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MEASURING INFORMATION LITERACY SKILLS OF MBBS STUDENTS

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ABSTRACT

The main purpose of this study was to measure the information literacy skills of MBBS students at King Edward Medical University Lahore, Punjab Pakistan. The quantitative research method was used to carry out the study. A convenient sampling technique was used to collect data from the entire sample. The total number of respondents was 309 with a total response rate of 91.69%. SPSS 22nd version was used to analyze the gathered data from respondents. Descriptive statistics were applied to check the frequency, percentage and reported in the form of tabulation. Moreover, the mean and standard deviation was also found to find out the results. The results showed that respondents were usually able to decide where and how to find the information and select information most appropriate to the information need. However, respondents were occasionally able to identify a variety of potential sources of information, evaluate information critically, differentiate between fact and opinion, and limit search strategies by subject, language and date. The usage of internet resources was a strength and opinioned as good while ethical and legal use of information, computer literacy skills, use of searching techniques and tools for information retrieval, and research skills were opinioned as fair. The printed information literacy instruction was preferred by KEMU students whereas online courses, orientation by librarians and seminars and workshops were not preferred by the respondents.

INTRODUCTION AND PROBLEM-STATEMENT:

This is the century of modern technology and the latest information in any walk of life. In this modern era of technology, great changes have been made in the entire world by using the latest information on science and technology. Science and technology have added great value to educational institutes worldwide. The basic term which defines the use of this technology in the best possible way is called information literacy skill. This skill is an important element for the betterment of teachers, students learning abilities at the school, college, or even at the university level. In this regard, an emerging big issue is "how to empower the information literacy among teachers, students and management of every institute". Therefore, the major focus of every field of life should be on the development of information literacy skills (Gu, 2020). Library professionals need to develop core technological competencies for the provision of value-added services to the end users (Shahzad, 2021).

The individual with a high level of information literacy can evaluate the entire scenario with little effort. They can easily find out the resources of information from where they can get the related material. Furthermore, they use that information in a more productive way and a more suitable place. Their ability to analyze the problem, solving the emerging issue and to handle the emergency becomes strong enough as compared to the information illiterate person (American Library Association, 2003). Information technology and its efficient use have become almost essential in all the fields of life as well as the field of medicine. Medical practitioners need the skills to find relevant information and evaluate its authenticity, validity, and reliability. The information literacy skills of a medical professional should be advanced and prolific for the betterment of their research, education and integration of knowledge (Abdulakeem , Abiodun, & Abel, 2020). These skills will be helpful for them in multiple ways e.g. during studies for writing assignments, dissertations and proposals, professional careers for dealing with the patients, analyzing their conditions, and for their services in the healthcare information department for providing guidelines or policies for any involved issue. Therefore medical practitioners need to

polish their information literacy skills with time for standing out in this modern era of science and technology (Carroll et al.; 2019).

Trujillo Torres, Gómez García, Ramos Navas-Parejo, and Soler Costa (2020) reported that information literacy skill is an important parameter for the betterment of teaching practices. In this study, he reported that it is a major challenge for the present era to develop digital competence in teaching. Because to cope up with the new challenges emerging in the field of education regardless of the subject, the students, teachers and the managerial staff must be very much familiar with the way of accessing, analyzing and using the latest information effectively. In any field of education, information literacy skills are an essential part of the learning process. Banik and Kumar (2019) conducted a study to check the role of information literacy skills in the education process of students. They found that that the students whose information literacy skills were lower (10-20) their grape points in academia were also lower. They additionally disclosed in this research that the number of hours students spend on studies as well as their information literacy skills both play a greater role in their academic results. Thus it proved that information literacy skills must be strong enough for good results of the students in any field of life.

Flierl et al. (2018) evaluated the different groups of students for checking the relationship of information literacy with the academic performance and motivational level of students in different grades. In this study, almost 3 thousand students who were enrolled in various studies from 7 different colleges were evaluated in the United States. The major objective of the study was to examine the role of literacy skills in the academic records and information perceived by the students. The results of the study generated 2 pieces of evidence one of which was "students who were active in synthesizing the information and then generating the expected outcome their level of perception was higher than those who do not do. The second evidence revealed that the perception of information was significantly related to the academic performance of the students. This study emphasizes the importance of information literacy should be merged in the course contents of the students for better results.

In Pakistan so far a lot of studies have been conducted on perspective considering medical students but it varies from population to population. King Edward Medical University is one of

the oldest and prestigious renowned medical institutions of Pakistan but no study has been conducted so far for determining the information literacy skills of MBBS students of KEMU Lahore. This study will play a significant role in determining the level as well as the quality of Information Literacy skills of MBBS students of KEMU Lahore. It may help increase awareness about the Information Literacy skills training orientation program for the medical research students and faculty of KEMU. This baseline study may also help design and implement Information Literacy instruction programs in universities. It might be very useful to update the curriculum of medical sciences available in the library.

