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Assessing Undergraduate and Post Graduate Students' Information Literacy Skills: Scenario and Requirements in Pakistan

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Abstract

This study was conducted to assess information literacy (IL) skills of post graduate (PG) and undergraduate (UG) students, of one of the premier universities at the national level of Pakistan. It was also intended to explore the students' opinion about the need of information literacy program and related contents. Quantitative research approach was employed to conduct the study and survey method using structured questionnaire was used to collect the data from 400 respondents using convenient sampling technique. Results of the study revealed that majority of the respondents lacked information literacy skills. However, the major part of the respondents considered the information literacy program to be of value to meet their research and academic needs. Study also shares participants' recommendations regarding required contents for IL program. This is the study from Pakistan that has been conducted on one of the high ranked Pakistani universities' students to assess their IL skills and requirements in this aspect. This paper might help students, institutions and library professionals understand the existing scenario of students' IL skills which may play a vital role in planning to improve the students' IL skills and designing IL course.

Keywords: Information literacy, Information management, Information access, Retrieval of information, Students IL skills.

Introduction

Information Literacy (IL) is defined by Ranaweera (2008) as capabilities of individuals which play an integral role in enabling them in exploring, accessing, analyzing and using information (in a fair way) that actually meets their requirements. The American Library

Association (ALA, 1989) considered information literacy as “to be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information. Information literate people are those who have learned how to learn”. Bundy (2004), defined the information literate persons as “information literate people recognize a need for information, determine the extent of information needed, access information efficiently, critically evaluate information and its sources, classify, store, manipulate and redraft information collected or generated, incorporate selected information into their knowledge base, use information effectively to learn, create new knowledge, solve problems and make decisions”. Mahmood (2013) stated that information literacy (IL) provides the students with such vital skills which help them to become an enduring learner.

Role of IL is considered vital in shaping the research oriented graduates. It is also perceived among the necessary skills and interests of researchers. IL is also acknowledged as one of the premier elements to keep the students aligned with modern academic trends (Joseph et al. 2018; Schiffl 2020). In the current era, much has been written on IL especially in the developed countries (Flierl et al. 2018; Grant, Little, and Horn 2017; Gross and Latham 2009; Hemamalini 2020; Julien 2005; Mackey and Jacobson 2005; Smith et al. 2013; Sunaga 2019). In Pakistan also, few studies (Anwar and Naveed 2019; Batool and Webber 2016; Naveed and Sharif 2015; Rafiq, Ali, and Khan 2020) have been conducted to investigate IL related developments, needs and status in the curriculum and libraries. It is also a trendy area for researchers in developing countries (Mishra 2019; Zeeshan, Idrees, and Siddique 2020). However, there is a dearth of literature in terms of number on this topic in the context of Pakistan (Anwar and Naveed 2019). Therefore, keeping the dearth of literature on IL and importance of the area in view and the fact

that surveyed institution has been among the top-ranked Pakistani universities during recent years, this study was designed.

Participants of this study are enrolled in one of the premier educational institutions of Pakistan. Surveyed institution offers various educational programs in Engineering, Management & Social Sciences, Information Technology and Basic Sciences. It makes continuous efforts to enrich the students with the best possible skills in Pakistan's prevailing circumstances and environment.

The aim was to come with the empirical results based on primary data that could portray the current status so that practical implications along with measures of improvement would be put forward. It is worth mentioning that not only Pakistan but other developing countries are expected to benefit from this study.

Objectives of the Study

The study was conducted to serve the following objectives:

1. To assess the post graduate and undergraduate students' existing IL skills.
2. To know the students' opinion about the requirement of IL program.
3. To know the students' suggestions for IL course contents.

Research Questions

Following were the research questions:

1. What are the existing IL skills of post graduate and undergraduate students?
2. What is the students' opinion about the requirement of IL program?
3. What are the students' suggested contents for IL course?

