

TIMOTHY K. BAKER

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Address

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Education

Ph.D., Operations Management, The Ohio State University College of Business, June, 1994.

M.S., Operations Research and Systems Analysis, University of North Carolina at Chapel Hill, August 1982.

B.A., Double Major in Mathematics and Economics, Claremont McKenna College, May 1980.

Academic Positions Held

Washington State University, Richland, WA, 2007-present, Associate Professor of Management and Operations

University of Oregon, Eugene, OR, 2006-2007, Visiting faculty at Lundquist College of Business

Washington State University, Richland, WA, 2005-2006, Associate Professor of Management and Operations

Washington State University, Richland, WA, 1999-2005, Assistant Professor of Management and Operations

Research statement

Key areas of interest: service operations, especially pricing strategies; reverse logistics decision support systems; independent demand ERP subsystems; drivers of salesforce performance in consultative selling environments; service recovery mechanisms; revenue management. My service recovery research develops general approaches for optimizing decision support systems. My pricing strategy research involves estimating the impact of deviating from normative pricing strategies via survey research, along with the information technology and behavioral drivers of strategy misalignment. The theoretical model developed for this includes significant behavioral control variables. My research agenda focuses on revenue management from these perspectives: (1) decision support tool building, (2) empirical theory testing, (3) case studies, and (4) extending methodologies to nontraditional areas, such as e-commerce and distribution. Of particular interest in reverse logistics is decision support system design to economically reuse manufactured components, subject to environmental and product quality restrictions. Another angle involves case studies in the context of sustainability for new product development. Case study research has been utilized to develop the foundations for new supply chain management systems

Impact

Baker and Jayaraman (2010) have supplied an “action research” article, one of the few in the operations management area. This article laid the groundwork for another article (Baker and Jayaraman (2010)) that exploited the case analysis to develop a new supply chain management algorithm that lowered chain costs 27% at the Areva (Richland, WA) nuclear fuel rod manufacturer. Action research leads to theory/method development in an inductive fashion, as opposed to the usual deductive approach.

Baker and Collier (2005) produced the first quantitative model in the area of service guarantee research. This area is growing in importance, as highlighted by the emphasis put on service science research by IBM’s Almaden Research Center. My working paper on normative pricing strategies fills a large void in the pricing literature: no one has empirically estimated the impact of deviating from normative pricing recommendations. Revenue management’s importance in industry is part of the shift toward using more detailed, historical customer behavior databases for pricing. This is in contrast to the more traditional survey-based approaches. Revenue management is part of operations because its implementation involves the inventory control of perishable assets (e.g., broadcast advertising slots, hotel rooms). Baker, Murthy, and Jayaraman (2002) developed demand forecasting-inventory control algorithms that have a large revenue-impact potential. Although the algorithms were tested in a hotel environment, they can be used without modification in any high-volume perishable asset situation. And the hotel revenue management framework that the revenue impact estimates were obtained from is very similar to other industry structures. A specific industry was targeted so that simulation validation could occur. Baker and Collier (1999) demonstrated via simulation analysis that ignoring the interaction between demand forecasting and inventory control renders inventory control improvements essentially useless. Baker and Collier (2003) used simulation analysis to show that potential revenue improvements are

much higher if prices are optimized explicitly improvement was established.

Research statement (continued):

Auctions are becoming much more common as mechanisms for procurement and selling via the Internet are flourishing. Although auction theory has a long history, it has neglected sales mechanism design issues for today's implementation. And practitioner literature suggests that the improper use of auctions can be expensive. Baker and Murthy (2002) derived insights from mathematical models showing that sales channels mixing auctions with fixed price approaches yield superior revenues to either pure auctions or pure fixed price mechanisms. The Baker and Murthy (2005) paper extended this analysis to allow differing mechanisms over time.

And work has just begun in service recovery mechanism design. The focus in the paper published by Baker and Collier (2005) is on optimal pricing for service quality upsets, which has a conceptual link with my revenue management pricing work. The potential payoff for this work is huge, as the area has been largely ignored by practitioners yet applications are widespread.

Sustainable supply chain management has become an important research topic due to the massive amount of potentially environmentally destructive waste created by manufacturing. One stream of research designs and analyzes decision support system components for planning and control systems that reuse portions of sold goods (Baker, Lee, and Jayaraman (2007)).

Revenue management concepts-techniques have been integrated into all of my courses. For instance, the issues in revenue management demand forecasting are relevant to the undergraduate operations management course and the statistics courses. Also, the marketing-operations linkages and inventory control techniques are pertinent for the undergraduate operations management courses. The general quantitative modeling tools used in my research (optimization and simulation in particular) are taught in MgtOp 540 and 591. Moreover, the art of modeling inherent in my research is taught in all of my courses.

