Information Literacy Skills of Management Sciences' Students

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The objective of this study was to determine the information literacy (IL) skills of Management Sciences students. A questionnaire was adopted to collect data from 254 currently enrolled graduate and undergraduate students of two universities, one public sector and one private sector, situated in Lahore, Pakistan. An equal-sized stratified random sampling technique through random numbers was used for this purpose. The results showed that the majority of the students used the university library infrequently to locate their requisite information. Most of the students required a moderate level of information and preferred to get this information in an *online* format. The opinion of most of the students showed that they were proficient in using internet services (e.g. Google, Yahoo etc.) and different websites to identify their required information. The findings revealed that most of the students were unanimous in their skills to precisely recognize and describe the information they required. This study highlights the importance of IL skills, in order that students can become lifelong learners in retrieving, using, organizing, and presenting their information. The findings of this study would provide some insightful guidelines to university management, policy makers, and those concerned to augment and increase the IL training sessions and programs in Pakistan at the university level. These findings could be implemented on other universities with the same teaching and learning system, strategies, and circumstances.

Keywords: Information Literacy; Skills; Library Use; University; Pakistan

INTRODUCTION

Along with the essential arithmetic and reading-writing skills, the individuals of today's IT-oriented society need more complex analytical skills to survive. The latest and technological tools of this information age have put a lot of unprecedented information sources at our fingertips. What kind of and how much

information sources we have; which ones are available; how to find the relevant information from these bundle of resources; and how to use these, has become a challenge for us nowadays. The educational institutions are recognizing and realizing this reality by reforming the learning process. They are doing so by changing the role of teaching from presenter to helper and facilitator of active and interactive learning. The library/media expert must play a role for effective use of information resources among co-workers in developing the curriculum (Ottonicar & Feres, 2014).

After the industrial revolution, information has become a major phenomenon and the people of the 21st century have various tools through which they can access the relevant information. Due to the abundance of ways to acquire the information and the availability of resources, Information Literacy (IL) skills are required and necessary in this era. Information is being produced on a large scale and is unfiltered which in turn creates issues of accuracy, legality and authenticity. The increasing quantity of information and its suspicious value also generate different challenges for its users (Bundy, 2004).

IL plays a vital role in the progress and learning of humans, organizations and even nations. The basic purpose of IL is to enable the individuals to use different strategies for lifelong learning. It has received considerable attention from researchers and academicians since 1974 when the term was first coined by Zurkowski (Doyle, 1994). As a consequence of the rapid technological change and immense proliferation of information resources, the importance of IL is growing day-by-day. Due to the fast growth and swiftly changed environment of ICTs, the individuals are facing diverse and abundant information choices. Hence, the individuals need more complex techniques to locate and find their relevant information. However, some studies have highlighted that the students are often deficient in information skills to take full advantage and learning benefits of rich information sources such as electronic databases, online catalogues, websites and multimedia offered by libraries (Chang, Foo, & Majid, 2014). IL skills are potential devices of empowering the individuals to study and reaching their goals by adopting a *resource-based* learning approach.

Since the last three decades, IL has become a rather new phenomenon spread across various fields. American Library Association Presidential Committee on Information Literacy (1989) asserts that:

Ultimately, information literate people are those who have learned how to learn. They know how to learn because they know how knowledge is organized, how to find information and how to use information in such a way that others can learn from them. They are people prepared for lifelong learning, because they can always find the information needed for any task or decision at hand. (Para. 2)

According to The SCONUL Working Group on Information Literacy, "information literate people knows very well how to use, gather, manage, synthesize and create information and data in an ethical manner and they also know how to demonstrate an awareness of the information skills to do so efficiently" as cited by Bent and Stubbings (2011, p. 3). Students involve on their own in active and self-directed learning activities retrieving and using their related information in an information literate environment. IL promotes and blooms a resource-based learning environment where students make concrete and efficient decisions about appropriate information sources. IL also decreases the information dependency of the students and enhances the ability to play with information with full empowerment and courage. Information resources are mostly consumed by information-literate students that employ different techniques to search the packaged material in a variety of ways, and in different information sets. They are more informed and better prepared to make decisions about the sources they use to find their relevant information from a huge collection of information available on the internet.

Research Objective

The aim of this study was to respond to the following research questions.
1. What is the purpose of management sciences students behind using a library?
2. What is the level of their needed information?
3. What are the catalog searching skills of these students in finding library materials?
4. What are their skills to identify, locate, organize, evaluate and effectively use and communicate information?