Review of the Related Literature

Information literacy is an emerging area in library and information studies. Adalıer and Serin (2012) described that the phrase information literacy (IL) first appeared in 1974. Authors further stated that “Zurkowski (1974) used the phrase to describe the "techniques and skills" known by the information literate "for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems". Authors (Bruce and Candy 2000; Genoni and Partridge 2000; Kuhlthau 1993; Lupton 2008; Macauley 2001) considered that information literacy is “training’s process”. Fraier and Selleck (2009) mention the IL as “defining a need for information, determining the type and amount of information needed, and then accessing, critically evaluating, and using information in an ethical way”. Limberg, Sundin, and Talja (2013) reported that information literacy is usually defined as the capability of a person to find, make a selection, evaluate and use the information for solutions of the problems.

In the current era, there have been many difficulties regarding the identification, access, use, and evaluation of the information. Researchers, students and other readers face a lot of problems to ensure reliable and authentic use of information and information resources while accomplishing their tasks. Information literacy skills are considered important for students to resolve these problems (Schiffl 2020). Koch (2001) argued that the terminology “information literacy” is a decades old term and it is of importance that we should have a clear understanding of the phrase so that we can develop a society which can be termed as“information literate society”. However, Johnston and Webber (2003) stated that the IL is a new terminology and has strong connections with field related to library science. Probert (2009) concluded that there was a misunderstanding about the concept of information literacy among the students.

Students possessed poor IL skills (Holm et al. 2010; Ladbrook and Probert 2011; Mughan 2001; Probert 2009) and they need IL skills (Amusan 2020). Chu (2012) concluded that IL capabilities of the students need to be improved. Author concluded that female students possessed stronger IL skills than the male students at the primary level. However, researchers (Rafique 2014; Williams and Wavell 2006) concluded that respondents lacked IL skills. Authors also mentioned that the instructors accept the need for IL skills for their pupils, but teachers think the existing IL program curriculum existing contents are not enough. Mahmood (2016) found that people overestimated their actual information literacy skills.

Schiffl (2020) and Mittermeyer et al. (2003) concluded that information literacy plays a vital role in learning's development and improving education. Bruce (2004) highlighted that information literacy is the basis for learning in this technological era. Singh (2005) revealed that information literacy plays very important role in the development of the students' research skills. Fosnacht (2017) concluded that information literacy is significantly related with the students in assessing themselves. Fallon and Breen (2005) determined that information literacy is the key to success of students' learning in locating and organizing the material they need for their projects. Warschauer (2007) concluded that it had become very important to develop the information literacy skills among the students. Researchers (Batool and Mahmood 2012) argued that access of learning related applications and resources can help in strengthening the IL sills of students to let them information literate. Ranaweera (2008) mentioned that IL is equally important for students and teachers. The author argued that these IL skills help the people both in academic and general life. Ameen and Gorman (2009) claimed that IL is not only crucial for education but also for the social and economic development. Freeman and Lynd-Balta (2010) revealed that it was necessary for students to learn the IL skills so that they can collect the information and

disseminate it efficiently. Sasikala and Dhanraju (2011) depicted that information literacy (IL) skills were necessary for the students in the process of learning. Morrison (1997) concluded that respondents valued IL. Participants acknowledged that IL program should be part of the undergraduate level degree. Brown and Krumholz (2002) argued that the instructors and LIS professionals' role could be of great importance towards developing IL skills among students. Oakleaf (2009) depicted that assessing the students' IL skills is the popular area of interest of institutions in the current era. O'Connor, Radcliff, and Gedeon (2001) described intensive need to measure the students' IL skills.

