

## **Investigating the Electronic Journals' Status in Comparison with Printed Journals among the Faculty Members of Payam-e-Noor University: A Study**

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### **Abstract**

This research aims at investigating electronic journals' acceptance among Payam-e-Noor University faculty members as well as studying the influential factors in that. Of all faculty members approached in this study, 169 ones returned the questioners. Findings show that E-journals' acceptance among faculty members is at average level on the basis of which it seems both printed and electronic journals have got equal positions among such a group. Findings also reveal that computer and Internet problems with the coefficient determination of  $\beta=0/31$  are the strongest factors in making E-journals not acceptable. In addition, faculty members' computer and Internet skills with  $\beta=0/175$  and their knowledge of online full text databases with  $\beta=0/12$  make positive effects on E-journals acceptance, while access to E-journals' causes weak effect ( $\beta=0/05$ ). Results indicate that the more age and experience, the slighter tendency to E-journals' use. Therefore, there is no significant correlation among gender, major, educational level and E-journals' acceptance.

**Keywords:** Electronic Journals, Printed Journals, Acceptance, Online Full-text Database, Computer Skills, Network Skills.

### **Introduction**

Regarding their specifications, journals are considered as one of the most important scientific information resources, the use of which is a noticeable factor in scientific and cultural development of each society. Libraries and information centers, especially the institutes such as universities, need to acquire such invaluable resources based on their users' information needs.

Journals could be grouped into printed, microform and/or electronic formats. The E-journals may be produced online and/or in CD-ROM. Nowadays, most of journals in specific subject fields are simultaneously produced both in printed and electronic formats (Fattahi, 2002).

E-journals are categorized into three groups considering presence or absence of their printed copies:

1. E-journals publication of which has not stopped the publication of printed copy and thus, both formats are published at the same time.
2. E-journals publication of which has stopped the printed publication.
3. Journals being originally published in electronic format (Fattahi, 2002).

### ***Problem Statement***

Periodicals, especially journals, because of making access to the recent findings of different fields of science have found important status among faculty members and researchers. E-journal acceptance via arrival of information and communication technologies has made universities pay a large amount of expenses to take out subscription to the E-journals produced in databases. Towards such expenses, we need to measure the acceptance of E-journals vis-à-vis printed journals among faculty members of universities.

### ***Research questions***

1. What is the status of E-journals among faculty members?
2. Which format of journals –printed or electronic- has got more acceptance and validity in view of Payam-e-Noor University faculty members?
3. What factors could affect E-journals, acceptance by Payam-e-Noor University faculty members?

### ***Purpose of the Study***

This research has the following as its objectives:

1. Assessing the amount of E-journals' acceptance vis-à-vis printed journals among faculty members
2. Studying the effective factors on the amount of E-journals' acceptance by faculty members
3. Investigating the importance of access to the back issues of journals (to four years ago)
4. Finding out the faculty members' viewpoints towards stopping the subscription to those printed journals the e-format of which is accessible.

### ***The Significance of the Research***

Due to the following items, Payam-e-Noor University as well as all other universities could make use of the results of this study: making optimum decisions regarding allocation of budget for taking out subscriptions to printed and electronic journals, and making better decisions stop subscribing to those printed journals the e-access to which has been made.

## Literature Review and Theoretical Frame of Research

### *Literature Review*

Tenner and Yang (1999) measured the awareness and use of E-journals in faculty members of Texas University. The findings showed that the awareness of the presence of E-journals is different among faculty members and only 37% of the respondents have actually made use of E-journals. And the rest 61% have preferred to use printed journals. Nevertheless, most of respondents have shown positive attitude towards the E-journals' status in scientific research and have introduced "access to journals from home" as one noticeable advantage of E-journals. They were concerned about the permanence and physical format of E-journals.

Rogers (2001) investigated the use of journals, E-journals and electronic databases by the faculty members and M.A. students of Ohio State University during 1998 to 2000. This study has been carried out in three stages (each stage in one of the three years) so that researchers could investigate the changes occurred during this period in the attitude and acceptance of e-services. The results show there is a distinct trend towards acceptance and use of E-journals during the intended three years on the basis of which use of databases has been almost equal to the increase in the number of E-journals. There is a weak correlation between use and age. The studied persons mentioned "availability and ease of use" as the advantages and "stop in subscription and absence of printed copy" as the objections of E-journals.

A case study entitled "E-journal Acceptance at Colorado State University" was carried out by Cochenour and Moothart (2001) aiming at investigating the use and acceptance of E-journals by the faculty members, M.A. students and administrative specialists of Colorado State University. The results show that most of the respondents have been making use of E-journals at least once a month and approximately they have all declared their protection of e-access along with printed copy of the journals. They have also seriously emphasized access to the back issues (to four years ago) of the journals.

Monopoli, Nicholas, Georgion and Korfiat (2002) carried out a research in which use of E-journals in comparison with printed journals by the faculty members of Patras University was studied. Based on the results of this research, daily use and weekly use of E-journals were made respectively by 45% and 43.5% of respondents mostly from their work. 66% preferred e-format of journals but this number decreased in those between 55-64 years old to 40%. Ease of use, availability, search possibilities in databases, ability to save and print information were mentioned as users' the most important reasons for E-journal preference. The chief reasons for the lack of interest in using E-journals were insufficient related resources and lack of back issues of the journal.

Another study was done by Vaughan (2003) entitled "Changing Use Patterns of Print Journals in the Digital Age: Impacts of Electronic Equivalents on Print Chemistry Journal Use in the Chemistry College Library, Tennessee University". Findings show that libraries in view of necessity to take out subscription for different databases and prevention of repeated distinct resources are not able to present a model for preparing printed as well as electronic copies of journals. The results also show that although printed journals are not used as much as before, users still attach great importance to them.

