2021

How Do Faculty Members Rate Students' Information Literacy Skills and Where Do Students Rank Themselves? A Pakistani Perspective

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Abstract

The study is intended to explore the opinion of the teaching faculty about students' skills related to Information Literacy (IL). The other purpose was to seek the opinion of the faculty regarding the value of IL capabilities for their students and needs in this connections. Identification of the difference among various programs' students' IL skills was also among the objectives of this study. Data from students was collected using a questionnaire and an interview guide was utilized to conduct the interviews of the faculty for data collection purposes. Statistical Package for Social Sciences and Excel sheet were employed for analysis of the collected data. Findings confirmed that faculty considered IL skills important and much needed for their students. Results also proved that students differed significantly while responding to the statements "rephrase and improve the searching" and "know the reason of needed information" devised to measure their IL skills. This is the first study in terms of its nature which is conducted by collecting the data from both stakeholders: faculty and students. The study has multiple implications for the institutions, library professionals, faculty, researchers as well as students. It also shares recommendations and future research directions for researchers.

Introduction

Researchers are paying much heed to information literacy (IL) in modern times. Currently, a lot of research has been conducted on IL. However, it is still very popular from the point of view of researchers to get the research-oriented graduates well equipped with information literacy skills. Moreover, IL is a much needed element for students to get them abreast with latest research trends. Information literacy (IL) is "to be information literate, a person must be able to recognize when

information is needed and can locate, evaluate, and use effectively the needed information. Information literate people are those who have learned how to learn" (American Library Association, 2000). An information literate person is one who recognizes an information need, determines the extent of required information, retrieves contents efficiently, evaluates documents and relevant locations, arranges, saves, manipulates and rewrites writings collected or generated, incorporates essential information into the repository, makes effective usage of information for learning and creation of new knowledge, creates solutions of the problem and shares decisions (Bundy, 2004). Information literacy (IL) equip the students with necessary skills that facilitate them in becoming lifelong learners (Mahmood, 2013).

In this era, skills related to IL, doubtlessly, are taken as of great value to abreast the requirements of academics and researchers. This expertise is essential for students to find in line with the updated research and knowledge. Worldwide, a plethora of research studies are focusing on the area of IL skills (Aharony & Gazit, 2020; Banik & Kumar, 2019; Lanning & Mallek, 2017; Lofthus & Silseth, 2019; Zhu., Yang, Wu, & Chen, 2021). In contrast, the investigation focusing on IL skills is not rich in Pakistan and, hence, a lot is needed to be explored in this area in the context of the country. There are only a few studies in the aforesaid area (Mahmood, 2017; Safdar & Idrees, 2020; 2021; Ullah & Ameen, 2019; Zeeshan, Siddique, & Idrees, 2020, 2021). However, there is a dearth of local literature on the perception of the faculty about students' IL skills, the importance of IL, problems as well as solutions in this scenario. There is also a limited number of studies on program-based differences of IL skills among students. Therefore, this study is an attempt to fill this gap.

Surveyed institutions are investing a lot of their resources to help their students gain the best education. These conduct training, workshops, seminars, and other related techniques to keep the students updated and aligned with their related fields of knowledge. However, this is being exercised without making any assessment of the students and faculty opinions related to the current

IL skills of the pupils. Therefore, researchers considered this aspect as a highly important issue and thus had decided to investigate the current IL skills of students and accordingly the need for an IL course . The researchers conducted this study for assessing the students' current IL related skills as viewed by the faculty as well as made an effort to find out grey areas which were needed assessment for further improvement in this connection. It is also an attempt to explore the opinions of faculty regarding needs as well as the value of IL courses. This study is also planned to identify the difference between different (enrolled in various programs) students' IL skills   .

