

Chapter 4: Presentation of the Research Findings

4.1 Introduction

This chapter presents the findings captured from both questionnaires and focus group discussions of selected respondents. It is divided into three main sections. Section one introduces the chapter, section two provides the findings of the research obtained from the questionnaires and section three covers the findings from the focus group discussions. Sections two and three are further divided into sub sections. Finally a conclusion is presented.

4.2 Findings from the questionnaires

Out of the total number of a hundred and twenty- seven (127) questionnaires that were distributed, 120 were returned from the respondents, giving a response rate of 94.5%. The excellent response rate could be attributed to consistent personal follow-ups by the researcher. The other reason could be as a result of using student research assistants. The student research assistants would easily follow respondents to their rooms or classes; therefore reaching the students that the researcher could not reach.

4.2.1 Demographic information about the respondents

This section covers general information on the characteristics of the respondents, such as the sex of the respondents, their age, their years of study and the programmes of study they are specialising in.

Out of the total number of 120 respondents to the questionnaires, 73% were male while 27% were female. In terms of age, table 1 shows that three respondents did not indicate their age, one was aged below 20 years, 86 were aged 20-25 years, 14 were aged 26-30

years, six were aged 31-35 years, four were aged 36-40 years, and six were aged above 40 years.

Table 1: Age of respondents

Age	Frequency	Percent	Valid Percent	Cumulative Percent
Below 20 years	1	0.8	0.9	0.9
20-25 years	86	71.7	73.5	74.4
26-30 years	14	11.7	12.0	86.3
31-35 years	6	5.0	5.1	91.5
36-40 years	4	3.3	3.4	94.9
Above 40 years	6	5.0	5.1	100.0
Total	117	97.5	100.0	
No response	3	2.5		
Total	120	100.0		

The above data in table 1 therefore indicates that on average, the population under investigation was young, aged 30 years and below.

Furthermore, table 2 reveals that out of the total number of 120 respondents, seven were in second year, while 36 were in third year, 34 were in fourth year, 20 were in fifth year, 19 were in sixth year and four were in seventh year. The table further shows that 41 respondents were pursuing a Bachelor’s degree in Medicine and Surgery, 37 were studying Human Biology, seven were doing a Bachelor’s degree in Physiotherapy, nine

were specialising in Nursing, six were doing Environment and Health Sciences, ten were studying Pharmacy and another ten were following a Bachelor of Biomedical Sciences.

Table 2: Distribution of respondents by their programmes and years of study

Year of study	Programme of study of respondents							
	MBChB	BHB	BSc. Phy	BSc. NRs	BSc. EH	BPharm	BBSc.	Total
2nd year	-	-	-	4	-	1	2	7
3rd year	-	19	-	-	-	9	8	36
4th year	-	18	7	4	5	-	-	34
5th year	18	-	-	1	1	-	-	20
6th year	19	-	-	-	-	-	-	19
7th year	4	-	-	-	-	-	-	4
Total	41	37	7	9	6	10	10	120

Key

- 1. MBChB = Bachelor of Medicine and Bachelor of Surgery
- 2. BHB = Bachelor of Human Biology
- 3. BSc. Phy = Bachelor of Science in Physiotherapy
- 4. BSc. NRs = Bachelor of Science in Nursing
- 5. BSc. EH = Bachelor of Science in Environment and Health Sciences
- 6. BPharm = Bachelor of Pharmacy
- 7. BBSc. = Bachelor of Biomedical sciences

NB: The students studying for the MBChB enter the school as BHB in third year. They only start specializing in MBChB in their fifth year of study after successfully completing BHB at fourth year level.

4.2.2 Students’ awareness levels of the availability of EIRs and services

This section provides findings of the study on students’ awareness levels on the availability of EIRs provided by UNZA Library and other electronic medical databases. When the respondents were asked to indicate whether or not they were aware of the available EIRs, 77% indicated that they were aware of the availability of EIRs provided by the Library and other medical electronic databases while 23% revealed that they were not aware of them.

But when the respondents were further asked to specify the databases and publications they were aware of from the list provided, their responses provided a different picture of awareness. The results are as shown in table 3.

Table 3: Publications and databases one is aware of

Name of database	Aware of	Not aware of
Medline	37 (40%)	55 (60%)
Cambridge University Press	29(32%)	63(68%)
PubMed Central	28(30%)	64(70%)
African Journals Online	19(21%)	73(79%)
HINARI	9(10%)	83(90%)
Blackwell Publications	6(7%)	86(93%)
Biomed Central	5(5%)	87(95%)
Bioline International	4(4%)	88(96%)
Cochrane library	1(1%)	91(99%)
Nature Publishing Group	1(1%)	91(99%)
Other	18(20%)	74(80%)

Table 3 reveals that out of 92 students that responded to this question, 40% were aware of Medline while 60% were not; 32% were aware of Cambridge University Press while 68% were not; 30% were aware of PubMed while 70% were not; 21% were aware of African Journals Online while 79% were not; 10% were aware of HINARI while 90% were not. Seven percent were aware of Blackwell Publications while 93% were not; five percent were aware of Biomed Central while 95% were not; four percent were aware of Bio line International while 96% were not; one percent was aware of Cochrane library while 99% were not; one percent was aware of Nature Publishing Group while 99% were not; 20% were aware of other online databases while 80% did not know of any other databases.

The other databases/ websites and publishers the respondents were aware of included eMedicine, Mayo Clinic, American Journal of Medicine, Elsevier, Medscape, eGranary, WHO and Centres for Disease Control and Prevention (CDC). In addition, out of the 20% that had indicated that they knew of other databases, 11% indicated that they used Google search engine and Wikipedia to meet their information needs.

In order to establish a stronger analysis, the study sought to investigate the relationship between awareness of the available electronic resources and their usage. This was done by firstly cross- tabulating the two variables and secondly by conducting a chi-square test. The result from the cross tabulation indicated that out of the 92 respondents that had shown that they were aware of the availability of EIRs, 43 used EIRs while 49 did not. However, out of the 28 that indicated that they were not aware of EIRs, five indicated that they used EIRs while 23 did not. The results are presented in table 4:

Table 4: Awareness of availability of EIRs and If one uses EIRs Cross-tabulation

			If one uses EIRs		
			Yes	No	Total
Awareness of availability of EIRs	Yes	Count	43	49	92
		Expected Count	36.8	55.2	92.0
	No	Count	5	23	28
		Expected Count	11.2	16.8	28.0
	Total	Count	48	72	120
		Expected Count	48.0	72.0	120.0

Secondly, a chi-square test was conducted in order to establish if there was a relationship between awareness of the available electronic resources and their usage. The two formulated hypotheses were that:-

- 1. H_0 = There is no relationship between awareness of the available EIRs and their usage
- 2. H_1 = There is a relationship between awareness of available EIRs and their usage

The plan of analysis formulated was that the significance level to be used was 0.05 in order to maximize accuracy of the findings. With this analysis, if the test statistic probability (p-value) was less than the significance level, the null hypothesis would be rejected. On the other hand, if the p-value was greater than 0.05, then the null hypothesis would be accepted or we would fail to reject the null hypothesis. The results of the analysis are presented in table 5.

Table 5: Chi-Square Test on relationship between awareness of the available electronic resources and their usage

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	7.461	1	.006		
Continuity Correction	6.306	1	.012		
Likelihood Ratio	8.099	1	.004		
Fisher's Exact Test				.008	.005
Linear-by-Linear Association	7.399	1	.007		
N of Valid Cases	120				

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.20.

$\chi^2 = 7.461$; $df = 1$; $p\text{-value} = 0.006$. Since the $p\text{-value}$ is less than the agreed significance level, the null hypothesis is rejected. The interpretation of the results is that there is a relationship between the awareness of the available EIRs and their usage.

This factor (awareness) was further investigated to establish the extent to which it affected usage of EIRs. The results revealed that 76% of the respondents indicated that lack of awareness of existing EIRs by the students affected usage of electronic resources. These results are recorded in table 6:

Table 6: Extent to which lack of awareness of existing EIRs hinder usage of EIRs

	Frequency	Percent	Cumulative Percent
Great extent	46	38.3	38.3
Some extent	45	37.5	75.8
Less extent	18	15.0	90.8
Not at all	11	9.2	100.0
Total	120	100.0	

The respondents were then asked how they got to know about the above mentioned databases and table 7 shows the respondents' responses.

Table 7: Ways through which one got to know about the available EIRs

Methods of awareness	No. of respondents
Friends	64
Lecturers	24
Library	28
Posters/ brochures	17
UNZA/ Library website	9
e-mail	3
Other	8

The results in table 7 indicate that 64 respondents got to know about the available electronic resources through friends, 24 through their lecturers, 28 through the Library, 17 through posters and brochures, nine through UNZA/ Library website, while three through e-mail and eight through other means. The other means included workshops, library orientation, class representatives and self-learning and discovery.

4.2.3 Effectiveness of communication tools used by UNZA Library to market EIRs

In order to assess the degree of effectiveness of each communication tool used by the Library, a five point rating scale known as Likert scale was used where Very effective =5, Effective =4, Slightly effective =3, Ineffective =2, Very ineffective=1, I do not know=0. This scale was used because the concept of effectiveness is a relative term and hence must be assessed in terms of indicators which combine different qualitative aspects on the usage of EIRs. The examined tools were e-mail, UNZA/ Library website, posters and brochures/ fliers. In order to establish if the tool was ultimately effective or not, the scores for very effective, effective and slightly effective were put together to represent effective. Those for ineffective and very ineffective were also grouped together to mean ineffective. Those for “I do not know” were ignored since this option would not help one make a decision. The results from the analysis are presented in tables 8-11.

Table 8: Effectiveness of e-mail as a communication tool

	Frequency	Percent	Valid Percent	Cumulative Percent
Effective	22	18.3	23.7	23.7
Slightly effective	23	19.2	24.7	48.4
Ineffective	26	21.7	28.0	76.3
Very ineffective	22	18.3	23.7	100.0
Total	93	77.5	100.0	
Do not know	27	22.5		
Total	120	100.0		

The results in table 8 reveal that 48% of the respondents indicated that the use of e-mail as a way of communicating to students on the availability of EIRs was effective, while 52% indicated that it was ineffective. Therefore, these results confirmed that email as a communication tool was ineffective.

Table 9: Effectiveness of UNZA/Library website as a communication tool

	Frequency	Percent	Valid Percent	Cumulative Percent
Very effective	2	1.7	2.4	2.4
Effective	13	10.8	15.9	18.3
Slightly effective	26	21.7	31.7	50.0
Ineffective	31	25.8	37.8	87.8
Very ineffective	10	8.3	12.2	100.0
Total	82	68.3	100.0	
Do not know	38	31.7		
Total	120	100.0		

The results in table 9 reveal that 50% of the respondents reported that UNZA Library website, as a communication tool was effective, while the other 50% felt that it was ineffective. Ultimately these results suggest that this communication tool was fairly effective.

