



Identification of Competencies for Professional Staff of Academic Medical Libraries in Iran

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Abstract

Introduction: The definition of competencies is continuing to become more common in Library and Information Science (LIS). It is used for describing the library positions and the means of assessment. The main object of study was to determine the skills and knowledge that the academic medical librarians required for the emerging roles of medical librarianship in Iran and to find out their education and training needs. **Methodology:** A survey method was used for gathering data. A structured questionnaire, listing 60 competency statements, which covered six areas, was designed after an extensive literature review. The structured questionnaires were sent to all academic medical sciences departments in Iran, those who had at least an undergraduate or Master's degree in Library Science throughout the country. A total number of 165 questionnaires were returned and went under analysis. **Results:** The results of study indicated that the essential competencies which were expected from Iranian academic medical librarians with Bachelor's degree qualification were "general-and personal competencies". In addition, "health science reference and information services competencies" were recognized as the second most important competencies for academic medical librarians with Bachelor's degree qualifications. However, the priority for academic medical librarians with a Master's degree qualification was "management theory and techniques competencies". The other priorities were "Health sciences reference and information services competencies". **Conclusion:** The study concluded that the confirmed competencies can be used for the assessment and adjustment of the curricula of formal education programs of medical librarianship in Iran.

Subject Areas

Library, Intelligence and Philology

Keywords

Medical Librarianship, Roles of Academic Medical Librarians,

Knowledge and Skills, Competencies

1. Introduction

The rapid growth of information technologies has changed our world into a globalized village, where any kind of information can be accessed systematically. The influence of such change could be seen in the libraries more clearly than other places. We are witnessing that the prior dominant task of libraries is now done by others, including the end-users [1].

The existence of medical librarians has become a challenging issue regarding the essential point of medical information as major source of academic information in the universities all over the world. Hence training and instructing the medical librarians have become as an imperative matter in new area of technology. Nonetheless the library schools are the initiate point of preparing the information professionals for preparing them in information centers for disseminating the pertinent information regarding the clients' needs [2] [3].

We are aware that the information and communication technologies (ICTs) have influenced on any kind of professionals as well as the librarians' profession. The ICTs have impacted on accessing, managing and the dissemination of information stored in the medical libraries and have reformed the librarian roles within their workplaces [4].

In the innovative age of information science and technology, it is crucial for medical librarians to possess the necessary competencies for working in a specialized workplace, where the equipment and the clients' needs are being changing rapidly. Such changes are happening at a fast speed that every day the new skills and styles are needed to handle the information and the related ideas. The changing view point of users and the progression of new technology has enforced the professionals of library and information sciences to improve their knowledge and gain the new competencies, abilities and to improve their ability according to the new environment for coping the obsolete and outdated [5].

The essential task of medical libraries is to support the medical sciences materials which we can label it as the most dynamic disciplines. On the other hand, the working atmosphere of library and information professionals is changing into a complex environment due to the alteration nature of information. The speedy alteration of information in medical sciences causes a greater pressure on the work-place of medical librarians and enforces them to learn new techniques for improving the competencies for achieving the necessary skills [6].

It is essential to determine how the competency is defined and to discover if there is a common definition that the library and information science professionals are using due the demand of increased accountability in the libraries and the growing usage of concepts in librarians [7].

In deed the competencies were developed from the behavioral-psychology in the USA, describe the requirements of positions in an attempt to develop the

human performances [8].

The term of “competencies” has many definitions that mirror the diverse history of the concept. It is used in clinical psychology as well as in law to represent the legal standards of mental capacity, and the ability to care for oneself, or the ability to performances in daily living activities. In professional counseling, the term of competency describes a comprehensive area of knowledge, abilities and skills that associated with specific professions. The current use of the competencies could be traced back to Griffiths and King (1985) who described the term as knowledge, skills and attitudes. Knowledge refers to the familiarity, awareness/ understanding of doing something, whereas the skill is the ability to carry out a task effectively. Attitude refers to the mental/emotional approach of a person to a situation [9]. Boyatzis (1982) defined the competency as an underlying characteristic of a person which can lead to the effective performance of a profession [10].

As emphasized by Giuse *et al.* (1997), there is an obligation need to the concept-based attitude rather than competency-based attitude to the education and training of medical librarians [11].