Statement of the Problem

Information literacy (IL) skills enable a student to identify, organize, communicate and evaluate their desired information from a bundle of information resources efficiently and effectively (Popoola & Haliso, 2009). It plays a key role in

increasing the ability of students' learning, growth and quality of work in this IT oriented and multi-disciplinary society (Chen, Koch, Chung, & Lee, 2007; Hancock, 1993; Manjunatha & Shivalingaiah, 2004;Rafique, 2014b). It also empowers the students to locate their needed information from a plenty of web-based information resources accurately. There were a lot of studies that determined the IL skills of university students; but a lack of studies could be seen on such studies that compare the IL skills of public and private management sciences' university students to improve their competencies for IL. Furthermore, there is lack of such a program/course in business schools that would educate their students about the use of library and its resources, the library Online Public Access Catalog (OPAC) and other online databases that may help them to attain their desired information they have frequently required in their assignments and research work (Alfino, Pajer, Pierce, & Jenks, 2008; Gross & Latham, 2012; Stagg & Lane, 2010). Therefore, it was important to conduct a study that determined the skills needed to improve IL of business schools' students to fill this gap.

Such types of studies would help to design and formulate the IL programs in universities. This study would play an imperative role in determining the level and the quality of IL skills of university students and reveal the current status of IL skills of these academic institutions. The findings of this study would provide guidelines to the policy makers and concerns to develop and improve IL programs at the university level in Pakistan. Yet, the findings could be transferable to other universities with similar teaching and learning system, policies, and circumstances.

In this study, the term information literacy (IL) skills refers to the competencies of university management sciences' students in finding, accessing and using information sources, systems and the tools available to them in their respective libraries.

LITERATURE REVIEW

Developing students' critical thinking skills has become an essential mission of higher education institutions, as employers look for those skills when hiring new employees. IL skills are the intellectual and critical thinking skills required for academic, professional, and personal development and success (Wertz et al., 2013). The International Federation of Library Associations and Institutions (IFLA)'s Guidelines on *Informational Literacy for Lifelong Learning*, asserts that IL skills are key competencies in lifelong learning. Becoming information literate is important for individuals to succeed both academically and professionally. In a review of

literature conducted by Kuh, Kinzie, Buckley, Bridges, and Kayek (2006), it was suggested that IL skills were one of the emerging indicators for student success. Majid et al. (2013) asserted that an information-literate person also needed to possess basic personal information management skills.

The concept of IL in Pakistan has somewhat gained considerable attention from the educationists, researchers and practitioners in Pakistan. In 2008, for the very first time the Library and Information Science (LIS) Department at the University of Punjab introduced IL instruction in their curriculum. Moreover, a six-credit optional course on IL in the LIS curriculum was included by the Higher Education Commission (HEC) of Pakistan in 2009 (Ullah & Ameen, 2014).Literature review indicated that the maximum number of studies on IL in Pakistan were conducted at the university level. Only a few studies were found at the school level (Batool & Mahmood, 2012; Batool & Webber, 2016); while only a single study was found at the college level, which was conducted a comprehensive study by presenting a summary of IL instruction in Pakistan focusing on three perspectives (Anwar, 2014; Ameen & Ullah, 2016). They emphasized on: the produced literature, continuing professional development (CPD) activities for information professionals, and IL instruction as a credit course at LIS schools. They revealed that IL was becoming an intersting area among resseachers and practioners. Studies are now being conducted on IL in Pakistan and   13 research papers have been published on IL from Pakistan.

Spector (1997) examined 3,527 articles on library instruction and IL published from 2001 to 2010, and concluded that most of the published articles on the topic were found from the USA. However, articles from Asia and Africa were gradually increasing. Now a sizeable amount of literature is being produced and published on various aspects of IL in Pakistan. Some key studies on IL are reviewed under the following paragraphs produced within the Pakistani perspective.

Naveed and Sharif (2016) assessed the needs and measured the impact of the IL sessions at the Aga Khan University's Institute for Educational Development, Pakistan. They found the weak areas of the students which included the concepts of call number, classification number, author mark, ways to access the library collection, use of OPAC, databases, and full-text articles which needed to be covered in the IL session. They also revealed that the majority of the students were familiar with searching through OPAC.