Table 10: Effectiveness of Posters as a communication tool

	Frequency	Percent	Valid Percent	Cumulative Percent
Very effective	12	10.0	12.1	12.1
Effective	19	15.8	19.2	31.3
Slightly effective	32	26.7	32.3	63.6
Ineffective	22	18.3	22.2	85.9
Very ineffective	14	11.7	14.1	100.0
Total	99	82.5	100.0	
No response	1	.8		
Do not know	20	16.7		
	21	17.5		
Total	120	100.0		

Further, the results in table 10 show that 64% of the respondents indicated that posters were effective, while 36% indicated that it was ineffective. The results therefore revealed that the use of posters to communicate to students about the available EIRs was effective.

Similarly, the results in table 11 show that 58% of the respondents indicated that brochures/ fliers were effective while 42% indicated that they were ineffective. This suggests that brochures/ fliers as a communication tool were effective.

Table 11: Effectiveness of brochures/fliers as a communication tool

	Frequenc y	Percent	Valid Percent	Cumulative Percent
Very effective	9	7.5	10.1	10.1
Effective	17	14.2	19.1	29.2
Slightly effective	26	21.7	29.2	58.4
Ineffective	21	17.5	23.6	82.0
Very ineffective	16	13.3	18.0	100.0
Total	89	74.2	100.0	
No response	2	1.7		
Do not know	29	24.2		
Total	31	25.8		
Total	120	100.0		

When the respondents were further requested to give suggestions on what other communication tools they felt would better sensitise them of the available EIRs, the following suggestions were given:-

- Use of student committees and class representatives in promoting EIRs
- The Library should increase its sensitisation programmes through:-
 1. Workshops/ Seminars
 2. Direct email to students
 3. Class and hostel visits
 4. Library orientation
 5. Communicate to students when they visit the library

4.2.4 The current usage levels of EIRs by the students

The findings of this section cover results on whether EIRs are still underutilised as reported in earlier research or not.

When the respondents were asked whether they used the available electronic resources or not, 40% indicated that they used EIRs while 60% indicated that they did not use EIRs. This information reveals that being aware of the availability of these resources (as revealed under section 4.3 of this chapter) does not mean that one is using them. This is an indication that there are other factors that may be affecting usage of EIRs.

Table 12: How often one uses EIRs

	Frequency	Percent	Valid Percent	Cumulative Percent
Every day	1	.8	2.0	2.0
at least once a week	10	8.3	20.4	22.4
At least once a month	1	.8	2.0	24.5
Rarely	10	8.3	20.4	44.9
As and when need arises	27	22.5	55.1	100.0
Total	49	40.8	100.0	
Not applicable	71	59.2		
Total	120	100.0		

Table 12 reveals that out of the number that indicated that they used EIRs, only two percent of the respondents used electronic resources every day; 20% used them at least once a week; two percent used them at least once a month; 21% rarely used them and 55% used them when there was need to use them. Ultimately, the results suggest that the

respondents used electronic resources only when they needed to use them, hence they rarely used them.

The respondents were further requested to indicate the specific databases and publications they were using from the list provided and others they used which were not included on the list. Their responses were ranked in their order of usage as shown in table 13.

Table 13: Specific databases/ Publications used presented in their order of usage

Name of database	Used (%)	Not used (%)
Medline	67	33
PubMed	44	56
Cambridge University Press	31	69
HINARI	10	90
Annual reviews	10	90
Blackwell Publications	8	92
Biomed central	6	94
Nature Publishing Group	4	96
Bio line International	2	98
Cochrane library	0	100
Other databases/ Publications	29	71

Table 13 displays responses of the 48 respondents that answered this question. The results showed that 67% of the respondents indicated that they used Medline while 33% did not; 44% used PubMed while 56% did not; 31% used Cambridge University Press while 69% did not. Ten percent used HINARI while 90% did not; 10% used Annual reviews while 90% did not. Eight percent indicated that they used Blackwell Publications while 92% did not; six percent used Biomed Central while 94% did not; four percent used Nature Publishing Group while 96% did not; and two percent used Bio line International while 98% did not; none used Cochrane Library and 29% used other

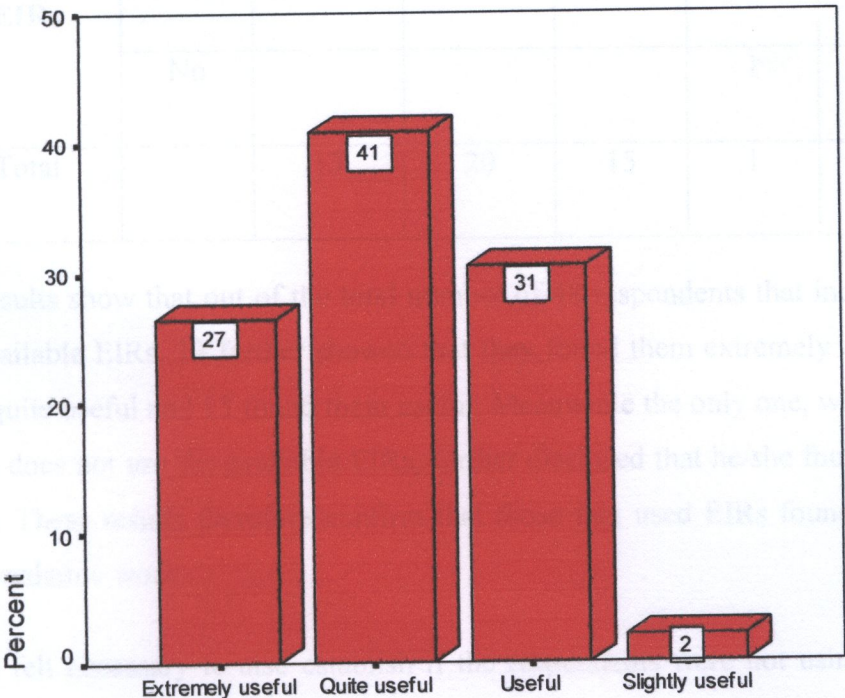


databases/ publications while 71% did not use other databases/ websites and publishers. These included eMedicine, Mayo clinic, Elsevier, WHO and CDC. Fourteen percent of the respondents further indicated that they also used Google search engine and Wikipedia to meet their information needs.

Ultimately, the results indicate that out of all the available databases/ publications, Medline was the most used database while the rest were generally poorly used.

It was felt necessary to find out how useful the respondents found EIRs in their academic and professional work. The respondents were therefore asked to rate the usefulness of EIRs using a five point rating scale of 5= Extremely useful, 4= Quite useful= 3=Useful, 2= Slightly useful and 1= Not useful. Figure 1 is showing the results.

Figure 1: Usefulness of EIRs in students' academic & professional work



The results in figure 1 show that 27% of the respondents found EIRs extremely useful in their academic and professional work, 41% found them quite useful, 31% found them useful and two percent found them slightly useful. Generally, those that used EIRs found them useful. To prove this perception, the two involved variables (If one uses EIRs and how useful they found EIRs in their academic work) were cross-tabulated and the results are shown in table 14.

Table 14: If one uses EIRs and how useful they find them in their academic work
Cross-tabulation

		How useful one finds EIRs in their academic work				
		Extremely useful	Quite useful	Useful	Slightly useful	Total
If one uses EIRs	Yes	13	20	15		48
	No				1	1
Total		13	20	15	1	49

The results show that out of the total number of 48 respondents that indicated that they use available EIRs, 13 further showed that they found them extremely useful, 20 found them quite useful and 15 found them useful. Meanwhile the only one, who indicated that he/she does not use the available EIRs, further disclosed that he/she found EIRs slightly useful. These results therefore confirm that those that used EIRs found them useful in their academic work.

It was felt necessary to also establish if the respondents were not using EIRs because they had other information sources or not. To this, they responded that they used a

combination of resources which included print materials in form of handouts, newspapers, past papers and students' project reports. Other sources of information mentioned were lecture notes, professional help from colleagues, guidelines from the Ministry of Health, presentations on television, practicals and audio/ visual resources such as illustrative CDs.

4.2.5 Factors that lead to less usage of EIRs

To establish the extent to which each factor affected the utilisation of electronic information resources, a four point rating scale was used. This comprised 1= Great extent, 2= Some extent, 3= Less extent and 4= Not at all. The factors considered were lack of help or guidance to students from librarians; limited access to available computers; slow connectivity; difficulties in locating relevant information; less value placed on the importance of EIRs, lack of encouragement to students from lecturers to use EIRs, and limited time by the students to search the Internet. These results are presented in figure 2 and tables 15-20.

Figure 2: Extent to which lack of help/ guidance from Librarians negatively affect utilisation of EIRs

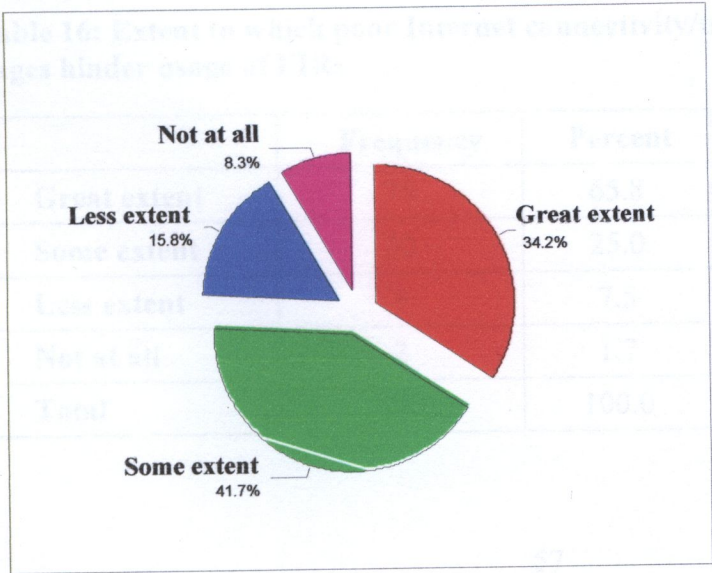


Figure 2 shows that 34% of the respondents indicated that lack of guidance from the librarians hindered usage of EIRs to a great extent, 42% indicated that it contributed to some extent, 16% indicated that it contributed to a less extent while 8% indicated that it had no effect at all. Generally the results show that lack of help/guidance from librarians negatively affected the utilisation of EIRs to some extent.

Table 15: Extent to which limited access to computers hinder usage of EIRs

	Frequency	Percent	Cumulative Percent
Great extent	110	91.7	91.7
Some extent	7	5.8	97.5
Less extent	1	.8	98.3
Not at all	2	1.7	100.0
Total	120	100.0	

The problem of limited access to computers was found to be one the major factors hindering the utilisation of the available electronic resources in the University. These results are revealed in table 15. The respondents showed an overwhelming response with 92% (110) of the respondents indicating that limited access to computers negatively affected usage of EIRs to a great extent.

