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Behavior-based analysis of knowledge dissemination channels in operations management

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ABSTRACT

One essential requirement for the development and vitality of a discipline is a network of channels for knowledge dissemination. These channels, such as scholarly journals, furnish not only a means for knowledge sharing, but also for knowledge generation by the discipline's community of researchers. In the field of operations management (OM), there have been several studies that have sought to rank journals relevant to OM research, using opinion surveys, citation analyses, and author affiliations. However, each of these methods has some limitations. This paper adopts a new approach for discerning journal publication patterns in the OM field. It is based on an examination of the actual publishing behaviors of all full-time, tenured OM researchers at a sizable set of leading research universities in the US. This behavior-based methodology provides three metrics that individually, and in tandem, give a basis for rating publication outlets for OM research in terms of their relative *importance*. The ratings can be used by scholars and administrators to assist in monitoring, disseminating, and evaluating OM research outlets.

1. Introduction

A perennial topic of interest and importance for any academic discipline is the nature of knowledge dissemination by and to its stakeholders: principally researchers and educators, but also including practitioners, students, and administrators. This is evident from the volume of publications in OMEGA that have sought to define and evaluate channels of knowledge dissemination for various management disciplines in the past 15 years [1–9]. Here, we focus on rating journals that publish operations management research, and do so by adopting a new methodology that is based on actual behaviors of operations management researchers.

Knowledge dissemination is crucial for progress in a discipline. It allows ideas, perspectives, and findings to collide—often spawning new advances that would not otherwise exist. It also allows ideas, perspectives, and findings to coalesce—as part of the fulfilling discipline's mission of making sense out of phenomena of interest. This sense-making yields consensual foundations (i.e., instances of critical mass) that can underpin continued advances in the discipline's knowledge base. In considering the role of dissemination, several issues arise that can affect dissemination's value within a discipline. These include timing, concentration/dispersion patterns, target audiences, source options, content (e.g., its accuracy or utility), and channels for knowledge dissemination. Here, we focus on the issue of dissemination channels in the discipline of operations management (OM).

Research in the knowledge management (KM) field suggests that there are two basic types of dissemination: one as an aspect of emitting knowledge outside of a community (e.g., of a discipline's researchers), and the other as an aspect of assimilating knowledge within the community [10]. KM research has also found that, in either case, dissemination activity can be performed in ways that result in the community being more productive (increasing the ratio of output to input), more agile (increasing alertness and response ability), more innovative (structuring resources and the processes that use them in new, value-increasing ways), and/or more reputable (increasing perceptions of trust and quality). This is known as the PAIR model, which links Productivity, Agility, Innovation, and Reputation to the performance and competitiveness of an organization [10].[1] It follows that dissemination channels for researchers who comprise an academic community, such as OM, can influence whether the community is more or less productive, agile, innovative, and/or reputable—depending on the collective nature of those channels.

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[1] As an interesting side note, there are examples of OM analogs to each PAIR concept, including lean, just-in-time, process design/re-engineering, and total quality management, respectively.

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Among the various channels for disseminating OM research, there are books, monographs, dissertations, Web postings, working papers, conference presentations and proceedings, video recordings, and journals. Here, we focus on peer-reviewed journals that OM researchers use as conduits for supplying knowledge to others. Secondarily, these journals tend also to be those sought by OM-knowledge consumers as knowledge sources. The central purpose of this paper is to identify important OM-publishing venues—those where experienced OM researchers, representative of high-stature research universities, collectively tend to concentrate their journal publications. Using actual behaviors of OM faculty members, we gauge the importance (and relative importance) of various journals as channels for knowledge dissemination. Resultant insights into the actual structure of OM dissemination channels offer several benefits for understanding the OM discipline.

First, the pattern of dissemination behaviors gives individual OM scholars a sense of what have historically been the most important journals—as potential targets for placing their own research. Second, it gives OM researchers and teachers an indication of the most important journals to monitor as archives of progress in the OM field. Third, it gives administrators guidance in understanding the relative importance of alternative dissemination channels—as one possible basis for making decisions related to hiring, promotion, and merit review of OM faculty members. A fourth benefit is that the identification and rating of OM journal channels is grounded on actual dissemination behaviors, rather than the more conventional approach of aggregating subjective opinions. Finally, the resultant pattern of dissemination channels can shed some light on the substance of OM as a discipline.

Section 2 furnishes a brief review and critique of prior efforts to understand dissemination channels for OM research. In Section 3, we describe the behavior-based methodology used here and how we apply it. Results appear in Section 4 along with a discussion of their implications. We conclude by pointing out limitations and possible variations of the study presented here.