RESEARCH QUESTIONS:

1. What is the self-perceived level of Information Literacy skills of MBBS students of KEMU Lahore?
2. What are the strengths and weaknesses regarding the information literacy skills of MBBS students of KEMU Lahore?

LITERATURE REVIEW:

In the present times of science and technology advancements, information literacy is a vital skill element among all other learned skills. In a true sense, it enables the individual as well as communities, organizations to identify the need for the latest information. Once they identified the latest information, with the help of this skill they can analyze, use, and generate better results out of the available information. Thus, information literacy skill not only empowers the creativity of a single individual but also polishes the abilities of various organizations (Wu, 2019).

Importance of information literacy skills

Gathering relevant and latest information is not only important for the students but also the teachers. Along with their course level studies, the student must be trained and aware of other means of information. They should know about collecting, assessing the needed information from a wide variety of information resources. These resources can online websites, digital libraries, or any other source. The libraries of almost every educational institute are a pool of different

information. So, the students are exposed every day to a large set of information from different perspectives. They should have a set of skills to make better use of this information. Majid, Foo, and Chang (2020) evaluated the information literacy skills of students at higher secondary schools of Singapore. For this purpose, 14 different schools were surveyed and data was collected from the set of students in the form of a questionnaire. The results of the study showed that most of the students fall in the middle category of information literacy skills. The students were able to define the information for the said task but they were unable to locate and assess that information which showed their low information literacy level. This study suggested improving the information literacy skills of students along with their curricular syllabus.

The findings of Wu (2019) indicated that the efficiency of organizations and employees for recognizing the required information can be affected in a significant way by information literacy skills. Information Literacy skills develop the ability in medical Students to access, explore, locate, evaluate, and synthesize the write information they needed. Through Information literacy skills, medical students can acquire their research objectives, expand their knowledge, makes them able to play an active role in the diverse nature of society especially in the medical field.

Perception of information literacy skills of the students

García-Llorente, Martínez-Abad, and Rodríguez-Conde (2020) researched assessing the level of information as perceived by the students along with the real stage of information literacy. 1422 different students were evaluated with the help of the survey method through a questionnaire. The students were of different age groups with good performance in academia. The results of this study showed that most students were good in terms of perceived information as self-skill. However, their demonstrative competencies were not equal to their self-perceived information. So, it was concluded that there is more need to strengthen the information literacy skills of students for better understanding and communication in an effective way. While information literacy in undergraduate programs has received considerable attention, few studies have explored graduate programs, with even fewer focusing specifically on library and knowledge studies (LIS) programs.

Safdar and Idrees (2020) surveyed graduate and postgraduate students about their perception of information literacy. This study was divided into different stages. Initially, the literature review was evaluated. In the second stage, the 200 students were surveyed through a questionnaire. The results of this study suggested that most of the students were not aware of information literacy skills. Similarly, a large number of students were those who have not get any formal and informal training for information literacy skills. However, upon evaluation of postgraduate students regarding the effectiveness and importance of the information literacy program, they replied that it is the need of time and must be implemented at each educational institute.

Strength and weaknesses of students for information literacy skills

In the developing countries of the world, a major portion of the budget is usually spent on the establishment of databases and journalisms. The use of information from these databases is quite essential and helpful for policymakers of the country as well as educational institutes. It is the responsibility of the universities to evaluate the extent to which these sources are assembled by the students. Because there is a pool of information kept at different sources. To make its better use, universities must focus on the betterment of information literacy skills of their students (Hazrati et al., 2013).

In the current information environments, people are faced with a spread of challenges in reaching and expressing informed views and in making health decisions. In such cases highly information literate individuals are often viewed as a critical strategy to reduce uncertainty, the idea for lifelong learning, and a key to empowerment. A study was held in Namibia by Hirvonen et al. (2020) to screen out the information literacy level of the different populations regarding health. The key point for conducting this research was the difficulty faced by the people in interacting the health-related information daily. This research was helpful for people to search and communicate health-related information. In this research, the screening tool was evaluated which prove effective for accessing, analyzing, and using the health information properly.

Role of information literacy skills in the healthcare profession

For healthcare professionals, only self-communication skills are not enough for good practice in their careers. They need a well-established course on information literacy skills to implement the latest technology in the health department for their patients. Lower information literacy makes the most of people specifically the older persons cannot obtain health-related information. To address this problem a study was conducted by Kaper et al. (2020). The study aimed to evaluate the positive impact of a detailed information literacy training program of medical students for better practice and use of the information for their patients in case of any emergencies. The results generated from the study were positive towards the students. However, they observed that if such training is implemented practically in the health profession then the future doctors will better treat the patients and more positive outcomes will be generated.