Table 16: Extent to which poor Internet connectivity/more time on downloading pages hinder usage of EIRs

	Frequency	Percent	Cumulative Percent
Great extent	79	65.8	65.8
Some extent	30	25.0	90.8
Less extent	9	7.5	98.3
Not at all	2	1.7	100.0
Total	120	100.0	

Furthermore, table 16 indicates that poor Internet connectivity, which leads to Internet users spending more time downloading needed information, was another factor hindering the usage of EIRs by the students in the University. For example, 66% of the respondents indicated that poor Internet connectivity negatively affected usage of EIRs to a great extent.

Table 17: Extent to which difficulty in finding relevant data hinder usage of EIRs

	Frequency	Percent	Cumulative Percent
Great extent	35	29.2	29.2
Some extent	50	41.7	70.8
Less extent	26	21.7	92.5
Not at all	9	7.5	100.0
Total	120	100.0	

Furthermore, the results in table 17 show that the majority (71%) of the respondents felt that problems or experiences students encounter when trying to access EIRs such as difficulties in finding relevant data related to their studies negatively affected usage of electronic resources to a larger extent.

Table 18: Extent to which less value/importance placed on EIRs hinder usage of EIRs

	Frequency	Percent	Cumulative Percent
Great extent	28	23.3	23.3
Some extent	50	41.7	65.0
Less extent	31	25.8	90.8
Not at all	11	9.2	100.0
Total	120	100.0	

Sixty-five percent of the respondents in table 18 indicated that less value placed on the importance of EIRs hindered usage of EIRs to a larger extent.

Table 19: Extent to which lack of encouragement from lecturers to use EIRs hinder usage of EIRs

	Frequency	Percent	Cumulative Percent
Great extent	18	15.0	15.0
Some extent	52	43.3	58.3
Less extent	38	31.7	90.0
Not at all	12	10.0	100.0
Total	120	100.0	

Meanwhile, table 19 further reveals that 58% of the respondents felt that lack of encouragement from lecturers to the students to use EIRs hindered usage of EIRs to some extent. For instance some lecturers expected their students to only use what they were taught/ materials they were given or risked failing if they used other materials

Table 20: Extent to which limited time to search Internet hinder usage of EIRs

	Frequency	Percent	Cumulative Percent
Great extent	56	46.7	46.7
Some extent	41	34.2	80.8
Less extent	16	13.3	94.2
Not at all	7	5.8	100.0
Total	120	100.0	

Table 20 reveals that 81% of the respondents revealed that limited time for students to access the Internet was another hindering factor to the usage of EIRs in the University. For example 56 respondents revealed that this factor negatively affected usage to a great extent.

However, in order to explore and establish as many factors that affect usage of EIRs as possible, the respondents were further requested to mention other factors not on the list which they felt were contributing towards underutilisation of EIRs. The following were identified:-

- Poor ICT infrastructure i.e. insufficient Internet access areas and inadequate bandwidth
- The growth of ICT facilities did not match the ever increasing number of students in the University
- Less time allocated to each student to use Internet
- Students did not know specific, resourceful and beneficial websites they could visit
- Lack of wireless connectivity in most parts of the University such as classrooms and hostels
- Lack of interest by students to use EIRs
- Distance from students' hostels to the library
- Unfriendly librarians
- Some students accessing non-educational materials blocked those that needed to access educational materials from accessing Internet
- Fear of viruses from the available computers. This problem is made worse by the fact that the available computers do not have ant-virus software

Finally the respondents were requested to give suggestions on what they felt would improve the usage levels of EIRs in the University. The following were their suggestions:-

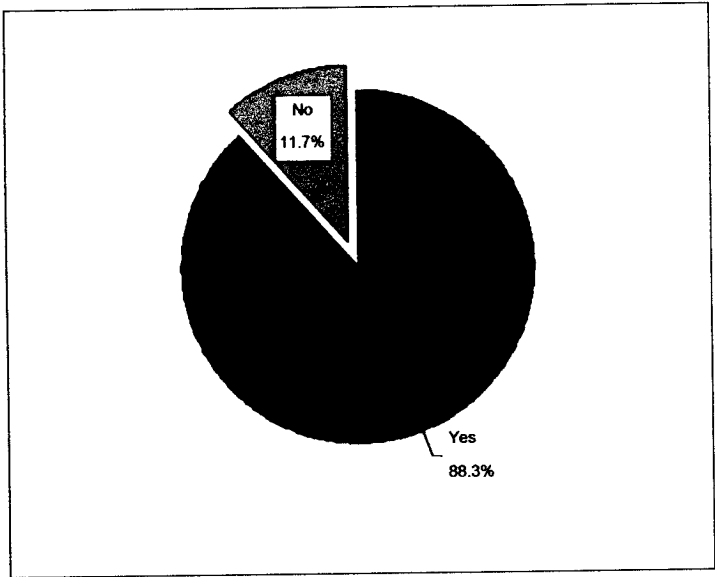
- Increasing computer laboratories with more computers
- To improve Internet connectivity in terms of bandwidth and provision of wireless connections
- Increasing the library opening hours to open 24 hours daily
- The library should improve its sensitisation programmes on the availability, importance and advantages of using EIRs to students
- The Library should offer training to students on the use of EIRs
- Provide students with cheap laptops/ computers. This would reduce congestion in the available Internet access areas

- Provide direct e-mails to students for communication purposes
- Provide students with user Ids/ passwords where required to help them access certain websites

4.2.6 Internet skills of the students

This section covers information on the Internet skills of students in order to help us determine whether or not lack of Internet skills is one of the factors that lead to less utilisation of EIRs by students in the University. The section further covers information on the best ways students can be trained to acquire or upgrade their Internet skills.

Figure 3: Internet skills of students



The results in figure 3 show that 106 (88%) of the respondents indicated that they had Internet skills while only 14 (12%) indicated that they did not have. These findings therefore suggest that the majority of the respondents possessed Internet skills required to help them utilise the available EIRs in the Library. As such, one would be tempted to

conclude or hypothesize that since most students possessed Internet skills, then they should be using the available EIRs. To prove this assumption, two tests were conducted. Firstly, investigations were conducted to find out how many respondents had indicated that they both had Internet skills and used EIRs by cross-tabulating the two variables under discussion. After the cross-tabulation, the results showed that out of 106 respondents that had indicated that they had Internet skills, 46 had both Internet skills and used EIRs while 60 respondents only had Internet skills but did not use EIRs. The results are presented in table 21.

Table 21: Internet skills of respondents and if one uses EIRs Cross-tabulated

	If one uses available e-resources				
Internet skills of respondents			Yes	No	Total
	Yes	Count	46	60	106
		Expected Count	42.4	63.6	106.0
	No	Count	2	12	14
		Expected Count	5.6	8.4	14.0
	Total	Count	48	72	120
		Expected Count	48.0	72.0	120.0

Secondly, a statistical analysis was carried out using Chi-square test in order to establish if there was a relationship between Internet skills and the usage of electronic information resources.

In this analysis, two hypotheses were formulated as follows:

1. H_0 = There is no relationship between Internet skills and the usage of electronic information resources
2. H_1 = There is a relationship between Internet skills and the usage of electronic information resources

Then a plan of analysis was formulated where the significance level to be used was 0.05 in order to maximize accuracy of the results. With this analysis, if the test statistic probability was less than the formulated significance level, the null hypothesis would be rejected. However, if the p-value was greater than 0.05, then the hypothesis would be accepted or we would fail to reject the null hypothesis, in which case the alternative hypothesis would be accepted. The results of the analysis are presented in table 22.

Table 22: Chi-Square Tests on relationship between Internet skills and the usage of electronic information resources

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2- sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.367	1	0.037		
Continuity Correction	3.238	1	0.072		
Likelihood Ratio	4.947	1	0.026		
Fisher's Exact Test				0.044	0.031
Linear-by-Linear Association	4.330	1	0.037		
N of Valid Cases	120				

- a. Computed only for a 2x2 table
- b. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.60.

From the table above, $\chi^2 = 4.37$; $df = 1$; $p\text{-value} = 0.037$. The p-value therefore is less than the significance level.

Since the results in table 22 showed that the statistic probability also known as p-value is less than the significance level, the null hypothesis is rejected. The interpretation there of is that there is a relationship between Internet skills and the usage of electronic information resources.

Both findings in the tables 21 and 22 confirmed why most respondents felt that lack of skills by students was one of the contributing factors to the less usage of electronic resources in the University. For example 86% of the respondents indicated that lack of Internet skills contributed towards less usage of EIRs to a certain extent. This means that respondents still needed Internet training to develop their Internet skills for them to effectively utilise the available electronic resources. The results are shown in table 23.

Table 23: Extent to which lack of Internet skills hinder usage of EIRs

	Frequency	Percent	Cumulative Percent
Great extent	50	41.7	41.7
Some extent	53	44.2	85.8
Less extent	15	12.5	98.3
Not at all	2	1.7	100.0
Total	120	100.0	

When respondents were further asked if they would want to be trained to acquire or upgrade their Internet skills, out of 120 respondents as shown in table 24, one percent did not indicate their response, 81% revealed that they were willing to be trained and 19% showed that they were not willing to be trained.

Table 24: Willingness of respondents to attend Internet training

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	96	80.0	80.7	80.7
No	23	19.2	19.3	100.0
Total	119	99.2	100.0	
No response	1	0.8		
Total	120	100.0		

Furthermore, Internet skills of respondent and their willingness to attend Internet training were cross-tabulated. The findings revealed that out of the 106 that had said that

they had Internet skills, 78% still indicated that they were willing to be further trained if the library arranged for their training schedules, while 22% were not willing. Meanwhile, out of the 14 (12%) that had revealed that they did not possess Internet skills, 13 indicated willingness to be trained while one did not offer any response. Table 25 presents these results.

Table 25: Cross-tabulation of Internet skills of respondents and their willingness to attend Internet training

		Willingness of respondents to attend Internet training		
		Yes	No	Total
Internet skills of respondents	Yes	83 (78.3%)	23 (21.7%)	106 (100%)
	No	13 (100%)	0 (0%)	13 (100%)
	Total	96 (80.7%)	23 (19.3%)	119 (100%)

4.3 Findings from focus group discussions

4.3.1 Characteristics of the of discussants

The total number of discussants in the focus group discussions was 22, out of which 17 were males and five were females. Four were in second year, two in third year, another two in fourth year, five in fifth year, eight in sixth year and one in seventh year. Eleven were doing a Bachelor's degree in Medicine and Surgery, two were doing Pharmacy, four were doing Physiotherapy, three were following a Bachelors' degree in Human Biology and two were doing Nursing. It was not possible to find representatives from Environment and Health Sciences because the programme had just been introduced and the few students that were taking it were all in the field doing their school projects at the time FGDs were being conducted.