Study's Objectives

The researchers conducted this study with the following objectives in mind:

1. To explore the perceptions of faculty about IL skills of students.

2. To explore the perceptions of faculty regarding the need and importance for IL programs.

3. To seek the recommendations of faculty about possible contents for the IL program.

4. To investigate the difference between different disciplines' students' IL skills.

5. To recommend possible content for course related to IL.

Literature Review

Authors (Adalıer & Serin, 2012) revealed that "Zurkowski used the phrase to describe the technique and skills which information literates recognize for utilizing the wide range of information tools as well as primary sources in molding information solutions to their problems".

There should be a chance for everyone to cater to the advantages of the information society by having information literacy-related skills (Kaur, Sohal, & Walia, 2009). There is a revolution of information on various communication channels and the authenticity of information is in question. Information literacy skills help the students not only in their education but also in other circles of life i.e. occupation, other daily basis interactions, etc. (Ranaweera, 2008). Students' needs regarding IL should be met during their studies (Inskip, 2017). There is an information

revolution. So, it is very pertinent that everyone should have skills to identify, manage, and assess the information for their academic as well as individual needs (Batool and Mahmood, 2012).

In the past, it was concluded that students who participated in the study accepted the importance of information literacy (IL) skills (Franklin, 2005). Similarly, a plethora of researchers have also found that pupils considered the Information Literacy (IL) related skill important for their academic needs (Morrison, 1997; Safdar & Idrees, 2020). Researchers also argued that there is a dire teaching need ~~of~~ for Information Literacy (IL) in this era (Somi & Jager, 2005). It has also been maintained that Information Literacy (IL) has a crystal clear role in learning as well as in the advancement of education (Mittermeyer et al., 2003). The researcher sheds light on the aspect that role of IL is pivotal in helping the students for better learning (Mahmood, 2013). Furthermore, it has also been concluded that respondents of the study overestimated their IL skills (Mahmood, 2016).

Around the globe, plenty of authors (Ali, Abu-Hassan & Daud, 2009; Ali, Abu-Hassan, Daud, & Jusoff, 2010; Davids, 2009; Dubicki, 2013; Kausar & Mahmood, 2015; Rousi, Palmgren, & Heino, 2012; Smith, 2016; Talikka., Soukka, & Eskelinen, 2018) researched on IL and also found that IL is vital and should be part of the academic courses. Another research study (Warschauer, 2007) also found that IL skills are much important for students to meet their their educational and professional needs. Similarly, researchers (Bapte, 2019; Safdar & Idrees, 2020; Warschauer, 2007; Zeeshan, Siddique, & Idrees, 2020) also highlighted the importance of IL skills for students of this digital age. Therefore, the importance of IL skills should not be underestimated while planning courses for the students. Information Literacy (IL) skills can help in meeting the challenges of limited time as well as less access to informative resources (Williams & Coles, 2007). In this contemporary era, IL is the base for learning that prepares students to meet the challenges of frequent technology changes (Bruce, 2004). There was a lack of IL skills among the students (Rafique, 2014). Lack of students' interest in IL contents was a problem in the success of

the IL program (Varlejs and Stec, 2014). Authors (Korobili, Malliari, & Christodoulou, 2009; Perrin, Hossain, & Cumming, 2008; Talikka et al., 2018) found different IL skills between the two groups: a group having IL related training opportunity and a group without having such option. Likewise, a research study (Aharony & Gazit, 2019) found that older students possessed better IL skills as compared with their younger fellows. This scenario helps in inferring that IL skills enhance over time and it might be due to the reason that individuals learn through their experiences and older individuals possess more experience than younger individual ones.

The above review of the literature made it clear that students had previously lacked IL skills and it is the area that demands the attention of relevant stakeholders. A review of the literature also spotlights the value of such skills for the students to meet their academic and professional needs. In this connection, the literature review recommends the need for training sessions through seminars and workshops for students. Likewise, the previous section related to the literature review also highlights that individuals of different characteristics possess different abilities related to IL. An inference can also be drawn on the basis of the literature review that there is rich research in the area of IL worldwide. However, there is a dearth of literature on IL in Pakistan.