Shukla, Kumar, and Verma (2020) evaluated the level of information literacy skills among postgraduate students of two different universities. As previously discussed, they also defined information literacy as a set of learned abilities for making a wise and timely decision. According to their point of view, this is the era of modern science and information technology where different forms of information are available at different places. So a university student needs to quire knowledge of information literacy. It was concluded from the study that both groups of students were familiar with plagiarism, assessing the required information as well. However, Discipline-specific training was required to improve digital literacy skills by both of the University's students.

Wang and Wang (2018) described that as far as the medical profession is concerned, there are numerous issues related to clinical information, for example, scholarly privileges of clinical computerized research, the specialist quiet relationship, powerful security of protection, troubles of the educated assent, shrouded risks of data and system security, the shame of far off clinical help, clinical deformities in the advanced framework, organize questions, etc. The correct answer to these issues can help clinical information create in a solid and useful way. This could only be possible when the students of medical colleges or

universities will be skilled in information literacy. Medical students both undergraduate and postgraduate must polish their skills to mark up the modern information of the medical section.

Kuek and Hakkennes (2020) investigated the information literacy level of medical professions as well as their behavior towards modern technology. The study aimed to assess the literacy level of medical workers which they are using for keeping the record of health on electronic devices. For this purpose, a detailed survey was formulated to evaluate the level of confidence and behavior of health care professionals towards modern information technology (IT). This study included the 407 staff members and was kept under survey for 30-35 days period. The results of the study showed that more than 70% of staff members were excellently using the latest technology with confidence. However, 25% were feeling depressed, uncomfortable while implementing the latest technology. This factor was negatively affecting the health care facility for the patients. Therefore, the author suggested adequately training such as staff members. In this way, they can use technology effectively with full confidence.

Akpovire, Olawoyin, Adebayo, and Esse (2019) conducted a detailed study of the information literacy level of medical graduates in the USA. The purpose was to explore the information literacy level of students at medical universities. The focused areas were to explore the sites of information used by the students, how they can access them online, and how they utilize this information practically. The results of the study depicted that most students get their desired information from published sources, online materials, and sometimes newspapers. The concluding remarks of the author were that medical college administration should prioritize the empowerment of information literacy of their students. In this, the students will be more competent to acquire the latest information and will use it more efficiently.

Role of libraries and librarians for information literacy skills

Another major contribution to the information literacy of the student is by the librarians. Librarians should be trained enough that they can assess what students need, what they know exactly, and what they pretend to know. Once these things are solved then the

librarians will more effectively train the students. For this purpose, a study was held by Michalak, Rysavy, and Wessel (2017) to evaluate the perception of students regarding information literacy skills. For this purpose, the author united the two tools, information literacy, and perception of students in one survey form. This form as a questionnaire was distributed among male and female students. The basic aim was to assess the difference in information literacy of male and female students as well as their perception. The results showed that the female students were highly confident as compared to the male candidates for their perception of information literacy skills. The study showed that students showed more confidence in information literacy perception but, their practical test was not supporting their perception. This study further suggested that there is a strong need to incorporate information literacy in the curriculum to improve the practical skills of students.

Suroothiya and Sahu (2020) conducted a study on the role of information literacy skills in the learning process of individuals. They reported that the information literacy program in the latest libraries acts as a booster for enhancing the skills of individuals. The author suggested that there should be seminars and workshops for the training of librarians as well as information seekers who visit libraries for the said purpose. Frequent surveys should be held to check the efficacy of information literacy. There should be collaboration among the faculty and librarians for the effectiveness of information literacy. Moreover, librarians should be motivated to participate in seminars and workshops to polish their skills. Libraries should be financially supported by the higher authorities in updating their databases according to the needs of users.

Advanced education based on information literacy has become a generally read subject for associating individuals, government investment, and open undertakings. It urges library experts to prepare their students and successfully secure, safeguard, and disperse information. Scholarly libraries include utilizing computerized innovation to improve the understudies' degree of advanced education and mechanical aptitudes. This paper intends to comprehend the students' innovative ability in utilizing database assets and looking for online data. The outcomes gathered a solid relationship between understudies' mechanical aptitude with

utilizing computerized devices, the use of database assets, and perusing arranged data on the Web (Rafi, JianMing, & Ahmad, 2019).

Humhlhi (2020) revealed the fact that the libraries in academic institutes can be empowered through information literacy skills. The objective was to find out the exact level of the information literacy level of the librarians. The focus was specifically on the abilities of the librarian to deliver the information to the researchers. The results of the study showed that the way of delivering information by the librarians was not according to the needs of the modern era. They were teaching the students in traditional methods. Most of the studied groups were agreed on the face to face teaching method while some respondents were emphasizing the workshops and training for information literacy skills.

