Determining Information literacy Competency of Faculty members and Post graduate Medical and Para medical Students in Using Medical Information Resources

Hakimeh Hazrati
Tabriz University of Medical Sciences, hakimeh.hazrati@gmail.com

Vahideh Zarea Gavgani
Tabriz University of Medical Sciences, vgavgani@yahoo.com

Naser Ghornanian
Tabriz University of Medical Sciences, ghorbaniann@yahoo.com

Determining Information literacy Competency of Faculty members and Post graduate Medical and Para medical Students in Using medical Information Resources

Hakimeh Hazrati (MSc)
Medical Education Research Center Tabriz University of Medical Sciences

Vahideh Zarea Gavgani (PhD)[1]
Tabriz health services and management research center (NPMC)
Vgavgani@gmail.com
(+98) 9148882747

Naser Ghorbanian (MSc)
Para medical Tabriz University of Medical Sciences

Abstract

Introduction: Information literacy(IL) is a set of abilities requiring individuals to identify when information is needed and have the competency to locate, evaluate, and use efficiently the required information. The very aim of this study is to recognize to what extend the medical and paramedical post graduate students and faculty members are able to use the variety of information resources. The study was done in Tabriz University of Medical Sciences (Iran) from October to December 2012. **Methods and Materials**: This study used the descriptive analytical method. The participants of this study were 80 faculty members and 80 postgraduate medical and paramedical students who referred to central library of university within the first two weeks of October (beginning of school year) for information seeking. All of participants in the study were selected. Dates were gathered through distribution of a standard questionnaire of information literacy. Data were analyzed through SPSS/16 and one way ANOVA Independent t-test were applied. **Result**: Information Literacy Competency was classified in three levels: Low, Moderate, and High. According to the results the majority of faculty members had moderate Information Literacy Level (%51), the minority of them had high Information Literacy Level (11.8%). And Information Literacy Level of majority of students was in moderate (%57) . The result indicated that students have higher information literacy than faculty members. (T=0.015). **Discussion and Conclusion:** Information literacy Competency of faculty members and university students was moderate to low and Information literacy competency of students were higher than faculty members.

  Key Words: Information literacy, Faculty members, Postgraduate education, Medical Science Students , Paramedical students

Introduction:

---

[1] Corresponding Author

Information literacy Competency (ILC) is a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information." (American Library Association, 1989) Information literacy forms the basis for lifelong learning. It is common to all disciplines, to all learning environments, and to all levels of education. It enables learners to master content and extend their investigations, become more self-directed, and assume greater control over their own learning. An information literate individual is able to determine the extent of needed information, to access the needed information effectively and efficiently, to evaluate information and its sources critically, and to incorporate selected information into one's knowledge base, to use information effectively to accomplish a specific purpose, to understand the economic, legal, and social issues surrounding the Literacy Competency.(American Library Association, 2003)

The ministry of higher education in developing countries spends high costs to subscribe the databases and journals of foreign publishers especially developed countries. The optimal use of these resources is vital for developing county's policy makers, and for universities accounting departments. In addition; it is important for universities to investigate the extent to which their academia and students use these resources in meeting their information and their capability in optimal use of the information resources. It is a critical issue because of diversity/variety of information resources which are located in different places, and they have used various technological features in their storing and retrieval systems and require different skills in recognizing, locating, accessing, and ethically use of these resources. This may provide the education unit of university with reliable evidence to plane and program the essential courses and syllabuses on based.

Thereby, long-range goals of universities such as improving the quality of education, research and lifelong learning ability will be available. However, by changing perspective of teaching and learning, teaching strategies have changed from traditional approach to modern and student centered. This way increases student's motivation in learning and discovering scientific fact by engaging them in academic and research activities. For this purpose, teachers should help students by equipping them with computer literacy, traditional or general literacy and communication abilities. Kats stated that information without transformation is just raw data and use of the information requires mastery of cognitive skills like critical thinking. This is depending on location, evaluation and application of information. He stated that information literacy involves four elements: transmission, reception, transformation and access to information, which is during the process of reception to transmission and transmission to transformation (Catts, & Lau, 2008)

Therefore, the students and academia with information literacy can determine type, scope and range of needed information, access them effectively and efficiently, evaluate information and information resources critically, integrate the selected information with prior knowledge and make effective use of them for achieving specific goals.

They should know ethical rights of social, economic and legal issues of using and accessing to information and developing successful strategies to search and organized information (Asgharzade,1387). So the research-based learning, inquiry-based and independent learning are different aspects of information literacy (Mansourian,1387) which is consistent with the goals of universities in the developing countries.

