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Degree of Involvement in Scientific Electronic Publishing by University Faculty Members

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Abstract— A series of eleven workshops were organized by the Scientific Publishing Center (SPC) to faculty members who are assigned to a specific college associated with the University of Bahrain (UoB). The total number of participants was 216. The participants were trained on how to create and manage a specialized scientific electronic journal that fulfill international standards among which having an impact factor within the minimum period of time which was also clarified at the workshops. At the end of each workshop a structured questionnaire was distributed requiring them to show their involvement in electronic journals as members in the editorial boards, readers, reviewers, and those publishing their own research in this kind of journals.

Data analysis revealed that, irrespective of college affiliation, faculty members at the University of Bahrain are involved in scientific electronic journals especially as readers of published articles in this kind of journal. In total 79.2% of them indicated that they reviewed such kind of journals as sources of literature review. The study revealed low involvement among the majority of faculty members at the University of Bahrain, on membership of editorial boards, or being consulted for refereeing articles to be published in electronic journals especially those affiliated to humanity colleges with statistically significant differences due to college affiliation. Overall, only 11.1% of the respondents indicated that they were members on the editorial boards, 22.2% indicated that they were consulted to review articles to be published in electronic journals and 36.1% indicated that they had published articles in electronic journals.

Keywords— Electronic journals, college type, University of Bahrain, reviewing, publishing, reading, editorial board.

I. INTRODUCTION

It is evident that the world is witnessing a dramatic shift towards new digital technologies and electronic publishing (Ahmad & Al-Khalili, 2013; Al-Khalili, 2012a, 2012b; Aretimi, 2012; Coonin & Younce, 2010; Heider, Laverick, & Bennett, 2009; Nelson, 2008; Abouserie, 2006; Carrington, 2005; Shapiro, 2005; Steding, 2004; Krantz, 2003; Byrne, 2000).

Krantz (2003) indicated that the future will change the way research is reported, disseminated, consumed, and conducted by the scientific community of online publication of scientific journals. More interactive dynamic discourse between authors and readers will be emphasized known now as open access. Nelson (2008) indicated a trend toward this by saying that "Each year one of the biggest debates in higher education seems to be: Is this the year that electronic textbooks take off? E-reader devices are getting better. The inventory of digital content is expanding. Business models are emerging to support the needs of students, faculty members, and publishers. People are getting comfortable with new modes of information delivery and pervasiveness of technology in their lives." (PA29).

Recent electronic books afford interactive facilities between the readers and the text, being loaded as hypertext not as PDF. Such a form of electronic books facility is termed as open access, in which readers can get access to related sources or subjects through highlighted links.

College instructors have begun to abandon traditional approaches to instruction, shifting towards digital textbooks (Heider, Laverick, & Bennett, 2009; Nelson, 2008; Dilek-Kayaoglu, 2008; Byrne, 2000). Moreover, most hard copy journals began to produce an electronic version of them; whilst keeping on producing the paper text version. This means that the electronic version did not replace the paper version. However, still so many online journals are emerging drastically (Nuangchalerm, 2010; Coonin & Younce, 2010).

With the advent of electronic publishing, the scholarly communication landscape at universities has become increasingly diverse. University "publications" not only include those of the university presses and society journals but can also include forms such as preprints, digital library collections, databases, personal webpages, course materials, and lecture webcasts.



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Multiple stakeholders including university faculty members are challenged by the increasing volume and the rapidity of production of these new forms of publication in an environment of economic uncertainties (Harly, 2008). As a response to these increasing pressures, as well as the recent publication of important reports and papers on this topic university faculty members need to be encouraged to have a major role in electronic publishing through research journals and textbooks. In this regard, workshops in which they can get training, and share ideas about recent trends in such type of publishing seems to be in high demand.

The main aim of this article is to high light the degree of involvement of university faculty members in electronic scientific journals as members on the editorial boards, publishing papers in such journals, refereeing articles in them, and reading published material in such journals.

II. RESEARCH QUESTIONS

This study aimed at getting answers to the following questions:

1. To what degree are university faculty members involved in electronic scientific journals while on editorial boards, publishing papers with them, referees, and readers?
2. Does the degree of involvement of university faculty members on electronic scientific journals differ by their college affiliation?

