# MEASURING JOURNAL QUALITY: PROPOSED CRITERIA AND THEIR APPLICATION TO IS JOURNALS

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#### ABSTRACT

Assessing journal quality appears to be an issue of growing importance for AACSB accredited institutions. Beyond reviewing the quantity of faculty publications, the AACSB will reportedly give increased scrutiny to the quality of those publications. This article chronicles the experiences of a College of Business faculty development committee at a large public university in the Midwest to develop standard, objective criteria for evaluating journal quality. This article addresses many issues that surfaced in this effort and how they were resolved. This study also investigates how 125 Information Systems publications are evaluated based on use of these criteria. The proposed criteria and insights offered are designed to benefit other institutions that may be grappling with the thorny problem of how to assess journal quality in evaluating faculty research.

**Keywords:** Research Issues and Methodologies; IS Journal Quality; Case Study

## INTRODUCTION

The Association to Advance Collegiate Schools of Business-International (AACSB) specifies that their accredited institutions are to set clear expectations for faculty "regarding the quality of intellectual contributions and how quality is assured (e.g., specific target journals or outlets, selectivity requirements, etc.)" [1, p. 23]. Additionally, a 2008 AACSB Research Task Force report included a recommendation to require "schools to demonstrate the impact of faculty intellectual contributions on targeted audiences" [2, p. 29]. These mandates place an increased focus on schools to provide greater evidence of the quality of faculty research publications in the accreditation process. For example, they entail additional reporting requirements such as detailing the number of faculty publications by specific journal. This process is likely to bring greater visibility to problems that may exist such as the preponderance of faculty publications being in lower quality journals or faculty repeatedly publishing in the same journals.

The author serves on a college Faculty Development Committee (FDC) whose role is to promote faculty teaching and research excellence. Early in the 2008-2009 academic year, the Dean met with our committee to urge action to promote faculty research in higher quality publications. According to the Dean, faculty members were not frequently targeting high quality journals in their research submissions and they tended to publish in the same journals over time. Thus, an opportunity existed to improve the quality of faculty research to advance the reputation of the college and to demonstrate greater evidence of research excellence to the AACSB. In a subsequent meeting, after extensive discussion of administration's request, the FDC decided that evaluating journal quality was not a task they wanted to pursue and they directed their efforts toward other issues. The committee concluded that judging journal quality was difficult, controversial, and a matter that was best decided by the departments themselves. Thus, the committee took no action on this initiative.

At the start of the next academic year, a new Interim Dean met with the FDC to urge committee action on the journal quality issue. Since this Dean identified this matter as a high priority, the committee reconsidered its position and focused renewed attention on this issue. The discussion about how to promote and reward higher quality research quickly turned to the possible revision of the college's Research Credit Program. This program had been in existence for at least a dozen years without modification. This program granted a \$500 research credit to faculty who obtained a journal acceptance in a double-blind, peer-reviewed journal listed in Cabell's Directory. This remuneration went into the faculty member's account to be used for professional development purposes. If a publication was coauthored by more than one faculty member, the award was split between the authors. Over time, the actual magnitude of this award had dwindled with inflation. In addition, this program was arguably unfair in that it rewarded a publication in the highest level journals the same as publication in journals whose reputation is far less. Thus, a revised Research Credit Program could potentially remove this inequity and encourage faculty to target higher quality journals.

## CRITERIA DEVELOPMENT

In October 2009, the Committee began deliberation on revision of the college's Research Credit Program and the search for criteria to evaluate journal quality. The committee sought to identify clear, fair, objective standards to measure journal quality. The committee did not want to spend an inordinate amount of their time or the Dean's office time with evaluating the quality of publications on a case-by-case basis. They also did not want to have to hear appeals from faculty whose publications were denied by any standards that were developed.

An initial proposal focused on revising the Research Credit Program to create a three-tier structure. Under this plan, the standard research credit of \$500 would be maintained for qualifying publications listed in Cabell's Directory. A higher level award, referred to as an Enhanced Research Credit, of \$1,000 would be instituted for publication in a second-tier journal listed in the Journal Citation Reports (JCR) of the ISI Web of Knowledge [7]. This online resource, available at our university library's website, is based on a journal's impact factor, i.e., how frequently it is cited by other publications. The more frequently a journal is cited, the higher its impact factor. Journals with a sufficiently high impact factor as defined by JCR are listed in this resource. Finally, the proposed plan would have created a top-level award of \$1,500 for publication in the very highest quality journals in a field. These were defined as a "handful" of publications that represented journals with the highest reputation. The committee was divided on their enthusiasm for this proposal. Some members wanted to move swiftly ahead on it, while others urged caution and further study. After some debate, the committee decided to proceed using a measured approach.