Research statement (continued):

Much of my service work intersects with my research. The Washington Research Foundation (WRF) (Seattle) links state researchers with technology start-up companies, and then funnels a portion of firm profits back to the state institutions. WRF noticed the relevance of my 1999 *Decision Sciences* article to the revenue management system that Shopperbox.com (Tacoma) was contemplating building, and they initiated my work with them. Profit Optimization Systems (Miami, FL) discovered that my 2002 *Decision Sciences* Service Package Switching article had merit for their business, and I spent time with them discussing how the technologies (algorithms) developed could be adapted to their proposed hotel valuation framework for investment analysts. Georgia Pacific (Atlanta, GA) contacted me after reading one of my *Decision Sciences* articles, and we discussed how to evaluate outside vendor bids in revenue management. And UPS headquarters in Louisville has provided access to data to test Yong Lee's sustainable supply chain models.

And the working paper "Performance Implications for Multi-Unit Auctions in the Presence of Forecast Errors" (with N. Murthy) received the Best Interdisciplinary Paper Award for the 2004 Decision Sciences Institute national meeting. The Institute gives awards to three papers from its proceedings submissions, voted on by 20 Institute Fellows.

A paper with Brian Kulik using agent-based simulation--"Putting the Organization Back into Computational Organization Theory: A Complex Perrowian Model of Organizational Action"--won a Best Paper Proceedings Award in 2007 at the Academy of Management annual meeting.

I have published seven articles in WSU CBE A level journals (*Decision Sciences* and *Production and Operations Management*), three in an A- journal (*International Journal of Production Research*), and one each in *IEEE Transactions in Engineering Management*, *International Journal of Quality & Reliability Management*, *Computational and Mathematical Organizational Theory*, *International Journal of Operational Research*, and *International Journal of Services and Operations Management*..

Papers

Refereed Publications

- Baker, T., Jayaraman, V. & Ashley, N. 2012. A Data Driven Inventory Control Policy for Cash Logistics Service Operations at a Financial Institution. Forthcoming at *Decision Sciences*.

- Lee, Y., Baker, T. & Jayaraman, V. 2012. Redesigning an Integrated Forward-Reverse Logistics System for a Third-Party Provider: An Empirical Study. *International Journal of Production Research.*, 50(9), 5615-5634.

- Baker, T. & Jayaraman, V. 2012. Managing Information Supplies Inventory Operations in a Manufacturing Environment – An Action Research Study, *International Journal of Production Research.*, 50(6), 1666-1681.

- Baker, T. & Jayaraman, V. 2012. Managing Information Supplies Inventory Operations in a Manufacturing Environment – An Order-Timing and Sizing Algorithm, *International Journal of Production Research* 50(7), 1767-1779.

- Baker, T., Lee, Y. & Jayaraman, V. 2010. Strategic End-of-Life Management of Electronic Assembly Product Recovery Supply Chain Systems. 7(1), *International Journal of Operations Research*, 7(1), 54-73.

- Lee, Y. & Baker, T. 2009. Assessing the Interaction of Price Optimization and System-Wide Transportation Selection on a Third-Party Logistics Provider. Forthcoming at *International Journal of Services and Operations Management*.

- Baker, T. & Murthy, N. 2009. Implications of Forecast Accuracy on the Benefits of Online Auctions in Business-to-Business and Business-to-Consumer Environments. *International Journal of Services and Operations Management*, 5(3), 299-325.

- Kulik, B. & Baker, T. 2008. Putting the Organization Back into Computational Organization Theory: A Complex Perrowian Model of Organizational Action. *Computational and Mathematical Organizational Theory*, 14(2), 84-119.

- El Shenawy, E., Baker, T. & Lemak, D. 2007. A Meta-analysis of the Effect of TQM on Competitive Advantage. *International Journal of Quality & Reliability Management*, 24(5), 442-471.

Refereed publications (continued):

- Baker, T. & Murthy, N. 2005. Viability of Auction-Based Revenue Management in Sequential Markets. *Decision Sciences*, 36(2), 259-286.
- Baker, T. & Collier, D. 2005. The Economics of Service Guarantees. *Decision Sciences*, 36(2), 197-220.
- Baker, T. & Collier, D. 2003. The Benefits of Optimizing Prices to Manage Demand in Hotel Revenue Management Systems. *Production and Operations Management*, 12(4), 502-518.
- Jayaraman, V. & Baker, T. 2003. The Internet as an Enabler for Dynamic Pricing of Goods. *IEEE Transactions in Engineering Management*, 50(4), 470-477.
- Baker, T. & Murthy, N. 2002. A Framework for Estimating Tangible Benefits of Using Auctions in Revenue Management. *Decision Sciences*, 33(3), 385-413.
- Baker, T., Murthy, N. & Jayaraman, V. 2002. Service Package Switching in Hotel Revenue Management Systems. *Decision Sciences*, 33(1), 109-132.
- Baker, T & Collier, D. 1999. A Comparative Revenue Analysis of Hotel Yield Management Heuristics. *Decision Sciences*, 30(1), 239-263.