Ahmad (2014) determined IL skills of researchers and found that they had satisfactory IL skills. He found them to be familiar with the usage of information and

its ethics. The respondents were aware of avoiding plagiarism; and understand the legal and socio-economic issues of information and ICTs. The study also found that they had the ability to find, examine and present their information to others. They could evaluate the accuracy, reliability, authority and validity, of retrieved information. The researchers had knowledge about the basic IL skills to: identify the information resources; meet their emerging needs; and eloquently relay their information.

Fritzsche and Parrish (2005) say that education of the users of the libraries to use its resources and its services is not a new concept but it lacks systematic approaches. Paolillo and Brown (1978) concluded that the lack of support from education policymakers, low levels of IL education for information professionals, lack of IL-educated staff, and excessive emphasis on ICT infrastructures were the main barriers to IL in Asian developing countries like Pakistan. Kousar and Mahmood (2015) concluded that the faculty perceived M.Phil. and Ph.D. students as more information literate than master's students. Rafique (2014a) depicted that librarians and faculty members should conduct different sessions for their students to educate them for findings and using their relevant information. Furthermore, information literate students were able to judge the reliability of the information sources efficiently. Ullah and Ameen (2014) also explored that librarians were primarily responsible for offering IL instruction in medical institutions.

The literature review indicated that a growing number of studies have been conducted to determine the IL skills of students, researchers and faculty members in Pakistan. Besides this, different influencing factors on IL skills and IL instruction program were also observed in the existing literature. However, there is a dearth of literature that focuses on the IL skills of Management Science students, particularly within the Pakistani perspective.

METHODOLOGY

The objective of the study is to assess the skills required to improve IL of the graduate and undergraduate students of one public and one private university situated in Lahore, Pakistan. A survey research design was solicited to collect the required data using self-administered structured questionnaire. Out of 695, 254 currently enrolled graduate and undergraduate students of management sciences of both universities participated in this survey. To select the sample size (*see* Table 1), the equal sized stratified random sampling technique was opted. As Gay, Mills, and Airasian (2009) are of the view that stratified sampling can be used to select

equal-sized samples from subgroups if subgroup comparisons are desired. Therefore, this sampling technique was used. The sample size was calculated using Yamane's (1967) formula. Random selection of the participants was made using random numbers as tabulated in and suggested by Gay, Mills, and Airasian (2009). The questionnaires were distributed among 254 respondents and 177 (70%) were returned. Among 177 returned questionnaires, 4 were poorly filled that were rejected in data entry. The data of 173 (68.1%) questionnaires were entered in SPSS 22 and ensured twice by the researcher to check the typical errors in data entry. Cronbach's Alpha (CA) of the data collection instrument was also calculated to check the reliability; and the resulting value was 0.876, which was higher than the recommended (0.70) value. The details of the students and their responses were mentioned in table 1.

Table 1

Participating Institutions and their Responses

Sr. No.	Participating Institutes		Total No. of Students	No. of Participants	No. of Responses
1.	Public Sector University	Undergraduates	250	62	42
		Graduates	145	62	41
2.	Private Sector University	Undergraduates	200	65	46
		Graduates	100	65	44
Total			695	254	173

RESULTS

Profile of the Participants

The profile of the respondents is shown in the following chart:
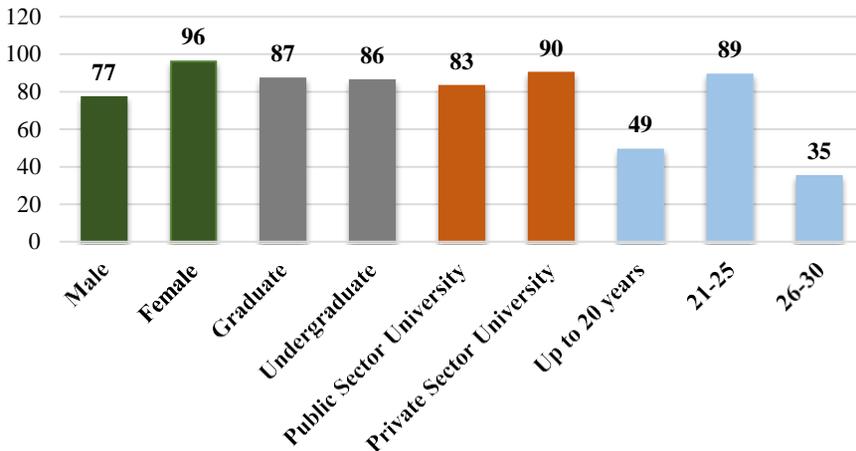

Figure 1. Demographic information of the respondents

The gender wise distribution of the respondents was in favor of female (55.5%) as compared to the male students (44.5%). The number of respondents according to graduate and undergraduate students and university wise were almost equal as shown in Figure 1. While the age-wise distribution of the respondents indicated that most of the students were somewhere in the age group of 21-25 years with 51.4%. This was due to the enrollment of fresh students in the departments.

