

A Survey of Rate of Factors Affecting Usage of Electronic Journals

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Abstract. *The purpose of the present study is to survey the rate of effective factors on the use of electronic journals from the perspective of graduate students of Alzahra University.*

Research method is analytical-survey. Library study has been used to gather factors, criteria and indicators in order to develop the questionnaire to measure the importance of them. The research community is all of the MA/MS students who are studying at Alzahra University (2011). Sampling method is comparative stratified random and 266 graduated students participated in research totally as a sample. A questionnaire as a research tool has been used.

The questionnaire's findings were analyzed by SPSS software (version 18). Results have been indicated that "computer literacy", "Add-ins", "help", "content customization capability" and "search capability" are the most important criteria. On the other hand, "search in title", "full text access level", and "advanced search", "computer literacy" and "search in subject" are the most important criteria. "Browse by author's name" and "browse by issue" have the less importance from the students' view. More than %70 of students does not know the rate of importance of all indicators much and very much.

On the other hand, the findings showed that between "search capabilities" and "search techniques" and also between "Add-ins" and "computer literacy" a strong significant relationship exists. Students of engineering and science faculties are the most familiar students to the concept of electronic journals.

Results also have been indicated on the significant difference between the rate of familiarity with the concept of electronic journals and giving priority of the most important criteria (computer literacy, Add-in, help, content customization capabilities and search capabilities). On the other side, in giving priority of the most important criteria in different faculties a significant difference exists as well.

Keywords: Electronic Journals (E-journals), Users, Evaluation, Criteria, Alzahra University, Iran

1. Introduction

Since journals publish the newest news sooner than books, they have always been concentrated as an intermediate between new and old knowledge by the audiences. With web development and its growth in the 1990s, online full-text articles were available and brought many features and benefits. So that, more features were added over time to the electronic journals of various types that were available.

At this time, different kinds of libraries, especially academic ones to meet their goals and duties welcomed and utilized special features of electronic journals to provide needed information at the least time for their users. Also, printing journals to ease for their users welcomed and paved the way to publish electronic journals by removing challenges and barriers. Electronic journals which are indexed in scientific databases are proliferating rapidly and present a new set of challenges for libraries.

Users' increasing demand for access to electronic journals and the maturing of the electronic journal industry are contributing to the trend of shifting away from print journals to electronic journals. For over a decade traditional print journal collections in all types of libraries have been transitioning into hybrid journal collections. The resulting hybrid journal collections provide access to journals subscribed to as print-only, as electronic-only, or in both print and electronic formats, as well as access to selected, full-text journal articles in aggregator databases (Chandra, 2007).

The growth and availability of electronic journals offer libraries the opportunity to provide end users with quick and easy access to more journals than ever before, thereby creating a complex new workload in academic libraries. (Wendy, West, Heather, 2011).

The growth rate in usage of electronic information resources is sufficiently high and if this trend continues for few more years, a time may come when the print versions will get '*totally eclipsed*' (Guruprasad, Nikam, 2010).

Electronic resources have become an integral component of library collections at all academic institutions. Bringing electronic resources to campus and making them available to user communities require knowledge and expertise for selection; testing; funding; licensing; acquisition; cataloging; implementation; training; publicity; evaluation; and technical support, including maintenance (Croneis, Henderson, 2000).

The current status of the use of university library information resources, helps librarians to understand the information needs of their users more specifically, and provides some guidelines for the efficient and effective management of information resources (XianjinZha, Jing, Yalan, 2012).

Today, due to the use of computers and computer networks, accelerating the usage of them and strengthening the communication infrastructure and somehow decreasing of the telecommunication costs, moreover, the strong lines of communication, publishers' efforts and users' need in order to access large volumes of data, producing, publishing and distributing of journals have been developed in electronic format.(Gilvari, 2006).

Thanks to the importance of electronic journals as a source of information on the needs of users, libraries have been spending a high percentage of its annual budget on the subscriptions of journals which are purchased annually (Kidd, 2002; Luther, 2001; Kyrillidou, 2004). In Iran millions of dollars are spent by shopping centers and educational institutions annually. (Shahrzadi, 2005; Omrani, 2006).Between 30 to 70 percent of the total cost of the used materials is spent on the periodic journals in a library. (Taavoni, 2002). On the other hand, what are important in electronic library services evaluation are the endless users. So awareness of the resources and reasons of efficiency and effective use of resources in terms of end users is considered as a valuable tool for assessing library services. Since the mission of libraries and information centers, are meeting users' information needs and their satisfaction on the usage of material.