FDC members were asked to review the initial proposal with their departments to get faculty feedback and to assess its feasibility. This process resulted in the identification of some important problems with the higher-tier measures. A closer look at Journal Citation Reports revealed some significant concerns about its applicability and fairness across different fields of business. While some disciplines such as Economics, Finance, and Management had many publications represented in JCR (209, 48, and 89, respectively), other business fields such as Information Systems, Accounting, Marketing, and Business Communications were not even shown as separate category in JCR. For example, the number of IS publications appeared to be limited and they had to be located under the "Business"

"Management" categories of JCR's Social Sciences Edition or in the JCR's Science Edition under one of several "Computer Science" sub-categories. This raised some doubts among faculty whether JCR grants proper recognition to all fields of business. In addition, some IS journals of considerable quality were not included in JCR such as Journal of the AIS, the Information Resources Management Journal, The Database for Advances in Information Systems, and the Journal of Computer Information Systems. This may have occurred since JCR has an application process. While the details of this process could not be located, new journals or ones that has not filed an application apparently may be excluded from JCR. Based on these concerns, several committee members argued that if JCR is used as a measure of journal quality, it should be supplemented with other criteria.

While the idea of creating a third-tier award to provide even greater compensation was appealing to faculty, some committee members pointed out that the identification of a "handful" of top publications by each department would be problematic for several reasons. First, some of the college's departments are hybrid departments. For example, the Business Information Systems department includes Information Systems, Business Teacher Education, and Business Communications. For departments such as this, how many publications should be allocated to each area if the department were asked to select its "handful" of top journals? In addition, most departments have different areas of specialization. If the Accounting department for example were asked to identify its "handful" of top publications, what should be the distribution of these journals across the specializations of Auditing, Financial Accounting, Managerial Accounting, Taxation. Accounting Information Systems, and so on? Finally, would it be fair to mandate that all departments should have the same number of top-tier publications? Or, would this result in unfair quality differences in the lists of different departments? Since these questions were not easily answered and publication by faculty in the toptier publications was very infrequent given the teaching emphasis of our institution, the committee decided to abandon the "top-tier" concept and focus on a two-tier system.

Subsequent committee efforts concentrated on developing other criteria to supplement *JCR* as a quality measure. The next criterion added was the use of journal acceptance rates in *Cabell's Directory* (online edition), specifically, the use of 20% as the maximum acceptance rate [6]. Although some committee members pointed out that this measure is not "perfect" in that these rates are self-reported by

journals, it nevertheless has some advantages. First, this measure recognizes some quality journals such as the Journal of Computer Information Systems and the Information Resources Management Journal that were not included in JCR. The use of 20% as the maximum acceptance rate avoided some problems that would have otherwise been encountered with the use of other thresholds. Cabell's Directory allows journals to report either a specific acceptance rate or a range of rates. If the maximum acceptance rate was established at 15%, this rate is in the middle of an 11-20% acceptance range that a number of journals report; if the rate was set at 25%, this rate would fall within the reported acceptance rates of other journals that are 21-30%. The use of 20% resulted by far in the "cleanest" dividing line while producing a list of very respectable journals.

A third journal quality criterion added was the Association of Business Schools Academic Journal Quality Guide [3]. This guide is used more frequently by universities in Europe and it reportedly "is based on peer review, statistical information relating to citations, and editorial judgments from the detailed evaluations of many hundreds of publications over a long period" [3]. The ABS guide lists a ranking for each journal, with 1 being the lowest and 4 the highest. In the final proposal, those journals listed in ABS with a ranking of 2 or above were considered as higher quality publications.

Two additional issues had to be overcome in the development of this proposal. First, the Business Law (BLAW) faculty was strongly against the exclusive use of the first three criteria. They pointed out that virtually no business law publications were included in these sources and that their publications are relatively unique compared to other fields of business. For these reasons, the BLAW faculty proposed the use of a fourth criterion, the *Washington and Lee University* legal database which covers law reviews and journals [9].

