



A method for identifying journals in a discipline: An application to information systems



Hock Chuan Chan^a, Varsha Guness^a, Hee-Woong Kim^{b,*}

^a Department of Information Systems, National University of Singapore, 13 Computing Drive, Singapore 117417, Republic of Singapore

^b Graduate School of Information, Yonsei University, 50 Yonsei-ro, Seodaemun-gu, Seoul 120-749, Republic of Korea

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ABSTRACT

It is a perennial interest of the information systems community to identify a set of information systems journals. The primary approaches to achieving this identification are surveys of academics, article-level citation, and senior scholar consensus. An example of the last approach is the basket of eight journals identified by senior scholars of the Association for Information Systems (AIS). A different and efficient approach is afforded by the publication of data from Journal Citation Reports (JCR). This provides aggregate citation data across individual journals. While the findings provide general empirical support for the choice of the AIS basket of eight journals, they also indicate that five additional journals qualify as core information systems journals. Each of these journals has numerous citations of journals within this set and low citations of individual journals outside this set. Furthermore, a network centrality analysis of this set of journals reveals a high correlation between in-degree centrality and the perceived importance of journals. Overall, the study demonstrates the suitability of this method for identifying core journals in a discipline.

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1. Introduction

There is a perennial interest among the information systems (IS) community in identifying a set of IS journals [29]. Having a commonly agreed set of journals can serve as a guide for where to publish our research [22,23]. It can also serve to increase submissions to the journals. A commonly employed approach to identifying a set of journals is the opinion survey method, whereby IS academics are asked to rank journals based the journal's emphasis, its value and significance to the IS field. An example is the study by Walstrom and Hardgrave [32], which asked IS faculties in the US and Canada for their perceptions of the discipline emphasis of 51 identified journals. This approach has also been applied in other studies [3,24,25,33,34]. Data collected through such surveys are primarily a reflection of the participants' perceptions of the journals. Thus, the survey approach may be affected by the subjective views of the participants [24] and by inherent measurement biases [7]. Furthermore, individual notions

of the IS discipline differ, and there are no clear objective boundaries to identify which journals are purely IS, partially IS or non-IS. Another approach is adopted by the Association for Information Systems (AIS), in which the association's senior scholar consortium agreed on a set of eight IS journals. This is also a subjective identification, based on AIS members who are deeply engaged in the publication selection process, e.g., as editors-in-chief, or conference and track chairs.

The primary objective of this study is in developing an objective method to identify a set of core journals for any discipline. This method is applied to identify a set of IS journals by developing and applying an objective empirical method. The proposed method can be used to validate the set of journals identified through the subjective processes, e.g., by a survey of general IS academics or by agreement among senior IS scholars. In particular, we examine citation behavior across journals. This is an aggregation of the behaviors of individual IS academics as manifested in their research references. The use of citation analysis is noteworthy and is purported to be more objective than using respondent perceptions [28]. We assume that if an IS journal cites "substantially" from another journal, then the other journal is also an IS journal. Culnan and Swanson [8] reported that, on average, a publication in a discipline will cite more from its own discipline

* Corresponding author. Tel.: +82 2 2123 4195.

E-mail addresses: chanhc@comp.nus.edu.sg (H.C. Chan), varshaguness@gmail.com (V. Guness), kimhw@yonsei.ac.kr (H.-W. Kim).

than from those from another discipline. In a more general context, if a journal cites “substantially” from another journal, then both journals belong to the same discipline. The application of JCR data, available from the Journal Citation Reports (JCR), has the potential to track changes in the citation relationship between journals.

The identification process begins with the basket of 8 journals (J8) recommended by the AIS senior scholars¹. This set is used to estimate a level representing “substantial” citation numbers for citations within a discipline. The set of journals is expanded by considering journals published in other studies, e.g., that by Walstrom and Hardgrave [32]. Following their classifications of pure IS, hybrid IS and non-IS journals, we use citation behavior to confirm and reclassify the journals according to these categories. Through this process, we obtain an expanded set of IS journals (JExp) that show high citation behavior within the set and low citations of individual journals outside the set.

In addition, we compare the network centrality values of journals from JExp with their respective subjective journal ratings as published in Walstrom and Hardgrave [31], Whitman et al. [34], and Peffers and Tang [25]. The analysis reveals that network centrality has strong and significant correlations with subjective perceptions of journal quality.