III. METHODOLOGY

The experimental approach in research was followed in this study. The one shot pre-experimental design was used. A structured questionnaire was used for quantitative data collection and analysis.

A series of workshops on how to establish and run electronic scientific journals were organized by the Scientific Publishing Center SPC to willing faculty members in each of the ten colleges associated with the University of Bahrain UoB alone. This center is an official one established in 2011 at the UoB for the purpose of publishing scientific productions through all available tools. The center chose electronic publishing as a starting point for assisting scholars to publish their production. Each workshop took about two hours. The focus was on distinguishing aspects of respectable scientific journals, especially on adherence to scientific standards of quality, regularity, variation of scholars on the editorial board, having Impact Factor IF, recency of topics tackled and type of scholars whose work has been published in the journal like those who have high h-index.

Impact factor and h-index were clarified at each of the workshops with many examples . In short, Impact Factor was defined (Amin &Mabe, 2000) as being an index that shows how much the published articles in a journal are significant and affecting others to cite in future research. It is based on a three year basis. Thus it couldn't be found in any journal before three years of launching. Moreover, the journal must be indexed in a universal data base like Ulrich which produces 300,000 periodicals or Elsevier which produces 18,000 periodicals.

The impact factor is found through Journal Citation Report JCR which is a product of the Institute for Scientific Information ISI. It is the average number of times journal published papers are cited up to two years after publication. JCR provides quantitative tools for evaluating journals.

Regarding the h- index, it was shown by (Bar-Ilan,2008) as an indicator suggested by Jorge E. Hirsch index in an attempt to measure both the productivity and impact of the published work of a scientist or a scholar. It is obtained automatically and electronically through a very simple counting procedure based on finding the number of times the published papers of a scholar has been cited by others. It is perceived that if a scholar has an index of h it means that he has published h papers each of which has been cited in other papers at least h times. As an example, if Professor Mahmoud has a h index of 15, it means that 15 of his published papers has been cited in other papers at least 15 times.

Participants were practically trained on how to find out their own h-index. An already validated questionnaire (see appendix) was distributed at the end of the workshop.

IV. INSTRUMENT

A structured questionnaire was distributed at the end of each workshop. The questionnaire consists of two parts. Part one asks for demographic information including name, affiliated college and department. Part two asks for factual data in yes /no type of questions about their experience with electronic scientific journal on four aspects. These were:

- Membership of the editorial board of electronic journal/s
- Publishing paper/s in electronic journals
- Reviewing articles for electronic journals
- Reading articles in electronic journals

The reliability of the instrument was assured through pre-testing it on a subsample of this study consisting of 27 faculty members.



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Chronbach alpha as a measure of reliability was found to be 0.86 which is a very good indicator of trust in the results of this instrument.

V. POPULATION AND SAMPLE

Faculty members from ten colleges associated with the university were invited to participate in a scheduled time assigned to their colleges. Two hundred and thirty eight attended and make up the sample of this study. Two hundred and sixteen filled up the questionnaire. Table 1 shows the distribution of both the sample and population of this study. This sample is almost one third of the population, which is good enough as a representative sample.

TABLE 1
DISTRIBUTION OF POPULATION AND SAMPLE OF THE STUDY

College Name	Population	Sample
College of Science	100	32
College of Engineering	35	21
College of Information Technology	78	29
Bahrain Teachers College	50	17
College of Business Administration	85	10
College of Arts	150	49
College of Physical Education and Physiotherapy	20	12
College of Law	32	15
College of Health Sciences	77	24
College of Applied Sciences	48	7
Overall	675	216

VI. STATISTICAL ANALYSIS

The Statistical Package for Social Sciences was used for data analysis. Descriptive (mainly frequency distributions) as well as analytical tests (mainly Chi Square) were used. The second section presents the results obtained.

VII. FINDINGS OF THE STUDY

Data analysis revealed significant results. For the purpose of simplicity, these results are organized according to the aspects of involvement concerned in this study as follows:

Results Pertaining to Being a Member on the Editorial Board of Electronic Journals

Table 2 and Figure 1 shows that a very high percentage (88.9%) of the total sample was not members on the editorial boards of electronic journal. The results of chi square tests regarding differences due to college affiliation of the responses indicated non-statistically significant differences.