Research Methodology

Quantitative and qualitative research designs are utilized to conduct this study Within the quantitative approach, a survey is recommended in a situation where the researcher needs to know the state of something (Connaway & Powel, 2010; Gay, Mills, & Airasian, 2009). Therefore, researchers employed the survey method to collect the data from students for the study. Using Yamani (1967) formula and with a purpose to receive rich responses, total 400 questionnaires were distributed to students enrolled at well-renowned institutes of the country. Data was collected from students admitted in disciplines related to civil engineering (CE) and other pure sciences using equal-sized stratified convenience sampling technique to investigate the difference between these

two groups regarding their IL skills. Usable responses were 310. Furthermore, researchers also conducted 20 in-depth interviews of the faculty members. The purpose of investigating the students' IL skills through the lens of faculty was to seek a clear image of students' existing IL skills. One of the researchers requested each faculty member to spare time for the interview and sought their consent for a recording of the interviewees' responses.   The researcher ensured convenience of the faculty members for conducting interviews for the purpose of successful and smooth interviews. In this connection, one of the researchers visited each faculty member for an interview, after confirming the member's availability. Interviews were recorded using an Android cell phone and were later transcribed. Excel sheets and SPSS were used to analyze the collected data.

Results

Discipline of the Respondents

Participants of the study were asked to mention their program of study and results presented in Table 1 confirmed that the majority (63%) of the students were enrolled in other than the CE program of study. Detailed results are presented in Table 1.

Table 1

Respondents' discipline

Discipline	Frequency	Percentage
CE	114	37
Other Pure Sciences	196	63

Gender of the Respondents

Researchers also requested the respondents to share their gender while responding to the questionnaire. Results presented in Table 2 confirmed that the major portion of students (68%) belonged to the Male gender. Detailed results are furnished in Table 2.

Table 2

Gender of the study's participants

Gender	Frequency	Percentage
Male	212	68
Female	98	32

Opinions of Different Program Students regarding their IL Skills

It was also intended to know the difference between opinions of different programs' students regarding their IL skills. Results presented in Table 3 proved that respondents did not differ significantly regarding their opinion about their IL skills while responding to the majority of the items presented in Table 3. However, they differed significantly (Sig. .000) while responding to the statement " know reason for needed information". Results of this statement showed that the Mean of CE students is lower than that of the students of other Pure Sciences . Similarly, both types of students differed significantly (Sig. 023) while responding to the statement "Rephrase and improve the searching queries to search the exact contents". As reflected in the table below, it is clear that , the Mean of CE is greater (Mean= 2.0175) than the other pure sciences' students (Mean= 1.8520) against the statement "Rephrase and improve the searching queries to search the exact contents". Table 3 presents the relevant results.

Table 3

Perceptions of Different Programs' Students regarding their Il Skills

		Means		T.	Sig.
S.N.	Items	CE	Others		
	"I have skills to":				
1	"Decide my information needs"	2.5263	2.4133	1.116	.762

2	"Know reason of needed information"	1.7807	1.9286	-3.433	.000***
3	"Identify the needed information"	1.7544	1.6786	.991	.952
4	"Determine the required information' platforms"	1.6491	1.6020	.575	.637
5	"Collect information through accessing relevant sources"	1.8421	1.7551	1.040	.504
6	"Use various techniques such as Boolean to search information"	1.9386	1.8571	.908	.442
7	"Rephrase and improve the searching queries to search the exact contents"	2.0175	1.8520	1.918	.023*
8	"Make a comparison of the required information sources"	2.5088	2.4388	.636	.616
9	"Identify the right information source to access the required information"	2.2105	2.0765	1.369	.959
10	"Assess the collected information's authenticity"	2.1053	2.0663	.472	.723
11	"Assess either gathered information is reliable or not"	2.1316	1.9388	2.010	.841
12	"Determine that either information is important or not."	2.2368	2.1020	1.418	.867
13	"Determine the major theme of information gathered"	2.1404	2.1026	.417	.145
14	"Make a comparison of knowledge (old and new) for understanding the difference and similarity between the two"	1.9737	1.8769	1.043	.934

"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"

Opinions of Different Age Groups regarding their IL Skills

Results presented in Table 4 confirmed that significant difference between the opinions of both analyzed age groups was not found regarding most of the items presented to measure their IL skills. However, they differed significantly (Sig. .009) regarding the statement "Assess either gathered information is reliable or not". The Mean score of the age group 21-25 was

greater (2.2095) than the age group 16-20 (Mean= 2.0648). Table 4 shares the complete findings.