Olakunle and Olanrewaju (2019) evaluated the connection of information literacy to the research activities of the students in a more productive way. It has been a strong supporting fact that research innovations in any field are the key component of success. Most of the staff members of the research stations are responsible for carrying out all ongoing research projects and to publish them in good journals. So they should be information literate persons to meet the standard requirements. The aim of this study was also to explore the role of information literacy skills of the researchers in productive research. The results of the study were satisfactory regarding the information literacy level of researchers. Therefore it was suggested by the authors that research stations and higher managerial staff should focus on the empowerment of information literacy skills of their staff members.

Format of information literacy program preferred by students

As the importance of information literacy for students, teachers, and librarians have been reviewed, there should be some ideas for an information literacy program preferred by the students. Morris (2020) conducted a review in this regard to check the performance of face to face as well as other formats of the information literacy program. The purpose was to find out the specific formats of literacy programs preferred by the students of higher education. The discoveries of the review suggested there was no specific method preferred by

the students. But in some previous studies students preferred the format of delivery should be such that emphasize they prefer that particular method. Out of the all papers reviewed, more than 5 papers suggested that students prefer the online method, one paper suggested the preferred way was face to face and others showed that students preferred discussion methods. The efforts should be done to make sure the availability of all their sources rather than emphasizing the format of the program.

Yevelson-Shorsher and Bronstein (2018)reported three different aspects of information literacy. In this research, the author focused on the information literacy level of faculty members, library experts, and students. Discoveries show that students felt they needed satisfactory data proficiency aptitudes, didn't get adequate assistance from the staff, and were uninformed of the assets and administrations the library advertised. Teachers considered such aptitudes significant and anticipated that understudies should get them during their investigations. The library staff knew about students' troubles in obtaining these abilities and has put forth attempts to create projects to cure the circumstance. In any case, these projects were not generally fruitful because of an absence of mindfulness by the students. By differentiating the perspectives, needs, and desires for the three populaces examined, discoveries from the examination show that more noteworthy joint effort and correspondence among staff, librarians, and students are expected to improve their information literacy abilities.

Information literacy skills of Pakistani students

Abdullah and Zakar (2019) investigated the linkage of information literacy in the health areas with the prosperity of the public in Pakistan, because, it becomes the major agenda of every country to focus on health prosperity according to the declaration of the United Nations. For this purpose, both groups of peoples (males and females) were surveyed by conducting their interviews. This study showed that the literacy level of the rural population was lower than that of urban people. Despite having good facilities in the health department, a large no of people was not accepting them due to some religious or personal perspectives. This behavior negatively affected the wellbeing of the people.it was suggested

by the author that a detailed literacy program should be initiated to promote the wellbeing of people. This is the big demand of this modern society.

Another study was reported by Naeem and Bhatti (2020) regarding the information literacy levels of doctors in Pakistan. The purpose of this study was to evaluate the ability of doctors for searching online data and deciding accordingly. In this detailed study 36 hospitals at the district level, 89 at the tehsil level, 293 centers of rural areas and 2455 health centers of Punjab were included for surveys. Among all these centers a total of 517 doctors were selected as representative of all. Out of this sampling population, more than 70 % of doctors were those who did not access online information ever. The researcher observed that age and experience was an important factor for information literacy. It was concluded by the results that different activities and training should be conducted to motivate the doctors for accessing the online information. This would help them in making an effective decision regarding health care issues.

Another research regarding the evaluation of the literacy level of students was conducted at Shiraz university of medical sciences (Bazrafkan et al., 2017). The information literacy status and the use of information technology among students in the globalization age of course plans are very momentous. This study aimed to evaluate the information literacy status and use of information technology among medical students of Shiraz University of Medical Sciences.it was concluded by the study that the significance of data proficiency for clinical understudies and the bothersome status of data proficiency among undergraduates should be amended accordingly. So the main focus was on information literacy skills. As most of the respondents were very well aware of the latest information but they often failed to access and analyze it. Information literacy programs in their curriculum can support them in carrying out their researches in more productive ways.

Tariq, Khan, and Basharat (2020)performed cross-sectional research on the use of the internet, information literacy regarding health among youngsters of Pakistan. The focus of this investigation was to survey the examples of web use and eHealth education levels among college students seeking a non–wellbeing related degree in Pakistan. We likewise analyzed

the relationship of the eHealth education levels of these youthful persons with their physical activity levels and dietary enhancement. It was shown by the findings that College students in Pakistan communicated high trust in their abilities to discover wellbeing related data on the web. However, the actual test of their health literacy was lower than their perception and confidence.

