materials and borrowing or returning materials. Most of the respondents wanted the library to update its collection and have latest publications of books and journals. The respondents were fairly satisfied with the library in meeting their information needs.

This survey also showed that a majority of the respondents had access to a computer with Internet facilities. A majority of the respondents used the computer for word-processing activity. The networked activity which most of the respondents used the computer for was searching information through the Internet. Majority of the respondents are aware of the digital resources in their area of specialisation and had accessed the digital information resources. The findings also showed that most of the respondents were unaware or did not know how to create homepages, place teaching materials on the net, use UML OPAC system and online library services. This suggests a great need for the library to provide training on IT and online services to the academic staff in order to allow these staff to keep abreast with changes in the digital environment. Most of the respondents hoped that the university would implement or conduct courses or training on

IT for the academic staff in the future.