Library Use

To determine the library usage of the students, the frequency of their library usage, the purpose behind using the library, the level of their required information and the format they like to get their needed information, were asked from the students.

Of the 173, 80 (46.2%) respondents replied that they seldom used the university library to locate their relevant information. Only 13 (7.5%) students very frequently used libraries to fulfill their information needs from the library resources. It was surprising that 32 (18.5%) students rarely visited the university library for their required information (Figure 2)
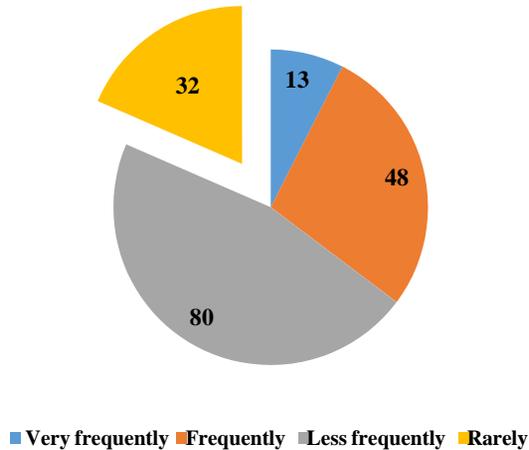
■ **Very frequently** ■ **Frequently** ■ **Less frequently** ■ **Rarely**

Figure 2. Frequency to use University Library

Purpose of using the library. The students were also asked about their purpose for using the library. Most of the students (149, 86.1%) replied that they used the library only for study purposes. Of the total respondents, 91 students used the library for recreational activities. While 142 (82.1%) did not use it for research purposes (Table 2).

Table 2

Purpose to use Library

Purpose	Study	Research	Recreational
Yes	149 (86.1%)	31 (17.9%)	91 (52.4%)
No	24 (13.9%)	142 (82.1%)	82 (47.4%)

Level of Needed Information. The students were also asked about their level of needed information. Most of them (79, 45.7%) responded that they had moderate level of required information, while 64 (37.0%) had basic level of their needed information (Table 3). It means that students mostly visited the university libraries for their adequate information need.

Level of needed information for study purpose. Mostly students (77) who visited the university library for their study purposes had moderate level of their required information. Only 26 students replied that they had advanced level of their needed information for using the library for study purposes.

Table 3

Level of needed information

Level of needed information	Frequency	Percent
Basic	64	37.0
Moderate	79	45.7
Advance	30	17.3
Total	173	100.0

Table 4

Level of Needed Information for Study Purpose

Purpose of library use		Level of your needed information			Total
		Basic	Moderate	Advance	
Study	Yes	46	77	26	149
	No	18	2	4	24
Total		64	79	30	173

Gender wise level of needed information of the respondents (Figure 3) was also calculated. The results showed that mostly female students (45) had moderate level of their needed information as compared to male students.
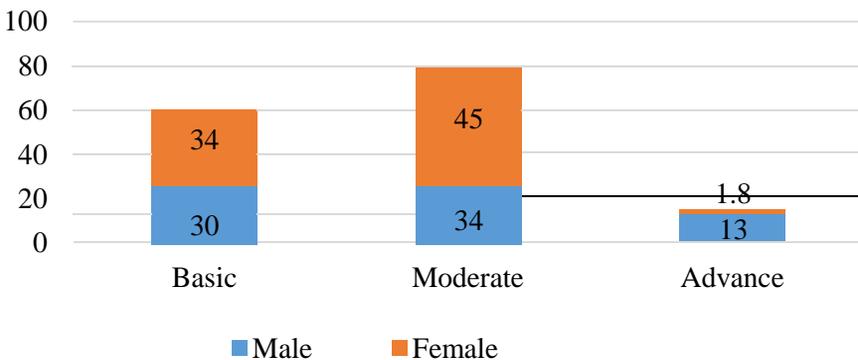

Figure 3. Gender Wise Level of Needed Information

Format to acquire the needed information. Mostly students (88, 50.9%) wanted to get their needed information in online format. But there was no major difference among the students of different institutions in getting the required information in print or online format.