The assessment criteria in printed journals (standardization, organization, clarity, indexing, etc...) shows that these are clearly identified and defined, in comparison with online resources evaluation criteria (accessibility, browsing, designing and speed) they are still misleading among authors and those related to this topic. A few features clearly defined and organized in relation to these criteria. After several years of rapid growth of electronic scientific journals have shown the presence, but also because of the lack of a special quality standard to set them there, disorder and chaos are all terrible at it. So in an effort to promote this type of information published, these cases make it necessary to define a set of criteria for evaluating electronic journals. (López-Ornelas, Cordero-Arroyo and Backhoff-Escudero 2005).

López-Ornelas, Cordero-Arroyo and Backhoff-Escudero (2005) in a study titled "***Measuring the Quality of Electronic Journals. The Electronic Journal of Information Systems Evaluation***" presented the methodology developed to create a system to evaluate academic electronic journals. According to their framework, several questions were designed to measure each indicator and, as a result, an instrument to evaluate academic electronic journals was built. Then, the instrument was validated by 16 editors of electronic journals of different countries and different areas of knowledge that were considered as judges. This instrument was distributed by e-mail. The system just covered 3 criteria and 12

indicators. In comparison the framework of this article is not enough completed and comprehensive. . (López-Ornelas, Cordero-Arroyo and Backhoff-Escudero 2005).

Hosseini, Elaheh, Ghaebi Amir and Baradar , Roya in a study presented in a conference (2012) titled “*Evaluation Criteria of Electronic Journals Indexed in Scientific Databases from End User’s View: a Proposed Checklist*” presented present factors, criteria and indicators to evaluate academic electronic journals Indexed in Scientific Databases from the users’ point view. This checklist was developed in two stages. In the first stage, a collection of factors to evaluate electronic journals thorough librarian study was created. The factors and the criteria and the indicators for evaluation scientific electronic journals were selected and defined. In the second stage, the checklist was validated by 7 professionals in electronic journals and scientific database field to evaluate clarity, importance, relevance and coverage of each factor, criteria and indicators. As a result, 5 factors (main level), 17 criteria (subdivision level) and 83 indicators (sub of subdivision level) were classified. It should be mentioned that these classified factors, indicators and criteria are restricted to end users’ view. (Hosseini, Ghaebi, Baradar, 2012). *The questionnaire is developed according to this study.* This study is the first one which surveyed end-users’ point view with these kind of comprehensive criteria and indicators.

The central library of Al-Zahra University uses clients’ perspective, agents, publishers, and the internet to identify electronic journals to purchase. Weeding policy is based on the use of the material in the previous year and to present and introduce new services through the vendor and publisher network. (Zaer Heydari, 2004). Finally, purchase is doing as focused through the Konsyran (Consortium for the purchase of scientific journals of Science, Research and Technology ministry).

Thus four groups of publishers, users, librarians, and vendors selling of electronic journals are the main stakeholders. It’s worth mentioning that end user’s view point is the main point of this search. The aim of this study is providing solutions, suggestions, and realizing the affecting factors on using electronic journals from Al-Zahra University graduate students’ point view in the use of electronic journals. As a result, consortium members of the scientific journals could see their needs and estimate specified budget truly and well-informed.

According to the research purpose, the methodology of this study is qualitative. The study methodology is descriptive and analytical. For gathering factors, criteria and indicators Library studying is used. The instrument was found to have adequate content and construct validity as well as internal consistency. The reliability of this study was a preliminary study via a questionnaire. Using free software SPSS and statistical techniques, the Cranach’s alpha coefficient was calculated 0/85, which indicates a research tool has good and acceptable reliability. This research is supposed to answer some questions such as which of electronic journals factors on the use of graduate students have more impact? And what solutions (such) for the qualified use of electronic journals of graduate students are offered?

2. Findings

In total 266 questionnaires have been distributed among the graduate students were acquainted all fields, as a result %9/13 very much, %5/42 much, %5/39 not much not little, %8 little and 4% very little are familiar with the concept of electronic journals.

