5International Journal of Information Science and Management
Vol. 12, No. 1, 2014, 65-76

Information Literacy in Distance Education Universities in Iran: a Case Study of Payame Noor University

Hadi Sharif Moghaddam
Payame Noor University, Iran
sh_mogadam@pnu.ac.ir

Ensieh Malekian Fard
Payame Noor University, Iran
nc.malekian@gmail.com

Abstract

Teaching information literacy needs to become a core activity at academic libraries in distance education universities. Innovative programs have been developed to promote information literacy to ensure students success as lifelong learners. This study has been done to evaluate information literacy of students of humanities in Payame Noor University of Mashhad. The research population subjects are M.A. students in the humanities departments of Payame Noor University of Mashhad, from whom 188 were selected randomly based on Krejcie and Morgan table. Data collecting tool is a questionnaire, which has been provided according to Information Literacy Competency Standards for Higher Education. The results revealed that there is a significant difference between the female students' information literacy with average score ($t= -10.45$, $df= 159$, $p< 0.0005$), the male students' information literacy with average score ($t= 4.71$, $df= 27$, $p< 0.0005$), and all students' information literacy with average score ($t= -11.42$, $df= 187$, $p< 0.0005$). The questionnaire average score (26) is more than students' score, although the information literacy level in female and male students had no significant difference ($t= -0.520$, $df=186$, $p=0.604$). There is a significant difference in information literacy of students with different majors ($f (12, 175) = 2.803$, $p= 0.002$).Developing information literacy skills is essential for academic members and other educational staff to be able to fully engage and exploit library resources in distance education system. Distance education programs are complex and costly to implement, which suggests that they are a valuable asset for universities and therefore should be adequately managed and protected. Libraries must sufficiently promote services available to distance students and provide adequate service hours. In order to provide effective support to distance learners, librarians and educators need to be creative and find unique solutions.

Keywords: information literacy, information literacy standards, distance education students, Payame Noor University

Introduction

Unfortunately, some of the students do not possess the information literacy skills necessary for success in the 21st century. Information literacy education should become a core activity at academic libraries in distance education. Innovative programs have been developed to promote information literacy to ensure student success as lifelong learners. Members of the university community are committed to enhance the information literacy skills of their student .They can recognize variety of factors and "illiteracies" that can best promote information literacy. While in the past, for a class research assignment, one required to visit a library, today students can do much of their necessary research online, from their own home in an environment in which they are at ease. As access to information becomes easier and less expensive, the skills and competencies relating to the selection and efficient use of information become more crucial.

The ability to find, assess and use information effectively is now widely recognized as an essential competence for effective participation in contemporary society (Corrall, 2008).

Information Literacy

The concept "information literacy" has been defined in numerous ways by authors in the field, but it generally includes the following knowledge and skills:

- Knowledge of information resources in one's subject
- Ability to construct effective search strategies
- Ability to critically appraise information sources
- Ability to use information sources appropriately, cite and create references (Secker, 2004).

Information literacy has deep roots in library sciences (Roth, 1999), where librarians have long been concerned with teaching library instructions (Wang & Artero, 2005). With these roots, information literacy training programs traditionally focus on teaching the skills required to utilize library resources, (Kimsey & Cameron, 2005) the critical need for information literacy.

Information literates, have learned techniques and skills for utilizing the wide range of information tools, as well as primary sources in molding information-solutions to their problems (Van de Vord, 2010).

Information Literacy Standards

In 1998 the Association of College and Research Libraries (ACRL) established a Task Force on Information Literacy Competency Standards and charged it to develop competency standards in this area for higher education. In 2000 the group published its Information Literacy Competency Standards for Higher Education[1]. The full text of the standards is available on their website with a number of case studies of how the standards are being used.

The ACRL recognized the central role of information literacy for developing lifelong learners. Five broad standards were established, each with performance indicators and specific outcomes. These standards are as follows:

1. The information literate student determines the nature and extent of the information needed.

2. The information literate student accesses needed information effectively and efficiently.

3. The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

4. The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

5. The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally.

The standards provide a framework for assessing the amount of information if a literate individual (Secker, 2004).