RESEARCH METHODOLOGY:

This section presents the research method and the detailed research methodology that has been used to achieve the objectives of the study. It describes the research approach, specific research method, and research plan that has been followed. It presents a description of the research population, sampling frame, and sample size. It tells us about the development of data collection tools, data collection processes, and analysis.

Research Approach

This study has used a quantitative research approach to achieve its objectives.

Research Method

The selection of the most suitable method to attain the research objectives is one of the basic elements of the research process. Survey research is the most significant research strategy being used in social sciences research. The current study has used survey research based on a web-based questionnaire to collect data from the population.

Population

The population is considered as a combined group or individuals who are under study called population. The target population of the present study is the students of MBBS of all years that is one, two, three, four, and five of King Edward Medical University Lahore.

Sampling Technique and Size

A sample is a sub-group of the population that is under investigation in any research study. In this study, a convenience sampling technique is used to identify a particular group of the

population for data collection. The total numbers of respondents were 1660 out of which the sample size obtained was 337.

Research Instrument

A questionnaire was developed to keep in mind the objectives of this study. A structured questionnaire was developed in light of the literature review. It was sent to the experts several times and revised in the light of comments received and then the first draft of the instrument was developed. The questionnaire contained five sections.

Scale

A scale is a type of composite measure that is composed of several items that have a logical or empirical structure among them. Likert scale is very common to collect the opinions from the respondents in social science. The questionnaire of the present study also used a five-point Likert scale for the collection of data from the respondents.

Expert Review

Expert review is necessary to check the content validity of the questionnaire. The draft questionnaire was sent to the experts to gain valuable feedback on the questionnaire. Experts were selected based on their relevant experience, professional repute, and involvement in library automation projects in university libraries. Experts suggested valuable recommendations to improve the quality of the questionnaire.

Final Editing of the Research Instrument

Recommendations received from the experts were incorporated in the questionnaire after a detailed discussion with the supervisor and hence, the questionnaire was developed for data collection.

Reliability of the Instrument

Cronbach Alpha reliability test was imposed on all the relevant sections of the questionnaire to check the reliability. Cronbach's value showed that the average correlation coefficient of 36 statements was 0.866.

Data Collection Procedure

After the final editing, the questionnaire was prepared in MS Word. The questionnaire was distributed through email and directly among the respondents of the study.

Data Analysis

After the completion of the data collection phase, the researchers assigned the number to each questionnaire. The data were entered into the Statistical Package for the Social Sciences (SPSS) for analysis. The mistakes committed during data entry into SPSS were corrected. The data were analyzed by using descriptive statistics, frequency, and percentage count, mean, std. deviation, and variance by using SPSS software.

DATA ANALYSIS AND INTERPRETATION:

The entire study is focused on "Measuring Information literacy Skills of MBBS Students at King Edward Medical University Lahore, Punjab Pakistan". This section presents the analysis of gathered information collected with the help of a tool used as a questionnaire.

Demographic Information

This section represents the demographics information of respondents. The respondent's gender has been cross-tabulated by their year of study and their age as follows along with tables and graphs.

Gender with study year

In table 1 genders i.e. male and female are cross-tabulated by the respondents' study year. The results show that 1st-year respondents that participated in the study were fifty out of which

n=50 were male whereas no female responded, 2nd-year respondents that participated in the study were 10 in number in which all were male, 3rd-year respondents were 45 in number out of which n=29 were male and n=16 were female, 4th-year respondents were 166 in number out of which n=68 were male and n=98 were female and a total of 38 respondents that participated in the study were final year respondents out of which n=23 were male and n=15 were female. The results depict that overall male respondents were large in number and most of the respondents belonged to the 4th year of study.

Table 1 *Gender distribution with respondents study year*

		Gender of respondents		
Study year		**Male**	**Female**	**Total**
	1st Year students	50	0	50
	2nd Year students	10	0	10
	3rd Year Students	29	16	45
	4th Year Students	68	98	166
	Final Year Students	23	15	38
Total		180	129	309

Gender with an age of respondents

In the table below genders i.e. male and female are cross-tabulated by the respondent's age. We see that a total of 309 respondents participated in the entire study. The respondents having age 20-25 years old were 304 in number among them n=175 were male and n=129 were female whereas only five respondents were of age 26-30 years old among which n=5 were male and no female participated in the entire study. The result depicts that a large of respondents were of the 20-25 years age group and the majority were males which participated in the entire study.

Table 2: *Gender distribution with an age of respondents*

Age of respondents	Gender of respondents		
	Male	**Female**	**Total**
20-25 years old	175	129	304
26-30 years old	5	0	5
Total	**180**	**129**	**309**

Self-perceived level of information literacy skills

The tables below show the respondent's perception regarding the self-perceived level of information literacy skills of MBBS students of King Edward Medical University Lahore**.** The five-point Likert scale was used i.e. rarely, sometimes, occasionally, usually, and almost always.