Figure1 indicates that the students of **engineering and sciences faculties** have the *highest* rate of familiarity with the concept of electronic journals. In this figure 35 majors were divided into 8 faculties and the rate of their familiarity took place in three groups. It’s worth mentioning that the rate of their familiarity of much and very much is classified in the group called **much**, little and very little in the group called **little** and not much not little in the group called **not much not little** are categorized.

2.1 Criteria and indicators ranking

With regard to the average of the mean of criteria, the priority on different criteria in table1 is shown.

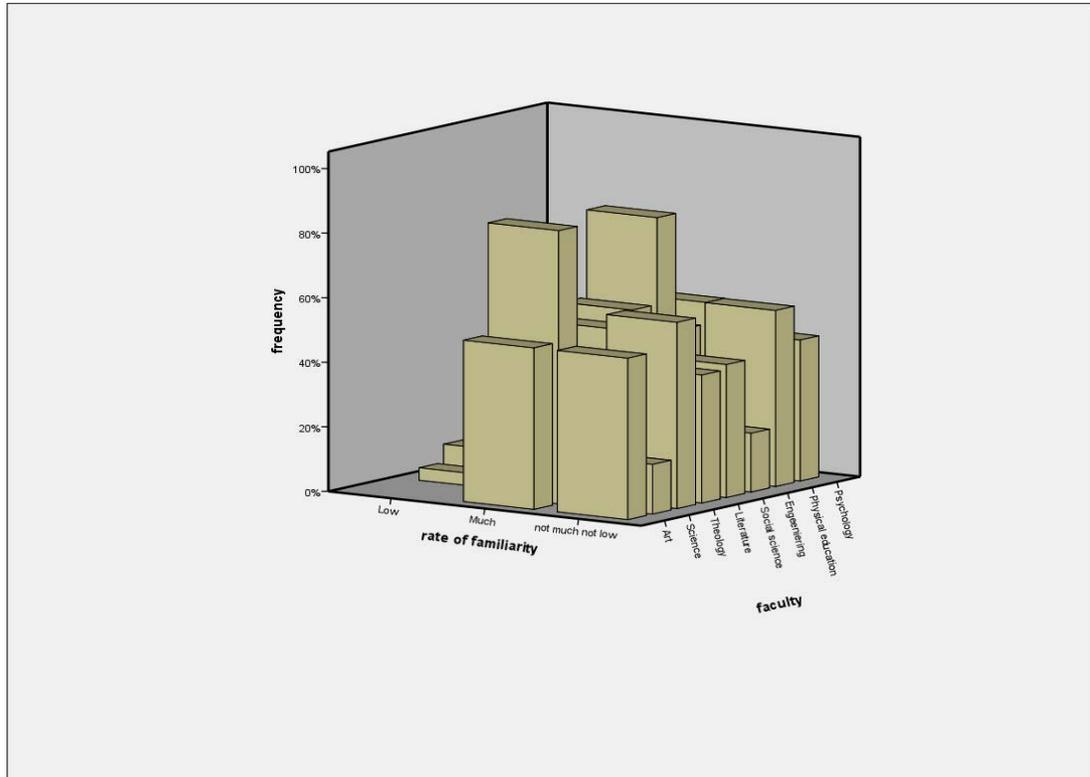


Figure 1. Faculty students' familiarity with the concept of electronic journals

3. Hypotheses testing

This research is supposed to survey 4 hypotheses including:

1. More than 70 percent of the students know the importance of each indicator much and very much.

Test is done by the ***Bernoulli distribution of a binomial test*** and with separating of the ranking indicators to two groups. The first group is restricted to *more than the average* (more than 3) and the *other equal and less than the average* (less or equal 3) assumed the exam test. Among them two indicators, “browse by author” and “browse by issue” of “*browse capabilities*” criteria, reject the search hypothesis. This means that with %99 confidence level, the rate of value the P-chlorinated is $01/0 <$ have caused the rejection theory research and confirm the theory zero. On the other hand, more than %70 of students **does not know** the rate of importance of these two indicators much and very much. The rate of value the P-chlorinated Of 81 indicators < 0.01 and confirm the search hypothesis. This means more than %70 of students knows the rate of importance of 81 indicators much and very much.