Sturges and Gastinger (2010) maintained that there was a dire need of the IL program. Mahmood (2013) recommended that "instruction program should be designed for students at all levels in Pakistan". Somi and Jager (2005) concluded that library organizations offered the information literacy program and students were ascertaining the capabilities, but their skill needed to be improved. Meldrum and Tootell (2004) depicted that it is not effective to teach IL as a separate non-credit course. The students recommended the inclusion of information literacy course in the curriculum. Inskip (2017) concluded that students' information literacy skills needs should be catered during their studies. Kaur, Sohal, and Walia (2009) concluded that universities' teachers and administrative personnel encourage information literacy courses. It (information literacy) program is recommended for the curriculum. This (inclusion in the curriculum) could play a vital role to get students' maximum attention. Wang (2010) concludes that students, faculty, heads of departments of various institutions, coordinators and LIS professionals are the main personnel who should play their role in developing the curriculum for IL. Thanuskodi (2019) suggested a need for collaboration between faculty and LIS professionals for teaching IL.Manny and Ellis (2019) concluded that LIS professionals can play an important

role in conducting interactive sessions on IL through online tools. Tukarz and Bucy (2019) reported that LIS professionals are teaching IL throughout the world. Martin (2013) also recommended that IL should be the part of the curriculum. Smith (2016) stated that IL had found the central place in the curriculum.

Johnston and Webber (2003) concluded that poor education assessment methods, LIS professionals' lack of power to influence, curriculum and poor academic training created troubles in teachingIL-related contents fruitfully. Streatfield and Markles (2008) argued that IL could be successful only when all the stakeholders consider it as an inseparable part of the education. Authors (Varlejs and Stec 2014) considered less focus of students towards IL as one of the major problems for successful IL programs. Researchers also concluded that the faculty's weak IL concepts were also a problem.One of the most important problems was absence of the coordination and collaboration among LIS professionals and faculty. Investigators (Williams and Wavell 2006) found that teachers accepted that IL is essential for students. At the same time, teaching staff pointed out that it was effective to deliver IL program due to the reason that it was not part of the curriculum.

Above literature review facilitates in inferring that research on information literacy is being conducted around the globe. However, research on this topic is not rich in the context of developing countries, especially Pakistan. It is also crystal clear from the reviewed literature that students face problems regarding identification, access, management and assessment of their academic and research contents to meet their educational and research requirements. This scenario sheds light on the requirement of IL skills among students. In this connection, the role of teaching and professional working in libraries is, no doubt, of great importance. The results of the above literature review also highlight that research on students' information literacy and

required measures in Pakistan's context is very limited. This situation makes it of value to bridge this gap and asks for research in this area so that actual picture of this important aspect in the country can be visualized. As a result, this might help the institutions, students, faculty,and library professionals understand the students' IL skills and know the needed efforts in this connection.

Methodology

Researchers (Gay, Mills, and Airasian 2012; Muijs 2011) considered the quantitative research approach appropriate to know the present scenario of a situation. Therefore, the quantitative research approach was adopted to conduct this study. Connaway and Powel (2010) revealed "survey is a group of research methods commonly used to determine the present status of a given phenomenon" (p. 107). Likewise, researchers (Bryman 2012; Neuman 2005) mentioned that survey questionnaire is useful to collect data from human to know their perceptions and opinions. Therefore, the survey method was applied to collect data. A close-ended questionnaire, based on literature, was used to collect the data from post graduate (PG) and undergraduate (UG) students of premier institution of Pakistan. Researchers sought opinions from the field's experts to ensure the validity of the tool. Researchers consulted the feedback of the experts and incorporated suggested changes such as language corrections and rephrasing of the items to avoid lengthy statements. Research study (Acharya et al. 2013) mentioned that convenience sampling is mostly used sampling technique. It can be utilized in a case where a complete list of potential participants is not available. Also, the population of the study was more than 10,000. Therefore, using the Yamane (1967) formula, a sample of 400 PG and UG students (to ensure maximum responses) was selected using the convenience sampling technique as the list of the possible participants was not found. However, the author distributed hard copies of

questionnaires personally and ensured data collection from both genders (males and females), different program level students and different age groups to ensure maximum representation of each group. To have a good response rate, the researcher pursued the respondents through personal visits and messages. Hence, the response rate was 82% (n: 329). Statistical Package for Social Sciences (SPSS) version 22 was used to analyze the collected data.