There are potential reasons for learning/teaching information literacy among scholars. Some of the most important reasons are highlighted

1) The vast majority of documents found on the Internet have not passed a rigorous peer-review process. Arguably, health information consumers will be at a greater risk of making health decisions on the basis of noncredible information if they conduct a Google search as opposed to a search in a scholarly library database. This risk will be particularly high for individuals with poor health information competencies. Research comparing clinical evidence to Internet information reveals numerous examples of erroneous and potentially harmful information on such popular topics as cancer rates, smoking cessation methods, and fever management in children (Biermann,1999).

2) Deficient information skills, may prevent members of the public from recognizing that key information is missing, from understanding the difference between biased and unbiased information, from distinguishing evidence-based claims, and from interpreting the information intended for health professionals(Cline, & Haynes,2001).

Because of changes in higher education through information revolution and information technology led in the obligation of IL in higher education.

Since nowadays the number and variety of the data resources will be increasing and in other side the funding of universities for providing them is limited, so careful choice of the resources for subscription is critical. This is necessary for educational system to guarantee the high quality and systematic educational programs for optimize use of the resources.

It seems that students are familiar than their professors with online information resources due to differences in preferences and capabilities of two generations but it does not necessarily mean that the capability of critical thinking and knowledge also is similar in two generation.(Mackey &, Jacobson, 2005).

But it is necessary to find out whether is this universal pattern and in every society there is information literacy divide between students and professors? Is this information literacy divide affects the utilization of core and qualifies resources of information and therefore the level of information transformation is affected by accessing non qualified resources? Is there a need for education intervention in developing countries academia to optimal use of the information resources especially in the higher education setting?

 Therefore; the main goal of this project was to identify Information literacy competency among   medical academia and medical students and examine relationship among   age , degrees, sex and level of information literacy and   comparing level of information literacy between academia and medical students.

Review of literature:

The terms information literacy, academia, medical students were searched in Medline and Google Scholar for English language literature and Iranian databases including: Irandoc(www.irandoc.ac.ir), www.SID.ir , and magiran(www.magiran.com/) for Persian citations.

The result was studied against our objectives. The following studies were identified as relevant literatures.

A national survey conducted by the Pew Internet & American Life project, entitled "Information searches that solve problems", found that 63% of those who used the Internet were successful in finding the information they needed, but only 57% of users seeking information specifically about health-related matters were successful.(Estabrook L, Witt E, &Rainie L,2007). Also a cohort study by Kingsley (2011) evaluated the information literacy skills of the first-year dental students to find out if the o⎫f students were able to demonstrate their knowledge of the content-specific, technology-independent portion of each question, The study revealed that more than half of students from the first cohort were unable to provide an evidence-based citation to demonstrate their proficiency with at least one of the three online, technology-dependent ILS portions of the assignment. Similarly, between one-third and one-half of students from the second cohort in the subsequent year were also unable to locate and provide an evidence-based citation to at least one of the three ILS components of this assignment.(Kingsley, 2011).

A national survey conducted by the Ivanitskaya and Marie (2006) among 400 college for Readiness Self-Assessment (RRSA) based on the Information Literacy Competenc Standards for Higher Education, .It measures students' proficiency in obtaining health information, evaluating the quality of health information, and understanding plagiarism. It found that only 50% of respondents were able to correctly identify the website with the most trustworthy features. Less than a quarter of study participants reached the correct conclusion that none of the websites made a good case for taking the nutritional supplements. Up to 45% of students were unsure if they needed to provide references for ideas expressed in paraphrased sentences or sentences whose structure they modified. Most respondents (84%) believed that their research skills were good, very good, or excellent. Students' self-perceptions of skill tended to increase with increasing level of education. Self-reported skills were weakly correlated with actual skill level as the overall RRSA score was Cronbach alpha = .78 for 56 RRSA items. (Ivanitskaya, 2006).

Another national survey conducted by the Carol A. Powell, Jane Case-Smith (2003) of the Ohio State University's Occupational Therapy revealed   that a majority of the occupational therapy graduates prefer to use information resources that are readily available to them, such as advice from their colleagues or supervisors (79%) and the Internet (69%), rather than the evidence available in the journal literature. Twenty-six percent (26%) of the graduates have searched MEDLINE or CINAHL at least once since they graduated. Formal library instruction sessions were considered useful by 42% of the graduates, and 22% of the graduates found informal contacts with librarians to be useful. (Carol, 2003).

A recent cohort study   of information literacy training for undergraduate midwives in Trinity College Dublin among 108 undergraduates from 2008 to 2011 was conducted by the Lalor JG, Clarke M, Sheaf G (2012), providing information from two cohorts in their first year, three cohorts in their second year and three cohorts in their third year. Unfortunately, complete data are not available for all of these students for the analyses because of absence from the relevant sessions and technical difficulties with the software used to record the searches on some of the computers during some of the sessions. At least one within-year comparison was available for 80 students.(Lalor, 2012).

