

Current State of Operations Research

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ABSTRACT

This study analyzes all non-editorial articles published in 2007 in 6 mainstream operations management journals: JOM, POM, IJOPM, MSOM, IJPR and IJPE. Topic coverage, research approaches, and other issues are evaluated and compared with the literature survey completed by Amoako-Gyampah and Meredith (JOM 1989). Insights are offered on the evolution of the Operations Management field. This is a work in-process. We will provide the current status of the research at the Southwest DSI conference in February 2009.

OVERVIEW

The purpose of this study is to provide a current overview of operations management research, and compare against prior operations management research. We selected six journals and conducted an analysis of every non-editorial article published in the year 2007. Buffa (1980) and Amoaka-Gympah and Meredith (1989) conducted similar

surveys of operations management research. These articles were used as a basis of comparison to determine how OM research has evolved since the 1980s. In addition, the analysis was used to identify relevant patterns of published OM literature.

LITERATURE REVIEW

The first journal issue of the Journal of Operations Management included articles by Buffa (1980) and Chase (1980), describing the current state of operations management research. Amoaka-Gyampah and Meredith (1989) conducted a survey of both published and pipeline operations management (OM) research. These articles were used as the foundation of the current research project. When possible, similar methodologies were used in order to compare current and prior OM research; deviations from the methodologies are noted.

METHODOLOGY

Every non-editorial article for the year 2007 for the following journals was reviewed: Journal of Operations Management, Production Operations Management, International Journal of Operations and Production Management, Manufacturing Services and Operations Management, and International Journal of Production Economics. These journals were selected because they were either used in the 1989 review or focused solely on Operations Management Research. We reviewed a total of 708 articles. We captured data on the research topic, research approach, author, author affiliation, number of pages and industry. We also identified critical data on each journal, including impact and the acceptance rate of submissions.

We developed a standard list of topics from the topics used in prior articles and added new topics to address changes in the field. Topics included aggregate planning, capacity planning, distribution, facility layout, facility location, forecasting, inventory control, maintenance and reliability, outsourcing, project management, green/environmental operations, performance measurement, pricing, process design, product design/development, purchasing, quality, quality of work life, research area overview, scheduling, strategy, supply chain integration, and work measurement. We also developed a standard list of general research approaches based on the prior articles and current practices. The approaches included action research, case/field study, Delphi/expert panel, historical archival analysis, laboratory experimentation, modeling/quantitative, simulation, survey/questionnaire, survey/literature, and theoretical/conceptual.

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The Topic and Research Approach variables were fairly subjective. Therefore, we used the following methodology to increase inter-rater reliability. First, as stated above, we developed a standard list of topics and research approaches along with a description to use in coding these two variables. Second, we initially tested the methodology with two articles. Every researcher reviewed the same two articles, and then we discussed and resolved discrepancies. We then refined the assessment guidelines based on the initial review. Third, we expanded our pilot study to 12 articles reviewed by each researcher. This enabled us to finalize the guidelines for research and proceed with the initial review. Fourth, the journal issues were divided among the researchers. Each researcher conducted two reviews of their assigned articles. This data will be used to present preliminary results at the Southwest DSI Conference. The next step is to reassign all the articles to a different reviewer. We will then identify discrepancies and assess inter-rater reliability using Cohen's *Q*.

RESULTS

We used the 2007 data to develop the following graphs: number of articles per journal, topics, research approaches, industry, average number of references and average number of pages per article per journal. We also compared the topics and research approaches to the Amoaka-Gyampah and Meredith 1989 article. Following is an example of the analysis conducted.

Table 1
Comparison of Current and Prior Topics

Topic	Amoaka-Gypah / Meredith (1989)		Current Study (2007)	
	Number	%	Number	%
Aggregate planning	35	9.7%	9	1.3%
Capacity planning	10	2.7%	12	1.7%
Distribution	1	0.3%	11	1.6%
Facility layout	5	1.4%	5	0.7%
Facility location	1	0.3%	3	0.4%
Forecasting	6	1.7%	15	2.1%
Green/envir. Operations	n/a	n/a	21	3.0%
Inventory control	89	24.6%	77	11.0%
Maint & reliability	8	2.2%	17	2.4%
Outsourcing	n/a	n/a	7	1.0%
Performance measurement	n/a	n/a	30	4.3%

Pricing	n/a	n/a	10	1.4%
Process design	72	19.9%	131	18.7%
Product design/develop.	n/a	n/a	47	6.7%
Project management	5	1.4%	12	1.7%
Purchasing	6	1.7%	21	3.0%
Quality	18	5.0%	60	8.6%
Quality of work life	4	1.1%	n/a	n/a
Research Area Overview	n/a	n/a	22	3.1%
Scheduling	59	16.3%	56	8.0%
Strategy	20	5.5%	35	5.0%
Supply chain integration	n/a	n/a	92	13.1%
Work measurement	0	0.0%	8	1.1%
Services	23	6.4%	n/a	n/a
Total	362	100.0%	701	100.0%

Note that the biggest changes in topics were in the areas of inventory control, process design, quality, scheduling, and supply chain integration. Inventory control and scheduling have decreased in overall coverage. Quality and supply chain integration has increased in coverage. Green, or Sustainable Operations, is a new topic that was covered in 2007, that indicates that operations management research has made an effort to address new developments or concerns in practice.

CONCLUDING REMARKS

This research project will provide several contributions to the field of OM. This information can be used by future authors to identify journals that are a good fit for their research. We also identified changes in the field, such as changes in topics and research approaches.