Second, as committee discussions continued, there was an expansion of the criteria. For example, some members argued that given the teaching emphasis of our institution and a lack of resources to support top-level research, the maximum acceptance rate in *Cabell's Directory* should be expanded from 20% to 30%. Additionally, some members contended that any publication listed in *ABS* should be included instead of only those with a ranking of 2 or higher. The expansion of these measures was passed at one point by the committee. However, the Dean later rejected these criteria stating that they were overly inclusive and that the college lacked sufficient

funding to support them. Thus, the scope of the second and third criteria was scaled back in the final proposal. This proposal stated:

"For purposes of the College of Business Enhanced Research Credit program, a premium publication is defined as a journal that meets *one* of the following four criteria:

- 1. Any journal that is listed in the *Journal Citation Reports* of the *ISI Web of Knowledge*. This includes ALL the Social Science Journals & ALL the Science Journals. (These can be accessed at: <a href="http://o-admin-apps.isiknowledge.com.catalog.lib.cmich.edu/JC">http://o-admin-apps.isiknowledge.com.catalog.lib.cmich.edu/JC</a>
  - R/JCR?SID=1ADj4cAbie%40OoJAJ2fh
    Any journal that is listed in *Cabell's Online*
- Directory with an acceptance rate less than or equal to 20%, i.e. the highest reported acceptance rate can be no higher than 20%.

  3. Any journal that is listed in the Association

2.

- 3. Any journal that is listed in the Association of Business Schools Academic Journal Quality Guide (the Keele University guide) with an ABS ranking (usually displayed in the fourth column of the table) of two or higher. These rankings can be accessed at http://www.the-abs.org.uk/?id=465.
- 4. Any publication listed in the Washington and Lee University law journal database with a combined impact factor greater than 0. These can be accessed at <a href="http://lawlib.wlu.edu/LJ/index.aspx">http://lawlib.wlu.edu/LJ/index.aspx</a>."

Note that the term "premium publication" was used in the final proposal. This name resulted after considerable debate. Names proposed in earlier drafts included "higher level publication" and "respectable publication." These labels were found to be offensive to some faculty since they might imply that the college did not value publications in journals that did not meet the criteria for the higher level award. The committee wanted to avoid this perception and they ultimately decided that "premium publication" was a more fitting, neutral term.

### **METHODOLOGY**

To assess the application of the criteria to information systems journals, a list of 125 IS journals was obtained from the "MIS Journal Rankings" page of the Association for Information Systems (AIS) website [4]. This list was compiled by AIS based on publications identified in nine previously published studies of journal quality. The AIS journal list was used for purposes of this study due to its availability

and the likelihood that it would encompass most journals in the Information Systems field. Closer inspection of AIS journal list revealed that it did not contain at least 18 publications listed in *Cabell's Directory*; these publications included *Issues in Information Systems*, *The Information Society*, *Enterprise Information Systems*, and the *Information Technology Journal*. Nevertheless, the AIS list was considered reasonably inclusive for purposes of this analysis. Each publication on the AIS list was checked using the first three journal quality criteria; the fourth criterion was not considered since its focus is business law publications. The data collection was conducted in January and February of 2010. The results are described in the next section.

#### RESULTS

The complete findings for how each of the 125 IS journals are evaluated using the first three journal quality criteria is presented in Appendix 1. As indicated, there is considerable variation across the different measures in terms of which journals they do and do not include. As shown at the bottom of the last two columns of the table, whereas only about 18% of the 125 journals met all three criteria, most publications (70%) met at least one of the three criteria, which is the key measure for a publication to qualify for the Enhanced Research Credit. Among individual criterion measures, the highest percentage of publications (54%) met criterion 1, inclusion in Journal Citation Reports, followed by criterion 3 (inclusion in ABS with a ranking of 2 or higher) at 46%, and criterion 2 (inclusion in Cabell's Directory with an acceptance rate of 20% or less) which 29% of the journals met. Interestingly, 33 of the 125 journals met only a single criterion, and this included instances of publications meeting one of each of the three criteria but not the other two. For example, while the results suggest that criterion 2 (Cabell's Directory) is the most exclusive of the three measures, seven journals met this criterion but did not meet the other two. A total of 57 of the 125 publications were listed in Cabell's Directory but only 36 of these met the 20% or less maximum acceptance rate test. Finally, 66 journals were listed in ABS but 8 of those journals did not meet the ranking test of 2 or above.