Competences are directly associated to the performance, helpfulness of performance, and the importance of the accomplished work. The capacity to the progressed competencies is taken from training, education and experience. The competencies are moderated by the rewards devoted with the performances and result of performances in the form of services or products. The performances could be tested by using a variety of administrative and appropriate factors that are termed as performance processes. The performances might influence immediate effect on a situation, service users, or forms of usage, but it might have long-term bearing which effects the organizational missions, purposes and community in a distant, indirect and unconscious method [12].

Competencies have gained the global interests through the last decade. We are witnessing that various organizations and institutes engaged themselves with competency studies for identify the competencies that are essential for making the organization to work professionally. Though there are different kinds of approaches to competencies, one of the most commonly used approaches is the competencies that are used for focusing on the people doing the work. That is, their knowledge, skills and attitudes needed to perform a work effective, rather than the work itself. This means that the factors of recognizing and affective feeling are all effective in the competencies. The most important factors of a competency are included:

- **Knowledge**-what a professional staff should know and understand about the subject to ensure successful accomplishment of the job.
- **Skills**-which are essential for processing the knowledge.
- **Attitudes**-The manner of thinking or feeling about the behavioural characteristics of the job [13].

Some studies emphasize that knowledge and skills should be focused by considering the competencies. Therefore the two major dimensions of competencies

including knowledge and skills were taken into consideration in the current study for identifying the required competencies of Iranian academic medical librarians.

The main objective of this current study was to recognize the competencies that were required for the academic medical librarians in Iran. The results of study provided an overall basis for assessment of the medical library and information sciences curricula for the necessities of academic medical libraries. The results of this study would be useful for administering the MLIS departments, workplace managers and managers, and also the academic medical librarians, who are the actual beneficiaries of different features of competencies.

2. Methodology

The study used a survey as its research method. To explain the definition of competency for academic medical librarians, we provided a list of required competencies in the academic medical libraries in Iran.

A provisional list of 120 competencies was arranged after a wide-ranging review of literature published through the last 25 years. Due to the lack of literature related to developing countries, the literature of developed countries was retrieved and used. We first removed the duplicate statements from the initial list. The remaining list was revised many times to merge the similar statements and to decrease their number. We merged the statements by considering the fact that these statements should appear as an accepted unit. This work resulted in a draft instrument covering 60 competency statements in six areas. Every statement had a 5-point Likert scale as well as a similar column for remarking by panel of experts. A few rows were taken blank at the end of each area in order the experts might add other competencies. The statements were reviewed by four MLIS faculty members (those who had PhD degrees and published papers on competencies for MLIS professionals) for the content validity.

The list was reviewed based on the feedback received from the experts' panel and submitted to them again for final assessment. During this workout, some competencies were removed from the list and some competencies were added to the list, based on the comments of experts' panel. The studied instrument was revised in response to the ambiguities recognized by the participants of the initial-study. They also documented some professional terms which were used in the instruments.

The structured questionnaires were sent to all academic medical sciences departments in Iran, those who had at least an undergraduate or Master's degree in Library Science throughout the country. A total number of 165 questionnaires were returned and went under analysis.

The reason of selecting the academic medical librarians as the sample of study was that, they serve a wide spectrum of clients include, students, interns, researchers, physicians, and academic members in medical sciences universities. Medical librarians engage themselves with a variety of tasks, by serving the clients whose needs are different. They are well-positioned in the institutes to recognize

the changing needs and demands of the medical information services.

According to the feed-backs received from the population of under study, the required amendments were implemented. The finalized questionnaire was developed in accordance to the objectives of the study and divided into 2 sections. The demographic part of questionnaire consisted of 7 questions and the list of competencies comprised 60 statements.

To measure the acceptability of each statement, we used a scale from 1 to 5 (not necessary to completely necessary). We took a few blank rows at the end of each area if any of the librarians may like to add other competencies.

A test and re-test were used for measuring the relativity of the research tool, which showed a high correlation rates for all components. The internal-consistency of all 60 statements was tested by Cronbach's alpha. The Cronbach's alpha values indicated a high level of internal consistency for the measuring instruments.

Each statement in the questionnaire was followed by a 5-point Likert scale, which was "5" for highly important, "4" for very important, "3" for important, "2" for somewhat important and "1" for not important. The participants were requested to select one of these options to express their opinion. The gathered data were analyzed based on the obtained average scores of the various competencies. Means and standard deviations of responses were measured by software package of SPSS version 23. A competency was considered "important" if it received an average score of greater than 4.00. The competency statements were ranked from highest to lowest according to the mean score of academic medical librarian in both groups separately.