Table 4

Different Age Groups' Students' Perceptions regarding their IL Skills

S.N.	Items	Means 16-20	21-25	T.	Sig.
	"I have skills to:"				
1	"Decide my information needs"	1.7778	1.6779	1.197	.329
2	"Know reason of needed information"	1.7130	1.5369	2.005	.602
3	"Identify the needed information"	1.8704	1.7718	1.108	.684
4	"Determine the required information' platforms"	1.9815	1.7785	2.096	.558
5	"Collect information through accessing relevant sources"	2.0185	1.9528	1.099	.319
6	"Use various techniques such as Boolean to search information"	2.5926	2.4698	1.034	.930
7	"Rephrase and improve the searching queries to search for the exact contents"	2.1759	2.0940	.771	.873
8	"Make a comparisons among the required information sources"	2.1296	2.0805	.550	.751
9	"Identify the right source of information to access the required information"	2.9722	1.0872	-1.093	.737
10	"Assess the collected information's authenticity"	2.1389	2.2416	-.995	.212
11	"Assess whether each of the gathered information is reliable or not"	2.0648	2.2095	-1.556	.009**
12	"Determine whether each of the information is important or not."	1.8692	1.9866	-1.189	.361
13	"Determine the major theme of the information gathered"	2.0000	1.9463	.556	.558

| 14 | "Make a comparison of knowledge (old and new) to spotlight the differences and similarities between both." | 2.0741 | 1.9329 | 1.504 | .435 |

"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"

Perception of Faculty Members about Students' IL Skills

Interviews of 20 selected faculty members were also conducted to know their perception

of   the IL skills of the students. A question related to the necessity and importance of the IL

program for students was also asked from the interviewees to determine their points of view in

this regard . Researchers also requested the participants to propose the content for the IL related

course.   .

Students' level of Awareness about the Library Sources and Services (N=20)

Participants were asked to share their perception about the awareness level of students

about the library sources and services. Acquired results show that the majority (n=14) of the

interviewees perceived that students did not possess much knowledge of the same. Students

lacked the awareness of library sources and services   .

Use of Library Services and Sources by Students (N=20)

Interviewees were asked to present their point of view regarding the students' efficiency

in the use of library resources and services. Results revealed that the majority (n=15) of the

participants mentioned that students were not efficient enough in the use of library sources and

services.

Students' Level of Awareness of Different Sources and Formats of Information (N=20)

Participants were questioned in regards to the students' level of awareness about the

library/online resources and formats of information and majority (n=14) of the interviewees

were not satisfied with the awareness level of students.

Skills of Students in the Use of Different Sources and Formats of Information (N=20)

Interviewees were further required to furnish their information about the students' skills in the use of different sources and formats of information. The majority (n=14) believed that students were good in this area.

Students' Searching Skills in Online Indexes and Databases (N=20)

Participants were also asked to give their opinion about the students' skills in searching for indexes and databases online. Majority (n =11) of the interviewees considered that students had limited, poor, and basic knowledge regarding the fore-mentioned search techniques.

Skills of Students in Identification of Main Ideas in Information Sources (N =20)

Participants were inquired to furnish the information regarding the students' skills in the identification of main ideas of information. The majority (n=11) of the interviewees responded that students lacked in this area.

Students' Skills in Sorting and Organizing Ideas (N=20)

Interviewees were asked to highlight the students' skills regarding the classification and organization of information. The majority (n=12) believed that students lacked the skills of managing information.

