
David J. Scarborough PHD, SCP
Assistant Professor of Management
School of Business
Western New Mexico University
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Education

Ph.D. University of North Texas, Management, 1995.

M.B.A. North Texas State University, Human Resource Management, 1981.

B.A. Texas Christian University, Psychology, 1979.

Professional Certification

Senior Certified Professional, Society for Human Resource Management, 2015,
Recertified in 2018.

Professional Memberships

Society for Industrial and Organizational Psychology, Div. 14 of the APA. (1996-)

Society for Human Resource Management, (1979- present)

Southern New Mexico Society for Human Resource Management (2016-

Black Hills Society for Human Resource Management (2006-2016) Board
member and Certification Trainer

Association for Computing Machinery (2006-2011)

Academy of Management (2001-2011)

American Psychological Association (1996-2011)

Association for the Study of Peak Oil (2006-2010)

Human Resources Advisory Board, Educational Foundation of the National

Restaurant Association ((2004-2007)

International Neural Network Society of the IEEE (2003-2004)

Work Experience

Assistant Professor of Management, School of Business, Western New Mexico University (2016-present). Teach upper division course work in Management (classroom and online using Canvas platform). Advise students, conduct research and serve university, professional and local communities.

Principal, Scarborough Analytics, (2011- present). Consulting practice in Human Resource Information Systems design and implementation, workforce analytics and HR technology strategy.

Technical Advisory Board Member, Pymetrics, Inc. (2014-present)

Professor of Human Resource Management, School of Business, Black Hills State University (2012-2016). Teach upper division and graduate coursework in Management, Organizational Behavior and Human Resource Management (classroom and online using D2L platform). Program coordinator for the HRM specialization and advisor to the BHSU student chapter of SHRM. Advise

students, conduct research and serve university, professional and local communities.

Scientist at Large, Kronos Hiring Solutions Group Inc., (2006 – 2011). Model development and Employee selection test validation research and model development, HR strategy and workforce management consulting. Concurrent with academic job at BHSU.

Associate Professor of Human Resource Management, School of Business, Black Hills State University (2006-2012)

MBA Program Director (2009-2012) Appointed to lead implementation of new MBA program. Coordinated planning, curriculum development, Board of Regents approval and student recruiting for first classroom- delivered MBA program to be offered in Western South Dakota. Administrative and teaching responsibilities for the first two academic years of the program.

Chief Scientist, Unicru Inc., (2003-2006) - Responsible for hiring management system product development, neural network-based employee selection systems design, criterion validation research, utility analysis of employee selection programs, manage R&D staff, media representative.

Director, Workforce Analytics, (2001-2003). Led team of analysts, engineers and managers in the development of Unicru's web-based workforce analytics reporting capability. Maintained previous responsibilities for product development and validation research.

Manager, Validation Research, (1999–2001). Supervised team of industrial psychologists and engineers responsible for design, delivery, norming and validation of electronically administered psychological testing programs for employee selection.

Senior Consultant, Saville&Holdsworth PLC. LTD., (1997-99). Managed Dallas office of international Industrial/Organizational Psychology (I/O) consulting firm, responsible for employee selection systems design, executive assessment for selection and development, job analysis, validation research, strategic HR consulting.

Adjunct Faculty, University of Dallas Graduate School of Management (1998) Taught Organizational Behavior in the evening MBA program.

Manager, Research & Development, Batrus Hollweg Ph.D.s Inc. (1995-97). Managed R&D for niche I/O consulting firm. Employment test validation research, employee surveys, strategic HR consulting.

Visiting Instructor, University of Texas of the Permian Basin.(1993-95). Taught undergraduate HR, OB and MGMT graduate and undergraduate classes while completing dissertation.

Senior Analyst, Personnel Research, American Airlines Inc. (1989-93). Employment test validation research, performance appraisal system design, survey development and data analysis, utility and adverse impact analysis.

Senior Employment Representative, Bell Helicopter-Textron Inc. (1987-89). Recruiter of managerial and technical staff, coordinator of outplacement program. employment test validation research.

Labor Relations Representative, General Dynamics Fort Worth Division, (1985-87). Job analysis, grievance resolution, arbitration, salary surveys.

College Recruiter, General Dynamics Data Systems Division, (1983-85). Recruited engineers and business graduates nationally.

Employment Manager, Harris Methodist Health System, (1982-83). Recruited Hospital Administrators, business, information technology and other non-medical personnel.

Human Resources Representative, Redifusion Simulation Inc. (1981-82). Job analysis, employment interviewing.

Employment Representative, Fort Worth National Bank, (1978-1979). Non-exempt interviewing, applicant flow and adverse impact data analysis.

Mental Health Worker, Psychiatric Institute of Fort Worth, (1976-1979). Psychiatric attendant duties, patient observation, behavioral intervention, group therapy participation and minor medical record keeping.