Refereed Proceedings

- Baker, T. & Murthy, N. 2007. A Dynamic Model for Analyzing Design Implications for Auctions in Sequential Markets. Decision Sciences Institute Conference Proceedings, Phoenix, AZ.
- (Best Paper Award) Kulik, B.. & Baker, T. 2007. Putting the organization back into computational organizational theory: a multiple-perspective model. Academy of Management annual meeting, Philadelphia, PA.
- (Best Interdisciplinary Paper Award) Baker, T. & Murthy, N. 2004. Performance Implications for Multi-Unit Auctions in the Presence of Forecast Errors. Decision Sciences Institute Conference Proceedings, Boston, MA.
- Baker, T. & Collier, D. 2004. The Economic Payout Model for Service Guarantees. 9th Quality in Services Conference Proceedings, Karlstad, Sweden.
- Baker, T., Jayaraman, V. & Murthy, N. 2000. A State Contingent Method for Forecasting and Allocating in Hotel Revenue Management Systems. Decision Sciences Institute Conference Proceedings, Orlando, FL.

Unrefereed Proceedings

-Rajopadhye, M., Ben Ghalia, M., Wang, P., Baker, T. & Eister, C. 1999. Forecasting Uncertain Hotel Room Demand. Proceedings of the American Control Conference, San Diego, CA.

-Rajopadhye, M., Ben Ghalia, M., Wang, P. Baker, T. & Eister, C. 1998. Forecasting Hotel Room Demand Using the Holt-Winters Procedure. Proceedings of the Joint Conference on Information Sciences, Research Triangle Park, NC.

Papers Under Review

-Baker, T., Collier, D. & Jayaraman, V. B2B Normative Pricing Strategy: Antecedents and Profitability Impact. Undergoing first review at *Decision Sciences*.

Grants Received

Six Sigma MBA project support. October, 2011. Funding Agency: Promontory Management Group, Inc. (Salt Lake City, UT) (\$5,600)

Sole Investigator on a project to compare the Motorola and Shannin Six Sigma methodologies via case study theory building. July, 2009. Funding Agency: Promontory Management Group, Inc. (Salt Lake City, UT) (\$2,800)

Sole Investigator on a project to compare the Motorola and Shannin Six Sigma methodologies via case study theory building. October, 2009. Funding Agency: Areva, Inc. (Richland, WA) (\$1,500)

Sole Investigator on a project to develop violator and jurist behavior prediction software for Washington state traffic violations. August, 2008. Funding Agency: Washington State Administrative Office of the Courts (Olympia) (\$9,100).

Sole Investigator on a project to develop an improved learning guide to an undergraduate operations management textbook. 2008. Funding Agency: Thomson Publishing (Cincinnati, OH) (\$6,800).

With V. Jayaraman on a research project testing hypotheses about (1) the drivers of pricing strategy misalignment, and (2) the financial implications of such misalignment. December, 2007. Funding Agency: School of Business Administration, University of Miami (FL). (\$3,000)

Co-Principal Investigator (with N. Murthy) on a research project estimating the benefits of auction mechanisms in airline revenue management. Summer 1999. Funding Agency: IXL Center for Electronic Commerce, DuPree College of Management, Georgia Institute of

Technology. (\$6,000)

Work-in-Progress

- Baker, T. & Collier, D. Patterns in Deviations from Optimal Pricing in High-Value Manufacturing: An Empirical Study, targeted for *International Journal of Operations and Production Management*.
- Baker, T., Ashley, N. & Winiford, M. Personality Drivers of Success in Six Sigma Projects, targeted for *Manufacturing and Service Operations*.
- Baker, T., Ashley, N., & Winiford, M. Organizational Drivers of Success in Six Sigma Projects, targeted for *Management Science*

Paper Presentations (presenter underlined)

- Baker, T. & Murthy, N. 2007. A Dynamic Model for Analyzing Design Implications for Auctions in Sequential Markets. Decision Sciences Institute Conference, Phoenix, AZ.
- Baker, T. & Jayaraman, V. 2007. Normative Pricing Strategies: Exploring the Antecedents and Impact on Profitability for U.S. Capital Intensive, Durable Goods Manufacturers. INFORMS Annual Conference, Seattle, WA.
- Kulilk, B. & Baker, T. 2007. Putting the Organization Back into Computational Organizational Theory: A Complex Perrowian Model of Organizational Action. Academy of Management Annual Meeting. Philadelphia, PA.
- (Invited) Baker, T. From Revenue Management to Price Optimization: Improvement Potential for Hotels. Lundquist College of Business, University of Oregon, December 1, 2006.
- (Invited) Baker, T. New MBA pedagogy for the core decision sciences course. Presented at the Reed Institute for Applied Statistics 30th Anniversary Meeting, Claremont McKenna College, Claremont, California, April 9, 2005.
- (Invited) Baker, T. An overview of smart pricing research: integrating revenue management and supply chain management. Fisher College of Business, Ohio State University, Columbus, OH, February 25, 2005.
- (Invited professional development session) Baker, T. & Murthy, N. Emerging issues in revenue management research: real-world modeling opportunities. Presented at the 2004 Decision Sciences Institute Conference, Boston, Massachusetts.
- (Invited) Baker, T. & Murthy, N. Performance Implications for Multi-Unit Auctions in the Presence of Forecast Errors. Presented at the 2004 CORS/INFORMS Joint Conference, Banff, Canada.