Distance Education

When developing services for any group of people, it is important to be familiar with the characteristics and requirements of that group in order to effectively meet their needs. As Whitehurst and Willis (2009) explain:

Students who participate in distance education are typically older, non-traditional students with unique characteristics who need special services provided by their university library in order to obtain an education equal to the on-campus students.

Except to say that they are often more diverse than on-campus students, the characteristics of distance learners at any given institution is often not well documented, and as such we must rely on overall broad trends to try to develop an understanding of these students (Newton, 2007).

Owing to the restrictions of jobs and family, many of distance students are unable to return to school full time or relocate to attend an educational institution. Fortunately, technological evolution has also made it easier to provide education to learners in remote eras. As much as distance students may be eager to participate in furthering their education, job and family pressures may compete for their time and attention. Research into working distance students has identified common complaints about high stress levels and students find it difficult to make time to manage all of their responsibilities. In addition, the task of finding and evaluating information can be particularly challenging for these students who are returning to studies after being in the workforce for some time. This requires libraries to rethink the way they serve patrons to ensure that students are able to access library resources

regardless of their physical location.

Thus, many distance students choose distance education precisely for its flexibility and as such, supportive services should offer the same degree of flexibility as much as possible. (Nicholson & Eva, 2011).

Purpose

Purpose of this study is portraying the information literacy of students of humanities studying in Payame Noor University of Mashhad, using distance education.

Research Questions

1. What is the information literacy status of male and female students of humanities in Payame Noor University of Mashhad based on their majors?
2. Is there any significant difference in information literacy level between male and female students?
3. Is there any significant difference in information literacy level between male and female students considering the standards?

Methodology

The statistical population of the present research is M.A. students of humanities in Payame Noor University of Mashhad, from whom 188 students were selected randomly based on Krejcie and Morgan table. About 85.1 percent of the selected students were female compared to 14.9 percent of the students who are male out of 188 total participants. The current participants were from different majors, including library and information sciences (8 percent), Education (10.6 percent), Law (8.5 percent), Tourism (3.7 percent), Social Sciences (8 percent), Geography (5.3 percent), Economics (3.7 percent), Persian Literature (6.4 percent), Accounting (6.9 percent), Business Management (10.1 percent), Physical Education (12.2 percent), Psychology (10.6 percent), and Theology (5.9 percent)

Data collection tool was a questionnaire, provided by Davarpanah, Siamak and Qasemi (2008) based on Information Literacy Competency Standards for Higher Education, in order to measure students' information literacy. The questionnaire was also validated again in a study entitle: "Construction and Validation of a Scale for the Assessment of Undergraduate Student's Information Literacy" by Siamak and Davarpanah (2009). In order to simplify the questionnaire and meet the needs of distance education students, some un- necessary questions were deleted from the questionnaire. Thus a questionnaire including 36 related questions was provided. From the total questions, 8 of them were related to standard no.1, 11 questions to standard no.2, 7 questions to standard no. 3, 5 questions standard no.4, and 5 questions to standard no.5.

To finalize the questionnaire, it was sent to some university professors and related

specialists, and then the questionnaire was corrected based on their proposals. The final questionnaire was validated through the Cronbach's alpha, which was estimated 82%. Therefore, the provided questionnaire was distributed among Payame Noor University students for the present study.

The data were analyzed, using SPSS software. In order to summarize and describe data, Central Indexes and Descriptive Statistics such as mean and standard differences were used. Sample statistical tests, comparing two independent averages, and one-way variance analysis were used in order to respond the research questions. The sample statistical test was used to examine information literacy of the study cases. Male and female average grades were compared using the comparative two-independent-average test, and the difference signification of variances was examined in each of the cases. One-way variance analysis test was also used to compare students' information literacy in different majors.

Findings

As mentioned earlier, average statistics and standard difference were used to describe the analysis of the data. Table 1 depicts the data analysis in descriptive level.

Table 1

Research Variances Descriptive Indexes

Statistical Indexes variances	No.	Average	Standard variance
Information literacy	188	19.2660	8.08137
Standard 1	188	2.4096	1.69848
Standard 2	188	6.0000	2.91777
Standard 3	188	4.6383	2.36214
Standard 4	188	4.3883	2.53600
Standard 5	188	1.8670	1.10825

In order to examine the information literacy of male and female students of Humanities in Mashhad Payame Noor University, sample statistical tests were used. It should be mentioned that examining the default input was carried out first, which is presented as following:

Interval data default: The information of the information literacy variance has interval scale.