Variety of potential sources

The table below shows that if the students were able to identify the variety of potential sources they needed. The results show that n=85; 27.5% respondents responded that they were sometimes able to identify the variety of potential sources, n=51; 16.5% responded that they were occasionally able to identify the variety of potential sources, n=122; 39.5% responded that they were usually able to identify the variety of potential sources whereas n=51; 16.5% responded that they were almost always able to identify the variety of potential sources. The results depict that most of the respondents were usually able to identify the variety of potential sources they needed.

Table 3: *Variety of potential sources*

Valid	Frequency	Percentage
Almost Never	0	0
Sometimes	85	27.5
Occasionally	51	16.5
Usually	122	39.5
Almost always	51	16.5
Total	309	100

Search Strategies

The table below shows that if the students were able to limit search strategies by subject, language, and date. The results show that n=19; 6.1% respondents responded that they were seldom able to limit search strategies by subject, language, and date, n=77; 24.9% responded that they were sometimes able to limit search strategies by subject, language, and date, n=103; 33.3% responded that they were occasionally able to limit search strategies by subject, language, and date, n= 86; 27.8% responded that they were usually able to limit search strategies by subject, language and date whereas n=24; 7.8% responded that they were almost always able to limit search strategies by subject, language, and date. The results depict that most of the respondents were occasionally able to limit search strategies by subject, language, and date.

Table 4: *Limit search strategies by subject, language, and date*

Valid	Frequency	Percentage
Seldom	19	6.1
Sometimes	77	24.9
Occasionally	103	33.3
Usually	86	27.8
Almost always	24	7.8
Total	309	100.0

Finding information

The table below shows that if the students were able to decide where and how to find the information. The results show that n=11; 3.6% respondents responded that they were seldom able to decide where and how to find the information, n=50; 16.2% responded that they were sometimes able to decide where and how to find the information, n=50; 16.2% responded that they were occasionally able to decide where and how to find the information, n=135; 43.7% responded that they were usually able to decide where and how to find the information whereas n=63; 20.4% responded that they were almost always able to decide where and how to find the information.

The results depict that most of the respondents were usually able to decide where and how to find the information.

Table 5: *Decide where and how to find the information*

Valid	Frequency	Percentage
Almost Never	11	3.6
Sometimes	50	16.2
Occasionally	50	16.2
Usually	135	43.7
Almost always	63	20.4
Total	309	100.0

Locate information sources

The table below shows that if the students were able to locate information sources in the library. The results show that n=82; 26.5% respondents responded that they were rarely able to locate information sources in the library, n=70; 22.7% responded that they were sometimes able to locate information sources in the library, n=85; 27.5% responded that they were occasionally able to locate information sources in the library, n=54; 17.5% responded that they were usually able to locate information sources in the library whereas n=18; 5.8% responded that they were almost always able to locate information sources in the library. The results depict that most of the respondents were occasionally able to locate information sources in the library.

Table 6: *Locate information sources in the library*

Valid	Frequency	Percentage
Almost Never	82	26.5
Sometimes	70	22.7
Occasionally	85	27.5
Usually	54	17.5
Almost always	18	5.8
Total	309	100.0

Fact and opinion differentiation

The table below shows that if the students were able to differentiate between fact and opinion. The results show that n=23; 7.4% respondents responded that they were rarely able to differentiate between fact and opinion, n=75; 24.3% responded that they were sometimes able to differentiate between fact and opinion, n=62; 20.1% responded that they were occasionally able to differentiate between fact and opinion, n=91; 29.4% responded that they were usually able to differentiate between fact and opinion whereas n=58; 18.8% responded that they were almost always able to differentiate between fact and opinion. The results depict that most of the respondents were usually able to differentiate between fact and opinion.

Table 7: *Differentiate between fact and opinion*

Valid	Frequency	Percentage
Rarely	23	7.4
Sometimes	75	24.3
Occasionally	62	20.1
Usually	91	29.4
Almost always	58	18.8
Total	309	100.0

Evaluate information critically

The table below shows that if the students were able to evaluate information critically. The results show that n=13; 4.2% respondents responded that they were rarely able to evaluate information critically, n=49; 15.9% responded that they were sometimes able to evaluate information critically, n=99; 32% responded that they were occasionally able to evaluate information critically, n=108; 35% responded that they were usually able to evaluate information critically whereas n=40; 12.9% responded that they were almost always able to evaluate information critically. The results depict that most of the respondents were usually able to evaluate information critically.