Results

This section deals with the analysis and interpretation of the collected data.

Demographic Information

Participants were inquired about their level of the study program. Findings showed that the ratio of students enrolled in the undergraduate program was 53%. However, 47% students from Postgraduate level participated in this study. The same information has been shown in Table I.

Table I

Participants' Level of Study

Level	**F**	**P**
Undergraduate	174	53
Postgraduate	155	47

"F" denotes "frequency" and "P" denotes "percentage"

Respondents' Gender

Results furnished in Table II highlight that 222 were male respondents, and 107 were female participants.

Table II

Respondents' Gender

Genders	F	P
Males	222	67
Females	107	33

"F" denotes "frequency" and "P" denotes "percentage"

Respondents' Age

Results presented in Table III show that major part of study's respondents belonged to age groups "16-20" and "21-25". Results' details are shown in Table III.

Table III

Age Group of the Respondents

Group	F	P
16 to 20	116	35
21 to 25	158	48
26 to 30	50	15
31 to 35	4	1
36 and above	1	0

"F" denotes "frequency" and "P" denotes "percentage"

Students' Existing IL Skills

The results of the study show that there were only few statements (Table IV) about which reasonable number of respondents responded that they had skills level "to a great extent". However, the major part of the students knew very little about all other IL skills related statements mentioned in Table IV. Table IV shares the results of participants' responses in detail.

Table IV

Existing IL Skills of Participants

No.	Statements	To a Great Extent	Very Little	Somehow	Not at All
	I have skills to:				
1	Decide my information needs	127 (39%)	173 (53%)	19 (6%)	5 (2%)
2	Know reason of needed information	163 (50%)	135 (41%)	23 (7%)	5 (2%)
3	Identify the needed information	122 (37%)	155 (47%)	44 (13%)	3 (1%)
4	Determine the required information' platforms	112 (34%)	149 (45%)	56 (17%)	6 (2%)
5	Collect information through accessing relevant sources	101 (31%)	160 (49%)	54 (16%)	7 (2%)
6	Use various techniques such as Boolean to search information	54 (16%)	116 (35%)	105 (32%)	47 (14%)
7	Rephrase and improve the searching queries to search the exact contents	79 (24%)	141 (43%)	85 (26%)	16 (5%)

8	Make comparison of the required information sources	60 (18%)	187 (57%)	65 (20%)	9 (3%)
9	Identify the right information source to access the required information	95 (29%)	144 (44%)	69 (21%)	13 (4%)
10	Assess the collected information's authenticity c	70 (21%)	155 (47%)	80 (24%)	18 (6%)
11	Assess either gathered information is reliable or not	63 (19%)	172 (52%)	68 (21%)	16 (5%)
12	Determine that either information is important or not.	99 (30%)	157 (48%)	50 (15%)	13 (4%)
13	Determine the major theme of information gathered	98 (30%)	158 (48%)	55 (17%)	8 (2%)
14	Make comparison of knowledge (old and new) for understanding the difference and similarity between the two	89 (27%)	173 (53%)	53 (16%)	8 (2%)
15	make decision about right and wrong information	84 (26%)	167 (51%)	53 (16%)	4 (1%)
16	Manage the gathered information in a proper way through managing relevant technological tools (systems, monitors, printers, scanners, hard disks, USBs, academic and research softwares)	121 (37%)	136 (41%)	45 (14%)	5 (2%)

