

# Behavioral Operations Management Literature, 2008

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## 1. Introduction

Traditional Operations Management (OM) results are often not directly applicable to real-world scenarios. In many cases this causes managers to deviate from practices derived from classical theoretical results. One reason for the existence of this gap between theory and practice is that most standard theoretical models in OM fail to account for the way human behavior affects operations. The recognition that classical operations tools do not address this important set of phenomena affecting production systems led to the creation of the body of knowledge known as Behavioral Operations.

The last 10 years have seen an increasing number of research papers in Behavioral Operations. There have been many interesting findings in this area and their relevance to operational outcomes is continuously changing the way researchers address OM problems (For an overview of Behavioral Operations findings published between 1985 and 2005, please refer to Bendoly et al. 2006).

The expansion of this research area resulted in the creation, in 2007, of the Behavioral Process Management (BPM) Section at INFORMS. The Section's mission is "...to provide a context for the development and discussion of research on behavioral dynamics and behavioral factors in operations management<sup>1</sup>". As a part of its activities, the BPM section presents the annual Most Influential Paper Award to the paper, published that year, that is judged to have the largest impact on the course of research in Behavioral Operations.

This paper is the result of that award process. In Section 2 we present the definition of Behavioral Operations used in the selection of the papers and describe the process used to identify qualifying papers. The list of identified Behavioral Operations Management Papers published in 2008 is presented in section 3.

## 2. Methodology

There were three stages in the process used to identify behavioral operations papers published in 2008. We began by defining behavioral operations. We then did a complete search of five operations management journals for papers that fit that definition. Finally, we asked academics in the field for any papers we may not have otherwise identified.

In order to be classified as behavioral operations, a paper needs to fit two criteria. It needs to have an operations context and it need to explicitly include the consideration of human behavior variables.

The research problem should be directly related to the production and/or distribution of products and services. This would exclude, for instance, papers considering questions that are

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<sup>1</sup> from the BPM Section website at <http://www.bpm-informs.com/>

solely consumer behavior or psychology. Examples of papers excluded because of the lack of operations context include Bond et al (2008), which deals with the decision maker's ability to articulate his/her goals and is purely behavioral, Looney et al (2008), which deals with service channel preference and is about consumer behavior and Murthy et al (2008), which deals with the effect of call center agent training on performance and fits in the organizational behavior category. These papers were not excluded based on any aspect of the quality of the paper but only because they did not meet our definition of behavioral operations.

Second, in order to satisfy the "behavioral" requisite, the paper should include some test of a theory or model of behavior that deviates from full rationality or one that is based on a fully rational model but includes an empirical test of that model. In essence, this means that a purely rational view on an operations problem should have been challenged in the paper. Two examples of papers excluded for this reason are Arora et al (2008) and Su and Zhang (2008). Purely mathematical papers were considered but only if they had explicit representations of human behavior outside the rational model.

We considered all papers published in 2008 in five journals: Journal of Operations Management, Production and Operations Management, Manufacturing & Service Operations Management, Management Science and Decision Sciences. The committee considered these journals to be the top operations management journals. After reviewing all papers, we selected the ones which fit the definition of behavioral operations discussed above. This resulted in a list of 27 papers.

The list of selected papers was then sent to the mailing list of the Annual Conference on Behavioral Operations Management. Members of the mailing list were asked for suggestions of behavioral operations papers that were published in 2008 outside of the journals considered.

### **3. Behavioral Operations Papers 2008**

The procedure described above resulted in the list of papers shown in tables 1 to 4. We classified papers according to both the operations context analyzed and the behavioral assumptions studied. Information about the behavioral variables in the paper, the behavioral theories used and the main research question of each paper is shown in the three right hand columns of the table.

We have classified each paper into one of nine Operations Management contexts: Project Management and Product Development; Inventory and Distribution Centre Management; Quality Management; Production and Work Flow; Queuing; Scheduling; Strategy; Forecasting; and Supply Chain Management. The context Supply Chain Management includes only those papers dealing with supply chain management which did not fit in any of the other categories.