 A competence-based IL program was developed by the A Australian School of Advanced Medicine (ASAM) where learning outcomes were linked to current patients and assessed with

checklists .Weekly case presentations included clinicians' literature search strategies, results, and conclusions. Librarians provided support to clinicians' literature searches and assessed their presentations using a checklist. Outcome data showed clinicians' searching skills improved over time; however, advanced MEDLINE searching remained challenging for some.(Mary, R. Simons, Morgan, 2012).

A descriptive study by Xiaolei Liu & Zhenghong Wang in China showed that at the time there were many problems impacting on information literacy education for medical students in China. Generally, these fall into three categories. The first concerns the lack of hardware targets. In China, the organizations which administrate education and many educators are already aware of the importance of information literacy for medical students and are taking various measures sufficient. The second category relates to the abilities of information literacy educators themselves. The last category refers to unreasonable curriculum design. Many medical colleges and universities do not plan or implement a general teaching policy or curriculum design and the relationships among teaching activities aimed at students of different levels of education are not considered carefully or logically curriculum design. (Xiaolei ,2009).

  The cohort's study of junior doctors about their recall of the instruction they had received about evidence based information seeking skills, and their confidence in retrieving and evaluating information for clinical decision making. They completed a search based on a scenario related to their specialty. Their self-assessment of their competency in conducting and evaluating a search was compared with an evaluation of their skills by an experienced observer. Results showed that most participants recalled the training they received but had not retained high-level search skills, and lacked skills in identifying and applying best evidence. There was no apparent link between the type of training given and subsequent skill level. Those whose postgraduate education required these skills were more successful in retrieving and appraising information. Participants used a wide range of information sources, especially Google, and participants showed no awareness that Google may include some Pub Med references among its top results. The cohort which had the most intensive evidence based training (cohort 4) made less rather than greater use of evidence-based sources they showed no awareness of why this had failed or how to improve their strategy. The power of the MESH thesaurus was poorly understood, as was the more simple technique of typing a single search term at a time and combining the terms. Their evaluation and critical appraisal skills were not well developed. Few were able to refine their strategies, and most relied on extrinsic criteria when evaluating what they found; for many, currency mattered most. Despite this, nearly all felt confident in critically appraising articles, and applying findings to patient care.(Cullen , 2011).

A Randomised Control Trial study by Brettle & Raynor (2011) compared the effectiveness of an online information literacy tutorial with a face-to-face session for teaching information literacy skills to nurses and found that the search skills of the first year pre-registration nursing students (p=0.001), and remained unchanged 1 month later, regardless of teaching methods. The two methods produce a comparable improvement (p=0.263). There was no improvement or degradation of skills 1month possession for either method (p=0.216). Nurse's information literacy skills improve after both face-to-face and online instruction. (Brettlea, 2011).

A national survey conducted by the Lana V. Ivanitskaya identified the skills, if any, that health paraprofessionals students wished to develop after receiving feedback on skill gaps as well as any strategies they intended to use to address these gaps. To find students' intended to develop library skills (64% of respondents), Internet skills (63%), and information evaluation skills

(63%). Most students reported that they would use library staff members' assistance (55%), but even more respondents (82%) planned to learn the skills by practicing on their own. Getting help from librarians was a much more popular learning strategy than getting assistance from peers (20%) or professors (17%). Using an online assessment of health information competencies, undergraduate students of Health Sciences were shown to have very high levels of confidencein their own information literacy skills; however there was only a weak correlation with actual skills demonstrated . (Lana , 2012).

Ivanitskaya L, O'Boyle I, Casey AM   studied college students the proficiency of college-age health information consumers in finding and evaluating electronic health information; to assess their ability to discriminate between peer-reviewed scholarly resources and opinion pieces or sales pitches; and to examine the extent to which they are aware of their level of health information competency. They found that Even though most students (89%) understood that a one-keyword search is likely to return too many documents; few students were able to narrow a search by using multiple search categories simultaneously or by employing Boolean operators. In addition, nearly half of the respondents had trouble discriminating between primary and secondary sources of information as well as between references to journal articles and other published documents. When presented with questionable websites on nonexistent nutritional supplements, only 50% of respondents were able to correctly identify the website with the most trustworthy features. Less than a quarter of study participants reached the correct conclusion that none of the websites made a good case for taking the nutritional supplements. Up to 45% of students were unsure if they needed to provide references for ideas expressed in paraphrased sentences or sentences whose structure they modified. Most respondents (84%) believed that their research skills were good, very good, or excellent. Students' self-perceptions of skill tended to increase with increasing level of education. Self-reported skills were weakly correlated with actual skill level, operationalized as the overall RRSA score (Cronbach alpha = .78 for 56 RRSA items (Vanitskaya, 2009).