2. There is a relationship *between the all criteria* used to evaluate the electronic journals from the perspective of graduate students in Al- Zahra University.

By using the ***Pearson correlation coefficient*** excluded meaningful relations between the 17 criteria of evaluation electronic journals. Between the criteria “*search capabilities*” **and** “*the search method*”, between the criteria “*add-ins*” **and** “*computer literacy*” a meaningful relationship is **strong**. Among the criteria “*content customization*” **and** “*help*”, between the criteria “*save capabilities*” **and** “*internal and external links*”, between the criteria “*help*” **and** “*graphical and multimedia environment*”, between “*add-ins*” **and** “*content customization*” there is a **moderate** meaningful relationship.

Criteria's rank	Criteria	Means' average	Average of cumulative frequency of much and very much
1	Computer literacy	5	92.90
2	Add-ins	5	85.30
3	Help	4.75	81.10
4	Content customization capability	4.50	79.10
5	Search capability	4.27	77.20
6	Save capability	4.25	74.87
7	Information services	4.25	70.85
8	Search method	4.12	73.27
9	Links	4	75.35
10	Multimedia and graphical environment	4	65.25
11	Different access level	3.80	54.64
12	Related and supplementary information	3.75	63.17
13	User interface	3.60	54.42
14	Browse capability	3.30	46.26
15	Interaction capability	3.25	35.37
16	Text appearance customization	3	73.30
17	Introduction criteria	3	27.81

Table 1. Criteria ranking

Row	Indicators	Percent of cumulative frequency of much and very much
1	Search by title	94
2	Full text access level	93.20
3	Advanced search	93.20
4	Computer literacy	92.90
5	Search by subject	92.90
6	Save full text	92.80
7	Search in full text	89.50
8	Alert	87.90
9	Access to archive	87.90
10	Help	87.60
11	Saved searches	87.20
12	Search recommendation	87.20
13	RSS	87.20
14	Search history	86.50
15	Search tutorial	85.70
16	Add-ins	85.30
17	My favorite journals	85
18	Saved citation	83.50
19	PDF	79.70

Table 2. Indicators ranking

3. There is a meaningful difference between the rates of students' familiarity with the concept of electronic journals in a prioritization of the most important criteria.

The rate of the students' familiarity has been divided into the three groups (much, not little not much and little). Prioritize the most important criteria from the viewpoint of the students respectively are "computer literacy", "Add-ins", "help", "content customization capabilities" and "search capabilities".

Considering the fact that the three groups of students' familiarity with the concept of electronic journals is independent of each other, the *Kruskal-Wallis test* has been used to confirm or reject the hypothesis.

There is a meaningful difference in prioritizing the most important criteria in the rate of the three groups' familiarity with the concept of electronic journals. The mentioned difference means that students whom the rate of their familiarity with the concept of electronic journals is much, prioritizing the most important criteria respectively to "*content customization*", "*search capabilities*", "*add-ins*", "*computer literacy*" and "*help*". Students whom the rate of their familiarity with the concept of electronic journals is not the little not much, prioritizing the most important criteria respectively to "*help*", "*search capabilities*", "*computer literacy*", "*add-ins*" and "*content customization*". Students whom the rate of their familiarity with the concept of electronic journals is little prioritizing the most important criteria respectively to "*help*", "*computer literacy*", "*content customization*", "*add-ins*" and "*search capabilities*".

4. There is a meaningful difference between the various faculties' students of Alzahra University in a prioritization of the most important criteria.

Kruskal-Wallis test has been used to confirm or reject this hypothesis. As far as the rate of the criteria for P is less than the 0/5, zero hypotheses rejected and research hypothesis approved. This means that ***there is meaningful difference between the various faculties*** of Alzahra University in a prioritization of the most important criteria on the use of electronic journals.

The difference is that *education and psychology faculty's* students prioritize the most important criteria respectively to "*search capabilities*", "*computer literacy*", "*help*", "*content customization*" and "*add-ins*".

Prioritizing the most important criteria from students' view point of *faculty of Social Sciences and Economy* respectively is to "*content customization*", "*add-ins*", "*computer literacy*", "*help*" and "*search capabilities*".

Students of *literature faculty* prioritize the most important criteria respectively "*help*", "*content customization*", "*add-ins*", "*computer literacy*" and "*search capabilities*".