3. Results

In this section we are presenting the identified knowledge and skill and their relevant mean scores, which are presented in six different categories. The mean scores of the competencies from the perspectives of respondents were shown in the tables under each category.

Table 1 shows the mean scores for importance of competencies in the education levels (Bachelors and Masters). The statement of "*Ability to evaluate library performance qualitatively and quantitatively*" gained the highest mean score (4.71) in Bachelors groups and ranked the first. This was followed by "*Ability to conduct environment scanning*" with the mean score of 4.69.

At master's degree level, "*Ability to conduct environment scanning*" gained the highest mean score (4.86), which was followed by "*Planning and goal-setting skills*"; "*Knowledge of formulating policies and procedures relating to library services*" with mean scores of 4.84 and 4.83 respectively.

The competencies, which their mean scores were lower than 4.00, were not confirmed as the required competencies.

3.1. Health Sciences Reference and Information Services

Table 2 shows the data relating to the mean scores of importance ratings for

Table 1. Mean scores of management theory and techniques.

Competency statements	Bachelors		Masters	
	Mean \pm SD	Rank	Mean \pm SD	Rank
Ability to conduct environment scanning (a process of gathering, analyzing and dispensing information for tactical or strategic purposes)	4.69 \pm 0.51	2	4.86 \pm 0.38	1
Knowledge of formulating policies and procedures relating to library services	4.66 \pm 0.52	3	4.83 \pm 0.41	3
Planning and goal-setting skills	4.02 \pm 0.91	6	4.84 \pm 0.37	2
Ability to make decisions	3.88 \pm 0.89	8	4.81 \pm 0.42	5
Capability of time management & setting priorities	4.64 \pm 0.55	5	3.95 \pm 0.91	7
Ability to prepare and manage budget and raise funds from external sources	3.73 \pm 0.95	10	3.83 \pm 0.93	10
Change management, that is, having the ability to integrate library resources and services in response to environmental change	3.95 \pm 0.91	7	3.91 \pm 0.91	8
Personnel management and staff development (recruit, train, supervise and evaluate staff)	3.87 \pm 0.89	9	4.05 \pm 0.89	6
Ability to evaluate library performance qualitatively and quantitatively	4.71 \pm 0.53	1	4.81 \pm 0.39	4
Marketing of library services and resources	4.65 \pm 0.57	4	3.88 \pm 0.93	9
Total	42.8 \pm 5.15		43.7 \pm 5.02	

Table 2. Mean scores of health science reference and information services.

Competency statements	Bachelors		Masters	
	Mean \pm SD	Rank	Mean \pm SD	Rank
Knowledge of print and electronic reference resources in health sciences	4.76 \pm 0.42	1	4.94 \pm 0.24	1
Knowledge and application of biomedical informatics	3.87 \pm 0.93	8	3.74 \pm 0.89	10
Ability to conduct reference interviews and select the appropriate resource to match the users' needs	4.69 \pm 0.53	4	4.89 \pm 0.31	3
Ability to use medical bibliographic databases	4.71 \pm 0.48	3	4.94 \pm 0.25	2
The ability to use PMDR	3.95 \pm 0.88	6	3.93 \pm 0.86	6
Expertise in information retrieval and search strategy techniques	4.71 \pm 0.53	2	4.83 \pm 0.44	4
Expertise in evidence-based medical information searching (identifying and retrieving latest medical evidence)	4.65 \pm 0.59	9	3.78 \pm 0.90	9
Ability to develop specialized information services such as selective dissemination of information (SDI), current awareness/current content services, bulletin boards, referral services, etc.	3.91 \pm 0.89	7	4.80 \pm 0.43	5
Resource sharing and coordination with other libraries in online environment	3.84 \pm 0.94	10	3.85 \pm 0.90	8
Technical skills in the use and provide medical information	3.99 \pm 0.89	5	3.86 \pm 0.89	7
Total	43.0 \pm 5.16		43.5 \pm 4.44	

competencies in health science reference and information services. As shown in table, the statement of “*Knowledge of print and electronic reference resources in health sciences*” gained the highest mean score in two groups and ranked as the first for both of them. This was followed by “*Expertise in information retrieval and search strategy techniques*” (4.71); and “*Ability to use medical bibliographic databases*” (4.71) in Bachelors groups. Regarding to the Masters group the statements of “*Ability to use medical bibliographic databases*” and “*Ability to conduct reference interviews and select the appropriate resource to match the users’ needs*” gained the high mean scores of 4.94 and 4.89 respectively. Other competencies at this education level were not determined as required competencies, though their mean scores were under 4.00.