A case study for teaching information literacy skills was done by Kingsley KV (2009) among 78 dental students to find out their information literacy skill levels and abilities. This assignment was designed with three specific objectives and outcomes in mind. 1) Describe the scientific basis of concept, 2) Compile a bibliography of eight articles that represent the current literature in the area of the mentioned concept, 3) From the articles in this bibliography, provide an analysis of the two articles that are considered the "best" evidence and defend the selection of each one .Although all students were able to provide the correct response from the content-specific, or technology-independent, portion of the assignment, more than half (54%) were unable to demonstrate competence with a web-based, technology-dependent section of this assignment. No correlation was found between any demographic variable measured (gender, age, or race).(Kingsley ,2009) .

In the cohort study by Lalor, Joan G., all midwifery students from the 2006, 2007 and 2008 intake (*n* = 108) were invited to participate in the project. After enhancing library-based instruction, we found that the sessions in the first and second years of their undergraduate programmes produced the hoped-for improvements in the ability of midwifery students to search appropriate resources for a topic relevant to maternity care, with the majority of students whose searches were rated as poor or fair in the pre-instruction phase showing better information

literacy after the sessions: 59 (97%) of the 61 students who were poor or fair pre-instruction in the first and second years combined improved. Among the 27 students whose searches were categorized as good in the pre-instruction phase in these two years, 17 (63%) remained good, 9 (33%) became fair and 1 (4%) became poor. In general, the improvements were sustained by the start of the following year, with none of the students for whom data are available slipping back to poor. This supports the value of the sessions as a means for providing the students with the skills to find the research they will need for evidence-based practice. However, by the third year, it would appear that the sessions no longer provide further improvement (Lalor ,2012).

Mayebi investigated 18 female students of Mainer faculty of California by questionnaire with relationship knowledge of information questions. The result indicated that research is conceptual category and students which were equipped with information literacy can access information (Maybe, 2005).

Pandpazir in assessing information literacy of post graduate students In Kermanshah University of Medical Sciences indicated that 49.60 % of students are proficient in understanding of needs information and 52.14% of students are proficient in research, 37.32% of students are proficient in allocation of information, but only 33% of students are proficient in evaluating the results of process and meeting the information needs.(Pandpazir, 1389).

The study of Information Literacy of students in Shahid Chamran University (Ahwaz-Iran) revealed that one of the most important resources for student are printed books and they paid little attention to analyze the information, because they didn't know how to search information correctly .(Bardestani, 1383).

Farajpahlo in his study about needed training program for searching information as one of the main concepts of information literacy and providing guidelines for conduction of this course among faculty members of Ahvaz - Iran indicated that (79.1 %) of participants need training. He also showed that (67.2%) of participants need to learn how to search and access information via the internet, (36.8%) need to learn how to use and access information via databases and compacts disks. His study found relationship between teaching experiences of academia and training needs of using and accessing to databases and compact discs. In other hand there was a significant relationship (p< 0.05) between the degree of academia and their needs to learn how to use from printed recourses and facilities of library. (Farajpahlo ,1383).

Bakhtiarzade, Parirokh and Mogaddaszade predicted that (93.3%) of faculty members often use search engines and Google for obtaining information, (55.4%) search information by keywords, (88.4%) use Boolean operators and (51%) use English language for production of science (Bakhtiarzade, 1378).

Pilehrood (1987) in a study of 46 faculty members of library science and their role in production of science concluded that the main objective of the faculty members from seeking information is to provide scientific articles and update their information. They also indicated that (89%) of participants had need no training to access of printed materials but (51.1%) need to train to access electronic resources and (70%) need to learn methods of information seeking on the internet.

According to related study, level of information literacy of students and faculty member are intermediate to little above average because students interested in computer technologies but their ability in reviewing the content and using the obtained information in appropriate situation, problem-solving and decision making is faced with major problems. Considering the generation gap between teachers and students and asymmetry of their information literacy which is caused difficulties in transmission and reception of information and learning/teaching process, universities for achieving their goals need to have effective proceeding in order to enhance their capabilities. They should change students' raw data to new developments with extensive review. Along with progress of the world, we need to have careful study of information literacy of students and faculty members and effective programs for increasing their capabilities. Also these studies showed that none of them compare faculty members and students' level of information literacy. Since there is not similar study in universities of developing countries, we decided to compare the level of information literacy of students and faculty members by questionnaire.

The main objective of this study was to determine the level of Information literacy competency among medical academia and medical students in Tabriz University of medical Science as a first rank university in developing countries. It also determines correlation between demographic features such as age, degrees, sex and level of information literacy.