Researches have been carried out on this issue in Iran some of which are as follows: Hayati and Sotoodeh (2002) investigated the effective factors in using e-resources - Internet and optic disc- among faculty members of Shiraz University and Shiraz Medical Sciences. This research was done to find the incentives and obstacles in using e-resources in order to adapt information systems to the faculty members' needs. The results show that use of both Internet and optic discs are affected by factors such as gender, scientific rank and educational degree, amount of computer skills and instructions for using e-resources. The barriers for using such resources were divided into individual problems and those problems resulted from the information systems. Unfamiliarity with e-resources, need of tutorial courses and shortage of time were found as individual obstacles, while the information systems' problems were identified as uneasy access, expenses, and technical and practical limitations.

Hassanshahi (2006) in her M.A. dissertation studied the attitude towards the use of EBSCO, ELSEVIER, Science Direct and ProQuest databases among the faculty members of Shiraz University. The study aims at investigating the trends of Shiraz university faculty members towards the so-called full-text databases, how to access information through these databases, the amount of faculty members' familiarity with the databases as well as the amount of use of such databases by faculty members. Also, studying the effective factors on uneasy access to the aforementioned databases and the reasons for using and/or not using such databases were other objectives of the study. The results reveal the positive approach of faculty members towards accessing to and using the ELSEVIER and Science Direct databases. Fast process of search and retrieval, and finding new titles and subjects in doing research were mentioned as the main reasons of making use of databases. Also, slow Internet downloading, unfamiliarity with presence of different resources available in the full-text databases, and lack of full-text databases in specific subject fields were stated as the objections of using the databases. Respondents declared impossibility to connect to Internet because of the large number of online services applicants, and thus facing difficulties in access the databases from home and work as the main reasons resulting in uneasy access to databases.

Jokar and Dehghani (2006) carried out a research in which use of E-journals in comparison with printed journals were studied among the higher education students of the Education and Psychology colleges of Ferdowsi University of Mashhad, Chamran University of Ahwaz, Tehran University, Isfahan University and Shiraz University. While these students were using printed journals more than electronic ones, the findings showed higher frequency using E-journals. Most of the students have selected “the high importance” choice for E-journals. Although most prefer the electronic format of journals, they expressed feeling the need to pass tutorial courses because of “average” skills in using E-journals. Insufficient teaching of how to use E-journals was stated by most of the students as the main reason for not using such resources. And the chief objection in using E-journals was “the slow process of information retrieval”.

### ***Theoretical Frame of Research***

For years, E-journals have been known as one of the information resources. Due to the fact that there are not many theories on information services, we may have to refer to the views issued in other fields such as Psychology, Sociology and/or Management. Epistemological theories basically affect the theories on identification and information seeking behavior of users. If E-journals’ acceptance could be known as a kind of attitude, and, in turn, attitude as the base of behavior, then “acceptance” could be considered as an effective factor on occurrence of behavior. Therefore, we may approach the epistemological theories essentially affecting those views of documents and their role in communications and information selection, and also those views related to the functions of information system (Hjorland, 1998).

The epistemological basic theories offer an essential viewpoint on users and identifying them, one of which is historicism. There are several different “isms” existing under the title of historicism one of which is Activity Theory –or the cultural historicalism of Activity.

This theory of phyco-histo-cultural philosophy was established by Lev Vygotsky, Leontev, Rubinstein and Luria. Activity Theory –the history-cultural theory of Activity– in the former Soviet Republics rooted in those researches which were handled in order to find a substitution for origin of the psychology in behaviorism and psychoanalysis. This theory has also been used extensively in the educational studies and increasingly in the research related to the reaction between computer and human. The key elements of Activity Theory consist of motives, goal, activity, tools, object, result, rules, society and division of duties. These factors all are directly useful in promotion of the information seeking behavior research. This theory provides the basis of describing what affects the information seeking behavior. Activity Theory is not a methodology but rather is a conceptual and philosophical frame for research by which we can analyze the human

activity. This frame gives the possibility to distinguish the effects caused by manual tools and the conceptual imagines of rules, norms and etc. on activity (Janassen, 1999). Activity Theory has recently achieved a suitable status among the researches related to reactions between human and computer and information systems.

Different trends have been issued towards Activity Theory, of which Angstrom theory and the Bedny's Systemic-Structural Activity theory are almost meaningfully close to each other. But the figures used in both theories to show the components of the theory are not the same. The Bedny's theory is more close to the founders of Activity Theory. Our research makes use of the Bedny's model on the concepts which are important in information seeking behavior. The Bedny's model is shown in Figure 1.