3.2. Management of Health Information Resources

Table 3 shows the mean scores of importance rankings for the competencies in the area of management of health information resources. “*Knowledge and application of the National Library of Medicine system of Medical Subject Headings*” got the highest mean score of 4.72 in Bachelors group. This was followed by “*Ability to educate users on the use of medical reference sources*”; “*Knowledge of copyright, licensing, privacy and intellectual property rights issues/laws*”

Table 3. Mean scores of management of health information resources.

Competency statements	Bachelors		Masters	
	Mean \pm SD	Rank	Mean \pm SD	Rank
Knowledge and application of cataloguing rules, standards for bibliographic formats, data conversion and copy cataloguing	3.91 \pm 0.88	7	3.71 \pm 0.81	8
Knowledge of copyright, licensing, privacy and intellectual property rights issues/laws	4.68 \pm 0.49	3	3.55 \pm 0.74	10
Knowledge and application of National Library of Medicine (NLM) classification scheme	4.68 \pm 0.56	4	4.60 \pm 0.54	4
Knowledge and application of the National Library of Medicine system of Medical Subject Headings	4.72 \pm 0.52	1	4.73 \pm 0.47	1
Ability to educate users on the use of medical reference sources	4.69 \pm 0.53	2	4.66 \pm 0.55	2
Knowledge of resource maintenance, safety, conservation and preservation techniques	3.94 \pm 0.82	6	4.64 \pm 0.50	3
Knowledge of weeding practice (discarding and writing off unusable and obsolete materials)	3.71 \pm 0.88	10	4.58 \pm 0.61	5
Capability of indexing & abstracting of documents	3.80 \pm 0.91	9	3.71 \pm 0.78	7
Knowledge of serials management and operation (ordering, claiming, invoicing, renewal, holdings reports, binding, etc.)	3.86 \pm 0.87	8	3.63 \pm 0.80	9
Ability to operate the process of circulation (registration, issue, return, reservation, overdue notices and fine management)	4.66 \pm 0.58	5	3.90 \pm 0.85	6
Total	42.6 \pm 4.99		41.7 \pm 4.15	

with mean scores of 4.69 and 4.68 respectively.

Among the competencies, at Master's degree, the highest mean score belonged to the statement of "*Knowledge and application of the National Library of Medicine system of Medical Subject Headings*" (4.73). This was followed by "*Ability to educate users on the use of medical reference sources*" (4.66). Other competencies at this education level were not measured as the required competencies, since their mean scores were under 4.00.

3.3. Information Systems and Technologies

Table 4 shows the mean scores of importance ratings for information systems and technologies competencies in two levels of education (Bachelors and Masters). "*Knowledge of telecommunication and networking*" gained the highest mean score of 4.75 in Bachelors group. This was followed by "*Using MS Office*" (4.68) and "*Basic knowledge of and ability to use expert systems*" (4.67). Considering the Master's degree level, the competency which ranked as the first was "*Using MS Office*" (4.83). This was followed by "*knowledge of telecommunication and networking*" (4.80). Other competencies at this education level were not measured as required competencies for receiving the mean scores under 4.00.

Table 4. Mean scores of information systems and technologies.

Competency statements	Bachelors		Masters	
	Mean \pm SD	Rank	Mean \pm SD	Rank
Knowledge of Integrated Library Automation Systems	3.92 \pm 0.88	7	4.74 \pm 0.44	4
Understanding of digitization technology and management programs to create digital resources	4.65 \pm 0.57	4	3.81 \pm 0.88	8
Knowledge and understanding of Internet for library use (e-mail, discussion groups, search engines, web resources)	3.82 \pm 0.92	8	3.84 \pm 0.87	7
knowledge of telecommunication and net working	4.75 \pm 0.48	1	4.80 \pm 0.40	2
Knowledge and application of Web 2.0 technology in libraries (Library 2.0)	3.96 \pm 0.89	6	3.88 \pm 0.84	6
Ability to manage automated systems (input, file maintenance, backup, security, etc.)	3.73 \pm 0.93	10	3.75 \pm 0.89	9
Ability to use barcodes and RFID (radio frequency identification) technologies for libraries	4.64 \pm 0.61	5	4.69 \pm 0.49	5
Using MS Office (MS Word, MS Excel, MS Power point) and In page (an Urdu word processor)	4.68 \pm 0.58	2	4.83 \pm 0.38	1
Basic knowledge of and ability to use expert systems (software that finds information like a human expert in the field to solve problems)	4.67 \pm 0.64	3	4.79 \pm 0.44	3
Web page/portal designing and maintenance skills	3.74 \pm 0.92	9	3.65 \pm 0.88	10
Total	42.5 \pm 5.29		42.7 \pm 4.28	