Methods:

This study used descriptive-analytical methods of research. Participants of this study included 80 medical and Para medical students and 80 faculty members. Data gathered by information literacy standardized questionnaire which was arranged in two parts: demographic and information literacy questions. The variability of this questionnaire was approved by experts and reliability was confirmed by a Cronbach Alpha. The Chronbach alpha for the prepared questionnaire was 0.8, which indicates the reliability of the questionnaire is appropriate and desirable.

The first part of questionnaire included questions about gender, age, academic degree of students and teachers, academic field of students and academic rank of academic members.
The second part was devoted to information literacy assessment. The questions of the second part were arranged in four parts: 1- recognizing the need for information, diversity of information sources and format of them, 2. Location of domain 3. Reassessing the extent of information literacy competency, 4. Introduction to intellectual property rights of using information resources.

Faculties and students responded the questionnaire individually .Answers were adapted with keys. The total score of each paper was 35. The scores classified according to Likert scale. Scores between 0-11 are low, 13-23 Moderate and >24 are high. Thus their information literacy classified in this way and the scores of two groups, students and academia, compared with their age, sex, field and degree by one way ANOVA, Independent t-test. And then we compare raw score by Independent t-test.

Results:

Eighty medical post graduate students and 80 faculty members of Tabriz University of Medical sciences were responded to the questionnaire. Among postgraduate students 52 (65%) were female and 28 (35%) were male. Forty two percent of students had less than 22 years old, (33.3%) between 22-24 years old and (24.2%) had over 25 years old. Among participated students (48.7%) were medical students, (26.6%) were pharmacology students and (22.7%) were paramedical students. Medical students were half of the participants of the study. Minimum number of students studied Paramedical sciences including clinical Biochemistry, Microbiology, Laboratory sciences and Health information technology. Also Pharmacy students constituted almost one-third of the total population.

Among students 52(65%) were female and 28 (35%) were male. Less than half (42%) had less than 22 years old and (33.3%) between 22-24 years old and (24.2%) had over 25 years old.
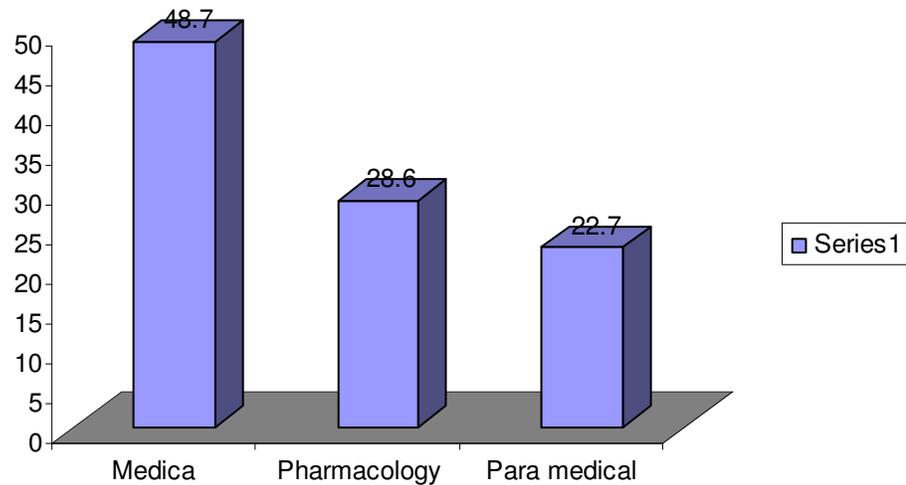

Figure 1. Students' Field of Study

Out of 80 faculty members participated in this study   12 (15%) of them were female and 68 (85%) were male.
Among the faculty member who were participated in this study, 16(20%) were lectures, 36 (45%) Assistant Professor, 8 (10%) Associated Professor, 20(25%) were Professor.