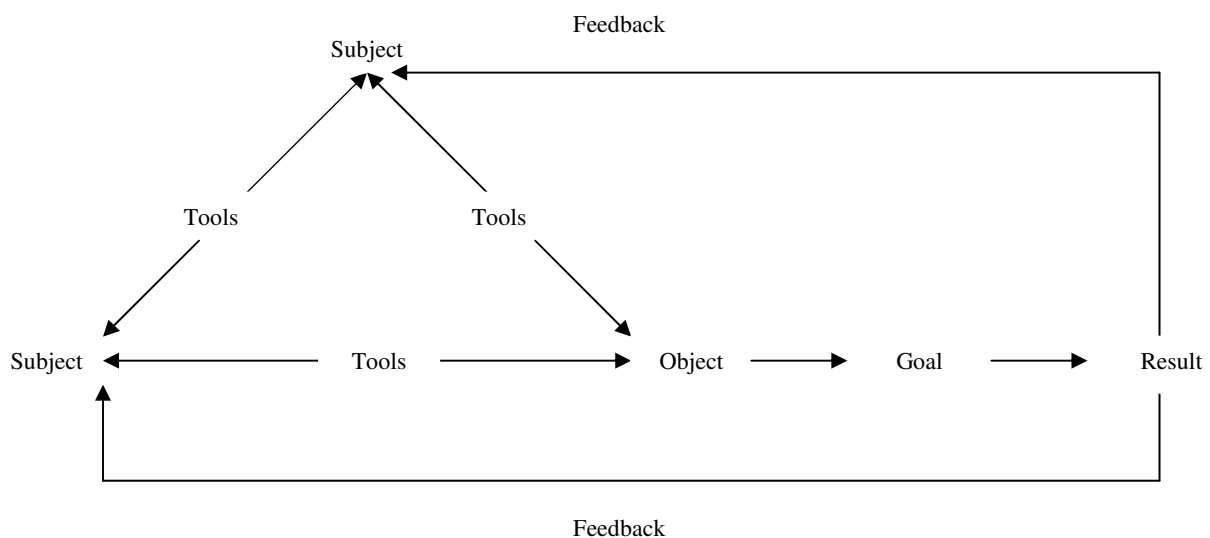


Figure 1. The Activity Theory based on the Bedny's Model. (Wilson, 2006)

Subject, in the Bedny's model, is a person or a group of persons who starts doing an activity. This activity is done on an object and is pushed forward by use of some tools to a distinct goal. And finally, the activity does not always end in a satisfactory result and its feedback refers to the person(s) involved in the activity.

Although it is not illustrated in Figure 1, "goal" is in close relation with "motives", as Le'onto (Wilson, 2006) states that "the goal concept is based on the motive concept".

Le'onto (Wilson, 2006) found a difference in the concepts important in information seeking behavior. He believes in the existence of a difference among activity, action and operation, and links these expressions to motives, goals and conditions under which the activity is done. This relation is shown in Figure 2.

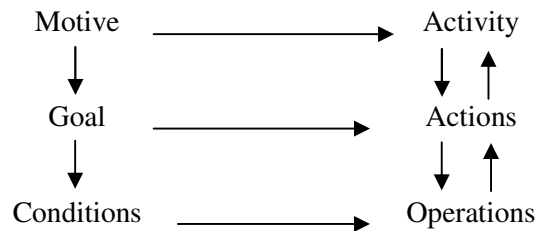


Figure 2. Activity, actions and operations.

### *Theoretical discussion and conclusion on former studies*

The faculty member –here is called researcher– in order to meet his/her information need –“motive”– involves himself / herself in an activity which is called information seeking. The activity of information seeking is the collection of actions consisting of practice, familiarity and experience. Information seeking is pushed forward to a goal – journals– which determines what actions to be done. Periodicals –the goal– are divided into two groups: printed journals and electronic journals. In process of information seeking, the researcher makes use of some tools to have access to journals. The tools for finding printed journals are indexing journals. In order to search E-journals, the researcher first must have access to computer and network in order to start using the available searching tools. The E-journals’ searching tools are search engines, and both open access and fee-based databases. In addition to access to searching tools, the researcher seeking e-resources needs to enjoy experience of retrieval skills such as network and computer skills, familiarity with different databases and etc.

Moreover, the process will not reach the success until suitable circumstances are available –for example, lack of network and computer problems. Therefore, researchers will move upon to the goal (journals) and if they are able to satisfy their information needs, the printed or electronic journals (open access or fee-based) will find the acceptance. Familiarity with E-journals and databases, computer-network skills, and suitable computer-network circumstances are important factors in making access to accepted journals.

Acceptance could act as an attitude and affect the behavior. Based on the views of social studies and communication researchers, attitude paves the way for occurrence of behavior and makes human beings ready to present special behavioral reactions. On the one hand, investigating the relation between attitude and behavior, Ajzen and Fishbein (1997) offer a special model in which the goals are dependent upon the attitudes and the norms related to behavior. Norms could be the cause of or the objection for occurrence of a specific behavior. Allport (1973) during his studies on attitudes discusses that attitude could be known as an approach and readiness for giving suitable or unsuitable responses to the things, people, concepts or anything else. Based on these theories, the

attitudes of the population of this study towards E-journals –acceptance or non-acceptance– could result in the occurrence of their behavior –using journals.

On the other hand, considering the findings of previous researches such as Majid and Abazova (1999), Hayati and Sotude (2002), Hassanshahi (2006) and Dadzie (2005), it could be estimated that factors such as amount of access and familiarity with computer, network, full-text databases, amount of computer and network skills, presence of network problems, and individual attributes such as gender, age, scientific degree could all have relations with amount of acceptance of E-journals.

On the basis of theories and backgrounds already discussed, the following model is offered as the model of the theories of the current research in Figure 3.