2. Literature review

The identification of IS journals is one of the fundamental issues in studies of IS journals. For example, in the study of journal quality by Lowry et al. [23], the first issue is the identification of IS journals. A number of studies have attempted to identify and classify IS research journals. To support their studies, measures such as citation analysis and gathering perceptions from a sampled group of researchers were the most commonly employed approaches. Some of the earlier studies that used citations include Hamilton and Ives [15], Vogel and Wetherbe [30], Cooper et al. [7], and Holsapple et al. [19]. Hamilton and Ives [15] analyzed the number of references in 15 journals that publish IS research (1970–1979) to identify major journal sources of information for IS researchers. Vogel and Wetherbe [30] used citation-based methods to evaluate IS research outlets to determine the preferences among journals regarding the publication of IS research. Cooper et al. [7] analyzed citation patterns across 14 journals to provide insights into the influence of journals in communicating IS research. Holsapple et al. [19] performed citation-based studies to determine the relative importance of journals used by academics for research and scholarly discourse and to the business computing field.

Studies that adopted a subjective approach, e.g., surveys of academics, include Doke and Luke [10], Gillenson and Stutz [14], Whitman et al. [34], Walstrom et al. [31], Hardgrave and Walstrom [17], Walstrom and Hardgrave [32], and Peffers and Tang [25]. Doke and Luke [10] reported a survey of business school deans' ratings of the top 10 IS journals. Walstrom and Hardgrave [32] reported a series of studies to determine the appropriateness of various journal outlets for IS publication. Whitman et al. [34] conducted a nationwide survey in which participants were asked to rate 80 publications with respect to their value in reviews of research and performance. Similarly, Peffers and Tang [25] used a survey instrument and asked researchers to rate the value of IS publication outlets and categorize them into IS journals and other allied disciplines. Because IS is multidisciplinary, many IS research works appear in traditionally non-IS journals. Polites and Watson [27] adopted the IS classification from prior studies and analyzed citation behavior regarding journals from other disciplines.

Walstrom and Hardgrave's [32] journal category list was derived based on a questionnaire survey sent to a group of research scholars. Respondents were asked to indicate whether a journal primarily published IS research. All of the responses (scores) were averaged, and based on the results, journals figuring in the top 75% were categorized as ‘Pure’ IS journals; the next break was set at 0.5, and journals within this range was classified in the ‘Hybrid’ IS journal category; ‘Partial’ IS journals were those falling into the next range, with a lower bound at 0.25; and finally, journals having a score below 0.25 were categorized as ‘Non-IS’ journals.

Although all of the above approaches contribute to the categorization of IS journals, they also have limitations. Regarding the citation pattern analysis approach, as the number of journals has increased over time, it has become increasingly difficult to perform citation studies for all of them. Thus, researchers have to limit themselves to a set of pre-selected journals from which they collect citation numbers. However, there is a growing concern regarding subjectivity involved in the surveys. Different sample populations will likely lead to different outcomes.

With the comprehensive journal citation data available from JCR, it is now possible to conduct an analysis using complete datasets and to compare the results with the journal classification obtained from the survey approach. Studying the journals' citation behavior allows us to observe the knowledge transfer process that occurred across journals [29]. The details of the analysis are provided in the following sections.

The identification of IS journals is quite different from the determination of journal quality, which is also highly important for a discipline [9]. According to Straub and Anderson [29], citation-based metrics have become the “preferred means of assessing journal quality”, although they may not be the best. For example, Katerattanakul and Han [20] used citations at the article level to derive journal quality measures. A typical objective measure of journal quality is the impact factor. Journal quality could also be measured through a subjective survey, and such an evaluation could be based on evaluations of journal, editor and publisher characteristics [12]. In the study by Lowry et al. [23], a weighted combination of various factors was used to group journals by quality. In the analysis section, we conduct a correlation analysis of citation behavior and subjective perceptions of journal quality.

3. Research methodology

3.1. Data collection

First, the citation numbers for each journal are gathered from the Thompson Reuters (formerly ISI) Web of Knowledge's JCR. A JCR contains citation data from one journal to another journal and from one journal to all other journals. It also has data in the opposite directions. Data from “all years” up to 2012 are used to provide a complete picture. Future studies could consider a “time series” view of the citation behavior.

We begin with the AIS Journal Basket (J8). The journals are: European Journal of Information Systems (EJIS), Information Systems Journal (ISJ), Information Systems Research (ISR), Journal of the AIS (JAIS), Journal of Information Technology (JIT), Journal of Management Information Systems (JMIS), Journal of Strategic Information Systems (JSIS), and MIS Quarterly (MISQ). We identify the citation pattern among the J8 set of journals, the citation numbers, specifically the ‘Citing’ values from the ISI Web of Knowledge's Journal Citation Reports, and the total citation number for the target journal from its beginning until 2012. Citing journal numbers indicate the number of times that one journal cites another. For example, if the citing value from

¹ <http://ais.site-ym.com/?SeniorScholarBasket>.

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