Students' Skills in Evaluating Quality of Information (N=20)

Respondents were also requested to highlight the students' skills in quality evaluation of the information. Data analysis showed that the majority (n=14) of the students possessed limited skills in evaluating the quality of information. Interviewees believed that students need improvement in this area.

Students' Skills in the Ethical and Technical Use of Information (N=20)

Participants were asked to give their opinion regarding the students' skills in the ethical and technical use of information and the majority (n=14) replied that students had very "poor" skills in this area.

Importance of IL Program (N=20)

Researchers asked the interviewees to reflect on the importance of an IL program and all (n=20) of the participants mentioned that it is very important to implement such a program.

Contents of IL Program (N=20)

The authors also requested the participants to suggest the contents for the IL program. Majority of the interviewees endorsed content relevant to the libraries, subject as well as research for IL program curriculum.

Interpretation of the Interviews

Findings of the study proved that investigated students' were not well conversant with the IL-related   knowledge and were deficient in this connection. Participants of the study were also not satisfied with the know-how level of the students. It is found that majority of the students were also not well aware of the resources of the library as per the opinions of different faculty members. Likewise, the faculty was also not satisfied with the usage of library resources by the pupils. Faculty members also mentioned that students failed to meet their satisfactory standards regarding their skills to find and collect the needed information. Apropos, students could not satisfy their faculty members regarding their skill set to manage the information as the faculty shared similar comments while responding to questions related to students' skills to manage information. Similarly, the faculty was dissatisfied with the students' skills related to the identification of quality and skills to handle the information technically.

 Findings of this study also confirmed that a major portion of the faculty endorsed the importance of a course related to IL for improvement in the students' IL skills and they also considered that such implementation of the course will also be helpful in gauging the maximum benefits of the resources available in the library. Respondents also favored the library, students' subjects, and research-related content for courses if devised for IL.

Discussion

Findings of the research highlighted that students lacked IL skills. These results are aligned with the previous research's findings (Lanning & Mallek, 2017; Safdar & Idrees, 2021) which highlighted that the students lacked IL skills. The reason behind students' deficient level of IL skills might be due to their little interest in such skills or their lack of knowledge of their importance for their educational experience in general and their professional career in particular . Similarly, it is also found that students need training through workshops and seminars to improve their IL skills. It is clear that training plays an integral role in improving the skills of individuals. This is why past researchers (Israel & Nsibirwa, 2018; Mahmood, 2016) also recommended such an initiative to improve the IL skills of the students. Furthermore, these results are also consistent with the results of previous researches (Safdar & Idrees, 2020) which entitles similar results. This research also sheds light on the need for an IL program with course contents related to research, subjects being offered, and the library. A plethora of past research (Safdar & Idrees, 2021; Zeeshan, Siddique, & Idrees, 2020) also concluded with similar remarks. No doubt, curriculum focusing subjects being offered, research contents as well as library related stuff can prove pivotal in polishing IL skills of students and developing students' interest in the course. Likewise, this study also found that faculty considered the IL skills important for students. Such results came in line with previous research findings (Bapte, 2019; Warschauer, 2007; Zeeshan, Siddique, & Idrees, 2020) that highlighted the role of IL skills for students' success. Therefore, it can be argued that, doubtlessly, IL skills are essential for students to be successful in their academic and professional careers. Similarly, this research made it clear that the majority of the students possessed similar capabilities. Such results are in line with the research (Safdar & Haroon, 2021) which found similar IL skills among students and highlighted that there was no statistically significant difference among their IL skills. These results are also understandable as surveyed students shared similar environments, resources, and facilities which might have contributed towards finding them in a

similar capacity regarding their IL skills. The Findings of this study also confirmed that the Mean score of senior students (age-wise) was greater than their junior counter personnel while responding to IL-related items. These results are also consistent with a previous conducted research (Aharony & Gazit, 2019) which found that older students differed from the younger pupils regarding their IL. Considering the results of this study, it can be argued that there is a dire need to involve faculty, students, researchers, and library professionals to devise a comprehensive IL course for the students. Moreover, measures such as awareness campaigns, workshops, and seminars can play a defining role in the success of the IL course provided it is implemented with the feedback of relevant stakeholders.