Students of *Faculty of Science* prioritize the most important criteria respectively to "*search capabilities*", "*content customization*", "*computer literacy*", "*help*" and "*add-ins*".

Students of *Faculty of Physical Education* prioritize the most important criteria respectively to "*search capabilities*", "*add-ins*", "*computer literacy*", "*content customization*" and "*help*".

Prioritizing the most important criteria from students' view point of *faculty of Theology* is respectively to "*help*", "*search capabilities*", "*content customization*", "*computer literacy*" and "*add-ins*".

Art faculty students prioritize the most important criteria respectively to "*add-ins*", "*search capabilities*", "*computer literacy*", "*help*" and "*content customization*".

Students of *Faculty of Technical and Engineering Sciences* prioritize the most important criteria respectively to "*add-ins*", "*computer literacy*", "*content customization*", "*search capabilities*" and "*help*".

4. Responding the research questions

1-Which factors of electronic journals on the use of graduate students have more impact?

Considering to the ranking criteria (table 1) is clear and obvious that "*computer literacy*", "*add-ins*", "*help*", "*content customization capabilities*" and "*search capabilities*" criteria are ***the most important criteria*** from the graduate students' view point of Al-zahra University. And according to table 2, ***the most important indicators*** respectively are "*search in title*", "*full text access level*", "*advanced search*", "*computer literacy*", "*search in subject*", "*save full text*", "*search in full text*", "*alert*", "*access to full text in archive*", "*help*", "*saved search*", "*search recommendation*", "*RSS*", "*search history*", "*search tutorial*", "*add-ins*," "*my favorite journals*", "*saved citation*" and "*PDF*".

2-What solutions (such) for the qualified use of electronic journals of graduate students are offered?

Since that "*computer literacy*" and "*help*" are common parts of the most important criteria and indicators from their view point, *teaching to users* and *introducing electronic journals and the scientific information databases* of

Alzahra University in the form of training *workshops, brochures, the continuous conference* and steady and information dissemination in the ground for *holding and also providing booklet and visual tutorials*, *introducing each databases separately*, how to use them *with fluent explanation* on the website of central library freely in order to be familiar with the concepts and applications of factors, criteria and indicators which have significant impact on students' view point is suggested. According to the high importance of search capabilities and search indicators is that offered through the training of the *search strategies and methods* of to be explained exclusively to users in order to be useful and effective in their utilizing of electronic journals.

5. Discussion

This study is done with the main purpose to survey the rate of effective factors on the use of electronic journals from the view point of students (graduate students in all majors) of Alzahra University .So the rate of the importance of 83 indicators examined. Findings showed that more than %70 of the students knows the importance of 81 indicators (except browse by authors and browse by issue) much and very much. ***This means most of indicators are confirmed by their perspective.***

On the other hand, with regard to the Mean of the criteria and indicators, the rate of the importance of all of them from the viewpoint of students is much and very much (3 and above 3). ***The most important criteria*** are “*computer literacy*”, “*add-ins*”, “*help*” and *content customization capabilities*”, “*search capabilities*”. ***The most important indicators*** are included “*search in title*”, “*full text access level*”, “*advanced search*”, “*computer literacy*”, and “*search in subject*”. With regard to the fact that “*computer literacy*” is the most important criteria, ***holding continuous training workshops, providing brochures, search tutorials and uploading them on the library website for users*** would be recommended.

Considering that the “*search in title*” is the most important indicators of users' perspective and also there is a strong meaningful relationship between “*search method*” and “*search capabilities*”, teaching *search strategies and techniques* in electronic journals and scientific information databases to users are suggested in order to have more effect on their optimal usage of electronic journals and increasing the capabilities of the search and search results with more relevance.

On the other hand, the findings also showed that between the criteria “*search capabilities*” and “*search method*”, between the criteria “*add-ins*” and “*computer literacy*” a meaningful relationship is *strong*. Between the criteria “*content customization*” and “*help*”, between the criteria “*save capabilities*” and “*internal and external links*”, between the criteria “*help*” and “*graphical / multimedia environment*”, and finally between “*add-ins*” and “*content customization*” there is a *moderate* meaningful relationship.