Catalog Searching Skills

The students were also inquired about their skills in using library catalogs to find library materials by author, title, subject, or call number; tracing materials; using Boolean operators; search strategies; and accessing them. Almost 49.1 % respondents knew about the term OPAC (Online Public Access Catalog) out of which 23.7 % had learnt about it from the internet.

Mostly students were proficient in using search engines (e.g. Google, yahoo) (mean = 3.78; SD = 1.039) and different websites (mean = 3.75; SD = 1.079) to locate their required information. But using university OPAC (mean = 2.31; SD = 1.316) and the author entry or call number(s) at the OPAC (mean = 2.26; SD = 1.289) to locate their needed information, they had only basic skills. The management sciences students were good in applying the advanced search option to limit their search with a mean score of 2.79 (1.272).

Table 5

Catalog Searching Skills (N = 173)

Sr. No.	Statements	n	Mean	SD
i	I can use search engines (e.g. Google, yahoo) to locate required information	173	3.78	1.039
ii	I can locate different websites to fulfill my information need	173	3.75	1.079
iii	I can use different databases to find out necessary information/articles	169	3.03	1.207
iv	I can find what I am looking for at the university library	168	2.98	1.075
v	I can apply advance search option to limit my search	173	2.79	1.272
vi	I can use key word searching in university Online Public Access Catalog (OPAC) to locate a book	170	2.61	1.320
vii	I can use HEC digital library	172	2.46	1.382
viii	I can use author entry/call number in university Online Public Access Catalog (OPAC)	170	2.31	1.316
ix	I can use university Online Public Access Catalog (OPAC) to locate library resources	170	2.26	1.289

Scale: 1 = No skill, 2 = Basic, 3 = Good, 4 = Proficient, 5 = Expert; SD = Standard Deviation

To see the difference of genders' opinion and between the graduates and undergraduates' opinion regarding these statements, independent sample *t*-test was used with a criterion of 0.05. Unexpectedly significant differences were observed on the same statement '*locate different websites to fulfill my information need*' for both genders' opinion (*p* = .035), and graduates and undergrads' opinion

(*p* = .009). Female management sciences' students had a higher means score of 3.91 than males (3.51); while undergraduate students (3.97) had a stronger opinion than graduate students with a mean score of 3.54 (see Table 6).

Table 6

Catalog Searching Skills with t-test

Statements	Gender	Mean	SD	*t*- test Sig.(2-tailed)
I can locate different websites to fulfill my information need	Male	3.56	1.019	.035
	Female	3.91	1.106	
	Graduate	3.54	1.065	.009
	Undergraduate	3.97	1.057	

Scale: 1 = No skill, 2 = Basic, 3 = Good, 4 = Proficient, 5 = Expert; SD = Standard Deviation

Information Literacy Skills

The capabilities needed to improve the information literacy skills of the students i.e. identifying, locating, organizing, using, communicating and evaluating effectively the information were also investigated.

Of the thirteen statements, nine statements were found to have a mean score of more than > 3.50, which meant that most of the students were proficient to accurately identify and define the information needed (mean = 3.77); to fully understand found information (mean = 3.76); to determine whether the needed information exists or not (mean = 3.72); to preserve, store, reuse, record and archive information for future use (mean = 3.54) (see Table 7). The results showed that the management sciences students of these institutions had sufficient information literacy skills.

The results of the independent sample *t*-test (Table 8) showed that there were significant differences between the gender's opinions on seven out of thirteen statements. Highly significant differences of opinion were observed on the statements '*to organize, analyze, interpret and evaluate information* (*p*=.000)' with the dominance of female students' opinion (mean = 3.95); '*to go for help if needed to understand found information*' (*p*=.001) having a strong opinion of females (mean = 3.83); '*I am able to preserve, store, reuse, record and archive information for future use*' (*p*=.001) with the high mean score of male students (3.80) than females (3.33).

