

Investigating the relationship between information literacy and academic performance among students

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ABSTRACT

Background: Nowadays, no student can ever pursue the ends of his studies unless he makes use of his information literacy skills. To become lifelong learners, they do need these skills. Information literacy is a set of information needed for searching, retrieval, evaluating, and making best use of information. This study uncovers the relationship between information literacy and academic performance among students at Isfahan University of Medical Sciences.

Materials and Methods: This is a practical study using a survey method. All MA students in Isfahan University of Medical Sciences make the statistical population for this study, according to the sample size determined by using Cochran formula 265 samples that were selected by stratified random sampling. Data collection was through information literacy questionnaires designed by Davarpanah and Siamak, verified by Library and Information Sciences experts; and finally, gave a Cronbach's alpha of 0.83. To determine academic performance, the average scores of the students in previous semesters were considered.

Results: The information literacy of all other students was significantly higher than medium except for students at Nursing and Nutrition faculties. The students of Management and Information Sciences faculty had the highest level of information literacy and students of nutrition faculty were attributed with the least level. There was no significant difference between male and female students' information literacy. We also found out that there was a significant positive relationship between information literacy and students' academic performance in Isfahan University of Medical Sciences. **Conclusion:** Information literacy is one of the most important factors that leads to educational success. As there is a significant positive relationship between information literacy and students' academic performance, we should necessarily provide them with relative skills dealing with information literacy to improve their academic performance.

Key words: Academic performance, information literacy, students, Isfahan University of Medical Sciences

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INTRODUCTION

The considerable growth of information and communication technology and its excessive influence on different aspects of life have affected many activities, especially educational activities such as changing students' educational requirements, students and teachers' essential skills, teaching methods, and the application of information and communications technology in the process of teaching. The ability to accommodate oneself with the changes, competitiveness, and lifelong learning are the means of success in the contemporary society.^[1,2] To reach to this

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objective, we need much further capabilities and skills than physical skills and financial assets.

Excessive increases of information resources from one hand and rapid advancements of other sciences on the other hand have made students unable to learn the whole materials in their normal educational courses. This is why helping students on how to learn, in other words training lifelong learners, is among the most important tasks of educational institutes.^[3] Students should be able, after they graduation, to continue their creativities and reach to higher levels of education by combining their new and old information sets. What it takes to reach to this level is having special skills known as information literacy. In fact, information literacy is the most essential requirement of students in information society.^[4] These skills absolutely guarantee students' success in playing their social role.

Information literacy is a set of information needed for searching, recovering, evaluating, and making best use of information.^[5] The most comprehensive definition of information literacy ever is by American Library Association as follows:

To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.^[6]

Undoubtedly, students' access to information and their benefit of critical thinking leads to their active partnership in educational activities. Although there is a direct relationship between information literacy and educational activities such as formal and informal,^[7] little study has been done on this relationship either in Iran or abroad.

Hasanzadeh and Asadi have directed a study on the effects of teaching information literacy on the academic performance of students in Imam Mohammad Baqer Technical Higher Education Center in Sari. It proved that there was a significant difference between the academic performance of the two groups of testing and control, the ability to recognize and specify information needs, getting skills at locating and accessing information, getting related skills at using information effectively and responsibly, the way of using information resources at libraries.^[8]

Pandpazir and Cheshmeh-Sohrabi found that MA students at Kermanshah University of Medical Sciences were good enough at understanding information need, strategies for searching information, locating and accessing information, using information, combining new and old information sets, and evaluating search results to meet their information need. Totally, the level of information literacy of MA students at Kermanshah University of Medical Sciences was higher than medium.^[9]

Bigdeli and Momtazan found that students at Jundi Shapur University of Medical Sciences in Ahvaz (International unit) were more information literate than nursing students; but in

total, statistical population had medium information literacy. Subjects were at a medium level for searching their needed information at libraries, using computers and accessories, having self-confidence when searching for information, evaluating retrieved information, being satisfied with search results and asking for help from librarians, but they were at a low level for searching their needed information from Internet and working with logical operators.^[10]

Seyfori and Ghafari, in their study "Information literacy for senior students at Razi University of Kermanshah" done through descriptive survey by questionnaires, found that students of different majors were in different levels of information literacy as students of Mechanic and Computer Engineering were at the highest level and theology and Arabic Literature were at the lowest level. Totally, information literacy for this population was lower than the medium.^[11]

Alinejad *et al.* studied information literacy level and its role in learning process of electronics students in the Department of Electronics in Amir Kabir, Shiraz, and Science and Technology Universities. First, the study showed that the information literacy level was low. Second, there were different levels of information literacy as the highest was standard 1 and the lowest was standard 4. Third, there was a significant positive relationship between information literacy and electronics students' academic performance like the higher the information literacy level, the better the academic performance.^[12]

Bordonaro studied the relationship between information literacy and writing ability in the two groups of international graduate students and undergraduate students. The results showed that in the graduate students group there was a significant relationship between two variables while there was no significant relationship between variables in the other group.^[13]

Baro and Fyneman found that male students not only were more aware of information resources, but also they could use these pieces of information more effectively than female students could. Male and female master students also used different strategies to search for information resources.^[14]

Issa *et al.* found that students at Ilorin University were not able to use information resources effectively, although they were aware of them. Moreover, even though students were hardly information literate, only librarians were responsible to teach them these needed skills.^[15]

As was observed, most of the studies, especially those done in Iran, mainly deal with analyzing information literacy among different groups and only a few of which have inspected the effects of information literacy on different variables specifically on academic performance. Thus, the main object of this study is to specify the relationship between information literacy and academic performance of students at Isfahan University of Medical Sciences.