Paper Presentations (continued)

- Baker, T. & Murthy, N. Viability of Auction-Based Revenue Management in Sequential Markets. Presented at the 2003 Decision Sciences Institute Conference, Washington, D.C.
- Baker, T., Jayaraman, V. & Murthy, N. A State Contingent Method for Forecasting and Allocating in Hotel Revenue Management Systems. Presented at the 2000 Decision Sciences Institute Conference, Orlando, FL.

Grant Proposals Rejected

- Gates Foundation grant proposal (principal investigator) with Jo Olson, WSU; Mike Trevisan, WSU; Nancy Ashley, WSU-TC to obtain funding under Project IMPACT. The objective is to roll-out a two semester operations research elective course at Tri-Cities high schools. The larger aim is to improve the complex word problem solving skills of these students, along with recruiting disadvantaged students and increasing their awareness of the immediate usefulness of operations research (\$199,250).
- Baker, T., Cook, L., & Ashley, N. Project IMPACT. Rejected by Lauzier Foundation (Ephrata, WA). Amount requested: \$101,636.
- Baker, T. Six Sigma Belt Examinations. Rejected by Proctor & Gamble, Inc., (Cincinnati, OH). Amount requested: \$8,400.
- Baker, T. Service Economics: Optimizing Client Profitability. Rejected by TWR Marketing (Everett, WA). Amount requested: \$82,000.
- Collier, D. & Baker, T. The Science of Service Guarantees. Rejected by IBM Almaden Research Center (Services, Sciences, Management, and Engineering (SSME) group) due to insufficient data available from them. Amount requested: \$70,000.
- Baker, T. 2005. Spatial sampling approaches for identifying contaminated material at a nuclear waste site. Rejected by Fluor-Hanford due to budget cuts eliminating all new research activity. Amount requested: \$34,000.

Service

Urban Campus

- *Phi Eta Sigma Undergraduate Honorary Society: advisor.
- *Bridges Program: participant. This is a program put on by Columbia Basin Community College to transition their students WSU-TC. I advised them about our business program.
- *Pasco High School Student Shadow program: participant. Designed to encourage awareness of college opportunities to disadvantaged students.
- *Diversity Council, chair (permanent)
- *Diversity Committee: chaired the Student Diversity subcommittee (wrote the draft plan to improve the recruitment and retention of underrepresented groups on the Tri-Cities campus)
- *Non-academic facilities committee: charged with designing, funding, and implementing new facilities for student use
- *Business student campus introduction: gave one presentation to orient incoming undergraduates to our program.
- *Cougar Saturday faculty representative: answered business program questions from prospective students.
- *Recruitment Committee for Human Resources Specialist position.

Department

- *Assisted with the PhD program (writing qualifying and preliminary exam questions, admission decisions, program requirements document rewrites)
- *Setup operations field trips throughout eastern Washington

College

- *Journal Ranking Task Force: member
- *MBA Task Force: member. Charged with redesigning the MBA programs.
- *Developed senior exit exam for operations management and statistics
- *CBE Marketing Task Force
- *CBE PhD Curriculum Task Force

University

- *Academic Affairs Committee
- *Faculty Senate Steering Committee: member (fall 2009).
- *Campus Master Planning Committee: member.
- *Regents Scholars Faculty Reviewer
- *Advised Tri-Cities campus on Institute for Commercialization and Technology Entrepreneurship development

Professional

Thomson Publishing, Journal of Service Management, Decision Sciences Institute, Production and Operations Management Society, Journal of Operations Management, International Journal of Production Research, Omega, Transportation European Journal of Marketing, Research (Part B), International Journal of Manufacturing Technology and Management, Elsevier Publishing, International Journal of Sustainable Society, International Journal of Production Economics, International Journal of Revenue Management, Journal of Business Logistics, IEEE Transactions in Engineering Management, International Journal of Inventory Research, Management-Engineering-Informatics Conference Proceedings, and Hong Kong Grant Council

*Editorial Board Member: *International Journal of Society Systems Science*,
International Journal of Sustainable Society