Table 7

Information Literacy Skills (N = 173)

Sr. No.	Statements	n	Mean	SD
i	I am able to accurately identify and define the information needed to meet the need, solve the problem, or make the decision.	173	3.77	.778
ii	I am able to fully understand found information.	173	3.76	1.005
iii	I am able to determine whether the needed information exists or not.	173	3.72	.817
iv	I am able to organize, analyze, interpret and evaluate information	173	3.70	.995
v	I am able to find the needed information.	173	3.69	.752
vi	I am able to realize that a need or problem exists that requires information.	173	3.66	.824
vii	I am able to go for help if needed to understand found information.	173	3.59	1.141
viii	I am able to create, or cause to be created, unavailable information that I need.	168	3.57	.970
ix	I am able to preserve, store, reuse, record and archive information for future use.	164	3.54	.909
x	I am able to utilize the information to solve a problem, make a decision or meet a need.	173	3.34	.911
xi	I am able to dispose of information no longer needed, and safeguard information that should be protected.	173	3.32	1.170
xii	I am able to critically evaluate reliability of information and its source.	173	3.29	.888
xiii	I am able to communicate and present the information to others in appropriate and usable formats and mediums.	173	3.14	1.124

Scale: 1 = No skill, 2 = Basic, 3 = Good, 4 = Proficient, 5 = Expert; SD = Standard Deviation

Table 8

Information Literacy Skills with t-test

Sr. No.	Statements	Male		Female		*t*- test
		Mean	SD	Mean	SD	Sig.(2-tailed)
i	I am able to realize that a need or problem exists that requires information.	3.57	.785	3.73	.852	.212
ii	I am able to accurately identify and define the information needed to meet the need, solve the problem, or make the decision.	3.64	.810	3.89	.738	.036
iii	I am able to determine whether the needed information exists or not.	3.68	.768	3.76	.855	.497
iv	I am able to find the needed information.	3.58	.801	3.77	.703	.110
v	I am able to create, or cause to be created, unavailable information that I need.	3.36	.972	3.75	.938	.010
vi	I am able to fully understand found information.	3.62	1.113	3.86	.902	.126
vii	I am able to go for help if needed to understand found information.	3.29	.958	3.83	1.220	.001
viii	I am able to organize, analyze, interpret and evaluate information	3.39	.975	3.95	.944	.000
ix	I am able to critically evaluate reliability of information and its source.	3.14	.854	3.41	.901	.052
x	I am able to communicate and present the information to others in appropriate and usable formats and mediums.	2.95	1.111	3.30	1.116	.039
xi	I am able to utilize the information to solve a problem, make a decision or meet a need.	3.19	.932	3.46	.882	.059
xii	I am able to preserve, store, reuse, record and archive information for future use.	3.80	.821	3.33	.925	.001

xiii	I am able to dispose of information no longer needed, and safeguard information that should be protected.	3.57	1.312	3.11	1.004	.013

Scale: 1 = No skill, 2 = Basic, 3 = Good, 4 = Proficient, 5 = Expert; SD = Standard Deviation

Correlation Matrix of IL Skills with Level of Needed Information

A correlation matrix using One-way ANOVA was determined to see the difference of respondents' opinion on the overall IL skills and the level of needed information. The result showed that there was a significant difference (F = 7.219, *p* = .001) between IL skills and level of needed information of respondents (Table 9). The findings revealed that those who had basic and moderate level of needed information required more IL skills. Similarly, those with a high level of needed information sought less IL skills in order to accomplish their tasks.

Table 9

Correlation Matrix of IL Skills with Level of Needed Information

	Basic		Moderate		Advance		F value	Sig.
	Mean	SD	Mean	SD	Mean	SD		
Mean of IL skills	3.32	.5817	3.63	.4411	3.76	.8963	7.219	.001

DISCUSSION

The study revealed that the majority of the Management Science students less frequently used the university libraries to accomplish their information needs. Those who visited the library were there either for study purposes or for recreational activities. Often they had a moderate level of information they needed to fulfill. These students wanted to get their necessary information in online as compared to print format. Due to the immense proliferation of ICTs, its ease of access, and inexpensive availability; the use of the internet among students is increasing day by day. Anderson (2001) found in his study that 83% students used the internet to get their required information and were going online for this purpose. Bashir, Mahmood and Shafique (2008) conducted a study on the use of internet of Punjab University students; also found that the maximum number of students used the internet for course related reading, and to accomplish their information and research needs.

The results of the present study showed that management sciences students were proficient in searching different search engines like Google, Yahoo, etc. to retrieve their relevant information. They also consulted various websites to

complete their information needs. The findings of Bhatti (2012) also led to the conclusion that search engines and websites were the most often used resources by the students. Chen et al. (2007) and Mahmood (2016) concluded in their studies that students perceived the Internet as the most effective method of obtaining information because it was easy to understand. Rafique, (2014b) also revealed that the students mostly used the internet sources for their required information.