MATERIALS AND METHODS

This is a practical study done through the survey method. Statistical population is all MA students at Isfahan University of Medical Sciences in 2012–2013. According to the statistics obtained from university education office, they were 859 students. According to the sample size determined by using the Cochran formula, 265 students of whom were selected by stratified random sampling. Data collection was through information literacy questionnaires designed by Davarpanah and Siamak, verified by library and information sciences experts; and finally gave a Cronbach's alpha of 0.83. This questionnaire evaluates the ability of nature specifying, the extent of information needing, the ability to get needed information, evaluate the retrieved information, use information effectively for the same purpose, and helps understanding economical, legal, and social issues. As some questions had more than one correct answer, we considered one point for every correct answer. Hence, the least point for information literacy was 0 and the most was 33, and the average point was 16.5. To determine academic performance, the average scores of the students in previous semesters were considered. Data have been analyzed in the two levels of descriptive and inferential statistics. In the level of descriptive statistics, we have used frequency distribution, mean, and SD and for inferential statistics, we have used tests such as one-sample *T*-test, independent-samples *T*-test, and Pearson correlation.

RESULTS

The study about participants' sex showed that 83.4% of whom were female and 16.6% were male and also 17% were from Health Faculty, 25.7% from Nursing Faculty, 27.2% from Medical Faculty, 6.8% from Nutrition and Food Sciences Faculty, 9.4% from Rehabilitation Faculty, 4.9% from Pharmacy Faculty, and 9.1% from Management and Medical Information Faculty.

Table 1 shows the students' information literacy level in different departments. To analyze students' information literacy level, we used one-sample *T*-test. Students' information literacy level is significantly more than the average, that is, 16.5 except for nursing, midwifery, nutrition, and food science students. In addition, students in medical management and information department had the highest level of information literacy and nutrition, and food sciences had the lowest level.

Comparing male and female students' information literacy

To compare male and female students' information literacy, we used independent-samples *T*-test. The results have been shown in Table 2. There is no significant difference between male and female students' information literacy.

The relationship between information literacy and academic performance

To specify the relationship between information literacy and academic performance, we used the Pearson correlation test. The results are shown in Table 3. There is a significant

positive correlation between the two variables, considering correlation coefficient and significant level.

DISCUSSION AND CONCLUSION

Being a lifelong learner is one of the key factors that makes us successful in the information community. On the other hand, the necessary means of being a lifelong learner is having information literacy skills. Information literacy is a set of skills necessary for recovering, evaluating, and using information. Considering the relationship between information literacy and formal and informal educational activities, this study has an objective to analyze the relationship between information literacy and academic performance of MA students at Isfahan University of Medical Sciences. The findings of the study showed that all students were good enough at information literacy, higher than the average level, except for the students at nutrition and nursing departments. These results were consistent with those of Pazir and Cheshmeh-Sohrabi^[9] and different from those of Bigdeli and Momtazan,^[10] Seyfouri and Ghafari,^[11] Alinejad *et al.*,^[12] and Issa *et al.*^[15] According to this study, there was no difference between male and female students' information literacy level. The result is in accordance with the results of Baro and Fyneman.^[14] There was also a significant positive relationship between information literacy and students' academic performance. These results were consistent with those of Hassan Zadeh and Asadi^[8] and Alinejad *et al.*^[12] and different from those of Bordonaro.^[13]

Table 1: The results of one-sample *t* test for student's information literacy level (test value = 16.5)

Faculties	N	Mean	SD	Significant
Faculty of health	45	18.9	3.331	0.002
Faculty of nursing	68	17.6	1.959	0.054
Faculty of medicine	72	19.14	4.858	0.000
Faculty of nutrition	18	17.3	0.541	0.596
Faculty of pharmacy	13	19.7	2.872	0.014
Faculty of rehabilitation	25	19.2	2.457	0.022
Faculty of management	24	21.3	4.406	0.000
Sum	265	18.8	7.592	0.000

SD = Standard deviation

Table 2: The results of independent samples *t* test for female and male student's information literacy level

Sex	N	Mean	SD	T	Df	Significant
Female	221	18.85	5.01637	0.46	263	0.584
Male	44	18.47	4.35884			

SD = Standard deviation, Df = ???

Table 3: The results of the Pearson correlation test for relationship between information literacy and academic performance

Information literacy	Academic performance
Pearson correlation	0.662
Significant	0
N	265

SUGGESTIONS

Considering the direct relationship between information literacy skills and students' academic performance especially in MA students, we suggest, in order to increase the level of information literacy skills, educational courses in the form of workshop should be presented on items such as searching, having a critical mind, correct methodologies for studying, writing essays, research attitude etc.

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