Data distribution normality default: Kolmogorov–Smirnov test was used to assure the distribution normality of the data, whose results demonstrated that the gained data have a normal distribution for information literacy variance in subjects: (Z = -0/919, P = 0/358). Data distribution normality default is also considered.

Sample statistical test defaults were also considered which is viable. The results of the test are presented in Table 2:

Table2

Students' Information Literacy and Questionnaire Average Score Comparison

Sex	No.	Average	Variance	Standard score	T	Free degree	Signific-ance level
Female	160	19.1375	8.30586	26	-10.451	159	.000
Male	28	20.0000	6.73850	26	-4.712	27	.000
Total	188	19.2660	8.08137	26	-11.425	187	.000

As it is shown above, there is a significant difference between female students' information literacy and questionnaire average score (t= -10.45, df= 159, p< 0.0005). The male students' information literacy and questionnaire average score (t= 4.71, df= 27, p< 0.0005), and all students' information literacy and questionnaire average score (t= -11.42, df= 187, p< 0.0005) in a way that the questionnaire average score (26) is more than students' score.

Two-average-comparison test was used to compare the information literacy in male and female students. Two-average-comparison test defaults were also examined. As mentioned earlier, Kolmogorov–Smirnov test demonstrated the normal distribution of information literacy variance in the data resulted from the subjects. Moreover, Levene's test was also used to examine the default, which was the homogeneity of information literacy variances. The results indicated that P was equal to 0.104, which also proves the homogeneity of information literacy variances. Therefore, the comparison of two independent averages is viable. The results of this experiment, which demonstrates the male and female students' information literacy average score, is presented in table3.

Table3

Male and Female Students' Information Literacy Comparison

Sex	Average	Standard variance	T	df	Significance level
Female	19.1375	8.30586	-.520	186	.604
Male	20.0000	6.73850			

According to the above table, which is the result of two-independent-average test, the information literacy level in female and male students has no significant difference, (t= -0.520, df=186, p=0.604).

Two-independent-average test was also used to compare male and female students' information literacy. In this stage, before running the test, the defaults of two-independent-average test were compared first. Kolmogorov–Smirnov test was also used to confirm data distribution normally, and the results indicated that the data from subjects were distributed

normally among first standard records of (Z= -0.038 and P= 0.969), second standard records of (Z= -0.645 and P= 0.519), third standard records of (Z= -0.334 and P= 0.738), fourth standard records of (Z= -0.288 and P= 0.773), and fifth standard records of (Z= -1.936 and P= 0.053). Hence, data normality distribution was considered.

Variance homogeneity of information literacy defaults was examined, using Levene's test. According to the results, p is equal to 0.991 for the first standard record, 0.248 for the second standard record, 0.071 for the third standard record, 0.059 for the fourth standard record, and 0.113 for the fifth standard record, all of which prove the Variance homogeneity of information literacy defaults; therefore, two-independent average test is viable. The results of this test, which show male and female students' information literacy average score, are presented in Table 4.

Table 4

Male and Female Students' Information Literacy Records Comparison

Default	Sex	Average	Standard variance	T	df	Significant level
Standard 1	Female	2.4000	1.70165	-.184	186	.854
	Male	2.4643	1.71015			
Standard 2	Female	5.9625	2.87012	-.420	186	.675
	Male	6.2143	3.22441			
Standard 3	Female	4.6313	2.42010	-.098	186	.922
	Male	4.6786	2.03767			
Standard 4	Female	4.3875	2.62064	-.010	186	.992
	Male	4.3929	2.02465			
Standard 5	Female	1.8125	1.13928	-1.619	186	.107
	Male	2.1786	.86297			

According to the above table, which presents the comparison of two independent averages, it can be concluded that there is no significant difference between male and female students' information literacy records. In order to compare students' information literacy with different majors, one-way variance analysis test was used. The results of one-way variance analysis test, which compares the subjects' information literacy average scores based on their majors, are presented in table5.