4.3.2 Awareness of training by the students and if they had attended training in the library

Sixteen discussants said that they were not aware of training offered by the Library while six said that they were aware of the training though they had not attended any. The discussants further explained that most students were not aware of the training because the Library was not effectively publicizing training programmes to its users. To this effect, they suggested that there should be posters at the issue desk to advertise the available training programmes. When probed further, it was revealed that all the participants were willing to be trained as they regarded training to be an essential tool in helping them utilise Internet effectively.

The results further revealed that even though some discussants had indicated that the best way of attaining Internet skills was to be taught by a friend, in the end they all agreed that being trained by a professional such as a librarian was a much better way. They explained that even if a friend trainer uses simple language easily understood by a fellow friend and would do the training at any time of convenience, a professional was

much better because he/she knew the information resources students needed. Meanwhile some discussants felt that to be self-trained or to be trained by a friend would be ineffective because these had limited knowledge. In this regard, most discussants suggested that Internet training should be part of the curriculum to enable all students acquire Internet skills and should be conducted by professional librarians.

4.3.3 Awareness levels of the available EIRs

Out of the 22 discussants, five said that they were aware of the available electronic resources while 17 revealed that they were not aware of them.

When the discussants were asked to suggest ways they felt would best sensitise students of the available EIRs, the following were their suggestions:-

- Students should be informed about the available EIRs and Internet training at the time of admission to the University and through the use of fliers, brochures, posters, direct e-mails, class representatives and personal visits to their classes
- Librarians should inform and give guidance to students on the relevant websites/databases
- Lecturers should inform and encourage their students to use EIRs in their academic assignments.

4.3.4 Usage of EIRs by the students

Eight discussants revealed that they did not use EIRs while 14 disclosed that they used e-resources. Those that pointed out that they used EIRs had different patterns of using EIRs. For instance, some said that they accessed EIRs at least twice in a week, while others said that they only used Internet once in a while. The specific databases they cited to be using included e-medicine and the common search engines such as Google. They further revealed that they found Google useful in accessing information they needed. The respondents also indicated that they used Wikipedia. However, due to few

computers available for use in the University, some discussants revealed that they sometimes found it convenient to use their cell phones to access electronic information.

When the discussants were asked how useful they found these resources, those that had indicated that they used EIRS said that they found them very useful especially when used together with textbooks. Meanwhile, among those that had responded that they did not use EIRs, some explained that it was difficult to appreciate something one did not know of. In this respect, they recommended that lecturers needed to stress the importance of using EIRs to their students. Still others revealed that they found these resources not appropriate to their curriculum.

Further investigation during focus group discussions revealed that the main information sources students used in their academic and professional work were print materials such as textbooks and lecture notes, which were easily accessible. In terms of preference, the respondents indicated that they first preferred lecture notes because they were summarized, precise and provided information directly related to local scenarios. Lecture notes also helped them pass their examinations because some lecturers expected their students to reproduce exactly what they were taught. The second preferred information sources were textbooks because these were recommended to them by their lecturers. The other explanation was that textbooks were also simplified and readily available. The third preference was electronic information resources as they provided the students with additional information.

However, some discussants further revealed that if Internet were accessible at all times, preference would have been towards EIRs. This is due to the advantages associated with electronic information resources as compared to textbooks. They indicated that Internet information was best because it was usually current, user-friendly and comprehensive.

4.3.5 Factors that lead to underutilisation of EIRs

Discussants pointed out many factors they felt were contributing towards the low usage levels of electronic information materials. These were as follows: -

- Over-dependence on lecture notes
- Limited time
- Lack of Internet skills by students
- Lack of awareness of specific relevant websites available
- Long distance between hostels and the library
- Lack of encouragement from lecturers to the students to use EIRs
- Unfriendly librarians
- Poor Internet connectivity and fewer computers available for use
- Projects students were doing determined whether they needed Internet information or not

This last point mentioned above prompted for further test to find out if the programmes or year of study contributed to the use of EIRs by students. To establish how far this assumption is true, the two variables involved (Year of study and use of EIRs) were cross-tabulated. The results are presented in table 26.

Table 26: Year of study and if one uses EIRs cross-tabulated

		If one uses EIRs		
		Yes	No	Total
Year of study of respondent	2nd year	1 14.3%	6 85.7%	7 100.0%
	3rd year	13 36.1%	23 63.9%	36 100.0%
	4th year	14 41.2%	20 58.8%	34 100.0%
	5th year	4 20.0%	16 80.0%	20 100.0%
	6th year	13 68.4%	6 31.6%	19 100.0%
	7th year	3 75.0%	1 25.0%	4 100.0%
	Total	48 40.0%	72 60.0%	120 100.0%

The results in table 26 show that out of the total number of discussants from each year of study, a larger percentage of the 7th and 6th years used EIRs. The results showed that 75% of the 7th and 68% of the 6th respondents used EIRs. Meanwhile the rest of the years showed that they used EIRs less with results indicating below 50%.

4.3.6 How the usage of EIRs can be improved

Discussants recommended a number of factors which they thought would improve the usage of EIRs. These included increase in number of computers and Internet access areas; improved Internet connectivity; increased library opening hours to 24 hours on a daily basis; increasing publicity of EIRs and Internet training to students via direct e-mails, forums and workshops and during orientation programmes; and lecturers to encourage their students to use EIRs in their assignments.

4.4 Conclusion

This chapter gave a presentation of the findings of the research as analysed from both questionnaires and focus group discussions. To make sense of the various pieces of raw data collected, this chapter gives a complete picture of the situation in terms of factors that affect the usage of EIRs in the University. A number of factors were identified to be contributing towards the experienced problem of less usage of EIRs. Among them were lack of Internet skills by students, lack of encouragement from lecturers to students to use EIRs, poor Internet connectivity and infrastructure and poor guidance, lack of help from librarians to students on how to access EIRs. To this effect, the respondents recommended various factors they felt would improve the usage levels. Among others were increased Internet infrastructure, improved Internet connectivity, provision of cheap computers to students and improved publicity of EIRs.

Chapter 5: The Interpretation and discussion of research findings

5.1 Introduction

This chapter discusses the findings of the investigation based on factors that affect usage of electronic information resources by Medical Students at the University of Zambia. The issues discussed include students' awareness levels on the availability of EIRs, students' awareness of training services provided by UNZA Library, the effectiveness of the Library's communication tools for EIRs, Internet skills of students and the current usage levels of EIRs.

As was indicated in the literature review, EIRs are important resources and regarded so by many people, especially in institutions of high learning such as universities. This therefore justifies the need to establish the cause of less usage of EIRs as being experienced by the University of Zambia.

5.2 Students' awareness levels of the availability of EIRs and services

According to the findings of the study in sub-section 4.2.2 of chapter 4, the results showed that 77% of the respondents were aware of the availability of EIRs provided by the Library and other electronic databases while only 23% were not aware of these resources. This means that the majority of the respondents were aware of the availability of EIRs. These results are different from earlier research findings (Makondo, 2002; Njobvu, 2002), which revealed that less usage of EIRs by students then, was due to lack of awareness of the availability of EIRs provided by the Library. The improved awareness levels could be as a result of efforts by the Library in its sensitisation programmes. For example instead of sending fliers and brochures to heads of

departments who used to fail to distribute them to their subjects, these have been given directly to individuals. Posters have also been put in strategic points such as Internet access areas directly opposite computers students use. Other posters have been put at the entrance of the Library. This is meant for the students to easily see them. In addition, user Ids and passwords for specific databases that require passwords have been provided for and are easily accessible to students to use.

However, further investigations were carried out to find out if there was a relationship between awareness of the available electronic information resources and their usage using a chi-square test. The chi-square test proved that there was a relationship between awareness of available electronic resources and their usage. These results corresponded with the results on the extent to which lack of awareness of available electronic resources affected usage of EIRs, where 76% responded that lack of awareness of existing EIRs by the students affected usage of electronic resources to a certain extent.

Despite these results, further investigations after cross-tabulating the two variables showed that out of 92 (77%) respondents that had shown that they were aware of the availability of EIRs, 43 (47%) used EIRs while 49 (53%) did not. This is an indication that a high percentage of the students did not use the available electronic resources. Considering the large number of respondents (92 students representing 77%) that indicated that they were aware of the available EIRS in the Library out of which a relatively smaller number (43 students representing 47%) revealed that they also used electronic information resources, it becomes clear that even if most students were aware of the availability of EIRs, a few of them used these resources. This information therefore helps us to conclude that being aware of the availability of EIRs (as revealed under sections 4.2.2 of chapter 4) does not mean that the students are using them.

The findings of this study agree with Akakandelwa's findings which earlier revealed that even though respondents indicated a relatively high level of awareness, usage levels of EIRs was low. For example, he found that HINARI was being used by 12% only, while

36% had not used it and 52% were not aware of it and Medline was being used by 38% only while 32% had not used it and 30% were not aware of it (Akakandelwa, 2007).

In this study however, even though 77% of the respondents had revealed that they were aware of the available electronic resources, when they were asked to indicate the specific databases and publications they were aware of from the given list and others not included on the list, the results were discouraging. For example, out of 92 respondents, 40% were aware of Medline while 60% were not; 32% were aware of Cambridge University Press while 68% were not; 30% were aware of PubMed while 70% were not; 21% were aware of African Journals Online while 79% were not; 10% were aware of HINARI while 90% were not. Seven percent were aware of Blackwell Publications while 93% were not; five percent were aware of Biomed Central while 95% were not; four percent were aware of Bio line International while 96% were not; one percent was aware of Cochrane library while 99% were not; one percent was aware of Nature Publishing Group while 99% were not; and 20% were aware of other online databases while 80% did not know of any other databases.

Since these findings were contradicting, they made the researcher to wonder as to what electronic resources the respondents were referring to when they indicated that they were aware of the available EIRs. The popular databases/publishers such as HINARI, PubMed, Medline and Blackwell publication were not well known by the majority. This same information came out from the FGDs, where out of the 22 discussants, 17 revealed that they were not aware of the available electronic resources provided by the Library while only five responded that they were aware of the available EIRs.

The answer was revealed during focus group discussions where the discussants clearly indicated that they did not have specific databases they used. Instead, most of them used search engines such as Google, which would then lead them to other sources of information. This way, it did not matter whether they knew specific online databases or not because Google satisfied their information needs. Through Google, respondents revealed that they were able to access databases like eMedicine, Mayo Clinic, American

Journal of Medicine, Elsevier, WHO and CDC. From this list, if one is able to access Elsevier, then they will have access to lot of information they need. This is because Elsevier is one of the world's largest publishers of medical scientific literature. Elsevier can also be accessed through HINARI. The Library must however help students know how they can directly access HINARI resources instead of them depending on Google. Other databases/websites mentioned such as WHO, CDC and eMedicine are also reliable sources of medical information for the medical professionals. These findings therefore gave a satisfactory answer as to why students despite being aware of existing EIRs did not know much of the specific databases. Hence most students could have been aware of electronic resources but did not have to know of specific scholarly databases because Google located such databases for them. These results agree with Akakandelwa and Makondo's findings which showed that although most students were not aware of most specific databases, they were aware of search engines. For example, 78% indicated that they were aware of search engines while only 37% were aware of PubMed and 10% were aware of HINARI (Akakandelwa and Makondo, 2008). The findings further correspond with those of Dadzie (2005). The results revealed that even if general computer usage for information access from the Internet was very high, the use of scholarly databases and some search tools was quite low.