17	Maintain relevant major notes of researches' activity	88 (27%)	154 (47%)	58 (18%)	7 (2%)
18	Make accurate usage of information I collected for my needs related to education.	95 (29%)	162 (49%)	44 (13%)	7 (2%)
19	Transfer the results of collected information	81 (25%)	160 (49%)	58 (18%)	4 (1%)
20	Identify information and technological related challenges (ethics, society, economy),	100 (30%)	124 (38%)	64 (20%)	17 (5%)
21	Assess the organizations' rule & regulation for accessing and using the information contents	81 (25%)	125 (38%)	76 (23%)	24 (7%)
22	Use softwares such as Endnote, Bibtex etc. to manage my reference and researches' activities	66 (20%)	127 (39%)	64 (20%)	49 (15%)
23	Cite the reference of consulted sources	85 (26%)	134 (41%)	71 (22%)	14 (4%)
24	Understand unfair and fair usage of information (plagiarism's types)	106 (32%)	126 (38%)	54 (16%)	18 (6%)

25	Turnitin software used for plagiarism's checking.	80 (24%)	131 (40%)	58 (18%)	36 (11%)

Difference of Opinion Based on Programs of Study

Independent Samples T-Test was used to compare the opinions of the respondents of different programs i.e. undergraduate (UG) and postgraduate (PG). The difference of participants' responses was analyzed through mean scores. The results show that there were only a few statements about IL skill on which students differed significantly (significance: $\leq$.05). Results show that Mean of UG students (Mean = 1.6802) was greater than the PG respondents who responded "I have skills to know reason of needed information". Means of the statements; I have skills to rephrase and improve the searching queries to search the exact contents (Mean = 2.1905), I have skills to assess the organizations' rule & regulation for accessing and using the information contents (Mean = 2.2375), and I have skills to use softwares such as Endnote, Bibtex etc. to manage my reference and researches' activities (Mean = 2.4403), narrates that the favorable opinion of UG students is greater than that of the PG. One possible reason behind the better understanding of the UG students about IL is due to the fact that they were taught a course on IL by their organization. However, students showed a slight difference regarding the majority of the statements about IL skills. Table V shows the results of the participants' responses.

Table V
Results of T-Test Regarding Opinions of Different Program Students

		Mean		T	Sig.
Sr.	**Statement**	**UG**	**PG**		
	I have skills to:				
1	Decide my information needs	1.7647	1.6234	1.964	.209
2	Know reason of needed information	1.6802	1.5130	2.202	.031*
3	Identify the needed information	1.8596	1.6863	2.213	.135
4	Determine the required information' platforms	1.8935	1.8312	.736	.158
5	Collect information through accessing relevant sources	2.0294	1.7500	3.401	.423
6	Use various techniques such as Boolean to search information	2.5917	2.2941	2.879	.857
7	Rephrase and improve the searching queries to search the exact contents	2.1905	2.0392	1.624	.008**
8	Make comparison of the required information sources	2.1071	2.0327	.944	.096
9	Identify the right information source to access the required information	2.0119	1.9869	.272	.366
10	Assess the collected information's authenticity c	2.1598	2.1234	.399	.658
11	Assess either gathered information is reliable or not	2.1018	2.1316	-.343	.152
12	Determine that either information is important or not.	1.9458	1.9085	.420	.178
13	Determine the major theme of information gathered	1.9819	1.8431	1.638	.915
14	Make comparison of knowledge (old and new) for understanding the difference and similarity between the two	2.0178	1.8506	2.058	.370
15	make decision about right and wrong information	1.9321	1.9178	.178	.354

16	Manage the gathered information in a proper way through managing relevant technological tools (systems, monitors, printers, scanners, hard disks, USBs, academic and research softwares)	1.8323	1.7329	1.162	.797
17	Maintain relevant major notes of researches' activity	2.0373	1.8493	2.200	.916
18	Make accurate usage of information I collected for my needs related to education.	1.9689	1.7823	2.263	.516
19	Transfer the results of collected information	1.9873	1.9103	.937	.797
20	Identify information and technological related challenges (ethics, society, economy),	2.0943	1.8836	2.117	.387
21	Assess the organizations' rule & regulation for accessing and using the information contents	2.2375	2.0342	1.983	.001**
22	Use softwares such as Endnote, Bibtex etc. to manage my reference and researches' activities	2.4403	2.1769	2.354	.000**
23	Cite the reference of consulted sources	2.1572	1.9241	2.450	.381
24	Understand unfair and fair usage of information (plagiarism's types)	2.0380	1.8493	1.890	.839
25	Use Turnitin software used for plagiarism's checking.	2.3038	2.0136	2.696	.123