The study also found that these students were not familiar with the OPAC and didn't use the author's name or call number while searching for their related information from the OPAC. They were also not good at using keywords to locate their required information while searching the information. Due to this reason, a question of deficiency arises about the searching skills among these students. Resultantly, such training sessions and orientation programs would be arranged in the university to inculcate the advance searching techniques, so that these students may become lifelong learners in using the resources of the library. Female management sciences students were mostly proficient in using the websites to locate their needed information as compared to male students. The findings showed that undergraduate students of management sciences were experts in ICT (Information and Communication Technologies) and used a lot of web related information resources to fulfill their information needs as compared to visiting the library. It may be due to their overconfidence about their skills on the matter, as Angell and Kose (2016, p. 1) asserted, "students were overconfident with regard to their knowledge of disciplinary subject matter and they tend to overestimate their abilities within a certain body of knowledge".

The students were also asked about their IL skills during the four stages categorized as: handling, accessing, disposing, and storing the information comprising multi items measures. The findings revealed that respondents were proficient in handling the retrieved information from a bundle of information resources. Horton (2008) also identified that it was the individuals who recognized the need of IL and, in turn, handled it in an appropriate manner. It could be beneficial especially for the students – one of the largest consumers of information from different ICT sources – to monitor their information according to different stages. The findings further showed that the respondents' had good skills in accessing their information. Such IL skills enhance the ability of the students to distinguish between true and false information; and to analyze its value in this technological era. Keeping in view the importance and value of IL, Ameen and Ullah (2016) suggested that IL skills were essential for lifelong learning of the students,

and thus it was needed to include IL instruction programs as a credit course in the curriculum at all LIS schools.

The findings showed that Management Sciences students were also good in disposing and storing their information. It was essential to manage and store the retrieved information for its better utilization; and the respondents were aware of its organization and storage. As Hoi and Teo (2017) opined that "…students are [a core] group of individuals with greater opportunity to develop into a lifelong learning given the ability to organize, store and evaluate the information (p. 168)". The results of correlation matrix revealed that management science students who had basic and moderate level of needed information required high level of IL skills to meet their tasks. On the other hand, those students who had high level of required information resort to less IL skills for the accomplishment of their information need.

CONCLUSION

The study concluded that Management Sciences students were to some extent skillful to identify their information needs. Their perception about organizing, analyzing, interpreting and evaluating information was also strong. They were also capable in using, restoring, recording and/or archiving the acquired information from a plenty of information sources. The overall opinion of female students about their perception on information literacy skills was higher than the males. Surprisingly, the undergraduate students were moderately skilled to locate various websites in fulfilling their information needs than the graduate students.

Delimitations and Future Research

Delimitations narrow the scope of a study by focusing on specific variables and/or narrowly tailoring to a specific research design (Creswell, 2011). The present study covered the currently enrolled Management Sciences students of two (one public and one private) universities of Lahore. Therefore, its results may not be generalized to all public and private universities of Pakistan, but may be applied to some institutions with the same teaching and learning system, strategies, and circumstances. Furthermore, this study used a self-reported survey to determine the needed IL skills and it was possible to include socially desirable responses. Due to the influence of social desirability, individuals tend not to report their true behaviors, beliefs, feelings, habits, and thoughts (Adams et al., 2005). When examining the IL skills of people in future, the researchers may add the influence of social and cultural desirability of the respondents. Future research may examine the

association between psychological traits and IL skills with the comparison among students of different subjects.

Recommendations

Training programs on information literacy for these students must be incorporated on regular basis so that they would able to identify the sources from which they could retrieve their related information. The learning of these students would be more meaningful and effective if some interactive learning sessions on information literacy will be employed in the classes. Rafique, (2014a) highlighted that faculty members should conduct some sessions on IL for their students. The higher management of the universities and the Higher Education Commission (HEC) of Pakistan should actively be involved in conducting such type of training sessions that will help improve the information literacy skills of students. The librarians of the institutions would also play a dynamic role in training of the students on information literacy; and they must conduct short sessions in the library on advance searching skills. Bhatti (2012) proved that students expected training from the library. The exercise based training would be conducted on the use of OPAC in the libraries to prepare the students for life-long learning.

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