The classification by behavioral assumption followed the categories proposed in Bendoly et al (2006): intentions, actions and reactions. The intentions category includes assumptions about the decision maker's goals. Assumptions of risk neutrality, equal weights for stock-out and holding costs and purely monetary objectives are commonly challenged in the intentions category. The actions category refers to assumptions about the behavior of human actors in the model. An example of assumption analyzed in this category is the homogeneity in a group of human actors (e.g., all workers have the same productivity). The reaction category consists of assumptions about the way human actors respond to changes in the parameters of the model. An example of assumption challenged in this category is the independence between inventory level and work speed. The difference between actions and reactions is related to the difference in the behavioral variable being a dependent or independent variable. Table 1 includes papers dealing

with intentions, Table 2 with actions and Table 3 with reactions. Finally, Table 4 includes papers which are thought pieces.

## Intent

The papers in this category consider models where the goals of the decision maker may be different from the assumption of full rationality.

**Table 1 – Behavioral Operations papers dealing with intentions published in 2008.**

Article	Behavioral Variables	Behavioral Theories	Research Question
<b>Project Management &amp; Product Development</b>			
Siemsen, 2008	Capability, agent's expectation of the principal's expected value of his capability	Diagnosticsity	How do career-concerns within an organization affect the preference of autonomous employees for pursuing solutions that increase the difficulty of their tasks?
<b>Production &amp; Work Flow</b>			
Wu, Loch, & Van der Heyden, 2008	Group decision making Principle-agent, delegation of an operations task	Justice/Fairness Principle-Agent	Under what conditions should management practice include fair process?
<b>Supply Chain Management</b>			
Loch & Wu, 2008	"Decentralized decision making in a business transaction	Social Preferences	How do social preferences influence supply chain transactions?

## Action

The papers in this category consider situations where the actual actions of people are different from the actions assumed by the model. They consider cases where the behavior is an independent variable in the model and either look for differences between models and reality or try to model these behavioral differences.

Table 2 - Behavioral Operations papers dealing with actions published in 2008.

Article	Behavioral Variables	Behavioral Theories	Research Question
<b>Project Management &amp; Product Development</b>			
Oke, Idiagbon-Oke, & Walumbwa, 2008	Power personal, position, strength of ties, relationships	Organizational Behavior, Power-Dependency Political Power	How do the power bases of different brokers influence the strength of ties between network members and how does that affect performance?
Scott-Young & Samson, 2008	Potency, Problem-solving	Social cognitive theory	How do project team factors influence the cost, schedule, and operability of capital projects?
<b>Inventory and Distribution Center Management</b>			
Su, 2008	Order quantities	Bounded Rationality	What effect does bounded rationality have on the traditional newsvendor decisions?
<b>Quality Management</b>			
Das, Pagell, Behm, & Veltri, 2008	Safety disconnect, safety perception, worker performance, quality performance	Cognitive Dissonance	What are the effects of worker perceptions of safety on quality outcome in an organization?
Yee, Yeung, & Cheng, 2008	Employee satisfaction	Social Exchange, Emotional Contagion	Does employee satisfaction improve customer satisfaction and profitability?
<b>Production &amp; Work Flow</b>			
Bendoly, Bachrach, & Powell, 2008	Managerial view of the intra-organizational capabilities of resource planning systems	Information Processing Theory	How do managers' assessments of the usefulness of resource planning systems relate to the interdependence among internal operational activities and resources within a work unit, and to the amount of prior managerial experiences?
<b>Supply Chain Management</b>			
Lawson, Tyler, & Cousins, 2008	Buyer performance	Social Capital	What aspects of prior relationships contribute to the accumulation of relational capital and how do relational and structural embeddedness contribute to buyer performance improvement?

Article	Behavioral Variables	Behavioral Theories	Research Question
Supply Chain Management (continued)			
Shah, Goldstein, Unger, & Henry, 2008	Decision making rights, Shared goals, shared-knowledge	Relational Coordination	What are the roles of process design and decision making in successful inter-organizational process improvement in the health care supply chain?
Zhao, Huo, Flynn, & Yeung, 2008	Customer power coercive, legitimate, referent, expert, reward, Relationship commitment, customer integration	Social Exchange, Power-Relationship Commitment	What is the relationship between power, relationship commitment and the integration of manufacturers with their customers?

## Reaction

The papers in this category consider how behaviors are or can be changed by changes in model parameters. This usually occurs where the behavior is a dependent variable in the model.