Note: 1= To a Great Extent, 2 = Very Little, 3 = Somehow, 4 = Not at All, * Significant at P <0.05, ** Significant at P < 0.01

Respondents' Opinion Regarding Requirement of IL Program

Respondents were asked to show their opinion regarding the necessity and mandatory option of IL program. Results showed that there were 89% of the students who considered that IL program was necessary. Likewise, results showed that majority (59%) of the students favored that it should be a mandatory program. Detailed results are presented in Table VI.

Table VI

Need of IL Program

	Yes	**No**
Necessity	293 (89%)	36 (11%)
Mandatory	236 (72%)	93 (28%)

Possible Content of Information Literacy Program

Information Literacy Program's Content

Three possible components of the contents, i.e., Library Resources, Subject and Research Related contents were included as variables. Opinions were sought on every individual and combinations of the mentioned components. Results showed that major portion (37%) of the students mentioned that contents inclusive of all three components, i.e., "Library Resources, Subject Related and Research Related Contents" are necessary for information literacy course. Details are presented in Table VII.

Table VII
Contents of Information Literacy Program

IL Content	F	P
Contents Relevant to Library Resources	26	8
Contents related to Subjects	31	9
Contents Relevant to Research	33	10
Library Resources and Contents relevant to Subjects	15	5
Library Resources and Research Related Contents	18	6
Subject and Research Related Contents	31	9
Library Resources, Subject and Research Related Contents	121	37

"F" denotes "frequency" and "P" denotes "percentage"

Discussion

Findings of the study highlighted that majority of the respondents lacked IL skills. Such results might be due to the reason that 155 PG students did not avail IL course. Therefore, missing IL course opportunity might have played role in bringing such results. However, past literature (Chu 2012; Ladbrook and Probert 2011; Ullah and Ameen 2019) has also found similar results: respondents possessed weak IL skills and need improvement in this connection. This is why perhaps researchers have highlighted and recommend the need for IL skills for students (Molepo 2018; Shaw 2017). Results revealed that students showed a slight difference regarding the majority of the statements about IL skills. These findings are also similar to the previous findings of the research (Conway 2011), which concluded that there was a slight difference between the different class level students about their IL skills. Findings also showed that understanding of the UG students about IL was better than PG students. It was perhaps due to the reason that UG students attended a program on IL. These findings are consistent with the

findings of previous studies (Korobili, Malliari, and Christodoulou 2009; Talikka, Soukka, and Eskelinen 2018; Perrin, Hossain, and Cummings 2008) which concluded that there was difference of IL skills between the students who received training course on IL and those who did not receive the same. It is also understandable that a trained individual can perform better than those without training. Therefore, training must be considered as a vital element for enhancing students' IL skills. These results also shed light on the need of course for PG students also so that they can have similar opportunities for developing their IL skills as their UG fellows utilized.

Data analysis also highlighted that majority of the students agreed that IL course should be necessary and mandatory. These findings are matching with the results of previous studies (Dubiki 2013; Ali, Abu- Hassan, and&Daud 2009; Ali et al. 2010; David 2009; Rousi et al. 2012; Schiffl 2020; Talikka, Soukka, and Eskelinen 2018; Kousar and Mahmood 2015) which concluded that IL skills are important for students and need of the hour as well as necessary to be included as a course in the academic programs. Another research (Anwar and Naveed 2019) found that educational organization did not impart IL in their curriculum and therefore, recommended that Higher Education Commission should make efforts to develop an IL program for all educational institutions. The possible reason behind such strong recommendations is perhaps due to the fact that developed IL plays a vital role in keeping students aligned with the modern academic trends (Joseph et al. 2018) which contributes towards students' success. Therefore, considering students' opinion and researchers' recommendations, it can be said that the implementation of IL course in the educational institutions mighthelp students harvest its benefits and perform better in their academic and research assignments. This, better performance

of the students, might play a vital role in earning good reputation and success for themselves and their institutions.