Based on the use of these three criteria, the departments of the college estimated that about 20% of faculty publications would likely qualify for the Enhanced Research Credit. This estimate was based on each department reviewing their publications for the past five years and assuming that similar publications would occur in the future. Of course if

the incentive program motivated faculty to target higher quality journals as intended, this percentage would actually be expected to rise somewhat.

#### **CONCLUSIONS**

This effort to develop journal quality criteria and provide an incentive program to encourage higher quality research was a long, difficult, and controversial process. As indicated, the committee fought this task for more than a year before finally taking it on. The resulting proposal took five months to develop involving monthly meetings and extensive email discussions. One member even resigned from the committee during the discussion phase indicating that he was not comfortable with this initiative. A significant concern raised was that even though this issue was framed in terms of revising the college's Research Credit Program, some faculty were suspicious that it would ultimately affect department bylaws in terms of faculty research requirements for tenure and promotion. The Dean reassured the committee that this was not the case and he allowed the committee to insert language in the final proposal to clarify its intended purpose. The final proposal stated: "This award program is strictly and solely for the Research Credit Program established though the Office of the Dean... The Faculty Development Committee emphasizes that this program in no way is meant to compete with, supersede, interfere with, or serve as a model for CBA individual department bylaws. The determination of journal quality for promotion and tenure decisions is comprehensively understood and determined at the department level, independent of any program established by the FDC." In the end, the committee voted unanimously to approve this proposal. At the time of this writing, this proposal is awaiting a final decision by a newly hired Dean who assumed his duties in July 2010.

The criteria presented in this article provide only one possible solution to the dilemma of how to evaluate journal quality. The criteria resulted from careful deliberation and they were ultimately accepted by faculty for the purpose of revising the college's Research Credit Program. The criteria are clear and objective. and thev facilitate the administration of this program. These criteria may be useful to faculty at other institutions in providing a starting point to develop or revise their own standards to evaluate journal quality. Any standards adopted by an institution should be developed only after careful input from key stakeholders and reflection on the focus and mission of the university. For example, it would appear to be unfair for a school to expect faculty to publish multiple articles in the very highest quality journals where an institution is teaching-oriented, few resources such as graduate assistants are available, and faculty have a full teaching load with multiple course preparations. The journal quality measures proposed in this article were found to be acceptable at the author's institution that is primarily teaching-oriented, but the publishing expectations (and journal quality criteria) for a research-oriented institution would be considerably higher.

It should be stressed that other methods for evaluating journal quality also exist. For example, expert opinion is often used as a means to rate or rank journals [8]. For example, at its website, the Association for Information Systems publishes a "Senior Scholars' Basket of Journals" to identify the top journals in the Information Systems field. These publications are: the European Journal of Information Systems, Information Systems Journal, Information Systems Research, Journal of AIS, Journal of MIS, and MIS Quarterly [5]. Interestingly, to underscore just how difficult judging journal quality is, this source goes on to add that two journals, the Journal of Strategic Information Systems and the Journal of Information Technology, could be added to this list without sacrificing any journal quality [4]. Thus, it is unclear whether AIS's list of "top IS journals" includes six or eight publications and undoubtedly there would be many differences of opinion with this list across the wider IS community. Creating a journal rankings list based on expert opinion usually involves greater effort than the process used to develop the four criteria described in this paper, since journals must be evaluated one at a time and many differences of opinion must be resolved.

As the AACSB continues their demands on business schools to demonstrate evidence of journal quality in faculty publications, there is a growing need for researchers at other institutions to share their thoughts, experiences and any criteria they use to assess journal quality with the wider academic community. The case study presented here provides a detailed description of the types of challenges that can be expected in a college's journey to establish journal quality standards along with some possible ideas for responding to these issues. Regrettably, since the program described in this paper is a plan that has yet to be officially approved, no reports are yet available about how well this plan works in practice.