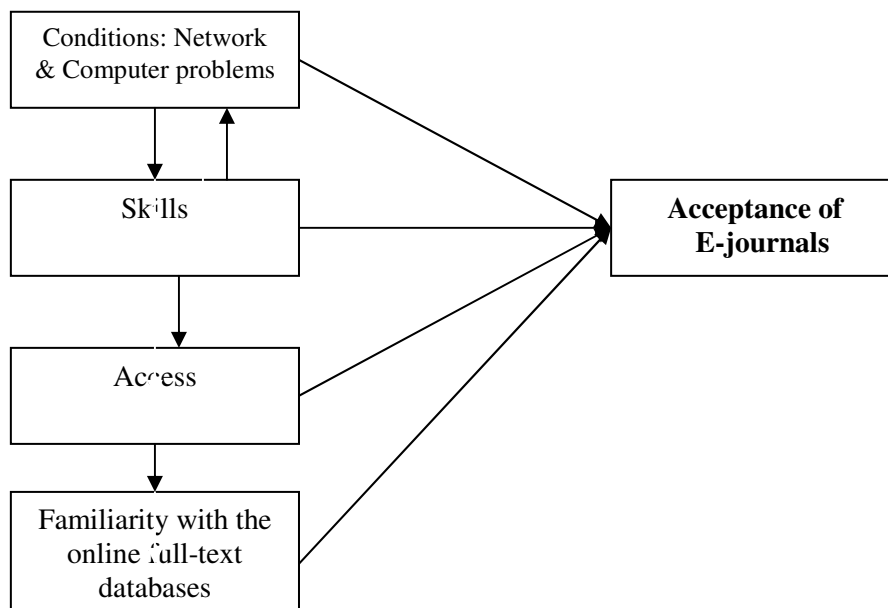


Figure 3. The research model of theories (effective factors on acceptance of E-journals).

### ***Research hypotheses***

H1: The status of printed and electronic journals among the faculty members of Payam-e-Noor University is the same.

H2: There is a relationship between the familiarity of faculty members with the online full-text databases and acceptance of E-journals.

H3: There is a relationship between the computer and network skills of faculty members and their views on acceptance of E-journals.

H4: There is a relationship between computer and network problems and acceptance of E-journals.

H5: There is a relationship between the amount of access to E-journals by faculty members and acceptance of E-journals.



### *Operational definitions*

- **Online full-text database:** The database which saves integrated the complete texts of information resources in one or more specific subject fields based on the united structure in form of computer files and provides the possibility of fast information search and retrieval by means of Internet and other national or local networks.

- **Computer skill:** Ability to work with computer, operator systems such as Windows, Office, Word, Excel, different software ...

- **Network skill:** Ability to retrieve the information provided in Internet and databases and make use of search engines and directories, digital libraries, email and ...

- **Computer and network problems:** The problems which are obstacles in information retrieval and browsing from network, downloading and making print of articles, and some other problems such as, old computer system, slow downloading, problems of communication lines and lack of hardware such as printer.

### **Methodology**

Questionnaire is used as the measuring tool of this research. The first part of this questionnaire is related to the individual features of faculty members such as gender, age, background, major, university degree and scientific grade. The second part of the questionnaire containing seven questions deals with the method of making access to computer and network, application of their computers at home and work, their skills in use of computer, network and databases. Using Likert scale, these seven questions have been set based on the interval scale except those two questions on method of access which were set at the nominal scale. The amount of faculty members' familiarity with five fee-based online full-text databases is questioned by use of a 5-part Likert scale at interval scale.

The next part of the questionnaire is to ask the amount of access to the printed and electronic journals and the way of access to E-journals. Asking six questions with the five-part Likert scale, the status of printed and electronic journals among faculty members is identified. Finally, the existent computer and network problems of faculty members are investigated by five questions with the five-part Likert scale. As you know, one of the important points in quantitative studies is the precision of the measurement tool -questionnaire. The validity of questionnaire was assessed by content validity. In order to examine the scales' reliability, we have used the half-split method of Cronbach's Alpha. The scales' validity is also tested by Pearson's Correlation Coefficient test which will, in detail, be explained in the part related to data analysis.

### *Population and Sample Size*

The population of the study consists of whole faculty members of different branches

and the central organization of Payam-e-Noor University employed in permanent or temporary contracts with different scientific grade such as full professor, associate professor, assistant professor, instructor and assistant lecturer. When gathering data, the number of faculty members based on the list prepared by the staff department, was 585. The sample size of 166 persons was calculated by the Kukran formula. After sending the written questionnaires to faculty members in both postal address and face to face delivery, because of the possibility of data falling in postal delivery, finally 169 questionnaires were answered and returned to the researchers. Since the sample size was calculated 166 persons, the analysis data was done based on the 169 answered questionnaires.

### *Data Analysis*

#### *Respondents' individual attributes*

Males and females respectively form 73.2% and 26.8% of the respondents. In view of age distribution, 60.9% of respondents are 35-49 years old. Regarding university degree, 50.6% have got Master degree, 46.8% Ph.D. and 0.6% of respondents are Bachelors. 60.2% are educated in Humanity and Literature Sciences, Law, Social Sciences, Political Sciences, and Education and Psychology and other respondents – 39.8%– are of Engineering Sciences and other majors. Considering the scientific grade, 46.2% of respondents are graded as assistant professor, associate professor and full professor and the rest –48.1%– are graded as assistant lecturer. Most of respondents – 69.3%– have more than 15 years of experience in university.

#### *Access to printed and electronic journals by respondents*

Results show that the respondents have low degree of access to E-journals. Based on received data, 35.9% have no possibility to have access to E-journals and only few ones –1.2%– make continuous use of such resources. The mean of respondents was 1.06 which demonstrates the very low access to E-journals (Table 1).

Open access and also fee-based databases are the tools used for making access to E-journals. Our findings show that most respondents –60.4%– use free databases to meet online E-journals and 11.2% make use of fee-based full-text E-journals to satisfy their needs to E-journals. Based on the data, 7.7% make use of both free and fee-based databases and 20.7% make no use of the two kinds of databases (Table 1).