Table 8: *Evaluate information critically*

Valid	Frequency	Percentage
Rarely	13	4.2
Sometimes	49	15.9
Occasionally	99	32.0
Usually	108	35.0
Almost always	40	12.9
Total	309	100.0

Select needed information appropriately

The table below shows that if the students were able to select information most appropriate to the information need. The results show that n=16; 5.2% respondents responded that they were rarely able to select information most appropriate to the information need, n=57; 18.4% responded that they were sometimes able to select information most appropriate to the information need, n=67; 21.7% responded that they were occasionally able to select information most appropriate to the information need, n=93; 30.1% responded that they were usually able to select information most appropriate to the information need whereas n=76; 24.6% responded that they were almost always able to select information most appropriate to the information need. The results depict that most of the respondents were usually able to select information most appropriate to the information need

Table 9: *Select needed information appropriately*

Valid	Frequency	Percentage
Rarely	16	5.2
Sometimes	57	18.4
Occasionally	67	21.7
Usually	93	30.1
Almost always	76	24.6
Total	309	100.0

Descriptive Statistics

The mean and standard deviation for different statements regarding self-perceived levels have been mentioned below. The table depicts that respondents were usually able to decide where and how to find the information and select information most appropriate to the information need with the highest mean of 3.61 and 3.50 respectively. However, respondents were occasionally able to identify a variety of potential sources of information, evaluate information critically, differentiate between fact and opinion, and limit search strategies by subject, language, and date with mean i.e. 3.45, 3.37, and 3.28 respectively. Whereas, respondents were sometimes able to locate information sources in the library with a mean of 2.51 respectively.

Table 10: *Descriptive mean for self-perceived IL skills*

Statements	Mean	Std. Deviation
Decide where and how to find the information	3.61	1.089
Select information most appropriate to the information need	3.50	1.194
Identify a variety of potential sources of information	3.45	1.064
Evaluate information critically	3.37	1.031
Differentiate between fact and opinion	3.28	1.230
Limit search strategies by subject, language, and date	3.06	1.041
Locate information sources in the library	2.53	1.218

Strengths and weaknesses regarding IL skills

This is the second objective of the entire study which is related to strengths and weaknesses regarding information literacy skills of MBBS students of King Edward Medical University Lahore. Different statements were asked from respondents using five Likert points scale i.e. very poor, poor, fair, good, and very good. The description for each statement is described below.

Computer literacy skills

The respondents were asked that up to what extent they were experienced regarding computer literacy skills. The results show that n=30, 9.7% responded that they were very poor

regarding computer literacy skills, n=45, 14.6% responded that they were poor regarding computer literacy skills, n=99; 32% responded that they had fair skills regarding computer literacy skills, n=59; 19.1% responded that they were good regarding computer literacy skills whereas n=76; 24.6% responded that they were very good regarding computer literacy skills. The results depict that most of the respondents had fair computer literacy skills.

Table 11: *Select needed information appropriately*

Valid	Frequency	Percentage
Very Poor	30	9.7
Poor	45	14.6
Fair	99	32.0
Good	59	19.1
Very Good	76	24.6
Total	309	100.0

Use of internet resources

The respondents were asked that up to what extent they were experienced regarding the use of internet resources. The results show that n=0, 0% responded that they were very poor regarding use of internet resources, n=16, 5.2% responded that they were poor regarding use of internet resources, n=76; 24.6% responded that they had fair skills regarding use of internet resources, n=117; 37.9% responded that they were good regarding use of internet resources whereas n=100; 32.4% responded that they were very good regarding use of internet resources. The results depict that most of the respondents were good regarding the use of internet resources.

Table 12: *Use of Internet resources*

Valid	Frequency	Percentage
Very Poor	0	0
Poor	16	5.2
Fair	76	24.6
Good	117	37.9
Very Good	100	32.4
Total	309	100.0

Research skills

The respondents were asked that up to what extent they were experienced regarding research skills. The results show that n=13, 4.2% responded that they were very poor regarding research skills, n=53, 17.2% responded that they were poor regarding research skills, n=145; 46.9% responded that they had fair skills regarding research skills, n=88; 28.5% responded that they were good regarding research skills whereas n=10; 3.2% responded that they were very good regarding research skills. The results depict that most of the respondents had fair expertise regarding research skills.

Table 13: *Research Skills*

Valid	Frequency	Percentage
Very Poor	13	4.2
Poor	53	17.2
Fair	145	46.9
Good	88	28.5
Very Good	10	3.2
Total	309	100.0

Usage of tools and techniques for information retrieval

The respondents were asked that up to what extent they were experienced regarding the use of searching techniques and tools for information retrieval. The results show that n=16, 5.2% responded that they were very poor regarding use of searching techniques and tools for information retrieval, n=25, 5.2% responded that they were poor regarding use of searching techniques and tools for information retrieval, n123=; 39.8% responded that they had fair skills regarding use of searching techniques and tools for information retrieval, n=128; 41.4% responded that they were good regarding use of searching techniques and tools for information retrieval whereas n=17; 5.5% responded that they were very good regarding use of searching techniques and tools for information retrieval. The results depict that most of the respondents were good regarding the use of searching techniques and tools for information retrieval.