Table5

Subjects' Information Literacy Comparison with Regard to Their Majors

Variance sources	Radicals' sum	Freedom scale	Radicals' average	F	Significance level
Inter-group	1968.682	12	164.057	2.803	.002
Intra-group	10244.020	175	58.537		
Total	12212.702	187			

According to the above table, which is the result of a one-way variance analysis test, it is concluded that there is a significant difference in the amount of information literacy in students with different majors statistically (f (12, 175) = 2.803, p= 0.002). In order to have a more precise comparison of students' information literacy with different majors, Tukey's range test was used. The results of this test indicated that there was a significant different between students who were studying library and information sciences and those who were studying physical education and education, in terms of information literacy in such a way that library and information sciences students are more literate in comparison to those studying physical education and education.

One-way variance analysis test was also used to compare students' information literacy with different majors. The results of the one-way variance analysis test, which compares the average scores of students' information literacy with regard to their majors, are presented in Table 6.

Table 6

Subjects' Information Literacy Comparison with Regard to Their Majors

	Variance sources	Radicals' sum	Freedom scale	Radicals' average	F	Significance level
	Inter-group	112.469	12	9.372	3.841	.000
Standard 1	Intra-group	426.994	175	2.440		
	Total	539.463	187			
	Inter-group	196.505	12	16.375	2.054	.022
Standard 2	Intra-group	1395.495	175	7.974		
	Total	1592.000	187			
	Inter-group	175.607	12	14.634	2.951	.001
Standard 3	Intra-group	867.797	175	4.959		
	Total	1043.404	187			
	Inter-group	90.185	12	7.515	1.182	.299
Standard 4	Intra-group	1112.470	175	6.357		
	Total	1202.654	187			
	Inter-group	42.665	12	3.555	3.327	.000
Standard 5	Intra-group	187.010	175	1.069		
	Total	229.676	187			

According to the above table, which depicts the results of one-way analysis variance test, it can be concluded that there is a significant difference in students' information literacy first standard record statistically, while their majors are different (f (12, 175) = 3.841, p= 0.000). In order to have a more precise comparison of students' information literacy, first standard record with different majors, Tukey's range test was used. The results of this test indicated that there was a significant difference between the students whose major was Library and Information Sciences and those whose majors were law, Accounting, and Theology in terms of information literacy first standard level, in such a way that this amount was more noticeable in Library and Information Sciences students compared to Law, Accounting, and Theology students.

Information literacy first standard record is significantly higher for Social Sciences students compared to Accounting and Theology students. Moreover, there is a significant difference between Economics students and Theology students in terms of information literacy first standard level, in such a way that this amount is considerably higher in Economics students compared to Theology students.

In addition, the data above depict the statistically significant difference between information literacy second record in students with different majors (f (12, 175) = 2.054, p= 0.022). In order to compare information literacy second standard level more precisely in students with different majors, Tukey's range test was used. The results of this test are indicative of the fact that there is a significant difference between Library and Information Sciences students and Physical Education students in terms of information literacy second standard level in such a way that this level is noticeably higher in Library and Information Sciences students compared to Physical Education students.

According to Table 6, it can be concluded that, statistically there is a significant difference between the third information literacy standard level in students studying difference courses (f (12, 175) = 2.951, p= 0.001). In order to compare third information literacy standard level more precisely in students with different majors, Tukey's range test was used. The results of this test are indicative of the fact that the information literacy standard level is significant in Tourism students compared to Physical Education students. Moreover, the data above also demonstrate that there is not a significant difference statistically in fourth information literacy standard level (f (12, 175)=1.182, p= 0.299).On the other hand, according to Table 6, it can be concluded that there is a significant difference statistically in fifth information literacy standard in students studying different majors (f (12, 175)=3.327, p=0.000). Tukey's range test was used to compare the fifth information literacy standard level more precisely. The results demonstrated that there is a significant difference between the Library and Information Sciences students and Physical Education students, in terms of fifth information literacy standard level, in such a way that this amount is more in Library and Information Sciences students compared to Physical Education students. There is also a

significant difference in Persian Literature students and Physical Education students, in terms of fifth information literacy standard level, in such a way that this amount is considerably more in Persian Literature students compared to Physical Education students.