Table 1

*Frequency Distribution of Respondents Based on Use of Open Access and Fee-based Databases for Making Access to E-journals*

kind of database in use	number	Percent
Open access databases	102	60.4
Fee-based databases	19	11.2
Both open access and fee-based databases	13	7.7
Making no use of both databases	35	20.7
Total	169	100

### ***Amount of respondents' familiarity with online full-text databases***

One of the ways for searching E-journals is to use online full-text databases familiarity which is an effective factor on access to E-journals. In order to estimate the familiarity of respondents with online full-text databases, five remarkable databases i.e. EBSCO, Science Direct, Ebrary, ProQuest and Emerald were selected and the amount of familiarity with these databases was asked from the respondents. For this, the Likert 5-score scale was used to gather the data. The familiarity with each database, here, is scaled from "zero" –no familiarity– to "4" –complete familiarity. Therefore, the responses could be different from zero –least familiarity– to 20 –complete familiarity. Based on the data, the amount of familiarity of respondents with the so-called five databases is generally low. In other words, the mean of answers is calculated 5.8 which is less than the average scale –10– defined for the question. These findings all show the very little familiarity of respondents with the full-text databases. The kurtosis coefficient of 0.5 and skewness coefficient of -0.45 stand for the normal distribution of data (Table 2).

Table 2

*Frequency Distribution of Respondents Based on Their Scores on the Scale of Familiarity with Databases*

Scores	Number	Percentage	Cumulative percentage
Zero	45	32.6	32.6
1-4	22	16	48.6
5-9	29	21	69.6
10-14	23	16.6	86.2
15-20	19	13.8	100
No response	31	-	-
Total	169	100	

### ***Respondents' skill in use of computer, network and databases***

One of the factors affecting the amount of using e-databases by respondents is their

skill and ability in making use of computer, network and databases. The three-statement scale of Likert was used to assess the skill of respondents. Because the precision of measuring tools is of great importance in quantitative studies, we need to investigate the reliability of the scale before assessing the respondents' attitudes towards the mentioned three-statement scale. In order to estimate the reliability of the scale, we used the internal coordination test which is based on the assumption that the total score of the scale will assess the considered topic. In case each of the statements of the scale has a significant relation with whole statements, each statement is reliable to measure the topic. The result from this test shows that whole statements have significant relation with each other and the Pearson correlation coefficient is different from at least 0.785 to 0.865. So, the statements all can assess the topic. The half-split test was used in investigating the precision of the measuring tools. During this test, the odd and even statements will be added up separately and then, the Pearson correlation coefficient between odd and even statements will be calculated. If this correlation coefficient is significant, it is concluded that both odd and even statements have the required reliability. Since the scale of skill has been proposed here due to the computer, network and databases facilities, the correlation coefficient of the second statement was calculated with the total of first and third statements which equaled 0.785. This result represents the high reliability of the scale. The other test carried out here was to calculate the Cronbach's Alpha coefficient which estimates the reliability of the scale. The result was the coefficient of 0.84 which shows the high reliability of the scale.

As the respondents' skill was measured by the three statements and each statement consists of zero –low– to 4 –very high–, therefore the score of the scale could be from zero to 12 –most skill. Results show that the scores of respondents have been between zero to 12. These results also state that the respondents' average point of this scale is 7.5 which is more than 5 –the average point of the scale. Therefore, the amount of respondents' skill in use of computer, network and databases is at a relatively high level. Only one respondent has declared he has not used the three skills (Table 3). The kurtosis coefficient of 0.33 and the skewness coefficient of -0.299 stand for the normal distribution of data.

Table 3

*Frequency Distribution of Respondents in View of their Scores Given to the Scale of Skill in Use of Computer, Network and Full-text Databases*

The scores of scale	number	percentage	cumulative percentage
Zero	1	0.6	0.6
1-3	6	3.6	4.2
4-6	49	29.3	33.5
7-9	88	52.7	86.2
10-12	23	13.8	100
No response	2	-	
Total	169	100	

### ***Respondents' computer and network problems***

One of the problems causing negative effects on the use of World Wide Web and required databases for making access to E-journals is the computer and network problems which have been investigated here in 7 statements. The reliability of these statements which have been set based on Likert scale needs to be investigated. The data resulted from the internal correlation test of the scale shows that the scale statements all have significant correlation with each other. The correlation coefficients are between 0.42 to 0.839. This result represents that all the statements can measure the topic and there is no need to delete any of them. The results of half-split test show that the correlation coefficient between the total of even and odd statements is 0.739. This high coefficient demonstrates the scale has got the required reliability. The Cronbach's Alpha coefficient is 0.75 which shows the high reliability of the scale, too.

Since the scale of respondents' computer and network problems has been assessed by seven statements each of which is from zero –least problem– to 4 –many problems–, therefore the score of the scale could be different from zero to 28. The results show that respondents have given the scores between 2 to 25. Based on the results, the amount of problems respondents have faced regarding use of computer and World Wide Web is a little more than average. That is, the mean of respondents of this scale is 15.4 which is more than the scale mean –14. As table 4 shows the score of 27.1% is less than average. Both kurtosis coefficient of 0.48 and skewness coefficient of 0.5 represent the normal distribution of data.