*Refereed thirteen papers for *Decision Sciences*, three for *Production and Operations Management*, fifteen for the *Journal of Operations Management*, three for the *International Journal of Production Research*, five for the *European Journal of Marketing*, one for *Omega*, three for *IEEE Transactions in Engineering Management*, one for *Transportation Research (Part B)*, nine for the Decision Sciences Institute National Proceedings, two for the Southwest Decision Sciences Institute Proceedings, five for the *Journal of Business Logistics*, one for the *International Journal of Inventory Research*, one for the *International Journal of Manufacturing Technology and Management*, nine for the *International Journal of Sustainable Society*, one for the *Journal of Service Research*, one for the *International Journal of Revenue Management*, one for the *International Journal of Production Economics*, three for the *Management-Engineering-Informatics Conference Proceedings*, one for the Hong Kong Research Council (a grant proposal)

*Critiqued preliminary edition of Collier, D. & Evans, J. *Operations Management: Goods, Services, and Value Chains* for Thomson Publishing.

*Wrote Study Guide to accompany Collier, D. & Evans, J. *Operations Management: Goods, Services, and Value Chains* for Thomson Publishing.

Service (continued):

Firm (pro bono consulting related to operations management)

*ConAgra Foods, Kennewick, WA. Helped conceptualize production scheduling models. (ongoing, 5 hours)

Ryan Malecha is the contact, one of my WSU-TC MBA students

*Grace Medical Clinic, Kennewick, WA. Started work on developing a better triage system. (November 8, 2012 to current time, 1 hour).

Jean Murrow, clinic Director, is the contact here.

*Areva, Richland, WA. Developed an approach to more accurately gauge radiation risk for manufacturing employees. (January 4, 2012 through March 30, 2012, 17 hours)

Stan Kuick, lean programs manager at Areva, is the contact.

*Office of River Protection, Richland, WA. Helped develop a more user-friendly and robust project management system for nuclear waste clean-up contractors. (January 25, 2012 through March 29, 2012, 13 hours)

Dragana Etheridge, one of my MgtOp 702 students, is the contact here.

*Christ the King Schools, Richland, WA. Helped develop a better enrollment forecasting system. (January 30, 2012 through March 30, 2012, 14 hours).

Tony Smith, one of my MgtOp 591 students, is the contact (he no longer works with Christ the King)

*Washington Hanford Closure, Richland, WA. Helped reduce turnaround time in obtaining and analyzing field samples for radiation exposure. The result: savings of \$750,000 (July 6, 2011 through October 28, 2011, 15 hours)

Lindsay Mahony is the contact, one of my MgtOp 589 students

Service (continued):

- *Sandvik Specialty Metals, Finely, WA. Worked on dimension variability reduction methods in cutting as a Six Sigma green belt project mentor. Sandvik designs and manufactures components for the medical and aerospace industries (July 28, 2010 through July 28, 2011, 29 hours)

Ken Idler is the contact, one of my MgtOp 589 students

- *Areva, Richland, WA. Developed a methodology for gaining maximum profits for parts disposal as a Six Sigma green belt project mentor. Areva manufactures nuclear fuel rods (Sept 6, 2010 through July 28, 2011, 26 hours)

Stan Kuick is the contact, Areva lean programs manager

- *Nob Hill Water Associates, Yakima, WA. Developed an approach for determining drivers of water usage (April 2, 2010 through May 1, 2011, 6 hours)

Zella West is the contact, one of my former MgtOp 591 students

- *US Linen and Uniforms, Kennewick WA. Provided advice on vehicle routing and facility location approaches (April 2, 2010, 2 hours)

Tim Neasham is the contact, one of my former MgtOp 340 students

- *Areva, Richland, WA. Analyzed their maintenance and spare parts timing-sizing ordering algorithms (January 17, 2009 through November 8, 2009, 37 hours)

Stan Kuick is the contact

- *Gesa Federal Credit Union, Richland, WA. Developed and conducted a project management training course for their entire professional eastern Washington staff (April 1-23, 2009, 17 hours)

Christine Brown is the contact

- *Lamb-Weston, Richland, WA. Explored Six Sigma opportunities at this food processor (November 1-3, 2 hours)

Ryan Malecha is the contact

Service (continued):

*Intel, Portland, OR. Critiqued new product development processes (February 23, 2007, 9 hours)

Leif Stavig is the contact

*Xerox, Wilsonville, OR. Critiqued manufacturing practices (January 19, 2007, 6 hours)

Jim Peterson is the contact

*KB Alloys, Wenatchee, WA. Helped formulate use of statistical process control (April 28-30, 2006, 3 hours)

Craig Lawrence, one of my former MgtOp 540-591 students, is the contact

*Fluor-Hanford, Richland, WA. Located statistical test for time series steady state convergence (March 7, 2006, 2 hours)

Naeem Abdurrahman, one of my former MgtOp 591 students, is the contact

*Confluent Data Systems, Wenatchee, WA. Critiqued their plan for entering the educational market with their exploratory data analysis software and cases (July 12, 2005 – July 30, 2005 13 hours)

Joe Montgomery is the contact.