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TABLE 2
 CHI SQUARE RESULTS FOR INDEPENDENCE OF COLLEGE TYPE AND MEMBERSHIP OF THE EDITORIAL BOARD OF ELECTRONIC JOURNALS

College	Membership in editorial boards of electronic journals		Total
	Yes	No	
College of Science	7 21.9%	25 78.1%	32 100.0%
Bahrain Teachers College	3 17.6%	14 82.4%	17 100.0%
College of Engineering	1 4.8%	20 95.2%	21 100.0%
College of Health Sciences	1 4.2%	23 95.8%	24 100.0%
Information Technology College	5 17.2%	24 82.8%	29 100.0%
College of Law	2 13.3%	13 86.7%	15 100.0%
College of Arts	1 2.0%	48 98.0%	49 100.0%
College of Business	1 10.0%	9 90.0%	10 100.0%
College of Physical Education and Physiotherapy	1 8.3%	11 91.7%	12 100.0%
College of Applied Sciences	2 28.6%	5 71.4%	7 100.0%
Total	24 11.1%	192 88.9%	216 100.0%

*Note: Number on top is count. Number on bottom is % within college
 Chi square=14.045, df=9, sig. at $p < 0.121$

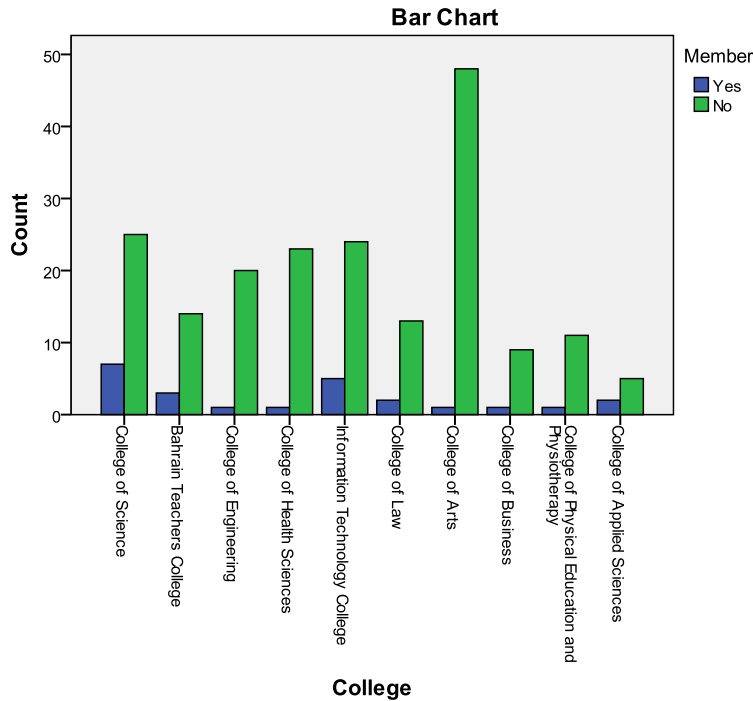


FIGURE 1 BAR CHART OF MEMBERSHIP OF THE EDITORIAL BOARD OF ELECTRONIC JOURNAL/SOF FACULTY MEMBERS ACCORDING TO COLLEGE TYPE.

This is apparent in that high percentages in all colleges said that they are not members on the editorial boards. The highest percentage (98.00%) was in the case of the College of Arts, followed by 95.8% in the case of the College of Health Sciences, and 95.2% in the case of the college of Engineering. The lowest percentage of those who said that they are not members was (71.4%) in the case of College of Applied Sciences, followed by 78.1% in the case of the College of Science.

Results Pertaining to Publishing Papers in Electronic Journals

Table 3 and Figure 2 shows that 63.9% of the total participants of faculty members indicated that they had not published their research in electronic journals.