Table 4

*Respondents' Distribution Due to Their Scores on the Scale of Using Computer and Network Problems*

Score	Number	percentage	Cumulative percentage
2-6	5	3.9	3.9
7-13	30	23.2	27.1
14-20	84	65.1	92.2
21-25	10	7.8	100
No response	40	-	-
Total	169	100	

***The comparison between the status of printed journals and that of E-journals in view of faculty members***

One of the objectives followed by this study is to investigate the status of printed and electronic journals among faculty members. In other words, we are to identify how E-journals are accepted among faculty members and which of the two kinds of journals more is more preferred to be used. Therefore, the four-statement Likert scale is used to assess the acceptance and status of E-journals. First, the reliability of the scale is estimated. The half-split test shows that the Pearson correlation coefficient between the even and odd statements is 0.56 which stands for the relatively high coordination between odd and even statements. The result of internal coordination test is from 0.69 – related to the fourth statement– to 0.79 –related to the first statement. The Cronbach's Alpha coefficient resulted from the scale reliability is 0.69 which also shows the scale reliability and in turn, the precision of the tools. Table 5 shows the Pearson correlation coefficient resulted from the internal coordination test of the scale.

Table 5

*Pearson Correlation Coefficient Resulted from the Internal Coordination Test of the Scale*

Statement	Pearson correlation coefficient
0.79	I prefer printed journals rather than e-ones to be selected by university.
0.78	I prefer E-journals rather than printed form to be selected by university.
0.75	In case of availability of both printed and e-formats of a journal, I prefer only the e-format for subscription.
0.69	I prefer subscription for printed journals because E-journals limit access to back issues.

***Respondents' attitude towards the statements related to the scale of electronic and printed journals' status***

Results show that there is not complete agreement among respondents. Based on the results, 36.9% of respondents showed agreement as well as complete agreement with the statement; "I prefer subscription for printed journals because E-journals limit access to back issues". 31.9% did not agree and declared their complete disagreement with the statement above.

Results show that 47% of faculty members declared their agreement and complete agreement with the statement "I prefer printed journals rather than E-journals to be selected by university" and 25% selected the disagreement and complete disagreement towards the statement. On the other hand, 51.9% of respondents prefer subscription of E-journals rather than printed ones

Based on the results, 50.3% of respondents have selected choices disagreement and complete disagreement towards the statement "In case of availability of both printed and E-formats of a journal, I prefer only the e-format for subscription", and both printed and electronic journals are important to them. Besides, 31.9% agree and completely agree with the already mentioned statement and prefer the subscription to E-journals. Results, based on ( $\chi^2 = 54.33$ ), is significant at 99% (Table 6).

Table 6

*Respondents' Attitude towards the Statement "In case of availability of both printed and e-formats of a journal, i prefer only the E-format for subscription."*

The statement acceptance	number	percentage	Cumulative percentage
Complete agreement	20	12.3	12.3
Agreement	32	19.6	31.9
Relative agreement	29	17.8	49.7
Disagreement	68	41.7	91.4
Complete disagreement	14	8.6	100
No response	9	-	-
Total	169	100	

$$\chi^2 = 33.54$$

$$d.f = 4$$

$$sig = 0.000$$

As the scale of E-journals status among respondents were assessed by four statements each of which was from complete disagreement –score 1– to complete agreement –score 5–, therefore the respondents' score could be between 4 to 20. The mean of respondents of this scale is 12.1 which approximately equals with the mean of the scale (Table 7). The skewness coefficient of -0.5 and kurtosis coefficient of 0.5 demonstrates the normal distribution of data.

Table 7

*Frequency Distribution of Respondents Based on Their Scores on the Scale of E-journals Status*

Scores	number	percentage	Cumulative percentage
4 – 7	6	9	4
8 – 11	67	67	48.7
12 – 15	53	53	84
16 – 20	24	24	100
No response	19	19	-
Total	169	169	

Making comparison between the respondents' mean on the scale of E-journals' status –12.1– and the mean of the scale through T-test shows that there is not significant difference between the two means. The result of T-test is 0.4 which is not significant at 149 degree of freedom. Therefore, it is concluded that the amount of E-journals' acceptance in view of respondents is at average level.

53% of respondents selected the “agreement and “complete agreement” towards the statement “In case of availability to electronic and printed journals, both formats should be prepared”. On the other hand, “disagreement” and “complete disagreement” were chosen by 32.3% of respondents. This result demonstrates that respondents equally agree with both printed and E-journals.

Based on the amount of  $\chi^2 = 39.43$ , &  $df = 4$  the result could be generalized over the whole population. Therefore, it is concluded that respondents count identical value for both formats.

#### *Effective factors on E-journals' status among respondents*

In order to investigate the effective factors on the status of E-journals among respondents, the Pearson correlation tests, T-test and analysis of variance have been used. The results of Pearson correlation test show that the computer and network problems have the highest effects on rejection of such journals. The Pearson correlation coefficient resulted from the relation between E-journals' acceptance and amount of computer and network problems is -0.44. This suggests that solution of such problems could encourage faculty members to accept E-journals. The amount of faculty members' skills in making use of computer facilities is another factor positively affects faculty members to select E-journals. The Pearson correlation coefficient resulted from the relation between “skill” and “acceptance” is 0.34. It is concluded that more familiarity of respondents with the full-text databases, more acceptance of E-journals – $R = 0.33$ .

Increase in faculty members' age and their background are the factors decreasing the attitude to use of E-journals. Pearson correlation coefficients between age and



acceptance and between background and acceptance are respectively -0.24 and -0.25. But, there is not significant relation between the amount of respondents' access to E-journals and the E-journals' acceptance (Table 8).