4. Research Methods

Table 5 shows the data relating to the mean scores of importance ratings for the research competencies. Among the competencies in Bachelor's degree level, "Understanding the needs of library research" achieved the highest mean score of 4.53. This was followed by "Understanding the principles and methods of research" with the mean score of 4.49. As shown in **Table 5**, in Master's degree, the "Basic understanding of research methodologies" achieved the highest mean score of 4.66. This was followed by: "Understanding the needs of library research"; "Ability to use research tools such as questionnaires, focus groups and interviews to conduct user's studies" with mean scores of 4.65 and 4.64 respectively. Other competencies at this education level were not measured as the required competencies as their mean scores were under 4.00.

General and Personal Competencies

Table 6 shows the mean scores of importance ratings of competencies for two levels of education inclusive the Bachelors and Masters degrees. The statement "Commitment to service excellence" got the highest mean score from the both groups and ranked as the first in both of them. This was followed by "Sense of humor" (4.79); and "Eager to learn new skills" (4.73) in Bachelors groups. Considering the Masters group, the statement of "Sense of humor" and "Capacity to take initiatives and risks" got the highest mean scores of 4.78 and 4.75 respectively. Other competencies at this education level were not confirmed as required

Table 5. Mean scores of research method.

Competency statements	Bachelors		Masters	
	Mean \pm SD	Rank	Mean \pm SD	Rank
Basic understanding of research methodologies (both quantitative and qualitative)	4.44 \pm 0.66	3	4.66 \pm 0.55	1
Understanding the principles and methods of research	4.49 \pm 0.62	2	4.14 \pm 0.82	6
Understanding the needs of library research	4.53 \pm 0.58	1	4.65 \pm 0.53	2
Basic knowledge of descriptive and inferential statistics	3.59 \pm 0.86	10	3.71 \pm 0.73	10
Ability to use research tools such as questionnaires, focus groups and interviews to conduct user's studies	3.88 \pm 0.89	7	4.64 \pm 0.48	3
Knowledge and application of data analysis software (SPSS, Instate etc)	3.60 \pm 0.91	9	3.91 \pm 0.86	9
Knowledge and application of citation styles and reference managers (endnote, Procite, etc.)	4.36 \pm 0.78	4	4.64 \pm 0.53	4
Ability to write research reports	4.35 \pm 0.76	5	3.91 \pm 0.84	8
Knowledge hypotheses and research questions	3.69 \pm 0.84	8	4.03 \pm 0.82	7
Familiarity with note-taking	3.93 \pm 0.85	6	4.64 \pm 0.53	5
Total	40.8 \pm 5.92		42.9 \pm 4.64	

Table 6. Mean scores of general and personal competencies.

Competency statements	Bachelors		Masters	
	Mean \pm SD	Rank	Mean \pm SD	Rank
Commitment to service excellence	4.81 \pm 0.45	1	4.81 \pm 0.39	1
Sense of humor	4.79 \pm 0.46	2	4.78 \pm 0.42	2
Eager to learn new skills	4.73 \pm 0.52	3	4.73 \pm 0.44	4
Knowledge and commitment to professional ethics and values	3.85 \pm 0.93	9	4.06 \pm 0.89	7
Commitment to lifelong learning and career planning	4.11 \pm 0.92	6	4.71 \pm 0.50	5
Capacity to take initiatives and risks	4.67 \pm 0.58	5	4.75 \pm 0.46	3
Adaptability to change	3.93 \pm 0.94	8	3.58 \pm 0.79	10
Ability to have creative thinking	3.78 \pm 0.91	10	3.68 \pm 0.82	9
Capability to work independently and under pressure	4.04 \pm 0.90	7	3.79 \pm 0.86	8
Participation in professional activities outside the library	4.73 \pm 0.49	4	4.15 \pm 0.84	6
Total	43.4 \pm 4.94		43.0 \pm 4.18	

competencies, because their mean scores were under 4.00.