Further, the results in table 7 showed that the most popular way through which students got to know about the existing electronic information resources was through friends with 64 respondents. This was followed by the Library with 28 respondents, then lecturers with 24 respondents, posters/ brochures (17 respondents), UNZA/Library website (nine respondents), e-mail with three respondents and other means with eight respondents. This implies that friends are the most influential source in terms of spreading information to fellow students followed by the lecturers. Hence the Library should consider developing a strategy that will promote the use of students to inform their fellow students about the availability and use of EIRs. They should also promote electronic resources through lecturers as they are deemed to be pointers to information students need in their academic work. These two factors were brought out in both

questionnaires and FGDs where the participants suggested that the Library should use class representatives to sensitise other students about the available information resources. The Library should also use lecturers because they were seen as key pointers to students' required information. This way, the information would reach every student very fast. This would also make students realise the need to use electronic resources. If students get the information from their fellow students and their lecturers, they will consequently appreciate it and easily trust such information sources and hence accept to use them.

5.3 Usage of EIRs

The assessment of the current usage levels of EIRs was necessary in order to establish whether EIRs were still underutilised as has been revealed by earlier research or it has improved in the recent past. The findings covered issues of whether or not students used EIRs made available by the library and if they did how often; which specific databases/publications students used and how useful and important they found these information resources in both their academic and professional work.

The results as presented in section 4.2.4 of chapter 4 indicated that 40% of the respondents from the questionnaires used EIRs while 60% did not use them. This is an indication that electronic information resources are still underutilised by students in the University. The results hence confirm the findings of the earlier research which revealed low usage of EIRs by students and faculty at the same institution (Akakandelwa, 2000; Njobvu, 2002; Makondo, 20002; Akakandelwa, 2007). The results also agree with other researchers' findings that looked at usage levels in different institutions of higher learning in other countries. For instance, Romanov and Aarnio (2006) based their findings on the evaluation of the utilisation of EIRs by medical and dental students in Finland, which revealed that only one-third of medical students and one-tenth of dental students were regular users of full-text articles online. Manda's findings also showed limited levels of usage of PERI resources in the ten academic institutions studied in

Tanzania (Manda, 2005). Further, Alasa and Kalechukwu (1999) and Watts and Ibegbulam (2006) revealed low usage at the College of Medicine and university libraries in Nigeria.

The findings further suggested that amongst those that used EIRs, the majority (76%) rarely used them. They only used them when they felt the need to use them. This probably explains why the respondents showed less awareness of specific databases and publications because they did not see the need to know specific databases which they rarely used. Table 13 in chapter 4 for instance indicates that apart from Medline information sources with 67% of the students accessing it, the rest of the databases were generally poorly utilised by the students. Another explanation could be that, since Medline is one of the major information sources providing biomedical literature, probably the students that accessed it had access to more literature and were hence were satisfied. The results could also mean that the respondents did not really take note of specific databases or publications they visited because they mostly depended on Google to locate such information for them. This was revealed in the FGDs where out of 22 discussants, 14 disclosed that they used e-resources and that Google was their main information searching tool.

As a result of these findings, one would argue that the dependence on Google search engine by students to meet their information needs is not the best approach as this limits them to a certain number of databases and publications they can access. These findings agree with those of Ibrahim (2004), Majid and Tan (2002) and Crawford and Daye (2000), which showed that the low usage levels of EIRs was as a result of the respondents not being as enterprising as they ought to be, and hence limiting their searches to only a few search tools. As a result, Dadzie (2005) recommends that there should be an introduction of information competency course across the curriculum in order to enhance students' Internet searching skills. This would encourage and make students Internet enterprising (discovering more information on their own) to enable them locate any information they needed through the use of various searching methods.

This would also enable them to search by specific database names. Since this would help them to also have direct access to specific databases without using Google, they will be saving on time because they would be finding their information much more quickly.

One other reason for the less usage of EIRs could be attributed to the fact that students were using other information sources such as print materials and lecture notes. In confirming this, participants for both questionnaires and FGDs indicated that they used a combination of resources. These included lecture notes and print materials in form of handouts, newspapers, past papers and students' project reports. Other mentioned sources of information were professional help from colleagues, guidelines from the Ministry of Health, television health programmes, practicals and audio/ visual resources such as illustrative CDs. The respondents revealed that they firstly use lecture notes because these are precise and readily available. The above revelation shows that students had many other information sources they depended on; hence suggesting that EIRs would be used mainly to complement what was already there. However, the results would further be suggesting that heavy dependency on lecture notes could mean that students mainly read to pass their examinations. They could also be an indicative of the teaching methods at UNZA meaning that students are mainly taught to pass their examinations. It also means that lecturers do not require their students to use different citations apart from lecture notes.

Despite the above revelations, the argument would still be that EIRs should be as much important sources of information to students as those other information materials due to the advantages EIRs have as covered in the literature review. This supports the suggestion respondents put forward that the Library should improve its sensitisation programmes by stressing out the importance and advantages of using EIRs to students. In stressing this point, two discussants during FGDs said the following:

“It is difficult to appreciate something you do not know of. There is need therefore for the Library and lecturers to stress the importance of using EIRs to the students.”

“Librarians should set aside time to reach out to students i.e. organise a library week where they should explain issues about EIRs while lecturers should encourage students to use EIRs by stressing their importance to them.”

The suggestion is that if students are made to understand the importance of using these electronic information resources in their academics, they will do that without problems. This way, they will have known why they need to use them. All they need is education, encouragement and guidance on how to access these resources. This amplifies the role that lecturers play in the whole process of helping students to use EIRs.

However, despite the results indicating low usage levels of EIRs by students in the University, the results further revealed that respondents found these resources useful in their academic and professional work. The results from FGDs revealed that the discussants found EIRs very useful especially when used together with textbooks to compare advanced facts. Their answer was supported by their revelation that if Internet were accessible at all times, their preference for information sources would be EIRs and not print. They regarded EIRs to be the best because it was usually current, user-friendly and comprehensive.

Furthermore, the fact that some students revealed that they used their cell phones to access Internet materials when they could not secure a computer is an indication that they regarded EIRs important and useful in their academic and professional work. This was revealed from their responses such as the ones recorded below:

“I find it convenient to use my cell phone since it is time-consuming using computers in the Library because you have to queue up for the few computers available.”

“It depends on what one is looking for; otherwise you can get the information you need. I find them quite useful especially if used together with textbooks.”

These results confirm those of Njobvu (2002) where 67% indicated that they were paying for Internet services elsewhere even though they found it expensive as they could not access free Internet services from UNZA due to poor ICT infrastructure. The fact that the students were willing to pay to access electronic resources, shows how important students regarded and found EIRs to be useful to both their school and professional endeavours. Njobvu further argues that students revealed that EIRs are important because they would improve the quality of education in the University if they were made available and accessible to everyone. Njobvu further elaborates that students reported that EIRs would provide a variety of up-to-date materials that would help them in their research; make lectures more interactive and interesting and allow access to reviewed scholarly publications that only exist in electronic format (Njobvu, 2002).

5.4 Effectiveness of the communication tools used by the Library to market EIRs

In section 4.2.3 of the findings, the results showed the effectiveness of the different tools the Library has been using to sensitise students of the available EIRs. The tools included e-mail, the UNZA Library website, posters and brochures/fliers. The results showed that the respondents felt that each tool had a different degree of effectiveness in making known the available EIRs. For example, respondents revealed that email was ineffective; UNZA Library website was slightly effective; while posters and brochures/ fliers were effective. The reasons why Email and the Library website were not effective could be as a result of poor Internet connectivity and infrastructure in the University. Since it is difficult for students to access few computers with unreliable connectivity, it becomes difficult for them to know what information resources the Library is offering.

These results therefore, revealed that apart from posters and brochures/fliers, the communication tools UNZA Library uses are ineffective. This ultimately suggests that, among other factors, the use of ineffective communication tools by the Library contributes towards less usage of the provided electronic information resources. These

results agree with earlier research findings of Manda (2005) and Akakandelwa (2007). Among the reasons for low usage of electronic resources, Akakandelwa revealed that EIRs were not well known to many due to poor marketing strategies by the Library. This problem was made worse with bureaucratic barriers whereby brochures and leaflets sent to deans of schools and heads of departments were not circulated to everyone. Similarly, Manda revealed that there were limited levels of usage of PERI resources in the ten academic institutions that were studied in Tanzania due to problems in marketing the available electronic information resources.

Therefore, if usage is to be improved, the Library should seriously change or upgrade its ways of sensitizing students and use more effective and attractive approaches. This is the idea the participants to both questionnaires and FGDs had when they suggested that the library needed to increase and improve its sensitisation programmes on the availability of EIRs. The students further stressed the need for the Library to explain the importance and advantages of using EIRs. This would lead to improved usage levels of these resources by the students in the University. In revealing this information, some of their responses were as follows:

“The Library needs to stress the importance of EIRs through lecturers to their students.”

“The Library should increase its publicity/ sensitisation of EIRs via forums and workshops where students can have hands-on.”

In addition, the Library must consider adopting many other suggested tools the respondents felt would better sensitise students of the available EIRs. These include the use of student committees and class representatives in promoting EIRs; increased sensitisation programmes through workshops, class visits, hostel visits, during orientation, as students come to borrow books from the library and through direct emails. Direct e-mails would enable students to have open-interactive-learning through which they can share and get information about electronic information resources with

their fellow students, librarians and lecturers. An open and interactive learning would also enable lecturers to post lecture notes and recommend specific websites they would want their students to use. This way, students will be encouraged to use EIRs. Meanwhile students would also be able to send their assignments to their lecturers electronically and hence save on the cost of printing their assignments and end-of-term long papers.

5.5 Factors that lead to low usage of EIRs

This section covers the core findings of the study. The findings helped the researcher identify and understand the factors that contribute to less usage of EIRs by students in the University. These factors therefore should be of concern if the usage levels of these electronic resources are to be improved and to enable the intended users, who are students to benefit from them.

The factors that were examined included lack of help or guidance to students from librarians; lack of Internet skills; limited access to available computers; poor Internet connectivity which leads to long downloading requested information; difficulties in locating relevant data; less value placed on the importance of EIRs by the students on the quality of their academic work if used; lack of encouragement from lecturers for the students to use EIRs in their school work; and limited time to search the Internet. Each of these factors was rated according to the extent the respondents felt was negatively effecting or hindering the utilisation of electronic information resources provided by the Library. The results recorded indicated that each factor had its own degree of effect.