Table 8

*Pearson Correlation Coefficient between the Independent Ratio Variable and Interval Variance, and the Amount of E-journals' Acceptance by Respondents*

The variance	problems	skill	familiarity	background	age	Accessibility
Pearson correlation coefficient	-0.44	0.34	0.33	-0.25	-0.24	0.4
P-value	0/000	0/000	0/000	0/000	0/000	0.796

### ***Multiple regression test***

Multiple-regression test, by dummy variable, investigates three variables of gender, major and educational degree at the two-choice nominal assessment. This test also is carried out step wise so that the impact of each variable could be evaluated separately. Moreover, the variables of this test are considered based on their impact on definition of dependent variables, so the researcher does not directly interfere with presence of independent variables in the formula.

Based on the results of this test, the amount of respondents' problems in use of computer and network facilities is the first variable enters the formula. This variable, alone, identifies 18.1% of the differences of dependent variable ( $R^2 = 0.181$ ). Based on the B coefficient of the problem, one unit increase in the amount of respondents' computer and network problems decreases 0.36 of the amount of E-journals' acceptance score. Regarding the amount of F, the results are significant at 99% (Table 9).

Table 9

*Regression Formula of E-journals by Respondents –first Step*

variable	coefficient B	coefficient $\beta$
Amount of problems	-0.36	0.43
Constant value	17.64	-

Sig = 0.000

d.f= 1.95

F= 21.03

The second –and the last- variable entering the formula is the amount of respondents' familiarity with electronic journals. Regarding the formula coefficients of the second step, one unit increase in the amount of respondents' problems in use of computer and network facilities reduces 0.31 amount of E-journals acceptance, while one unit increase in respondents' score on the scale of familiarity with E-journals adds

0.12 to their score of E-journals' acceptance. Presence of new variable increases the identification ability of the formula to 21.9 ( $R^2 = 0.49$ ).

Based on  $\beta$  coefficients of the formula, problems of respondents affect 1.8 times on dependent variables identification more than respondents' familiarity with such journals. These results also due to the amount of F, is significant at 99% [Table 10].

Table 10

*Regression Formula of E-journals' Acceptance by Respondents –final Step*

variable	coefficient B	coefficient $\beta$
Amount of problems	-0.36	0.43
Constant value	17.64	-

F=13.21      d.f = 2.94      sig= 0/000       $R^2=0.219$

**Investigation of Research Model**

In order to investigate the research model, the path analysis test has been used. This test investigates the interval relations of variables. Results show that the four variables, the amount of problems in using computer and network facilities, amount of familiarity, amount of access and amount of skill interfere with the identification of E-journals' acceptance.

As shown in Figure 4, there is a direct relation between the variable of amount of problems in use of computer and network facilities, and familiarity with full-text databases and an indirect relation between "skill" and "access", and amount of E-journals' acceptance by respondents.

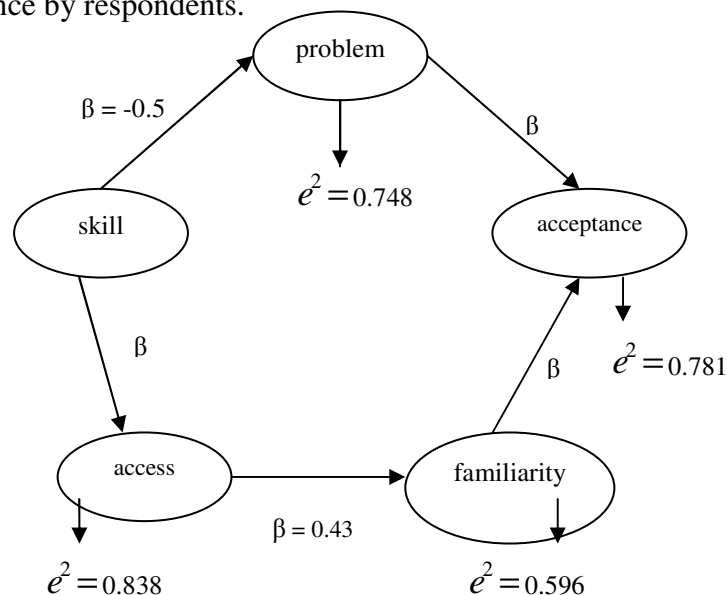
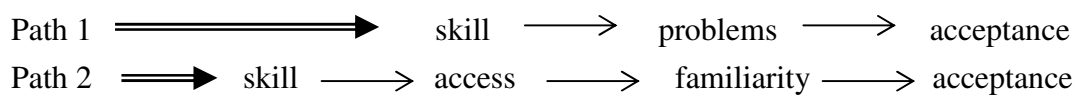


Figure 4. The path analysis of amount of E-journals' acceptance among respondents.

Based on Figure 4, increase in amount of skills results in reduction of the problems

of respondents in having access to computer and online services. Decrease in problems will promote the acceptance. Also increase in access will increase the familiarity with databases and finally this increases acceptance.

In order to determine the impact of each variable on the amount of respondents' acceptance, the determination coefficient of each difference should be calculated. The determination coefficient is the total of  $\beta$  coefficients which direct each variable to the dependent variable. For example, determination coefficient of respondents' problems in use of computer and network facilities equals its  $\beta$  which is 0.31 and then, this familiarity with E-journals. The skill variable will end to the amount of acceptance by two paths as follows:



Therefore,

The skill determination coefficient =  $0.5 \times 0.31 + 0.4 \times 0.43 \times 0.12$

The skill determination coefficient =  $0.155 + 0.02 = 0.175$

The access determination coefficient =  $0.43 \times 0.12 = 0.05$

Based on the results, amount of respondents' problems on having access to computer and Internet networks with the coefficient of 0.31 causes most affects on determination of the dependent variable which is the amount of E-journals acceptance. Then, respondents' skill in making use of facilities with 0.175, the amount of familiarity with databases with 0.12 and finally the amount of access to E-journals with the coefficient of 0.05 rank one after another.