Among the total of students who participated in this study, information literacy level of 12(14.3%) were low, 57.1 (45%) were moderate and 23 (28.5%) were good. And in versus of them, among faculty members (37.3%) were low, 40 (51%) moderate and (11.8%) were high.
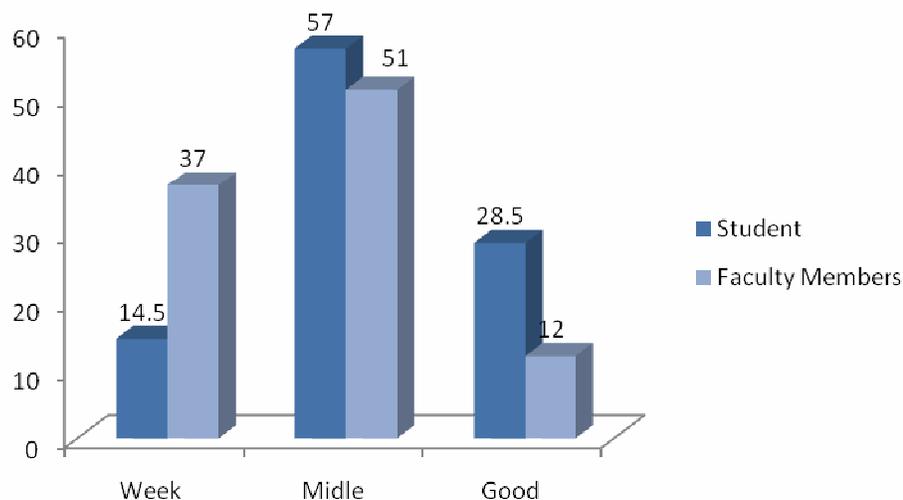
Figure 2. Rate of Health Information Literacy in Two Groups (Student & Academia)

According to independent t-test, there is a significant relationship between academia and students information literacy

Table 1 Relationship between academia and students information literacy

	M(sd)	t	df	P
Student	15.65(4.862)	2.49	84	0.015
Academia	13.21(4.177)			

Information literacy skills
In this study, we evaluated the overall information literacy rate; moreover we studied information literacy in four main areas including Knowledge, locating information, evaluating information, and right and ethics of information use.

The findings indicated that students' skills and abilities in recognizing knowledge were (4.6±1.50), and academia were (3.13±1.39); retrieving information by students (6.87±1.68), and by academia (6.33±1.99), in evaluating of information by students were (5.67±1.89), by academia (4.91±1.66) and in ethics and rights of information resources use by students were (1.10±0.54) and by academia were (1.18±0.55)
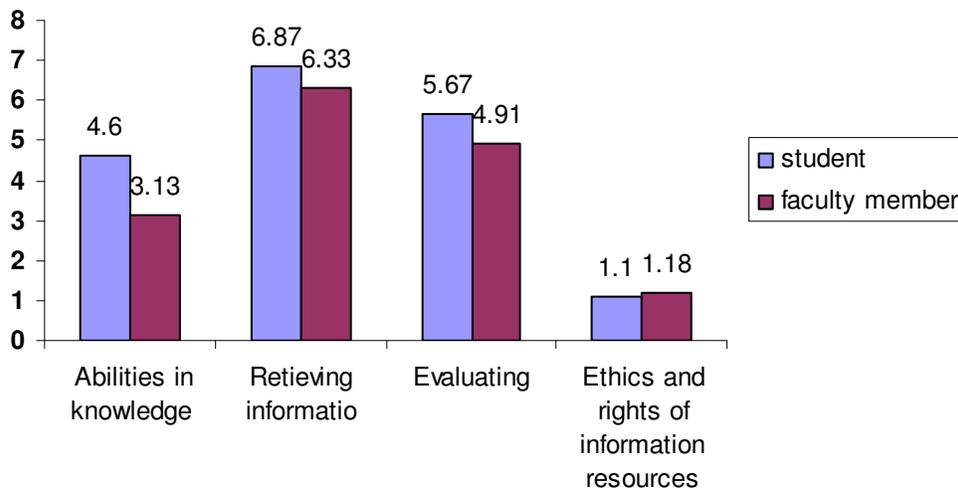
Figure 3. Comparing students and faculty members information literacy level in four main area: knowledge, locating information, evaluation of information, right and ethics of information use

Students had higher knowledge and information locating ability than lectures. So academia had little capacity in knowledge and retrieving information. It can be applied to the online environment and guided search. This could be due to the generation gap and the age and information seeking habits. Therefore we compared the relationship between information literacy and age. According to the ANOVA test, there is a statically significant relationship between age and information literacy level. (p=0.001) Also there is a statically significant relationship between group 1 and group 3 (p=0.04) and group 1 and 4 (p=0.03)

According to independent t-test, there is a significant relationship between knowledge and evaluation of students and faculty members.

Table 2. Relationship between the academia and students' skill in knowledge and locating information

		Mean (sd)	P
Knowledge			
	Academia	(3.13±1.39)	0.00
	Student	(4.6±1.50)	
Locating			
	Academia	(6.33±1.99)	0.08
	Student	(6.87±1.68)	

But, according to ANOVA test, there was not any significant relationship between age and information literacy level of students.(P= 0.623)

(Table 3). Relationship between information literacy and age of academia

Age	Mean (sd)	P
<=36	16.50(3.956)	
36-41	13.30(3.1663)	0.001
41-46	11.25(3.441)	
46-54	11.08 (3.058)	

There is in inverse relationship between information literacy level of academia and their age. Younger lectures are more equipped with information literacy than older one.