Conclusions and Recommendations

Keeping in mind the results of the study, it can be concluded that the faculty found the majority of the students to lack sound information literacy (IL) skills and accordingly a dire need for an IL program is needed, to cater the modern academic needs of the pupils. Secondly, it can also be concluded that surveyed students did not differ significantly regarding their IL skills while responding to the most of the items devised to measure their capabilities related to IL. These results endorsed the faculty perception that students had similar skills. Faculty also highlighted that such capabilities are of value and are considered to be the need of the hour. Furthermore, it is clear that performance of the students having grip on accessing, filtering, analyzing, using, managing, and disseminating information is found better than those with less familiarity with the IL. Moreover, the implementation of the information literacy (IL) program can play an integral role in meeting the current academic, research, and technological requirements of the modern philosophy of education for students.

Based on the findings of this research, researchers recommend arrangements of workshops, orientation sessions, seminars and other related events for students. These recommended arrangements might help students gain maximum IL-related skills as well as a better level of

awareness towards IL. It can also be argued that the availability of the maximum research related resources may also play an integral role in meeting the students' needs. Likewise, it is also recommended that a program focusing on IL related contents should be devised for students and this program should be a hybrid combination of library knowledge , subjects being offered at the institution, and research such as research resources-related stuff. Apart from this, it is also of value to create maximum awareness among the students regarding IL through utilizing the communication sources: technological and print. Last but not least. Library professionals and different relevant faculties should play their role in enhancing student knowledge to the importance of IL and arousing their interest in them to secure a better future for their careers. This understanding will be a defining factor in diverting students' attention towards the value of IL skills.

Study's Implications

The manuscript shares multiple implications for various stakeholders such as faculty, students, researchers and educational institutions. The findings of the study might help stakeholders know the current IL capabilities of the students and requirements in this connection. Such understanding, doubtlessly, can contribute towards institutions' efforts for equipping their pupils with necessary capabilities that will be a crystal clear contribution towards students' strength to compete in the market and achieve fame for their organizations.

Topics for Future Research

Research in the area of IL is not rich in Pakistan. Therefore, there is a dire need for research in this area with a special focus on the professional content for the IL course. Researchers should also study the existing IL skills of students enrolled at college levels in Pakistan. Likewise, researchers should also conduct research to recognize the institutions which conduct IL courses for students. This might help in devising the IL contents best suitable for students enrolled in various disciplines in the country.

References

Adalıer, A., & Serin, O. (2012). Teacher candidates' information literacy self-efficiency. *Online Journal of Science and Technology,* 2(2) 2, 71-78.

Aharony, N., & Gazit, T. (2019). Factors affecting students' information literacy self-efficacy. *Library Hi Tech*, 37 (2), 170-183.

Aharony, N., & Gazit, T. (2020). Students' information literacy self-efficacy: An exploratory study. *Journal of Librarianship and Information Science*, *52*(1), 224-236.

Ali, R., Abu-Hassan, N., & Daud, M. Y. M. (2009). *Information literacy of engineering students: A case study.* In Engineering Education (ICEED), 2009 International Conference, 143-147. Retrieved from https://ieeexplore.ieee.org/document/5490595/?denied=

Ali, R., Abu-Hassan, N., Daud, M. Y. M., & Jusoff, K. (2010). Information literacy skills of engineering students. *International Journal of Research and Reviews in Applied Sciences*, 5(3), 264-270.

American Library Association. (2000). *Information literacy competency standards for higher education*. Chicago: Association of College and Research Libraries.

Banik, P., & Kumar, B. (2019). Impact of information literacy skill on students' academic performance in Bangladesh. *International Journal of European Studies*, *3*(1), 27-33.

Bapte, V. D. (2019). Information Literacy Instruction: Determining the Place of Library Professionals. *DESIDOC Journal of Library & Information Technology*, *39*(1), 39-46.