### Summery, Discussion and Conclusion

The main goal of this study is investigating the E-journals, acceptance in comparison with printed journals among the faculty members of Payam-e-Noor University and also studying the effective factors on amount of E-journals' acceptance. This study was directed by the dependent variable "the amount of E-journals' acceptance" and independent variables such as amount of faculty members' familiarity with online full-text databases, computer and network skills of faculty members, their access to E-journals and the amount of computer and network problems. Moreover, the relation between the dependent variables and descriptive variables such as gender, age, background (work experience), educational degree, and scientific status has been studied. Before discussing the results of the study, we will investigate the amount of each independent variable. Results show that faculty members have got very weak familiarity with subscribed full-text databases such as Emerald, Ebray, Science Direct,

EBSCO, and ProQuest. The respondents' skill in three fields –use of computer, information retrieval from World Wide Web and use of online full-text databases- was studied by use of three statements. Based on results, respondents have declared good and excellent levels of skill in the three mentioned fields.

The problems have been evaluated by different dimensions such as up-to-date computer system used by the faculty members, retrieval and browsing the articles of online full-text E-journals, downloading the articles from online full-text E-journals, making prints of retrieved articles, and other problems respondents may face during use of online E-journals.

Results show that as the measurement scale of “problems during use of computer and network” has been assessed by seven statements, the mean of faculty members, problems in making use of computer and network is 15.4 which posits higher than the mean of the scale with 14.

Data show that respondents' access to online E-journals is at a very low level to the extent that the mean of respondents on amount of access to online E-journals is 1.06. Data also shows that 60.4% of respondents make access to E-journals through open access databases, 11.2% through fee-based databases and only 7.7% make use of both open access and fee-based databases. Moreover, the amount of E-journals' acceptance in comparison with the printed ones is at an average level. The mean of respondents is 12.1 which posits almost equal to the mean of the scale which is 12.

### ***Responses to Research Questions***

First question: What is the status of E-journals among faculty members?

Based on result, the status of printed and electronic journals is almost equal and according to the results of  $\chi^2 = 39.43$ , the data could be generalized to the whole population. Regarding the data presented, 50.3% of faculty members agree with both formats of journals. This data is at 99% significant.

Based on the results, following points could be discussed:

H1: The status of both printed and electronic journals is identical in view of Payam-e-noor University faculty members. These results agree with the findings of Cochenour and Moothart (2003).

Second question: Which format of journals –printed or electronic- has got more acceptance and validity in view of Payam-e-Noor University faculty members?

Some of the effective factors on the E-journals' acceptance were investigated such as computer and network problems, faculty members' skill, their familiarity with full-text databases, amount of access and individual attributes like gender, age, work experience, educational degree, scientific status and major.

Results show that computer and network problems most affect rejection of

E-journals by faculty member. Amount of faculty members' skill in using computer and network facilities as well as databases is another factor which makes positive effects on E-journals, acceptance. Increase in familiarity with full-text databases will promote the amount of E-journals' acceptance. But the results do not show significant relation between respondents' access to E-journals and amount of E-journals' acceptance.

Results of regression test along with the investigation and interactions of variables – according to Figure 5- show that increase in skill decreases the problems of respondents on access to computer and network and, in turn, decrease in problems will promote E-journals' acceptance.

Also increase in skill and possibility to have access to databases improves the familiarity with databases and, in turn, promotes the E-journals' acceptance.

The results of calculating the identification of coefficient in each variable show that amount of respondents' problems in accessing to computer and network with the coefficient of 0.31 most affects identifying the dependent variable which is known here as E-journals' acceptance. After that, the amount of skill in use of such facilities with the coefficient of 0.12 and the amount of access to E-journals with 0.05 coefficient play important roles in E-journals' acceptance. Therefore, H2, H3 and H4 will be approved. H5 of the study which is related to the amount of acceptance is not verified by the data analysis.

It is concluded that world of today moves towards the electronic resources based on the consequence of which lack of access can not be an obstacle to accept such resources. According to the results, if computer and network problems as objections for access and use of such facilities are removed, and the faculty members' skill improves via suitable tutorial courses, the acceptance of electronic information resources will increase.

Results show that older faculty members in age and work experience have weaker tendency in use of E-journals. The results also show that there is not significant relation between other individual specifications and E-journals' acceptance.

### **Suggestions**

1- It is proposed to pay serious attention to different methods of access to E-journals so that the best and most economical methods could be selected based on faculty members' needs. For example, use of password, limits of the place of use or Ip valid, restriction in number of simultaneous users and tens of other methods must be studied to select the method by which the optimum use of E-journals according to society and expenses could be achieved.

2- According to increases in journals' expenses, it is proposed that university libraries try to subscribe special articles rather than complete issues of journals required for their users. In other words, core and most frequently used journals could be used

jointly and the journals of lower importance could be prepared through interlibrary collaboration and document delivery services.

3- Results show that back issues of E-journals are of high importance according to 89% of faculty members. Although E-journals are more economical than printed ones, the contemporary access to E-journals and unavailability of their back issues still remain as noticeable concerns. It is because when a journal is purchased in printed format, it is possessed for ever but subscription to E-journals will end as the contract with the publisher or dealer expires. In order to remove such concern, some of dealers such as EBSCO have taken some steps. As an example, when the subscription is taken out continuously, one free offline copy (CD format) of the journal is given to the subscriber. Therefore, it is suggested to prepare the back issues of the journals through such methods.

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