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# Appendix 1. Results

		Crit 1.	Cuit 2.	Cuit 2.	Ioumal	Tournal
		Crit. 1: Listed	Crit. 2: Listed in	Crit. 3: Listed	Journal meets	Journal meets
		in JCR?	Cabell's	in ABS	all three	at least
		m JCK:	Directory	with a	criteria	one of the
			with an	rating		three
AIS			Acc Rate	>=2?		criteria
Rank	Journal		<=20%			
1	MIS Quarterly	YES	YES	YES	Yes	YES
2	Information Systems Research	YES	No	No	No	YES
3	Communications of the ACM	YES	No	YES	No	YES
4	Management Science	YES	YES	YES	Yes	YES
5	Journal of Mgmt. Info. Systems	YES	YES	YES	Yes	YES
6	Artificial Intelligence	YES	No	YES	No	YES
7	Decision Sciences	YES	YES	YES	Yes	YES
8	Harvard Business Review	YES	YES	YES	Yes	YES
9	IEEE Transactions (various)	No	No	YES	No	YES
10	AI Magazine	YES	No	No	No	YES
11	European Journ. of Info. Systems	YES	YES	YES	Yes	YES
12	Decision Support Systems	YES	No	YES	No	YES
13	IEEE Software	YES	No	No	No	YES
14	Information & Management	YES	YES	YES	Yes	YES
15	ACM Trans. on Database Systems	YES	No	YES	No	YES
16	IEEE Trans. on Software Engin.	YES	No	YES	No	YES
17	ACM Transactions (various)	No	No	YES	No	YES
18	Journal of Comp. and System Scis.	YES	No	YES	No	YES
19	Sloan Management Review	YES	YES	YES	Yes	YES
20	Communications of the AIS	No	No	YES	No	YES
21	IEEE Trans. on Systs, Man, and Cyber.	YES	No	No	No	YES
22	ACM Computing Surveys	YES	No	YES	No	YES
23	Journal on Computing	No	No	No	No	No
24	Academy of Mgmt. Journal	YES	YES	YES	Yes	YES
25	International Journ. of Elect. Comm.	YES	No	No	No	YES
26	Journal of the AIS	No	No	YES	No	YES
27	IEEE Transactions on Computers	YES	No	YES	No	YES
28	Information Systems Frontiers	YES	No	YES	No	YES
29	Journal of Management Systems	YES	No	No	No	YES
30	Organization Science	YES	No	YES	No	YES
31	IEEE Computer	No	No	No	No	No
32	Information Systems Journal	YES	YES	YES	Yes	YES
33	Administrative Science Quarterly	YES	No	YES	No	YES
34	Journal of Global Information Mgmt.	YES	YES	YES	Yes	YES
35	The DATABASE for Advs. in Info. Systs.	No	No	No	No	No
36	Journal of Database Management	YES	YES	YES	Yes	YES
37	Information Systems	YES	No	No	No	YES
38	MISQ Discovery	No	YES	No	No	YES
39	Academy of Management Review	YES	No	YES	No	YES
40	Journal of the ACM	No	No	No	No	No
41	Computers and Operations Research	YES	No	YES	No	YES