Taking the results as presented in sub-section 4.2.5 of chapter 4, lack of help/guidance from the librarian is one of the factors that affect the utilisation of EIRs. This factor was further mentioned by some respondents later on in the study as a contributing factor. Also during focus group discussions, two discussants said that sometimes it was difficult for them to approach librarians to assist them to access Internet resources because they were unfriendly and sometimes did not take their requests seriously. These findings

confirm those of Akakandelwa (2000) which revealed that among the reasons students could not exploit library resources was due to unfriendly attitude of librarians. The students commented that they rarely consulted librarians for assistance because librarians were too reserved and closed up.

This fact about the librarians not willing to help their clients comes out as a disturbing factor because librarians exist to serve and satisfy the information needs of their clients. If they can not serve their information users, then what else is the core value of their existence? This is the understanding that students had when they stated the following during Akakandelwa's research (2000, p. 99):

“Librarians should be taught that their job is to serve us willingly and not to act as though they bought the facilities with their own money. They are employees and not owners of the library.”

This behaviour of librarians can also lead to a conclusion that those librarians that are hostile towards their information users do not have the IT skills to help students to access information they request. In order not to show their incompetence, they tend to come out unhelpful towards their information users as a defensive mechanism. This therefore, confirms the findings of Watts and Ibegbulam (2006) who revealed that there was low usage of electronic healthcare information in developing countries due to poor ICT skills of librarians to adequately serve their clients.

The second factor investigated was lack of Internet skills by the students to access electronic resources. The results showed that lack of Internet skills hinder usage of EIRs to some extent. When these results are critically analysed, they meant that lack of Internet skills by students is a major problem students are experiencing in relation to the usage of electronic information resources. For example, the statistic test conducted using chi-square proved that there is a relationship between Internet skills and the usage of electronic information resources by the students. These results were further confirmed by the fact that even if 88% of the respondents in sub-section 4.2.6 indicated that they

had Internet skills; 78% still disclosed that they needed training for them to effectively use EIRs. The interpretation therefore, would be that since most students still required training to acquire or upgrade their skills, then their Internet skills were only basic and hence limited them from accessing certain information they needed. As such, they needed further training by a professional, which would equip them with relevant skills to help them explore and exploit the available EIRs.

This fact is further supported by the participants from both FGDs and the questionnaire when the students were asked to rate their Internet skills and to show the best way of attaining training. The students responded that their Internet skills were basic, only enough to help them get certain information they needed. They added that they wanted training conducted by a professional such as a librarian because such a person knows exactly what they needed to know. The results therefore advocate that students acknowledge the need and the importance of having Internet skills for them to adequately exploit EIRs. This fact was also brought out by Romanov and Aarnio (2006) who pointed out that "information-searching skills are correlated with the use of electronic resources". The implication is that adequate training in Internet information-searching skills by the students would lead to an increase in the use of EIRs.

The ability to find and retrieve information effectively is a transferable skill useful for future life as well as enabling the positive and successful use of the electronic resources whilst at the university. Brophy (1993) further argues that libraries must "reach a position where the acquisition of information skills is acknowledged by every student entering the university as one of the key learning objectives for success. This would ensure that no student leaves the university without being fully equipped to cope with the information intensive world or the information society as an end-user. Commenting on the same factor, Ray and Day reported that students suggested that information retrieval skills training should be embedded in the curriculum, undertaken at an appropriate time and be supported by the academic staff (Ray and Day, 1998).

Limited access to computers is another hindrance to the usage of EIRs, with 110 respondents representing 92% revealing that this factor affects utilisation of EIRs made available by the Library to a great extent. The evidence to this is seen from the way respondents to both the questionnaires and FGDs continuously talked about poor infrastructure. This included issues such as less number of usable computers and Internet access areas. They consistently suggested an increase in the number of computers in order to reduce congestion and to allow every student have an opportunity to access electronic resources. Examples of their responses on what factors they thought were leading to less usage of EIRS were recorded as follows:-

“Fewer/ insufficient computers/ shortages of computers leading to long queues of students that wish to access Internet.”

“Lack of personal computers owned by students since the library only has very few computers.”

Furthermore, their responses on what they felt would lead to improved usage of electronic information resources were as follows:-

“Increased accessibility i.e. increased number of computers and Internet access areas to reduce congestion and allow more students to surf the Internet.”

“Reduce mechanical problems with computers.”

“Provide cheaper computer sources or loans to students for them to own their own computers.”

The problem of fewer computers and Internet access areas is true and a genuine one in terms hindering the usage of EIRs. This is in consideration of the fact that the enrolment levels have kept on increasing in all schools without effective measures put in place in terms of other facilities such as information access points to cater for the increasing

population. There are few computers in small Internet access areas, among which some are non-functional. This problem is even made worse by another factor of poor Internet connectivity. This problem makes students that manage to secure computers spend a lot of time downloading information. The results to this are highlighted in table 16 where 66% representing 79 respondents revealed that this factor hinders usage of EIRs to a great extent. These results therefore suggest that in order to improve usage levels of the available electronic resources, the University should increase the number of computers available for use by the students. The Library should also improve its Internet connectivity. This takes the commitment and willingness of the institution to invest in Internet equipment and engage a reliable Internet service provider with the appropriate bandwidth. An increase in bandwidth would deal with the problem of spending a lot of time downloading electronic information on the Internet. This, in the process would avail students with more time to both do their school work and engage in other activities such as sports and paper presentations. Increased bandwidth therefore, apart from improving the speed of Internet connectivity, would lead to increased access to EIRs.

In support of this point, Dadzie (2005) argued that library resources whether print or electronic are expensive and for the latter in particular. Their continued and increased use depends to a large degree on the sustainability of the current technological, financial base, infrastructural development and the willingness of the intended users to make use of them to experience the benefits they offer. This means that the University of Zambia should be willing to support the Library financially in order to improve and sustain the Internet infrastructure. The students must also be willing to exploit and benefit academically from these valuable resources so that efforts made in acquiring them are not in vain.

The respondents from both questionnaires and FGDs indicated that one other way of improving usage levels of EIRs was to provide wireless Internet connections. Wireless connections should cover students' hostels in order to enable students with personal computers to access Internet during late hours and over week-ends when the physical

library is closed. This would enable students to access EIRs within the comfort of their rooms. Wireless connections would also help students avoid travelling long distances to the library whenever they needed to use the Internet, hence save time for other things. These factors would lead to the provision of reliable electronic information to students in the institution. At the same time it would ensure that electronic information is accessible all the time to students and that the information is retrieved within the shortest possible time.

This is the view Ani and Ahiauzu (2008) had when they explored levels of developing infrastructure for the purpose of accessing EIRs in university libraries in Nigeria. Their reasoning was that good Internet connectivity would provide a wider access to information in universities for teaching, learning, and research through the use of EIRs in libraries than the traditional print. To this effect Alasa and Kalechukwu recommended that major stakeholders needed to help fund libraries to enable them procure more computers. This would lead to increased access to current information to researchers, which in turn would promote national development.

However, after considering these findings and those covered in section 3.2.3 of the literature review, what has come out clearly is that the problem of limited access to computers and poor Internet connectivity are one of the major factors that lead to low usage of electronic resources faced by information providing institutions in most African countries. For instance, Alasa and Kalechukwu (1999), Manda (2005) and Watts and Ibegbulam (2006) identified challenges of using electronic resources among others as being slow Internet connectivity, limited access to computers and poor searching skills of students. Alasa and Kalechukwu further lamented the deplorable state of information network in Nigeria in 1999. They emphasized that it had serious consequences on the socio-economic development of the country. These factors were further identified by local studies done specifically on the University of Zambia by Akakandelwa (2000), Makondo (2002), Njobvu (2002) and Akakandelwa (2007).

Difficulty in finding relevant data from EIRs was another factor considered. As shown in table 17, the results indicated that it hinders utilisation of EIRs to a certain extent. On one hand, these results suggest that this problem is being faced by many students hence need serious attention. This is supported by the large number of respondents demanding professional Internet training so that they could access relevant Internet skills to effectively use EIRs. This information came out very clearly in FGDs where after brainstorming on the best way of being trained, all the discussants agreed that being trained by a professional was best.

On the other hand, the results would mean that some students do not have problems finding relevant information on the Internet. This is revealed in their explanation on why and how they rated their Internet skills the way they did. The respondents explained that their skills were good enough to help them retrieve information they needed from the Internet without difficulties. The same response came out of FGDs where some discussants clearly indicated that among the reasons why they did not need training on Internet skills, was because the skills they had attained were enough to get them the information they needed. This further suggests that as long as students were able to use Google to help them access specific online databases with information of relevance to them, skills were not much of a problem.

However, it is likely that the students that indicated that they did not need training were not aware of what they were missing out by not having gone through professional training. This is supported by the results from the research whereby out of the total number of respondents that had said that they had Internet skills, 78% still indicated that they were willing to be further trained if the library arranged for their training schedules. Meanwhile only 22% indicated that they were not willing to be trained. This therefore proves that to be trained by a professional would improve students' information searching skills. This would ultimately make their information searching exercises a lot easier and faster. It would also provide an advantage over others without professional searching skills, who might be limited with information retrieval skills. The other fact is

that the respondents might not have realised that they were spending more time trying to access certain information, which would have taken them a few seconds if they had acquired information retrieval skills from a professional. Sometimes students fail to access certain websites the Library has already subscribed to simply because they do not know user passwords or IDs. But if they were professionally trained, say by a librarian, they would know how to go directly to specific websites with the information they needed or would be provided with required user passwords and IDs where they are required.

In order to utilise the growing range of electronic resources, students must acquire and practice the skills necessary to exploit them. As Dutton (1990) suggests, the skills required to maximise the potential of electronic resources are much greater than those required for searching printed sources. These skills include knowledge of the structure of the database and the instructions which must be used by the searcher to achieve a successful search. The searcher also needs an understanding of the ways in which instructions are linked with one another. To this end, Brophy (1993) states that users do not often appreciate the skills required to search these sources because they feel they know it all, when in fact they do not. So it is very easy for one to think that they do not need professional training because they do not realise what they are missing.

Further, the results in table 18 show that less value placed on the importance of EIRs hinders usage of EIRs. This reveals that most students regarded EIRs to be important information resources in both their academic and professional work. This is supported by an overwhelming response from respondents from both questionnaires and focus group discussions who indicated that they found EIRs very useful. They revealed that they found EIRs valuable information resources because they were always up-to-date, user-friendly, relevant and comprehensive; EIRs provided a one-stop information bank. They further disclosed that if electronic information were readily accessible, preference would have been lecture notes followed by EIRs instead of lecture notes followed by

print materials. This is due to the advantages associated with e-resources as already covered above and in other sections such as 2.2 of chapter 2.