Conclusion

Information literacy is an essential skill both for a successful academic career and for a professional in the information age (Nicholson & Eva, 2011). In other words, the skills associated with information literacy are widely recognized both inside and outside the universities as essential.

It is difficult to imagine what developments the future will bring, nevertheless the library profession will need to embrace these changes and move with the times to meet the needs of users. Not only does this mean librarians need to work with new groups of people, but they need to be clear about the unique and highly relevant skills that they can offer. Librarians need to consider the motivations of their users and make information literacy both timely and relevant to learners.

Developing information literacy skills, is essential for academic and other supportive staff to be able to fully engage and exploit library resources in distance education system. Engaging with academic staff to develop their own skills also makes them more likely to see the value of building these skills into their courses for students (Secker, 2004).

While the role of the librarian was once associated with providing access to information, in the information age, Librarians now have an important role to play in assisting patrons with sorting through and evaluating vast quantities of information that exist well beyond the physical boundaries of the library.

Academic librarians have an important role to play in ensuring that post-secondary students develop the level of information literacy required to be successful in their academic careers and beyond. The description of the role of the librarian in information literacy is constantly evolving. There is mounting evidence to support the notion that librarians need to be more closely integrated into the teaching and learning process (Nicholson & Eva, 2011).

Distance education programs are complex and costly to implement, which suggests that they are a valuable asset for universities, and therefore should be adequately managed and protected (Fernández-Molina, Muriel, Vives-Gracia, Riera, & Martín, 2011).

Libraries must sufficiently promote the services available to distance students, and provide adequate service hours. Unfortunately, many librarians report a lack of time and adequate channels through which to provide the level of support to distance students that they would like to make available (Newton, 2007).

In order to provide effective support to distance learners, librarians and educators need to be creative and find unique solutions (Nicholson & Eva, 2011).

Endnote

1. Association of College and Research Libraries. (2000) Information Literacy Competency Standards for Higher Education Chicago: American Library Association. http://www.ala.org/ala/acrl/acrlstandards/standards.pdf

References

Corrall, Sh. (2008). Information literacy strategy development in higher education: An exploratory study. *International Journal of Information Management, 28* (1), 26–37. Retrieved from www.elsevier.com/

Davarpanah, M. R., Siamak, M., & Qasemi, A. (2008).*Information literacy assessment of students*. Tehran: Dabizesh.

Fernández-Molina, J., Carlos Muriel, E., Vives-Gracia, J., Riera, P., & Martín, O. (2011). Copyright and e-learning: professors' level of knowledge about the new Spanish law. *Aslib Proceedings, 63* (4), 340 – 353. Retrieved from www.emeraldinsight.com/

Kimsey, M. B. & Cameron, S. L. (2005). Teaching and assessing information literacy in a geography program. *Journal of Geography, 104* (1), 17−23. Retrieved from http://www.ncge.org/publications/journal/

Newton, R. (2007). Developing information literate off-campus learners: pedagogical issues and current practice. *Libri, 57* (3), 140-164. Retrieved from http://www.librijournal.org/pdf/

Nicholson, H., & Eva, N. (2011). Information literacy instruction for satellite university students. *Reference Services Review, 39*(3), 497 – 513.Retrieved from www.emeraldinsight.com/

Roth, L. (1999). Educating the cut-and-paste generation. *Library Journal, 124* (18), 42−44.

Secker, J. (2004). *Electronic resources in the virtual learning environment: A guide for librarians.* Retrieved from http://eprints.lse.ac.uk/4884/

Siamak, M., & Davarpanah, M. (2009). Construction and validation of a scale for the assessment of undergraduate student's information literacy. *Library and Information Science, 12* (1), 119-147.

Van de Vord, R. (2010). Distance students and online research: Promoting information literacy through media literacy. *Internet and Higher Education, 13* (3), 170–175. doi: 10.1016/j.iheduc.2010.03.001

Wang, Y., & Artero, M. (2005). Caught in the web: University student use of web resources.*Educational Media International, 42* (1), 71−82.

Whitehurst, A. P., & Willis, C. N. (2009). Building collaborative reference and instructional services for distance education student.*Southeastern Librarian, 57*(1), 20-27.