Chi square results revealed statistically significant differences among colleges in these percentages ($\chi^2 = 21.739$, $df=9$, sig. at $p < 0.01$). Whereas 83.3% of each one of the College of Health Sciences And College of Physical Education and Physiotherapy, 80% of the College of Law, 75.5% of the College of Arts indicated that they had not published their research in electronic journals, about half or less in each of the College of Science, College of Engineering, Information Technology, College of Business, and Bahrain Teachers college did the same. This means that faculty members majoring in either hard or applied sciences tend to be more willing than those who are majoring in humanities to consider e-journals for publishing their research



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TABLE 3
 CHI SQUARE RESULTS FOR INDEPENDENCE OF COLLEGE TYPE AND PUBLISHING PAPER/S IN ELECTRONIC JOURNALS

College	Membership in editorial boards of electronic journals		Total
	Yes	No	
College of Science	16 50.0%	16 50.0%	32 100.0%
Bahrain Teachers College	7 41.2%	10 58.8%	17 100.0%
College of Engineering	10 47.6%	11 52.4%	21 100.0%
College of Health Sciences	4 16.7%	20 83.3%	24 100.0%
Information Technology College	16 55.2%	13 44.8%	29 100.0%
College of Law	3 20.0%	12 80.0%	15 100.0%
College of Arts	12 24.5%	37 75.5%	49 100.0%
College of Business	6 60.0%	4 40.0%	10 100.0%
College of Physical Education and Physiotherapy	2 16.7%	10 83.3%	12 100.0%
College of Applied Sciences	2 28.6%	5 71.4%	7 100.0%
Total	78 36.1%	138 63.9%	216 100.0%

*Note: Number on top is count. Number on bottom is % within college
 Chi Square =21.739, df=9, sig. at $p < 0.01$*

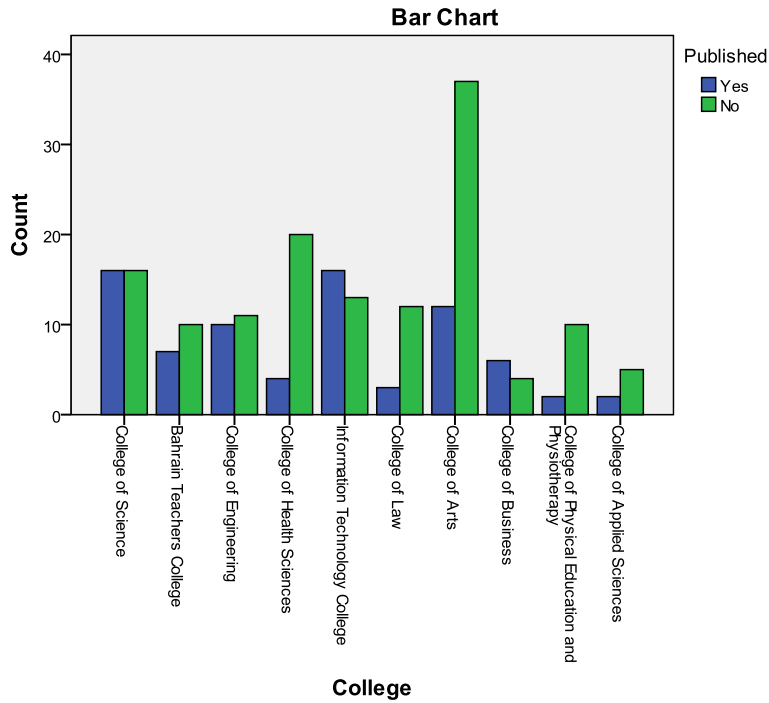


FIGURE 2 BAR CHART OF PUBLISHING PAPER/S IN ELECTRONIC JOURNALS OF FACULTY MEMBERS ACCORDING TO COLLEGE TYPE

Results Pertaining to Reviewing Articles for Electronic Journals

Table 4 and Figure 3 shows that 77.8% of the total participants of faculty members indicated that they were not consulted for reviewing research articles in electronic journals. Chi square results revealed statistically significant differences among colleges in these percentages ($\chi^2 = 28.69$, $df=9$, sig. at $p < 0.001$).

Faculty members affiliated to the College of Arts recorded the highest percentage (93.9%), followed by those affiliated to College of Physical Education and Physiotherapy (91.7%), then the College of Health Sciences (87.5%), followed by the College of Law (86.7%). The lowest percentage was that for the College of Applied Sciences (28.6%) followed by the College of Business (60%), the College of Science (62.5%), and College of Engineering (66.7%).