Results of this study showed that the major part of the study's respondents recommended that contents related to their subjects, library and research should be part of the IL course. Past research (Kim 2006; Macklin 2001) also found similar results that library, research and students' subjects-related contents could be part of IL program. Furthermore, research (Johnston and Webber 2003; Somi and Jager 2005) also highlighted that IL is strongly related to library science and libraries offer IL program to improve students' skills. Another research (Johnston and Webber 2003) also argued that IL and library are connected with each other. Research (Inskip 2017; Meldrum and Tootell 2004) found that IL skills of students should be developed during their course and students also recommend the IL program as part of their curriculum. Likewise, research study (Wang 2010) highlighted that faculty, library and students should be considered main stake holders for a useful IL program. Therefore, this is a good sign for academic institutions that students are clear and understand their needs and, therefore, are concerned and required their related contents for IL for their learning. These findings are also understandable and appealing as recommendations related to IL course contents include all aspects (library, research, subjects) related to students which play a key role in students' learning and success.

Implications of the Study

These results of this study have potential to help educational institutions understand the current scenario of students' IL skills, need of IL course and needed contents for it. This understanding, scenario of students' IL skills, need and possible contents of IL course, can further facilitate academic organizations devise a useful IL course which, in return, might help them meet their students' modern needs regarding their education and research, Findings may

also be useful for library professionals and students in knowing the existing IL skills of students, their requirements in this modern era and playing their role in this connection. This understanding of all stakeholders (educational institutions, library professionals, students) can play a vital role in students' enhanced skills which, as a result, might help them to be successful in their education and career and earn good repute for their institutions which is one of the ultimate goals of every educational institution of current era.

Limitations of the Study

This study is conducted using convenience sampling method which limits the results' Generalizability, which is considered as a limitation of this study. Another limitation of this study might be that researchers did not check the reliability of the data collection tool.

Conclusions and Future Research Directions

Analysis of the respondents' responses shows that majority of the participants were not well conversant with information literacy (IL) skills which resulted as a barrier in their learning. This situation demands the attention of relevant authorities to look into the situation and take necessary measures such as arrangements of IL orientation and training course for students. Therefore, educational institutions and library professionals need to pay special attention to this aspect of students' need so that they can be equipped with necessary IL skills. It can also be inferred on the bases of findings that undergraduate and postgraduate students did not differ significantly about the majority of the statements about their IL skills. However, it is also important to note that students (UG) who were well equipped with the IL skills, i.e. access, filtration, analysis, use, management and dissemination of information knew more than those (PG) who were not familiar with the concept. This scenario sheds light on the importance of IL skills for students that pupils with better IL skills can learn more than their fellows with less such

skills. Therefore, educational institutions need to invest in this area to meet their students' educational and learning needs.

It can also be concluded that major portion of the participants opined in favor of IL program's need for their modern academic and research requirements which shows that students understand the positive role of IL in their studies. This is a good hint for educational institutions that students take an interest in learning IL skills. Therefore, it is suggested that there is a dire need to start the IL programs for the students to meet their academic requisites.

Results also facilitate in inferring that students need information literacy skills in the areas such as Library Resources, Subject Related and Research Related Contents. Therefore, these areas should be in focus while designing the IL course for students. Inclusion of such contents may increase interest of students in the course and, therefore, might prove as a defining factor towards success of course as well as students.

Research on IL is limited in terms of numbers, especially on the population enrolled in the educational institutions located in Sindh and Balochistan Provinces of Pakistan. Therefore, future research is recommended to further explore this area by selecting sample from educational institutions, located in Sindh and Balochistan related territories of Pakistan.

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