*National Association of Purchasing Managers, Columbia Basin, WA. Prepared and delivered a talk on reverse auctions to the group (October 22, 2004 – November 5, 2004, 29 hours)

Sydney Swain at Framatome-ANP in Richland is the contact.

Service (continued):

- *Country Stores, Inc., Richland, WA. Help with salesperson reward system; formulate onion-potato planting optimization system (April 16, 2003 – December 31, 2003, 30 hours)

Developed a conceptual design for a crop selection optimization model for a local onion-potato grower. The model synthesized the subjective price estimates from their sales force and internal capacity constraints. Sponsored by one of my former MBA students, Hildred Nielson, a manager there.

- *Georgia-Pacific, Inc., Atlanta, GA. Advise management on vendor selection approaches for bid analysis systems; these systems maximize GP benefits on outsourced transportation (July 5, 2003 – July 11, 2003, 10 hours)

Bill Dujak is the contact at Georgia-Pacific. He contacted me after reading one of my Decision Sciences articles.

- * Profit Optimization Systems, Cooper City, FL. Brainstorm modeling approaches; critique data sources (March 1, 2002 – December 31, 2002, 50 hours)

Steve Pinchuk, president of POS, came across my winter 2002 Decision Sciences article and contacted me about helping with his startup company that deals with travel industry decision support. I spent time studying databases and conceptualizing algorithms for POS; the work is in the area of the article. This gives a new perspective on my teaching and research.

- *Shopperbox.com, Tacoma, WA, Advisor (October 1, 2000 – December 1, 2000, 50 hours)

John Reagh of the Washington Research Foundation (WRF) hooked me up with Shopperbox.com, a startup looking to lease Internet storage space to clients. WRF links emerging technology companies with Washington State research institutions, and they funnel money from successful outcomes back to the institutions. Over \$100,000,000 has been channeled back to the University of Washington via WRF over the last 20 years. John came across my 1999 Decision Sciences article on algorithms for the dynamic pricing of perishable assets, and he then contacted me. The paper essentially involves opening-closing service bundles (combinations of product type/advanced purchase restriction/add-ons/price) to maximize revenues given forecasted consumer behavior and capacity constraints. Shopperbox and I brainstormed modifying my algorithms for their pricing problem, but implementation never occurred.

Service (continued):

- *Six Continents Hotels, Atlanta, GA Advisor (January 1, 2000 – December 31, 2002, 26 hours)
Advice on modeling and analysis for their hotel pricing decision support system. This type of modeling has been one key research thrust for me. Mike Sultan was the contact.

- * Tri-Cities Business Journal, Wrote one article for publication consideration (March 16, 2003 – March 18, 2003, 12 hours)
Article demonstrates the usefulness of vehicle routing software for area businesses.

- *USBank, Kennewick, WA, Advisor (April 1, 2000 – May 1, 2000, 4 hours)
Don Odegard, one of my MgtOp 340 students, asked me to critique the efficiency of a titanium wheelchair manufacturing facility for the bank. I use this experience to illustrate process design and materials management concepts in 340.

- *Watts Brothers Frozen Foods, Paterson, WA, Advisor (September 1, 2000 – December 31, 2003, 48 hours)
One of my former MgtOp 340 students, Don Odegard, solicited my help in designing a statistical process control system for his food processing company. I also critiqued inventory management practices, and I serve as a screener for job candidates. Gave them advice in preparation for integration talks with ConAgra Foods.

Government (pro bono consulting related to operations management)

- *Department of Energy, Office of River Protection, Richland, WA. Helping improve deliverable tracking system for nuclear waste clean-up efforts by contractors.

Dragana Etheridge is the contact, one of my MgtOp 589 students

- *Pacific Northwest National Laboratory (PNNL), Richland, WA. Did some background research on the theoretical underpinnings of the SCRUM software development methodology (June 8, 2007, 5 hours)

Bruce Jorgensen, one of my former MgtOp 581 students, is the contact.

- *Pacific Northwest National Laboratory (PNNL), Richland, WA. Consulted on a multiattribute decision analysis model to be used in high-value property disposal decisions (August 22 – November 15, 2005, 35 hours)

Dennis Walters, one of my former MgtOp 540 students at PNNL, is the contact

- * Pacific Northwest National Laboratory, Richland, WA, Brainstorm quality improvement initiatives in software development area (May 1, 2002 – June 8, 2007, 25 hours)

Bruce Jorgensen, one of my former MgtOp 340 and 581 students, asked me to evaluate his proposal for improvements to his software support group. I augmented his proposal with approaches for staff scheduling (trading off cost against service quality), optimal capacity setting on the Internet gateway (minimizing critical flow times subject to providing adequate all-around service), and other improvement suggestions (better incentive systems, culture changes, better training). Some of these ideas will be used to illustrate MgtOp 540 optimization applications.