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TABLE 4
CHI SQUARE RESULTS FOR INDEPENDENCE OF COLLEGE TYPE AND REVIEWING ARTICLES FOR ELECTRONIC JOURNALS

College	Membership in editorial boards of electronic journals		Total
	Yes	No	
College of Science	12 37.5%	20 62.5%	32 100.0%
Bahrain Teachers College	5 29.4%	12 70.6%	17 100.0%
College of Engineering	7 33.3%	14 66.7%	21 100.0%
College of Health Sciences	3 12.5%	21 87.5%	24 100.0%
Information Technology College	6 20.7%	23 79.3%	29 100.0%
College of Law	2 13.3%	13 86.7%	15 100.0%
College of Arts	3 6.1%	46 93.9%	49 100.0%
College of Business	4 40.0%	6 60.0%	10 100.0%
College of Physical Education and Physiotherapy	1 8.3%	11 91.7%	12 100.0%
College of Applied Sciences	5 71.4%	2 28.6%	7 100.0%
Total	48 22.2%	168 77.8%	216 100.0%

**Note: Number on top is count. Number on bottom is % within college*
Chi Square =28.69, df=9, sig. at p< 0.001

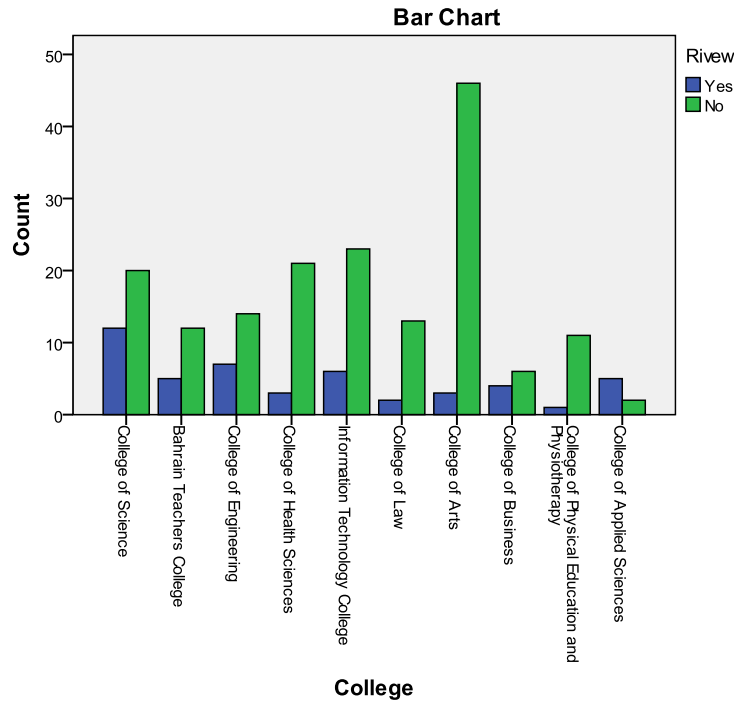


FIGURE 3 BAR CHART OF REVIEWING ARTICLES FOR ELECTRONIC JOURNALS OF FACULTY MEMBERS ACCORDING TO COLLEGE TYPE.

Results Pertaining to Reading Articles Published in Electronic Journals

Table 5 and Figure 4 shows that 79.2% of the total participants of faculty members indicated that they read research articles published in electronic journals. Chi square results revealed non statistically significant differences among colleges in these percentages. This is evident in the relatively high percentages of faculty members in most colleges who read articles published in electronic journals.

The highest (100%) was that in the College of Business, the second highest was in the College of Engineering (90.5%), followed by the Information Technology College (89.7%). The lowest percentage was in the case of the College of Law (53.3%), followed by the College of Physical Education and Physiotherapy (66.7%), and the College of Arts (71.4%). Other colleges were above 80%.



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TABLE 5
 CHI SQUARE RESULTS FOR INDEPENDENCE OF COLLEGE TYPE AND READING ARTICLES IN ELECTRONIC JOURNALS

College	Membership in editorial boards of electronic journals		Total
	Yes	No	
College of Science	26 81.3%	6 18.8%	32 100.0%
Bahrain Teachers College	14 82.4%	3 17.6%	17 100.0%
College of Engineering	19 90.5%	2 9.5%	21 100.0%
College of Health Sciences	20 83.3%	4 16.7%	24 100.0%
Information Technology College	26 89.7%	3 10.3%	29 100.0%
College of Law	8 53.3%	7 46.7%	15 100.0%
College of Arts	35 71.4%	14 28.6%	49 100.0%
College of Business	10 100.0%	0 .0%	10 100.0%
College of Physical Education and Physiotherapy	8 66.7%	4 33.3%	12 100.0%
College of Applied Sciences	5 71.4%	2 28.6%	7 100.0%
Total	171 79.2%	45 20.8%	216 100.0%