Table 4.Relationship between information literacy and age of students

Age	Mean (sd)	P
<=36	15.64(3.543)	
22-24	17.09 (5.1663)	0.007
25.00+	15.00 (6.347)	

Determining the relationship between the information literacy of faculty member and their academic rank

There was not any significant relationship between academic rank of faculty member and their information literacy base on ANOVA test (P= 0.007), but between the information literacy of assistant professor (the lower rank) and professor (the higher rank), there is a significant relationship. Information literacy level of academia who was assistant professor is higher than professor. It also represents the difference between the old generation and new one and generation gap in digital skills that there is between them.

Table 5.Relationship between information literacy and degree of academia

	Mean	P
Instructor	13.62 (3.852)	0.007
Assistant Professor	14.33 (4.488)	
Associated Professor	14 (2.549)	
Professor	10.78 (3.533)	

Evaluation of relationship between information literacy of students and their academic fields

According to ANNOVA test, there is not any significant relationship between students' information literacy level and their academic fields. (p=0.111)

Discussion and Conclusion:

In this study, information literacy competency of 160 faculty members and post graduate medical students in Tabriz University of Medical Sciences in accessing and retrieving of electronic information resources were investigated. Evaluation was done via questionnaire about information literacy skills. And the findings were classified in three level of low, moderate and high. Among academia, minority of them had high level information literacy level although among students minority of them had high score in information literacy. But in compartments with academia, the students had higher ILC. This is due to generation gap between two groups of this study, student and academia, as representative of Information Technology in research and education.

This study also showed that almost the average size of faculty members and students hold a middle level of information literacy, but the number of students with high level information literacy were higher than faculty members and just a few number of faculty members enjoy a high level skill of ILC.

According to independent t-test, level and range of information literacy of postgraduate medical students were more than academia, it shows reverse relationship between age and academic rank of academia.(p=0.015). Young faculty members are equipped with information literacy. But there is not any significant relationship between age and academic fields of students. Only information literacy competency of pharmacology students was higher than medical students. The lectures and medical and Para medical students because of their professional nature, need to access to up dated information. And regarding to technology development and complexities of information carriers, we should equipped them with information literacy skills to acquire lifelong learning, critical thinking, decision making and problem solving abilities and creativity and innovations.

University students may appear to be more comfortable in technology-intensive environments than are their professors but it does not necessarily follow that they have the knowledge and critical thinking skills to effectively locate, filter, and evaluate information found online. A core competency for operating in electronic environments is information literacy; however, until recently information literacy initiatives were primarily the concern of librarians.(Mackey,2005) .

According to Anderson, skill development has three stages: (1) the declarative knowledge stage, when knowledge of facts is built, such as facts about reputable sources of health information and general procedures for obtaining information; (2) the knowledge compilation stage, which is characterized by proceduralization and composition; and (3) the procedural stage (Anderson , 1982,1987). In this study we evaluated the academia and students information literacy competency level about knowledge, locating, and ethical rights' of using information. It revealed that in knowledge and evaluates abilities students had higher score than academia, in locating information skill both group had similar score, but in ethical rights of using the information academia had higher score than students. However, this difference is very small, but

it is emphasized. Teachers reflect greater adherences to the ethics of information rights. It may be associated with the age.

The study showed that students are more aware of modern technologies than faculty members; because of generation gap between academia and students and changes in teaching methods from education centeredness to research centeredness. Filling this gap between the capabilities and skills of academia and students should be done with training course. The suggestion of this study is that inserting an IL course in medical and paramedical student's curriculum is obligatory. The contentment of this course might include introduction to medical data bases, publishing development, sharing data online, use of social networks, communicating effectively with information media centers for gathering and distributing of information, citation analysis and ethical information. However for compensating information gap of academia, having educational workshop is suitable, too.

References

American Library Association, Chicago, IL. (1989). American library association presidential committee on information literacy. Final report.
Retrieved from: http://www.ala.org/acrl/publications/)whitepapers/presidential

American Library Association.(2003).Information LiteracyCompetency Standards for Higher .Chicago,Illinois.Retrieved from:
http://www.ala.org/acrl/standards/informationliteracycompetency

Anderson, JR.(1982). Acquisition of cognitive skill. *Psychol* ,89(4),pp369–406. Anderson JR.(1987). Skill acquisition: compilation of weak-method problem solutions. *Psychol Rev*,94(2),192–210. doi: 10.1037/0033-295X.94.2.192.

Asgharzade,E.(1387). Information Literacy and its result in the world. *Journal of Information seeking and Information Science*s,(8),33-41.