5. Discussion

Competencies are recognized to define the standards of skills, knowledge, and attitudes prerequisite for the performance of tasks by individuals for which they are employed. These are clearly mirrored in the curriculum of academic institutions for grounding the future professionals. They may help to the elimination of the gaps between the required capabilities and the available translating competencies in the training and education programs to prepare the coming professionals with necessary knowledge and skills.

This study investigated the skills and knowledge required by academic medical librarians in two different levels of MLIS education.

The results of study showed that the validation of 10 statements gained the higher mean scores regarding to the management competencies which were expected from academic medical librarians in Iran (**Table 1**). Among the management-competencies, the most expected skills were “Ability to evaluate library performance” and “Ability to conduct environment scanning”. These findings of study were in consistent with the results of studies conducted by Roper and Mayfield [14], Guise, *et al.* [11], Santra [15] and de Grandboisis [16].

The study furthermore indicated that the “Health sciences reference and information services” competencies were recognized important for academic medical librarians in both groups of respondents. It means that all academic medical librarians should sufficiently train themselves with such capabilities (**Table 2**).

The high level of mean scores for detection the competency statements about

the knowledge of reference resources, retrieval skills, knowledge of medical databases/resources and reference interview indicated that the participants were agree about the importance these statements. However, the competency statements of “Expertise in evidence-based medical information searching” and “knowledge and application of biomedical informatics”, achieved the low mean scores. This may be due to the probability that such perceptions were new to the librarians.

Furthermore, the study revealed that the “Management of health information resources competencies” was at the lower mean score among masters group. “Knowledge and application of NLM classification scheme and MeSH” seem to be highly important for academic medical librarians, as perceived by bachelor groups of respondents (**Table 3**). These findings of study were in consistent with the results of the study conducted by Khoo [17].

Our results show that participants considered very measured important the statement of ‘knowledge and skills of emerging technologies for providing the timely and quality information services (**Table 4**). Information technology plays major role in establishment of information-systems, databases, virtual-libraries, digitization and development the web portals. It is remarkable to declare that the “Ability to manage automated systems” and “web page/portal designing and maintenance skills” competencies were not validated as important statement by participants.

These findings are generally consistent with a number of studies have addressed the importance of information technology competencies for postgraduate librarians [18] [19] [20] [21]. In addition, Mazinani [22], Rehman *et al.* [23], and Singh and Mehra’s [24] studies recognized the information technology as an important competency in LIS education.

Furthermore, the research competencies were highlighted for academic medical librarians with a master degree qualification, while these competencies were not confirmed as needed competencies for librarians with bachelor degree qualification (**Table 5**). This finding of the study was in consistent with the study of Bronstein [25]. This may be due to the lack of research attitudes of librarians in Iran. Ther librarians also do not involve themselves with research activities. This result is disagreement with the findings of Partridge *et al.* [26], WebJunction [18] and special libraries association [20] that specified the importance of research competencies for postgraduate librarians.

The general and personal competencies’ were measured highly important among bachelor group (**Table 6**). This finding of study was in agreement with the results of study conducted by Pellack [27].

The study indicated that the medical librarians need to have suitable personal qualities in their professions and to enhance their credibility, for becoming acceptable members of teams in the organisations.

6. Conclusion

The medical library and information science (MLIS) education in Iran is offered

in 3 education levels, *i.e.* Bachelors, Masters, and PhD. Analysis of our literature review indicated that the studied competencies in the field have mainly focused on the competencies needed by the librarians with postgraduate qualifications. Therefore, the results of this current study would be very important due to the presentation of an insight into criteria of assessment for the existing MLIS training and education programs.

The results of the current study indicated that Iranian MLIS departments should endeavor to re-evaluate the curriculum at different levels of education.

In conclusion it is recommended such a study to be replicated in order to identify the required competencies of other library settings in Iran.

Limitations of the Study

This study has some limitations. First its' main aim was restricted to recognizing and assessing the competencies which were needed only for the academic medical librarians in Iran. Second, the study did not determine the weightage of each competency that should be considered for the MLIS curriculum. Furthermore it was not planned to define a detailed content for each competency.

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