Service (continued):

- *United States Coast Guard, Alameda, CA, Advisor (August 3, 2004, 6 hours)

Critiqued waterway user survey methodology—users of waterways queried on various aspects of waterway quality. Steve Walters is the contact.

- *Pasco Unified School District (August 19, 2004, 4 hours)

Identified suitable materials for teaching math modeling to high school students. Janae Loeber is the contact.

- * United Way of Kennewick, WA, Comment on statistical methods and modeling (January 1, 2002 – December 31, 2002, 30 hours)

Kevin O'Neal of United Way approached me about critiquing and improving their software for tracking the effectiveness of welfare caseworkers, along with software for evaluating Olympia policies that are handed down to them. I worked with Kevin to develop better performance metrics. They are now better equipped to isolate the main and interaction effects of specific policies on agency goals. The analysis was used in a proposal for statewide policy reform that Kevin presented. This work helps my MgtOp 540 presentations on data mining and regression.

Teaching philosophy

My primary objective is to move the students to their highest possible level in Bloom's taxonomy. Bloom's taxonomy describes these six stages of cognitive sophistication, presented in increasing order of complexity: knowledge, comprehension, application, analysis, synthesis, and evaluation. All lower stages must be mastered before one can process at a given level. My secondary objective is to emphasize concepts-techniques that the students believe are most relevant to their career goals. My third objective is to expose students to the latest and most significant concepts-techniques in the discipline.

My MgtOp 517/589 course uses the original Motorola Six Sigma process improvement paradigm and methods as the focal point of the class. Therefore, students have and can easily go on to earn Six Sigma green belts/black belts under my supervision in industry-sponsored projects. Four students have earned green belts under my supervision, and there are three black belt projects underway. My MgtOp 540 course is centered around a series of quantitative modeling cases that emphasize strategic decision making. These cases require the synthesis of many techniques and an implementation plan that considers the total business picture. My MgtOp 340 course is focused on my first objective in several ways. First, no class time is spent going over material that is well-explained in the readings. Instead, class time is devoted to active learning, with much emphasis on case discussions. A major part of the course is a term-long project performed in student teams for local businesses.

The content of MgtOp 540 is focused on general quantitative modeling: the art of modeling, as well as strategic applications of optimization and simulation. These skills are useful to a manager/entrepreneur in any sized business, service or manufacturing-oriented. The vast majority of students in this course do not work in high volume materials management businesses, the focus of operations management-supply chain management courses that I taught previously. Rather, they are heavily concentrated in information technology and electric power. Therefore, a general strategic modeling course is more useful to all as they progress to higher positions in their company.

My third objective is supported by the use of the latest readings-course materials in all classes.

Courses taught

*Doctoral program courses

-MgtOp 596 Doctoral Topics: Research Methods Seminar

Taught a three-hour semester course in autumn 2004, a WHETS (two-way interactive television) course to Pullman. The course covered qualitative and quantitative methods, focusing on research design (experiments and sampling), data collection (interviewing, scales, observation), and data analysis (qualitative and quantitative).

Taught a three-hour semester course in spring 2006. The course covered advanced experimental design and ANOVA and was aimed at behavioral researchers in the environmental science/regional planning program in Tri-Cities.

-MgtOp 598 Research and Professional Development

Taught two one-hour semester courses, videostreamed to Pullman. The course covered current research areas in management and operations, along with career guidance for new academics.

*MBA program courses

-MgtOp 591 Statistical Analysis for Business Decisions

Taught thirteen three-hour semester courses. Five were WHETS courses to Yakima and Wenatchee.

The courses covered analysis of variance, experimental design, regression model building, time series analysis, nonparametric methods, quality control, and survey design. The last version added basic data mining approaches and omitted nonparametric methods and quality control. The students performed projects with real data with respect to analysis of variance and regression.

Courses taught (continued):

-MgtOp 581 Operations Management

Taught six three-hour semester courses. Two two have been WHETS courses to Spokane, Yakima, and Wenatchee.

(version one) The first two courses covered operations strategy, process flow modeling (covering capacity management and inventory control), project management, quality control, and integrated systems.

-MgtOp 540 Deterministic Business Models

Taught nine three-hour semester courses. Three have been WHETS courses to Spokane, Vancouver, Yakima, and Wenatchee.

(version one) This was a revenue management course. It focused on concepts and implementation issues, along with the latest methods for demand forecasting, overbooking, and allocation.