Their response supports the findings of Brophy (1993); Henderson (1997); Ray and Day (1998); Columbia University (2001); Tenopir (2003); Renwick (2004); Dadzie (2005) and Ani and Ahiauzu (2008). These argued that EIRs are important information resources because they have the ability to transform education. They provide a wider and organised access to high quality information especially in high learning institutions such as universities. This leads to the promotion of innovations in teaching, learning, and research. Their argument is based on the fact that since EIRs are comprehensive (extensive), they enable users to bring related ideas together in a more coherent and well thought out manner. EIRs are diverse, current and accessible by many users concurrently from anywhere, anytime, whether or not the physical library is open. This factor helps cater for distance learners or those with limited time to reach the library hence time serving. Renwick (2004) and Romanov and Aarnio (2006) further indicate that due to the emergency needs of medical professionals and requirement for solid grounding in the relevant scientific disciplines such as pharmacology and therapeutics, they need high-quality information such as can be got from EIRs. This then would lead to improved quality of care, enhanced use of evidence-based treatments, and updated knowledge. However, the importance of print-based information must not be dismissed and therefore it is essential for students to be aware that electronic resources and print-based resources complement each other.

Since the results show that UNZA students acknowledge the importance and need to use EIRs in both their academic and professional work, it is up to the Library to put in place effective measures that would ensure that the available EIRs are appreciated and fully utilised. The library should therefore take seriously suggestions put forward by the students. As a plea for the Library to take action so as to improve usage of EIRs, two respondents in the questionnaires indicated the following:

“Put a stop to cheap talk and act on the recommendations.”

“A serious and positive mind to development is what the library needs.”

Another factor considered was lack of encouragement from lecturers to their students to use EIRs. The results in table 19 show that this factor hinders usage of EIRs. Speaking from experience of a librarian in the institution, the researcher feels that this factor is a major problem. This argument is based on the consideration of the influence lecturers have on their students in terms of what information materials they should use in their assignments and what they should not. Since no student would want to risk failing, they easily believe and do what their lecturers ask them to do. In support of this the discussants during FGDs indicated that most of the time they are forced to confine themselves to lecture notes and none else because their lecturers demand so. If they use other information materials, they risk failing their class tests and examinations. This argument is also justified by Renwick (2004)’s findings that in teaching, usage was high because lecturers were recommending e-resources (73%) to their students. This forced students to use EIRs because their lecturers expected them to use e-resources in their presentations.

To justify his conclusion, Renwick (2004) further investigated usage levels of other Internet resources and MSL-specific e-resources. The findings revealed that other Internet resources were highly used as compared to MSL-specific e-resources. The explanation was that faculty mostly recommended other Internet resources to their students and not MSL-specific e-resources. This implies that as long as the students are made to understand that EIRs are convenient, relevant, and time saving to their natural workflow, they would be willing to readily adopt and use them (Tenopir, 2003).

The discussants in FGDs further revealed that they would be encouraged to use EIRs in their assignments if their lecturers told them to do so. They also indicated that their lecturers should specify websites students should use. This shows that lecturers are key people in changing the minds of their students. It also shows that students look up to their lecturers as role models as well as pointers to relevant information they need in their academics. As a result, the Library should deliberately target their marketing

programmes towards lecturers so that once they know they can easily direct their students to those specific relevant databases. The Library should also encourage lecturers to encourage their students to use EIRs in their assignments in order to improve their performance. To this effect, some discussant in the FGDs said this:-

“Lecturers should firstly use electronic resources themselves and then recommend them to their students.”

“Advertise through lecturers because they are the most influential people to students, so should first start using EIRs and then tell students to do so.”

The last factor considered was limited time in which students use the Internet. The results revealed that this factor negatively affected usage of EIRs to a great extent. This suggests that most students do not use EIRs due to limited time in which they have to do their school work. This was revealed in their response that it is difficult to look for extra information on the Internet besides what they are given in lectures and from textbooks because using EIRs forced them to queue for computers. The results also suggest that students would be using EIRs if accessing them did not demand much of their time such as waiting to chance the available computers. In stressing their point, discussants of the FGDs further indicated that limited time forced them to use the most easily accessible resources such as print materials. Limited time also made it impossible for them to read for the sake of broadening their knowledge as time was not enough. In addition, academic pressure could not avail them with time to spend on Internet searching. As a result, the students only read in order to clear and pass their examinations.

Apart from the above discussed factors, respondents further revealed other factors they felt contribute towards less usage of EIRs. The suggested factors included the following:-

Lack of computers owned by students; lack of interest to use EIRs and being ignorant of specific and resourceful websites by some students; little time allocated to use EIRs; distance between students' hostels and the library; fear of viruses from the available

computers; and that individuals browsing non-educational sites blocked those students that wanted to use Internet for educational purposes. Additional factors that came out of FGDs were that there was too much dependence on lecture notes e.g. handouts from lecturers. These made students lazy to try to use EIRs. The last factor was that projects students were doing determined whether they would use information from the Internet or not. To establish more information on this fact, further investigations were carried out to find out if there was a relationship between projects students were doing and their usage of EIRs. The results as presented in table 26 revealed that out of the total number of respondents from each year of study, a larger percentage of the 7th and 6th years used EIRs. For example, 75% of the 7th and 68% of the 6th year respondents indicated that they used EIRs. This suggests that the higher one goes in their studies, the more likely they will refer to EIRs. This is a result of projects students get involved in towards the end of their studies. Students in their last years of study are engaged in their final school projects. This explains why finalists are more likely to use EIRs.

The fact that respondents mentioned these factors on their own is an indication that their negative impact on the usage of the available EIRs is quite heavy and beyond doubt. As such, the Library should critically examine them and strategize on how best these problems can be dealt with.

5.6 Conclusion of the findings

The value gained from using EIRs in academic institutions of higher learning can not be overemphasised. Research has clearly indicated that higher learning institutions are challenged to provide access to electronic resources to their communities in order to promote high quality teaching, research and learning. It therefore becomes an irony to find that such valuable resources are not appreciated in some academic and research institutions like the University of Zambia. It was for this reason that this study was carried out to specifically identify the factors that lead to less usage of EIRs in the University.

From the study, various factors were identified. These include among others poor Internet infrastructure; lack of effective Internet skills by students; poor sensitisation programmes used by the Library to advertise the available EIRs and lack of encouragement and help from lecturers and librarians to students. The study also brought out a number factors respondents felt would lead to improved usage of EIRs. These included factors like increased number of computers, improved advertising programmes on the available EIRs and increased opening hours of the available Internet access areas. This therefore means that the Library has a duty to respond and act accordingly on each of these factors in order to improve the usage levels of EIRs by students.

5.7 Recommendations from the study

The results of this study were encouraging in that, as with previous studies undertaken, respondents highlighted many factors that lead to low usage of the available electronic information resources. The respondents further indicated solutions which they felt would lead to improved usage levels of the available EIRs in the University. However, it is also apparent that despite low usage levels, a large number of students from the sampled population were aware of the existence of EIRs available in the Library and Internet training programmes being offered. There is need therefore to encourage students to make effective use of the available electronic resources through effective sensitisation programmes and Internet skill training to those without skills.

The findings of the study further brought out a number of factors and approaches that both the respondents and the researcher felt would bring about improved usage levels of EIRs by students in the University. These were as follows:-

1. The University must improve its Internet infrastructure in terms of Internet access points such as computers and computer laboratories. There should be an increased number of computer laboratories to accommodate all students. The

number of computers should also be increased to reduce the congestion being experienced currently.

2. The University must improve its Internet connectivity in terms of bandwidth and provision of wireless connections to even cover students' hostels.
3. The Library should increase and improve its sensitisation programmes on the availability, importance and advantages of using EIRs to its information users. This will help students to realise the need for them to use the available EIRs.
4. Opening hours for the Medical Library and other Internet access areas should be increased so that these can be opening 24 hours daily. This would give chance to all the students to access the Internet and get the information they need since the one hour allocated to each student that manage to book is not enough.
5. The Library should continue and improve its Internet training programmes to students. These could be done through forums or workshops where students can have hands-on training. Meanwhile the rest of Internet training can be part of the curriculum where such a course becomes examinable to force students to seriously participate and learn the required skills.
6. Lecturers should encourage their students to use EIRs by firstly using EIRs in their teaching and then recommend them to their students to use them in their assignments
7. The Library should provide e-mail accounts to all students for communication purposes and user passwords/IDs where they may be required.
8. The University should provide students with loans to help them acquire laptops/computers for use in accessing EIRs.

9. The students should take keen interest in using EIRs in their academics in order to improve their work. Those without skills should not shy out but ask for help from reference librarians or arrange to attend Internet training.

In order to improve the usage levels of the available e-resources, the Library should ensure that these factors that emerged from this research are addressed. The University, as a mother body should also ensure that it provides the required assistance and finances to enable the Library maintain and increase its collection of EIRs.

7.8 Recommendation for further study

The researcher proposes that a study should be conducted to assess the impact of teaching methods that exist in the University on the usage of electronic information resources by students.

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Appendix 1: An introductory letter to the respondents to the questionnaires

The University of Zambia
School of Education
Library & Information Science Department
Box 32379
Lusaka

Dear respondent,

I am a postgraduate student doing a Master degree in Library and Information Science at the University of Zambia (UNZA). The main objective of this study is to investigate factors that affect utilisation of electronic information resources at UNZA in order to establish strategies that will ensure that students fully benefit from the use of these resources.

Please be assured that the information you give will be used solely for academic purposes and will be strictly kept confidential.

I will be grateful if you truthfully answer this questionnaire.

Eness M. Miyanda

Appendix 2: Questionnaire

TOPIC: Factors Affecting Utilisation of Electronic Information Resources and services by Medical Students at the University of Zambia

Instructions

Kindly answer all the questions in this questionnaire as objectively as possible. Show your answers by ticking (✓) in the brackets against your choice or by filling in the spaces provided.

After filling in the questionnaire, please return it to.....

NB: The term electronic information resources refers to Internet or online information resources, which include bibliographic databases, electronic reference books, search engines for full text collections, individual e-books and e-journals, etc.

Section A: General information

- 1) Sex?
a) Male ☐ b) Female ☐
- 2) Age?
- 3) Year of study?
- 4) Programme of study?
a) B. of Medicine & Surgery ☐ f) B. of Pharmacy ☐
b) B. of Human biology ☐ g) B. of Sc. Biomed. Sciences ☐
c) B. of Sc. in Physiotherapy ☐ h) Master of Medicine ☐
d) B. of Sc. Nursing ☐ i) Master of Public Health ☐
e) B. of Sc. Envi. & Health ☐ j) Master of Sc. Parasitology ☐

k) Other.....

Section B: Internet skills /training

5) Do you know how to access electronic information resources on the Internet?

a) Yes ☐ b) No ☐

If your answer above is no, please go straight to question 9

6) If your answer to question 5 is yes, where did you train for your Internet skills?