Bakhtiarzade, A.(1378). Evaluation of information Literacy of Postgraduate students in Alzahra University. Master of Sciencec Thesis. Iran Universty,

Bardestani,M.(1383). Evaluation of Information Literacy in Shahid Chamran University (Ahvaz). Educational conference of user and developer of information literacy in libraries, information centers and museums.Mashhad, Library Organizations, *Musems and document center of Astan Qodse Razavi*. Retrieved from http://www.civilica.com/Paper-UEILLIC01-UEILLIC01_028.html.

Biermann J. S., Golladay G. J., Greenfield M. L., & Baker L H. (1999). Evaluation of cancer information on the Internet. *Cancer*,86(3),381–90.

Brettlea , A . ,& Raynor, M .(2011). Developing information literacy skills in pre-registration nurses: An experimental study of teaching methods, *Nurse Education Today* . Elsevier Ltd.

Carol, A.& Powell, J.(2003). Case-Smith . Information literacy skills of occupational therapy graduates: a survey of learning outcomes .*J Med Libr Assoc* .91(4)

Catts, R., & Lau, J. (2008). Towards information literacy indicators. UNESCO: Paris. Retrieved from: http://unesdoc.unesco.org

Cline R.J., Haynes KM.(2001) Consumer health information seeking on the Internet: the state of the art. *Health Educ Res* ,16(6),671-692.

Cullen , R., Clarkt , M ., & Essont , R . (2011) Evidence-based information-seeking skills of junior doctors entering the workforce: an evaluation of the impact of information literacy training during pre-clinical years. *Health Information and Libraries Journal*, 28, 119–129

Estabrook L, Witt E, &Rainie L(2007). Information searches that solve problems: How people use the Internet, libraries, and government agencies when they need help. Washington, DC: Pew Internet & American Life Project, Retrieved from .http://www.pewinternet.org

Farajpahlo, A.,& Moradi Mogadam, H. (1383). Evaluating Shahid Chamran academias concepts toward their educational program as one of the basic aspect of information literacy and strategies for delivering these courses. Mashhad, Library Organizations, Musems and document center of *Astan Qodse Razavi*. Retrieved from http://www.civilica.com/Paper-UEILLIC01-UEILLIC01_013.html

Ivanitskaya L., O'Boyle I.,& Casey A.M . (2009). Health information literacy and competencies of information age students: results from the Interactive .Online Research Readiness Self-Assessment (RRSA). *J MedInternet Res* ,8(2):[e6.screens]. Retrieved from: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1550696/.

 Ivanitskaya, L. ,& Marie , A.(2006). Casey Health Information Literacy and Competencies of Information Age Students: Results from the Interactive Online Research Readiness Self-Assessment (RRSA). *J Med Internet Res* .8(2)

Kingsley, K., Galbraith, G. M., & Herring, M.(2011). Why not just Google it? An assessment of information literacy skills in a biomedical science curriculum. 11

Kingsley, KV,& Kingsley, K. (2009) . A case study for teaching information literacy skills. *BMC Medical Education*, 9(7)

Lalor, J. G., Clarke, M.,& Sheaf, G. (2012) .An evaluation of the effectiveness of information literacy training for undergraduate midwives to improve their ability to access evidence for practice. *Nurse Education in Practice* ,12(5) , 269-72.

Lalor, JG., Clarke, M. ,& Sheaf,G.(2012).An evaluation of the effectiveness of information literacy training for undergraduate midwives to improve their ability to access evidence for practice. *Nurse Educ Pract,* 12(5), 72-269

Lana , V.,& Kaitlyn A. H. (2012). Ivanitskaya Developing health information literacy: a needs analysis from the perspective of preprofessional health students. *J Med Libr Assoc*. ,100(4), 277–283.

Mackey TP., Jacobson TE.(2005).Information literacy: A collaborative endeavor. *College Teaching*,53,140–144. doi: 10.3200/CTCH-53.4.140

Mansourian,Y(1387). Information Literacy and its five levels. General Information and communication science book

Mary, R. Simons, Morgan, M. K.,& Stewart, A.(2012). Time to rethink the role of the library in educating doctors: driving information literacy in the clinical environment . *J Med Libr Assoc* , 100(4), 291–296.

Maybe, C. (2005). Study of relationship or understanding about the student'sinformation literacy. *Journal of university teaching and learning practice*, 5

Pandpazir, M., & sohrabi,Ch. (1389). Information Literacy based on six large Eisenberg-Vebrcotiz Model in Kermanshah University of Medical Sciences. Scientific-research Journal of Public Library, 67(2)

Pelerood, A.L., (1387) .Information Literacy of faculty members of librarian and their role in producing information literacy in Azad and Public Universities.

Xiaolei , L., & Zhenghong . (2009). Information literacy education for medical students in China , 43,818–819