(version two) The course involved the application of multiattribute decision analysis to strategic decisions in the firms that employed the students

(version three) A management science course that covered decision analysis, optimization, and simulation.

-MgtOp 517/589 Quality Control

Taught four three-hour semester courses. This course is oriented around giving students the background to obtain Lean/Six Sigma Green/Black Belt certificates through project work at local companies (e.g., Areva nuclear fuel rod manufacturing, materials management process redesign; Gesa credit union fraud detection process redesign). Formal topics include DMAIC, measurement error detection and reduction, experimental design, and survey design.

-MgtOp 600 Independent Study

Supervised eight three-hour semester courses. A value stream mapping project at AREVA (nuclear fuel manufacturer in Richland, WA) was undertaken in one course; an electric power risk analysis model design was undertaken in one course; an intensive study of process flow measurement and variability was undertaken in one course; decision theory was studied in two courses; neural network applications in another, and an inventory control analysis at AREVA was done in one course..

Courses taught (continued):

*Undergraduate courses

-MgtOp 340 Operations Management

Taught twenty three-hour semester courses.

-MgtOp 451 Business Statistical Analysis

Taught four three-hour semester courses. These were WHETS courses to Skagit Valley, Yakima, Spokane and Wenatchee.

-MgtOp 412 Statistical Methods for Management

Taught one three-hour semester course.

-MgtOp 470 Business Modeling with Spreadsheets

Taught one three-hour semester course

Committees-Advising

*Advisor to these doctoral students:

- Phillip Witt, 2012-ongoing
- Victor Pimentel, 2012-ongoing
- Brian Kulik 2000-2002
- Yong Lee 2002-2009

*Served/serving on these dissertation committees:

- Chieh Lee 2012-ongoing
- Joel Millsap (Environment Science/Regional Planning program) 2001-2006
- Brian Kulik defended September 2006
- Susan Barnes defended July 2005
- Victor Shi defended June 2007
- Yong Lee (chair) defended April 2009

*Served on these MBA/MTM oral exam committees:

- 2012: Dragana Etheridge, Cary Burrup, Ryan Welch, Patricia Long, Tony Smith, Albania Davis (Six Sigma green belt), Eric Franke
- 2011: Ken Idler (Six Sigma black belt), Matt Carter (Six Sigma black belt), Peter Mikkelsen (Six Sigma green belt), Ram Devanathan (Six Sigma green belt), John Skadorwa, David Sheppard, Jason Merrick, Brock Remy, Benjamin Hawkes, Ryan Rickenbach, Mark Garrett, Crystal Bates, Carl Shaw, Ty Deschamp, Josh Bohlke
- 2010: Joe Silveira (Six Sigma green belt), Corey Short (Six Sigma green belt), Kevin Ince (Six Sigma green belt), Jonah Nicholas, Mike Shaw (Six Sigma green belt), Jennifer Marshall, Kyle Corbaley
- 2009: Kim Williams, Donna Rice, John Madden
- 2008: Janae Loeber, John McMillan, Jerid Mauss, Naeem Abdurrahman, Ron Springer, Rob Dromgoole, Tim Hager
- 2006 Russell Swannack, Kevin Bazzell, Glenn Walley
- 2005: Mark Blankenship, Gary Duncan, Ken Kunzweiler, Lana Strickling
- 2004: Ken Cater
- 2003: Don Kurkjian, Tom Tomaszewski
- 2002: Derek Brice, Genia Carvo, Steve McDuffie, Justin Miller, Aimee Ozanich
- 2001: Susan Barnes, Greg Kvistad, Fred Maicco, Hildred Nielson
- 2000: Charlie George, Luzmarina Madden

Honors and Recognitions

Academy of Management

-Best Proceedings Paper Award (with Brian Kulik), Annual Meeting, 2007

Washington State University College of Business and Economics

-Outstanding Research Award, 2005

Decision Sciences Institute

-Best Interdisciplinary Paper Award (with Nagesh Murthy), Annual Meeting, 2004

Claremont McKenna College

-Graduation with Departmental Honors in Mathematics, 1980

-Outstanding Senior Award in Mathematics, 1980

-Claremont McKenna Merit Scholarship, 1979-80 academic year

Professional Associations

-Member, Decision Sciences Institute

-Member, INFORMS

-Member, Beta Gamma Sigma honorary business education society

Business Experience

Intercontinental Hotels, Atlanta, GA, 1996-1999, Head of Revenue Management Research

Simat, Helliesen, and Eichner Aviation Consultancy, Cambridge, MA, 1994-1996, Associate Consultant

United Technologies Advanced Military Systems, San Diego, CA, 1986-89, Lead Operations Research Analyst

Dyncorp, San Diego, CA, 1984-86, Operations Research Analyst.

Chevron, Los Angeles, CA, 1982-84, Operations Research Analyst.