Table 3 - Behavioral Operations papers dealing with reactions published in 2008.

Article	Behavioral Variables	Behavioral Theories	Research Question
Inventory & Distribution Centre Management			
Katok, Thomas, & Davis, 2008	Ordering behavior change according to the bonus amount per period	Anchoring & Insufficient Adjustment, Availability Heuristic	How do the size of bonus and length of the review period affect decisions and how do those decisions compare to theoretical benchmarks?
Bolton & Katok, 2008	Decision of how much inventory to order in a Newsvendor problem setting	Anchoring & Insufficient Adjustment	What are the effects of the way experience and feedback are organized on decision makers' learning, and consequently on the optimality of the inventory decisions?
Bostian, Holt, & Smith, 2008	Decision of how much inventory to order in a Newsvendor problem setting	Decision Heuristics	How can memory, reinforcement, and probabilistic choice be used to construct an adaptive learning model to explain individual decisions in a newsvendor problem setting?

Article	Behavioral Variables	Behavioral Theories	Research Question
<b>Quality Management</b>			
Stern, Katz-Navon, & Naveh, 2008	Error rates in professional service delivery setting	Learning Orientation, Autonomy, Employee Voice	What factors contribute to employee error in hospitals?
Vaidyanathan & Devaraj, 2008	Satisfaction		Do online information and order procedures lead to better accuracy, timeliness and better buyer satisfaction?
<b>Production &amp; Work Flow</b>			
Siemens, Roth, & Balasubramanian, 2008	Inter-employee knowledge sharing Motivation to share Time availability Ability to share	Motivation– Opportunity– Ability (MOA)	How do motivation, opportunity, and ability influence employee knowledge-sharing behavior?
Bendoly & Cotteleer, 2008	Intention to circumvent the IT protocol	Organizational Change, Reasoned Action, Expectancy	Given different levels of operational process and IT-protocol misfit, and ease of IT circumvention, how does the implementation of IT affect the range of processing practices across workers?
<b>Forecasting</b>			
Onkal, Gonul, & Lawrence, 2008		Advice Taking, Decision Making	Do people adjust forecasts differently if the forecast is explained or has already been adjusted?
<b>Supply Chain Management</b>			
Bearden, Murphy, & Rapoport, 2008	Decision to accept or reject purchase bids, individually, or through a fixed threshold pre-defined by the decision maker	Decision Heuristics	How do decisions to accept or reject purchase bids vary with the offer arrival probability, the number of to-be-sold-units and other characteristics of the purchase decision?
Chen, Kaya, & Özer, 2008	Consumer's channel choice, manufacturer's choice of delivery lead time and retailer's choice of inventory level	-	How does the consumer channel choice relate to the delivery lead time in the direct channel, the product availability in the retail channel and the relative inconvenience of buying from the retail channel?

Article	Behavioral Variables	Behavioral Theories	Research Question
Supply Chain Management (continued)			
Engelbrecht-Wiggans & Katok, 2008	Bid/Value Decision in sealed-bid first-price auctions	Regret	What is the effect of regret-related feedback information on bidding behavior in sealed-bid first-price auctions?
Ho & Zhang, 2008	Manufacturer's and Retailer's Pricing Contract Decisions	Loss Aversion, Prospect	How does the use of a fixed fee in pricing contracts affect the efficiency, in terms of market outcomes, of a manufacturer-retailer channel?

### Thought Pieces

The papers in this section are essays which discuss the importance of including behavioral considerations in operations management research.

Table 4 - Behavioral Operations thought piece papers published in 2008.

Gino & Pisano, 2008	Explores “the theoretical and practical implications of incorporating behavioral and cognitive factors into models of operations management and suggests fruitful avenues for research in <i>behavioral operations</i> .” (from abstract, p676)
Bitran, Ferre, & Oliveira, 2008	Develop a conceptual framework of the links between duration of a service encounter and behaviors that affect satisfaction, identifying gaps between typical behavioral assumptions in operations research and those of fields such as marketing and psychology.
Bendoly & Speier, 2008	In the context of decision support systems, examines the need to include behavioral elements in models. Calls for both research on and training of decision makers and how they can use software-based models to support the decision-maker.

**The Four Runners-up Papers**

**The Winner Paper**

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