Batool, S. H., & Mahmood, K. (2012). Teachers' conceptions about information literacy skills of school children. *Pakistan Journal of Library and Information Science,* 13(2012), 1-6.

Bruce, C. (2004). *Information literacy as a catalyst for educational change. A background paper*. Paper presented at the 3rd International Lifelong Learning Conference, Queensland. Retrieved from http://eprints.qut.edu.au/4977/

Bundy, A. (2004). *Australian and New Zealand information literacy framework. principles,*

standards and practice. Adelaide: *Australian and New Zealand Institute for Information Literacy.*

Connaway, L. S., & Powell, R. R. (2010). *Basic research methods for librarians*. Santa Barabara: Libraries Unlimited.

Davids, M. (2009). *Evaluating an information literacy intervention for first year engineering students at the Cape Peninsula University of Technology.* (Doctoral dissertation, University of the Western Cape.

Dubicki, E. (2013). Faculty perceptions of students' information literacy skills competencies. *Journal of Information Literacy*, 7(2), 97-125.

Franklin, K.Y. (2005). *The importance of information literacy: Insights from the next generation of scholars.* Association of College and Research Libraries National Conference, Minneapolis, 388-396. Retrieved from https://news.ala.org/ala/acrl/acrlevents/franklin05.pdf

Gay, L. R., Mills, G. E., & Airasian, P. W. (2009). Educational research: Competencies for analysis and applications. London: Pearson.

Inskip, C. (2017). *Practitioner and LIS Student perspectives on information literacy for librarians*. In At the helm: leading transformation: the proceedings of the ACRL 2017 conference, 2017. Retrieved from https://discovery.ucl.ac.uk/id/eprint/1555733/1/PractitionerandLISStudentPerspectiveson InformationLit.pdf

Israel, O., & Nsibirwa, Z. (2018). Information literacy skills in using electronic information resources. *Library Philosophy and Practice*. Retrieved from https://core.ac.uk/download/pdf/188140527.pdf

Kaur, P., Sohal, M. K., & Walia, P. (2009). Information literacy curriculum for undergraduate students. *International Conference on Academic Libraries*, 557-560. Retrieved from http://crl.du.ac.in/ical09/papers/index_files/ical-93_179_380_2_RV.pdf

Kausar, M., & Mahmood, K. (2015). Perceptions of faculty about information literacy skills of

postgraduate engineering students. *International Information & Library Review*.

47(1-2), 52-57.

Korobili, S., Malliari, A., & Christodoulou, G. N. (2009). Assessing information literacy skills in

the technological education institute of Thessaloniki, Greece. *Reference Services Review*.

37(3), 340-354.

Lanning, S., & Mallek, J. (2017). Factors influencing information literacy competency of college

students. *The Journal of Academic Librarianship*, *43*(5), 443-450.

Lofthus, L., & Silseth, K. (2019). Students choosing digital sources: Studying students'

information literacy in group work with tablets. *E-learning and Digital Media*, *16*(4),

284-300.

Mahmood, K. (2013). Relationship of students' perceived information literacy skills with

personal and academic variables. *Libri,* 63(3), 232-239.

Mahmood, K. (2016). Do people overestimate their information literacy skills? A systematic

review of empirical evidence on the Dunning-Kruger Effect. *Communications in

Information Literacy,* 10(2), 198-213.

Mahmood, K. (2017). Reliability and validity of self-efficacy scales assessing students'

information literacy skills. *The Electronic Library*, 35(5), 1035-1051.

Mittermeyer, D., Quirion, D., Archambault, C., Carrier, P., Grant, S., Guilmette, P., &

Nicholson, K. (2013). Information literacy: Study of incoming first-year undergraduates

in Quebec. 2003. Retrieved from

http://www.crepuq.qc.ca/documents/bibl/formation/studies_Ang.pdf

Morrison, H. (1997). Information literacy skills: An exploratory focus group study of student

perceptions. *Research Strategies,* 15(1), 4-17.