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42	Human-Computer Interaction	YES	No	YES	No	YES
43	California Management Review	YES	YES	YES	Yes	YES
44	Information Technology and People	No	YES	YES	No	YES
45	Journal of Strategic Info. Systems	YES	YES	YES	Yes	YES
46	Journal of Global Info. Tech. Mgmt.	No	YES	YES	No	YES
47	ACM Transactions on Info. Systems	YES	No	YES	No	YES
48	Informing Science	No	YES	No	No	YES
49	Journal of Info. Management	No	No	No	No	No
50	Operations Research	YES	YES	YES	Yes	YES
51	Journal of Computer Info. Systems	No	YES	YES	No	YES
52	Business Horizons	No	No	No	No	No
53	IEEE Trans. on Knowl. and Data Engin.	YES	No	YES	No	YES
54	Journal of Database Administration	No	No	No	No	No
55	IBM Systems Journal	YES	No	No	No	YES
56	Infosystems	No	No	No	No	No
57	Journal of Info. Tech. Thy. and Applic.	No	No	No	No	No
58	Knowledge Based Systems	YES	No	No	No	YES
59	Computer Decisions	No	No	No	No	No
60	Information Technology and Mgmt.	No	No	No	No	No
61	WIRT (Wirtschaftsinformatik)	YES	No	No	No	YES
62	Info. and Org. (frmrly Acct., Mgt, and IT)	No	No	YES	No	YES
63	ACM Special Interest Group Publications	No	No	No	No	No
64	Expert Systems with Applications	YES	YES	YES	Yes	YES
65	Information Systems Management	YES	YES	YES	Yes	YES
66	Interfaces (INFORMS)	YES	YES	YES	Yes	YES
67	Omega	YES	No	YES	No	YES
68	Interntl. Journ. of Human-Comp. Studies	YES	YES	YES	Yes	YES
69	Database	No	No	YES	No	YES
70	Journal of Systems and Software	YES	No	No	No	YES
71	Data Management	No	No	No	No	No
72	Interntl. Journ. of Man-Machine Studies	No	No	No	No	No
73	Journal of Info. Systems (Accounting)	No	No	YES	No	YES
74	Journal of Info. Systems (Accounting)	No	No	No	No	No
75	Journal of Information Technology	YES	YES	YES	Yes	YES
76	Journal of Operations Research	No	No	No	No	No
77	Journal of Org. Comp. and Elect. Comm.	YES	YES	No	No	YES
78	Info. Resources Management Journal	No	YES	No	No	YES
79	Journal of IT Cases and Application	No	No	No	No	No
80	Journal of Info. Systems Education	No	No	No	No	No
81	Journal of Systems Management	No	No	No	No	No
82	Journal of the Amer. Soc. for Info. Sci.	No	No	No	No	No
83	Org. Behavior and Human Dec. Procs.	YES	No	YES	No	YES
84	Electronic Markets	No	YES	No	No	YES
85	Australian Journal of Info. Systems	No	YES	No	No	YES
86	Journal of Org. and End User Computing	No	YES	No	No	YES
87	Computer Supported Cooperative Work	No	No	No	No	No
88	Journal of Information Science	YES	No	YES	No	YES
89	Datamation	No				
90			No No	No	No	No
	INFOR  Integral Journal of Info Management	YES	No	No	No	YES
91	Interntl. Journal of Info. Management	YES	No	YES	No	YES
92	Journal of Info. Tech. Management	No	No	No	No	No

93	Behavior and Information Technology	YES	No	YES	No	YES
94	Expert Systems Review	No	No	No	No	No
95	Journal of Educ. for Mgmt. Info. Systems	No	No	No	No	No
96	Computer Journal	YES	No	YES	No	YES
97	Info. Processing and Management	YES	No	YES	No	YES
98	Elect. Comm. Research and Application	YES	YES	No	No	YES
99	International Journal of Tech. Mgmt.	YES	YES	YES	Yes	YES
100	Journal of Info. Systems (Education)	No	No	YES	No	YES
101	Computers in Human Behavior	YES	No	No	No	YES
102	European Journ. of Operations Res.	YES	YES	No	No	YES
103	The Information Society	No	No	YES	No	YES
104	Communication Research	YES	No	No	No	YES
105	Information Research	YES	No	No	No	YES
106	Journal of International Info. Mgmt.	No	No	No	No	No
107	E-Service Journal	No	No	No	No	No
108	Information and Software Technology	YES	No	No	No	YES
109	Simulation	YES	No	No	No	YES
110	Database Programming and Design	No	No	No	No	No
111	AI Expert	No	No	No	No	No
112	Journ. of Microcomputer Systems Mmgt.	No	No	No	No	No
113	Scandinavian Journal of Info. Systems	No	No	No	No	No
114	ACM SIG E-Com Exchanges	No	No	No	No	No
115	Journal of Engin. and Tech. Mgmt.	YES	YES	YES	Yes	YES
116	Journal of Software Maintenance	YES	No	No	No	YES
117	Interface: The Comp. Educ. Quarterly	YES	YES	No	No	YES
118	Journal of Info. Technology Education	No	YES	No	No	YES
119	Computers and Automation	No	No	No	No	No
120	Interntl. Journal of IT Mgmt. Systems	No	No	No	No	No
121	IBSCUG Quarterly	No	No	No	No	No
122	Information	No	No	No	No	No
123	Journal of Management	YES	No	YES	No	YES
124	Quality Progress	No	No	No	No	No
125	PC World	No	No	No	No	No
	Number of Yes's	68	36	58	22	88
	Number of No's	57	89	67	103	37
	Total Journals	125	125	125	125	125
	Percentage of Yes's	54.4%	28.8%	46.4%	17.6%	70.4%