Please tick as many as apply

a) Medical Library	<input type="checkbox"/>	e) Trained myself	<input type="checkbox"/>
b) School laboratories	<input type="checkbox"/>	f) Through friends	<input type="checkbox"/>
c) Home	<input type="checkbox"/>	g) Other.....	
d) Internet cafe	<input type="checkbox"/>	

7) How effective did you find the training?

a) Very effective	<input type="checkbox"/>	d) Ineffective	<input type="checkbox"/>
b) Effective	<input type="checkbox"/>	e) Very ineffective	<input type="checkbox"/>
c) Slightly effective	<input type="checkbox"/>		

Please explain your answer to question 7

above.....
.....

8) How do you rate your Internet skills? Please tick against your choice.

a) Excellent	<input type="checkbox"/>	d) Fair	<input type="checkbox"/>
b) Very good	<input type="checkbox"/>	e) Poor	<input type="checkbox"/>
c) Good	<input type="checkbox"/>	f) Very poor	<input type="checkbox"/>

9) Medical Library is offering training programmes on Internet access, would you want to be trained to upgrade your or acquire Internet skills?

a) Yes ☐ b) No ☐

Section C: Electronic information resources' Awareness levels and Effectiveness of the communication tools

10) Are you aware of the availability of electronic information resources in the Medical Library and other free medical online databases?

- a) Yes ☐ b) No ☐

11) If yes to question 10, how did you know about these resources? Please tick as many as apply

- a) Through friends [] e) UNZA/Library website []
- b) Through lecturers [] f) Through the e-mail []
- c) Through the library [] g) Other.....
- d) Posters and brochures []

12) Which of the following publications and databases are you aware of? Please tick as many as apply.

- | | | | |
|--------------------------|--------------------------|-------------------------------|--------------------------|
| a) HINARI | <input type="checkbox"/> | g) African Journals Online | <input type="checkbox"/> |
| b) Med line | <input type="checkbox"/> | h) Blackwell Publications | <input type="checkbox"/> |
| c) PubMed | <input type="checkbox"/> | | |
| d) Biomed central | <input type="checkbox"/> | i) Emerald Group Publications | <input type="checkbox"/> |
| | <input type="checkbox"/> | j) Cambridge University Press | <input type="checkbox"/> |
| e) Bioline International | <input type="checkbox"/> | k) Nature Publishing Group | <input type="checkbox"/> |
| f) Cochrane Library | <input type="checkbox"/> | l) Other..... | |

13) How effective are the following UNZA Library's communication tools in making known to you the availability of electronic information resources?

- | | | | |
|-------------------------|-----|-------------------------|-----|
| a) E-mail | | | |
| i) Very effective | [] | iv) Ineffective | [] |
| ii) Effective | [] | v) Very ineffective | [] |
| iii) Slightly effective | [] | vi) Do not know | [] |
| b) UNZA/Library website | | | |
| i) Very effective | [] | iii) Slightly effective | [] |
| ii) Effective | [] | iv) Ineffective | [] |

v) Very ineffective	[]	vi) Do not know	[]
---------------------	-----	-----------------	-----

c) Posters

i) Very effective	[]	iv) Ineffective	[]
ii) Effective	[]	v) Very ineffective	[]
iii) Slightly effective	[]	vi) Do not know	[]

d) Brochures/fliers

i) Very effective	[]	iv) Ineffective	[]
ii) Effective	[]	v) Very ineffective	[]
iii) Slightly effective	[]	vi) Do not know	[]

14) What tools do you think would better sensitise students of the available electronic information resources? Tick as many as apply

a) Make recommendations through lecturers to encourage their students to use electronic information resources	[]
b) Put posters in lecture rooms and hostels	[]
c) Direct e-mails to students	[]
d) Distribute fliers directly to students	[]
e) UNZA/Library website	[]
f) Other, please specify.....	
.....	

Section D: Use of electronic information resources

15) Do you use electronic information resources such as e-books, e-journals and other scholarly articles provided by the Library and other free online databases for your academic work?

a) Yes	[]	b) No	[]
--------	-----	-------	-----

16) If your answer to question 15 is no, what are your reasons for not using these resources? Please tick as many as apply

a) Lack of time	[]	c) Find them not useful	[]
b) Limited infrastructure	[]	d) Better resources elsewhere	[]
		e) Other.....	

17) If your answer to question 15 is yes, which of the following publications and databases do you use for your academic related work? Please tick as many as apply.

- a) HINARI

☐
- b) Med line

☐
- c) PubMed

☐
- d) Biomed central

☐
- e) Bioline International

☐
- f) Cochrane Library

☐
- g) Annual Reviews

☐
- h) Blackwell Publications

☐
- i) Emerald Group Publications

☐
- j) Cambridge University Press

☐
- k) Nature Publishing Group

☐
- l) Other.....

☐

18) On average, how often do you use these resources?

- a) Every day

☐
- b) At least once a week

☐
- c) At least once a month

☐
- d) Rarely

☐
- e) As and when need arises

☐
- f) Never

☐

19) How useful do you find these electronic information resources to your academic work?

- a) Extremely useful

☐
- b) Quite useful

☐
- c) Useful

☐
- d) Slightly useful

☐
- e) Not useful

☐
- f) Extremely not useful

☐

20) What other information sources do you use for your academic and professional information needs? Please tick all that apply to you

- a) Print materials e.g. books

☐
- b) Lecture notes

☐
- c) Other, please specify.....

☐

21) Please rank the following information resources according to your preferred order of use. Tick in order of your preference of use

RESOURCES	RANKS		
	Most preferred	Preferred	Least preferred
Electronic resources e.g. e-books and e-journals			
Print materials e.g. books, journals & pamphlets			
Lecture notes as they are given by lecturers and handouts			

22) What would you like to be done to improve the usage of electronic information resources by students at UNZA?

.....

.....

Section E: Factors that hinder usage of electronic information resources

23) To what extent do you think the following factors negatively affect the utilisation of electronic information resources by students in the University? Please tick as many as apply

- | | | | |
|---|--------------------------|------------------|--------------------------|
| a) Lack of help/guidance from librarians | | | |
| i) Great extent | <input type="checkbox"/> | iii) less extent | <input type="checkbox"/> |
| ii) Some extent | <input type="checkbox"/> | iv) Not at all | <input type="checkbox"/> |
| b) Lack of Internet skills | | | |
| i) Great extent | <input type="checkbox"/> | iii) less extent | <input type="checkbox"/> |
| ii) Some extent | <input type="checkbox"/> | iv) Not at all | <input type="checkbox"/> |
| c) Limited access to computers | | | |
| i) Great extent | <input type="checkbox"/> | iii) less extent | <input type="checkbox"/> |
| ii) Some extent | <input type="checkbox"/> | iv) Not at all | <input type="checkbox"/> |
| d) Slow connectivity and more time spent downloading pages | | | |
| i) Great extent | <input type="checkbox"/> | iii) less extent | <input type="checkbox"/> |
| ii) Some extent | <input type="checkbox"/> | iv) Not at all | <input type="checkbox"/> |
| e) Lack of awareness of the existence of electronic information resources | | | |
| i) Great extent | <input type="checkbox"/> | iii) less extent | <input type="checkbox"/> |
| ii) Some extent | <input type="checkbox"/> | iv) Not at all | <input type="checkbox"/> |
| f) Difficult in finding relevant data | | | |
| i) Great extent | <input type="checkbox"/> | iii) Less extent | <input type="checkbox"/> |
| ii) Some extent | <input type="checkbox"/> | iv) Not at all | <input type="checkbox"/> |

- g) Less value placed on the importance of electronic information resources by students on the quality of their academic work
- | | | | |
|-----------------|-----|------------------|-----|
| i) Great extent | [] | iii) less extent | [] |
| ii) Some extent | [] | iv) Not at all | [] |
- h) Lack of encouragement from lecturers to students to use electronic information resources
- | | | | |
|-----------------|-----|------------------|-----|
| i) Great extent | [] | iii) less extent | [] |
| ii) Some extent | [] | iv) Not at all | [] |
- i) Limited time to search Internet
- | | | | |
|-----------------|-----|------------------|-----|
| i) Great extent | [] | iii) less extent | [] |
| ii) Some extent | [] | iv) Not at all | [] |

- 24) What other factors do you think affect the utilisation of electronic information resources in the University
-
-
-
- 25) What do you think should be done to eliminate the above mentioned factors in questions 23 and 24?
-
-

Thank you for your valuable responses and time spent to complete this questionnaire.

Appendix 3: An introductory letter to the FGDs discussants

The University of Zambia
School of Education
Library & Information Science Department
Box 32379
Lusaka

Dear respondent,

I am a postgraduate student doing a Master degree in Library and Information Science at the University of Zambia (UNZA). The main objective of this study is to investigate factors that lead to the underutilisation of electronic information resources at UNZA in order to establish strategies that will ensure that students fully benefit from the use of these resources.

Please be assured that the information you give will be used solely for academic purposes and will be strictly kept confidential.

I will be grateful if you truthfully answer the questionnaire.

Eness M. Miyanda

Appendix 4: Interview schedule

TOPIC: Factors Affecting Utilisation of Electronic Information Resources and Services by Medical Students at the University of Zambia

Instructions

NB: The term electronic resources refers to online information resources, which include bibliographic databases, electronic reference books, search engines for full text collections, individual e-books and e-journals, etc. These may be acquired by institutional libraries, as well as through library co-operations.

Section A: General information

- 1. How many females?..... How many males?.....
- 2. Year of study?
- 3. Programme of study?.....

Section B: Internet skills/training

- 4. Have you attended any internet skill training offered by the medical library?
- 5. How effective did you find the training?
- 6. Which is the best way of acquiring internet skills (Self training, by friends, internet cafes or library)? And why?

Section C: EIRs Awareness levels / Effectiveness of the communication tools

7. Are you aware of the availability of electronic information resources in the Medical Library and other free online medical databases? Why?
 - a. Which ones are you aware of? (i.e. HINARI, Medline, PubMed, Blackwell Publications, Cambridge University Press, Bio line International, Biomed central, Cochrane library, Annual reviews, etc)
8. What ways do you think would better sensitise students of the available e-resources?

Section D: Use of EIRs

9. What are the main information sources do you use in your academic and professional work?
10. Do you use electronic information resources such as e-books, e-journals and other scholarly articles provided by the Library and other free online databases for your academic purposes?
 - a. If yes to the above question, mention some of the e resources you use?
11. How useful do you find e-resources to your academic work?
12. How can the usage of electronic information resources by students at UNZA be improved?

Section F: Importance of EIRs

13. Order of preference (Lecture notes, print and electronic)?

Section G: Factors that hinder usage of EIRs

14. What factors do you think lead to the underutilisation of EIRs by students in the University?
15. How can these factors be eliminated?

Thank you so much for spending your valuable time to participate in this interview.