Perrin, C., Hossain, D., & Cumming, K. (2008). *Nursing students' information literacy skills

prior to and after information literacy instruction*. In Proceedings of the 5th International

Lifelong Learning Conference 2008, Central Queensland University. 2008. Retrieved from
https://eprints.usq.edu.au/4182/1/Perrin_Hossain_Cumming.pdf

Rafique, G. M. (2014). Information literacy skills among faculty of the University of Lahore.
2014. Retrieved from:
http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=2659&context=libphilprac

Ranaweera, P. (2008*). Importance of information literacy skills for an information literate
society*. Paper presented at the NACLIS, Colombo. 2008. Retrieved from
http://eprints.rclis.org/11956/

Rousi, A., Palmgren, V., & Heino, K. (2012). Engineering students' information literacy
instruction and blended learning course design-a case study. *The Road to Information
Literacy-Librarians as Facilitators of Learning*, Retrieved from
https://aaltodoc2.org.aalto.fi/bitstream/handle/123456789/15350/isbn9783110281002.pdf
?sequence=1&isAllowed=y

Safdar, M., & Idrees, H. (2020). Perception of the postgraduate students about need and
importance of information literacy (IL). *Pakistan Library and Information Science
Journal,* 51 (1).

Safdar, M., & Idrees, H. (2021). Assessing undergraduate and post graduate students'
information literacy skills: scenario and requirements in Pakistan. *Library
Philosophy and Practice*, Retrieved from
https://digitalcommons.unl.edu/libphilprac/4875/?utm_source=digitalcommons.unl.ed
u%2Flibphilprac%2F4875&utm_medium=PDF&utm_campaign=PDFCoverPages

Smith, P. A. (2016). Integrate and assess: Information literacy as quality enhancement of
undergraduate curriculum. *Communications in Information Literacy,* 10(2), 214-244.

Somi, N.G., & Jager, D. K. (2005). The role of academic libraries in the enhancement of
information literacy: A study of Fort Hare Library. *South African journal of libraries and
Information Science*, 71(3), 259-267.

Talikka, M., Soukka, R.and Eskelinen, H. (2018). Effects of brief integrated information literacy

    education sessions on undergraduate engineering students' interdisciplinary research. *New*

    Review of Academic Librarianship, 24(1), 48-62.

Ullah, M., & Ameen, K. (2019). Teaching information literacy skills to medical students:

    perceptions of health sciences librarians. *Health Information & Libraries*

    Journal, *36*(4), 357-366.

Varlejs, J., & Stec, E. (2014). Factors affecting students' information literacy as they transition

    from high school to college. *School Library Research,* 17, 1-23.

Warschauer, M. (2007). Information literacy in the laptop classroom. *The Teachers College*

    Record, 109(11), 2511-2540.

Williams, D., & Coles, L. (2007). Teachers' approaches to finding and using research evidence:

    An information literacy perspective. *Educational Research,* 49(2), 185-206.

Yamane, T. 1967. *Elementary Sampling Theory*. Englewood Cliffs: Prentice-Hall.

Zeeshan, M., Idrees, H., & Siddique, N. (2020). Information literacy skills among students of

    Lahore University of Management Sciences (LUMS). *Library Philosophy and*

    Practice, Retrieved from

    https://digitalcommons.unl.edu/libphilprac/3866/?utm_source=digitalcommons.unl.ed

    u%2Flibphilprac%2F3866&utm_medium=PDF&utm_campaign=PDFCoverPages

Zeeshan, M., Siddique, N., & Idrees, H. (2021). Students' understanding of the importance of

    information literacy (IL) programs and skills. Retrieved from

    https://digitalcommons.unl.edu/libphilprac/5184/

Zhu, S., Yang, H. H., Wu, D., & Chen, F. (2021). Investigating the relationship between

    information literacy and social media competence among university

    students. *Journal of Educational Computing Research*, 0735633121997360.