*Note: Number on top is count. Number on bottom is % within college
 Chi Square =15.875, df=9, sig. at $p < 0.07$

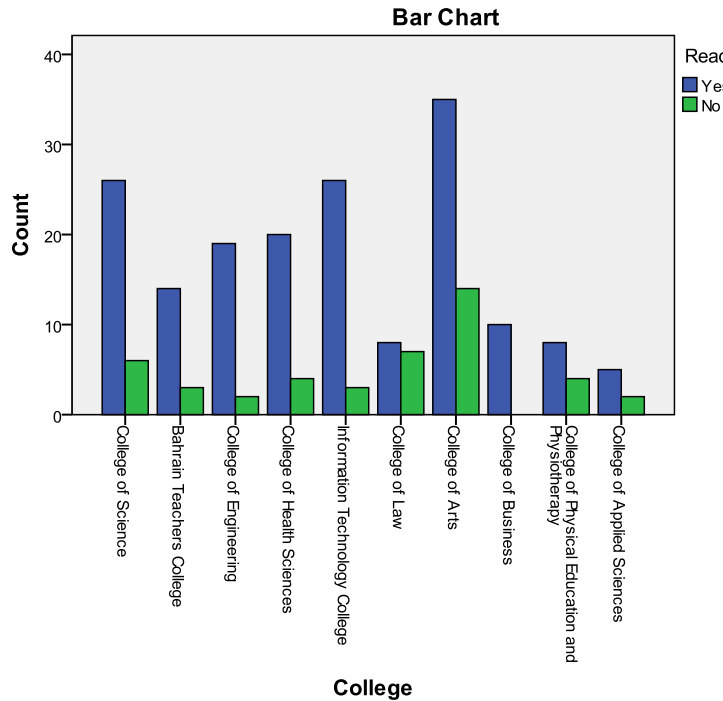


FIGURE 4 BAR CHART OF READING ARTICLES IN ELECTRONIC JOURNALS OF FACULTY MEMBERS ACCORDING TO COLLEGE TYPE.

VIII. DISCUSSION AND IMPLICATIONS

The study revealed that, irrespective of college affiliation, faculty members at the University of Bahrain are involved in scientific electronic journals especially as readers of published articles in this kind of journal. In total 79.2% of them indicated that they reviewed such kind of journals as sources for literature review. Such result supports a similar one found by Dilek-Kayaoglu (2008) who surveyed faculty members at Istanbul University and found that the majority of respondents support the transition from print to e-only publishing. It also supports Coonin and Younce (2010) in that electronic publishing is now an accepted method of scholarly communication.

When it comes to membership on the editorial boards or being consulted for refereeing articles to be published in electronic journals, the study revealed low involvement among the majority of faculty members at the University of Bahrain, especially among those affiliated to humanity colleges, with statistically significant differences due to college affiliation.

Overall, only 11.1% of the respondents indicated that they were members on the editorial board, 22.2% indicated that they were consulted to review articles to be published in electronic journals, and 36.1% indicated that they had published articles in electronic journals. Such findings call for more concern to be given to encourage of faculty members to contact editors of relevant journals and to become more involved in electronic publishing which is a future trend.

IX. RECOMMENDATIONS

Based on the results of this study, we could draw the following recommendations:

1. Incentives should be given by decision makers to faculty members for publishing in electronic journals by considering the research published in such journals for promotion and tenureship.
2. Faculty members especially in humanities should look through website for different opportunities of involvement in electronic publishing.



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**APPENDIX
THE QUESTIONNAIRE**

UNIVERSITY OFBAHRAIN

Scientific Publishing Center



جامعة البحرين
مركز النشر العلمي

Dear Colleague

We would like to thank you for spending a few minutes of your time filling the following short questionnaire. Your participation and opinion along with some biographic information is highly appreciated.

Part I:

Name:

College: **Department**

Total number of your published articles:

Your h-index:

Please tick the type of experience you have with the electronic journals on the following list::

Type of Experience	Yes	No
A member of the editorial board of electronic journal/s		
Published paper/s in electronic journals		
Reviewing articles for electronic journals		
Reading articles in electronic journals		

Thank you so much