The results also have been indicated that there is a meaningful difference ***between*** the rates of students' familiarity with the concept of electronic journal ***and*** in a prioritization of the most important criteria. This means that the rate of familiarity with the concept of the electronic journal ***causes various viewpoints*** in the rate of the importance of criteria and indicators; as a result, it can lead different prioritization among students. So that, ***holding separate training workshops*** for any faculties is suggested.

Findings on the other hand have been indicated that there is a meaningful difference in prioritizing criteria ***between*** students in various faculties. This means that students of various faculties have different perspectives in the rate of importance of criteria in the use of electronic journals. On the other words, ***major*** is one the *non-direct factor* which has significant impact on the use of electronic journals. *Faculty of technical and engineering science* and the faculty of *science* has the most familiar perspective with the concept of electronic journals, therefore ***holding educational workshops in various levels*** in order to have better result is offered.

With regard to the fact that “*help*” criteria is the most important one in priority for students that the rate of their familiarity with the concept of electronic journals is in a little and average (not little not much) level, so ***providing help and search tutorial in fluent Persian language*** has the most effect on their optimum utilize.

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Appendix (The questionnaire)

Dear students

This questionnaire is developed to **survey Rate of Effective Factors of Usage of Electronic Journals**. Help me with your answers. Respond through tables that how these indicators are ***important*** in your viewpoints in the usage of electronic journals. Thanks in advance.

How much are you ***familiar*** with the ***concept of Electronic journal which are indexed in scientific databases such as Science direct?***

Very much Much not much not little little very little

Major: **Faculty:**

Search capabilities	Very much	Much	Not much not little	Little	Very little
Search by title					
Search by author					
Search by subject					
Search in abstract					
Search in full text					
Search in the archives					

Search in one journal					
Search in no text content					
Search in multimedia					
Simultaneous search in several different journals					
Free search					

Links	Very much	Much	Not much not little	Little	Very little
Internal links					
External links					

Search method	Very much	Much	Not much not little	Little	Very little
Simple/quick search					
Advanced search					
Using Boolean operators					
Using truncation operators					
Using stemming operators					
Using thesaurus					
Search limited by year					
Search limited by document's type					

Save capabilities	Very much	Much	Not much not little	Little	Very little
Save full text					
Save abstract					
Save bibliography information					
Representation download volume					

Browse Capabilities	Very much	Much	Not much not little	Little	Very little
Browse by subject					
Browse by author					
Browse by number of journals					
Browse by title of the journal					
Simple browse					

User-interface	Very much	Much	Not much not little	Little	Very little
Language					
Text format					
Word & Document Text format					
HTML,SGML,XML, GML format					
PDF format					

Graphic and Multimedia environment	Very much	Much	Not much not little	Little	Very little
Graphic environment					
Multimedia environment					

Help	Very much	Much	Not much not little	Little	Very little
Help					
Search tips					
FAQ,					
Tutorials					

Interaction capability	Very much	Much	Not much not little	Little	Very little
Comment					
Contact us					
Send to friend					
Emails of authors and editor					

Access Level	Very much	Much	Not much not little	Little	Very little
Just access to TOC (table of content)					
Just access to abstracts					
Just access to TOC and abstract					
Access to full text and image					
Access to back issues (Archives)					

Related and supplementary information	Very much	Much	Not much not little	Little	Very little
Related articles and records					
See article in other databases					
Citation map					
Article type					
Related articles from reference works					
The author evaluator					
Most read articles					
Most downloaded articles					

Information Services	Very much	Much	Not much not little	Little	Very little
Alert					
RSS					
Information for readers					
Information for authors					
Information for librarians					
Having printed journal in a library					

Introduction of journals	Very much	Much	Not much not little	Little	Very little
ISSN					
Publication frequency					
Subject to coverage					
Publisher					
Aims and scope					
DOI					
Sending article instruction					
Editorial board					
Content customization	Very much	Much	Not much not little	Little	Very little
My Profile					
My history search					
My saved searches					
SDI: Selective Disseminative Information					
My saved Citation					
My Favorite Journals					
Save in Endnote					
Bookmark					

Text appearance customization	Very much	Much	Not much not little	Little	Very little
Change of color					
Change of font					
Change of background					

Electronic journals' dependence	Very much	Much	Not much not little	Little	Very little
Add-ins					
Computer literacy					