2. Background

Evolving from manufacturing roots stretching back into the 19th century, today's OM discipline embraces both manufacturing and service operations [11]. Moreover, it has reached out as a major contributor to the rapidly growing field of supply chain management. Chopra et al. [12] see the OM evolution as being a response by researchers to changing industrial reality, in particular, a shift of research focus from tactical issues of a single decision maker to strategic concerns of entire organizations. Dissemination of knowledge has been crucial to this growth. Continued growth can benefit from a map of available dissemination channels to guide OM educators, researchers, administrators who evaluate them, practitioners who seek applicable research ideas, and librarians who need to make sound journal acquisition decisions. In short, the journal map helps make sense of the increasingly complex and diverse array of OM channels as we navigate through knowledge dissemination possibilities.

Prior mappings of OM journals have used one of three types of approaches: (1) a subjective approach relying on opinions of survey respondents, (2) a citation-based approach based on citation counts or impact factors, and (3) an author-based approach using a measure called author affiliation index. Although studies using these approaches have certainly advanced our understanding of the OM landscape, they are not without their limitations—which we endeavor to avoid in the new approach adopted later in this paper.

2.1. Subjective approach

The subjective approach of using surveys dates back over two decades [13]. Since then, three major survey studies have been conducted to assess OM-related journals in terms of perceived relevance and quality [14–16]. These studies call attention to the importance of conducting research that identifies and rates OM-specific publication outlets.

In general, the subjective approach typically involves asking some set of stakeholders in a field (e.g., researchers, deans, practitioners) to give their perceptions of journal outlets that publish research in that field. Surveys differ in terms of the criterion (or criteria) respondents are asked to apply as they evaluate the journals. For instance, they tend to be asked for their perceptions of "top" or "leading" journals, of journal "quality," about the relevance a journal's articles to the field, about journal influence on the field, or about desirability of publishing in various journals. Surveys also differ in whether respondents are asked about a pre-specified list of journals or asked to furnish perceptions of their own respective lists of journals. Specifically, profiles of OM surveys are shown in Table 1. There are several issues, based on the nature of survey methodology, that need to be considered when interpreting results from these surveys.

The first methodological issue is related to the choice and nature of survey respondents whose perceptions lead to resultant ratings. Respectively, studies conducted by Saladin [13], Barman et al. [14], Soteriou et al. [15], and Barman et al. [16] survey: (a) members of the now defunct Operations Management Association, (b) US members of the Decision Sciences Institute, (c) European members of the Institute for Operations Research and Management Sciences and European Operations Management Association, and (d) US members of the Production and Operations Management Society. Soteriou et al. [15] find that members of a particular association tend to rank their official journal more favorably—resulting in *International Journal of Production & Operations Management* being ranked highly in Soteriou et al. [15] versus *Decision Sciences* in Barman et al. [14]. Indeed, society membership and geographical location are identified as factors causing biases in perceived rankings of journals [17].

Other respondent factors found to influence journal rankings include such respondent characteristics as editorial board membership for specific journals, authorship in specific journals, methodological nature of respondents' research work, and OM-specific research experience (administrators versus researchers) [16,17]. Can respondents claim comparable familiarity (or at least pass some familiarity threshold) with all journals that they evaluate? Furthermore, there are respondent qualification factors to consider. These boil down to a matter of expertise. Are all respondents experts, or at least very experienced, in the OM field? Some respondents (e.g., non-tenured faculty members, deans) may tend to reply based on what they have been told by others, rather than in-depth, first-hand experience. Some respondents may have comparatively little knowledge of OM. For instance, many members of DSI and INFORMS focus on information systems or quantitative methods. Are they really sufficiently well informed to comment on individual OM publishing channels?

A second methodological issue concerns two facets of the survey instrument design. First, the criterion employed for ranking is not always defined—meaning that it may not be interpreted uniformly by all respondents, which could confound the results. For instance, Barman et al. [14] and Soteriou et al. [15] have respondents rank a list of journals by judging the "quality" of each. Ostensibly, no definition of "quality" is given in the studies. To various respondents, it may mean rigor, validity, conformance to a particular style or methodology, "strong" editorial board, high rejection rate, conformance to a target list for achieving promotion in a respondent's university, conformance to opinions of persons deemed to be leaders in the field, general popularity, some combination of these, or something else. We suggest that, while it may be an interesting dimension to ponder, "quality" does not tell the full story. The relevance dimension included in this opinion survey helps round out the story.

However, there are other possibly interesting dimensions for understanding knowledge dissemination channels. For instance, there