Table 14:*Use of searching techniques and tools for information retrieval*

Valid	Frequency	Percentage
Very Poor	16	5.2
Poor	25	8.1
Fair	123	39.8
Good	128	41.4
Very Good	17	5.5
Total	309	100.0

Ethical and legal use of information

The respondents were asked that up to what extent they were experienced regarding the ethical and legal use of information. The results show that n=12, 3.9% responded that they were very poor regarding the ethical and legal use of information, n=53, 17.2% responded that they were poor regarding the ethical and legal use of information, n= 98; 31.7% responded that they had fair skills regarding the ethical and legal use of information, n=107; 34.6% responded that they were good regarding the ethical and legal use of information whereas n=39; 12.6% responded that they were very good regarding the ethical and legal use of information. The results depict that most of the respondents were good regarding the ethical and legal use of information.

Table 15: *Ethical and legal use of information*

Valid	Frequency	Percentage
Very Poor	12	3.9
Poor	53	17.2
Fair	98	31.7
Good	107	34.6
Very Good	39	12.6
Total	309	100.0

Descriptive statistics for strengths and weaknesses

The table below shows the mean values for strengths and weaknesses regarding information literacy skills asked about different statements. The mean values are arranged from higher to lower ones. The results show that the use of internet resources was rated as the highest strength by respondents with a total mean of 3.97 whereas the use of searching techniques and tools for information retrieval was rated a weakness by respondents.

Table 16: *Descriptive statistics for strengths and weaknesses*

Descriptive Statistics	Mean	Std. Deviation
Use of internet resources	3.97	.882
Ethical and legal use of information	3.35	1.029
Computer literacy skills	3.34	1.263
Use of searching techniques and tools for information retrieval	3.34	.900
Research skills	3.09	.865

CONCLUSION:

The objective was to identify the self-perceived level of information literacy skills of MBBS students of KEMU Lahore. The five-point Likert scale was used i.e. rarely, sometimes, occasionally, usually, and almost always.

The results show that respondents were usually able to decide where and how to find the information and select information most appropriate to the information need with the highest mean of 3.61 and 3.50 respectively. However, respondents were occasionally able to identify a variety of potential sources of information, evaluate information critically, differentiate between fact and opinion, and limit search strategies by subject, language, and date with mean i.e. 3.45, 3.37, and 3.28 respectively. Whereas, respondents were sometimes able to locate information sources in the library with a mean of 2.51 respectively.

The second objective was to find the strengths and weaknesses regarding the IL skills of MBBS students of KEMU Lahore. The results show that usage of internet resources was a strength and opinioned as good with highest mean as 3.97. However, ethical and legal use of information, computer literacy skills, use of searching techniques and tools for information retrieval, and research skills were opinioned as fair with mean 3.35, 3.34, 3.34, and 3.09 respectively.

The usage of internet resources was a strength and opinioned as good while ethical and legal use of information, computer literacy skills, use of searching techniques and tools for information retrieval, and research skills were opinioned as fair. The respondents disagree regarding the challenges faced such as they have to spend long hours searching for information, it was difficult for them to access and retrieve information from external databases, they lack knowledge and skills to use the computer, they cannot identify databases/e-resources in their study area. The printed information literacy instruction was preferred by KEMU students whereas online courses, orientation by the librarian, and seminars and workshops were not preferred by the respondents.

Following recommendations are made after the analysis and conduct of the study:

- The university should take an interest to design instructional programs by keeping in view the objectives of the information literacy skills.
- To avoid the self-perceived skills by the student's studies should be designed and conducted to measure the actual level of IL skills.
- Task-based studies and assignments are helpful in the promotion of IL. In this regard, students will have a fair idea about methods and resources to be used for their requirements. This is only possible with the support and coordination of librarians and faculty members of the university.
- Orientation sessions related to IL should be conducted for the students.
- In Pakistan, the main role in firming the information literate society is by HEC. Attractive rewards should be offered by the HEC would be the increment in the motivational level of the researchers and students and they will do more efficient work and adopt the skills of information literacy.
- Qualified and trained librarians must be appointed in each university library for efficient and effective services to promote the literacy level.
- Training of the university library staff is crucial for the success of IL. The management, library schools, and professional associations must organize a particular training program as frequently as necessary to train the staff of university libraries and promoting the concept of IL among LIS professionals. Teachers should also be trained along with library professionals so that these teachers should in turn train their students year after year.
- Advertisements, announcements, and posters refer to the resources of literature. They should be placed in the library to attract the students to innovations in the field of ICT.
- Sufficient staff should hire to provide technical and other support to the students in the use of resources.

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