Scholarly Contributions (SC)

Autor, D. and Scarborough, D. (2008). [Does Job Testing Harm Minority Workers? Evidence from Retail Establishments](#) *Quarterly Journal of Economics*, Vol.123, No. 1, Pages 219-277.

Autor, D. & Scarborough, D., (2007) "Will job testing harm minority workers?," in *Economics of Labor and Employment Law*, Volume II, Chapter 14. Statistical Discrimination, pages 473-528.

Scarborough, D. & Somers, M., (2006). [Neural Networks in Organizational Research: Applying pattern recognition to the analysis of organizational behavior](#), APA Books Inc., Washington D.C.

Chambless, B. & Scarborough, D. (2001). "Information theoretic feature selection for a neural behavioral model". *Proceedings of the International Joint Conference on Neural Networks of the IEEE*, Washington D.C.

Scarborough, D. (1996). Tutorial on the use of neural networks for personnel selection. *Theory and Applications: Proceedings of the Decision Sciences Institute Southwest Region, 27th Annual Conference*, pp. 151-153. San Antonio.

Intellectual Property (IP)

Scarborough, D. et.al. (2012) [U.S. Patent #8,265,977](#) Electronic employee selection systems and methods.

Scarborough, D. et. al. (2011) [U.S. Patent #8,046,251](#) Electronic employee selection systems and methods.

Scarborough, D. et. al. (2009) [U.S. Patent #7,562,059](#) Development of electronic employee selection systems and methods.

Scarborough, D. et.al. (2009) [U.S. Patent #7,558,767](#) Development of electronic employee selection systems and methods.

- Scarborough, D. et al. (2008) [U.S. Patent #7,472,097](#) Employee selection via multiple neural networks.
- Scarborough, D. et. al. (2007) [U.S. Patent #7310626](#) Electronic employee selection systems and methods.
- Scarborough, D. et al. (2006). [U.S. Patent #7,080,057 B2](#) An automated electronic employee selection process and hiring recommendation system using on-line criterion validation data collection, artificial intelligence-enabled adaptive learning and electronic results reporting. (Original filing, August 3, 2000) and International patent application #PCT/US01/24323.
- Scarborough, D. et al. (2005). U.S. Provisional Patent #[20050273350](#). Electronic employee selection systems and methods.
- Scarborough, D. et al. (2005). U.S. Provisional Patent # [20050246299](#). Electronic employee selection systems and methods.
- Scarborough, D. et al. (2005). U.S. Provisional Patent # [20050114279](#). Development of Electronic employee selection systems and methods.
- Scarborough, D. et al. (2002). U.S. Provisional Patent # [20020046199](#). Electronic employee selection systems and methods.
- Scarborough, D. et al. (2002). U.S. Provisional Patent # [20020042786](#). Development of electronic employee selection systems and methods.
- Scarborough, D. (2001) "Smart Assessment[®]: Adaptive Behavioral Modeling for Electronic Employee Selection Decision Support." Unicru White Paper #1.
- Scarborough, D. (2001). "What is an artificial neural network?" Unicru White Paper #2.
- Chambless, B. and Scarborough, D. (2001). "Smart Assessment[®] research notes: Development of a neural network behavioral prediction model to forecast the probable tenure of Customer Service Applicants." Unicru White Paper #3.

Peer Reviewed Conference Presentations

- Cohen, M. Liff, J., Mondragon, N., Panico, C., Scarborough, D. (2017). [Next Generation Assessment: The State of Innovations in Selection Science](#). Panel Discussion at the 32nd Annual Conference of the Society for Industrial and Organizational Psychology, Orlando.
- Scarborough, D. (2014). Chair, "Big Data in I-O Psychology," Presented [Interpreting an Employee Selection Neural Network](#). Symposium at the 29th Annual Conference of the Society for Industrial and Organizational Psychology, Honolulu.
- Scarborough, D. (2013). "[Master Tutorial: New procedures for measuring correlation: Introducing MIC and MINE](#)." [Presentation at the 28th Annual Conference of the Society for Industrial and Organizational Psychology](#), Houston.
- Jetton, M., Thissen-Roe, A. & Scarborough, D. (2011). BASE SAS (R) Implementation of information theoretic feature selection for a neural behavioral model. SAS Global Forum. Paper 150-2011. Las Vegas.
- Scarborough, D. (2010). "[Master Tutorial: Using surface response graphs to visualize interaction effects in multidimensional data](#)." Session 151, 26th Annual Conference of the Society for Industrial and Organizational Psychology. Atlanta.

- Scarborough, D. (2009). "Neural networks in selection research." U.S. Army Accessions Research Consortium, Hampton, Virginia.
- Johnson, A. & Scarborough, D. (2008). "The Causes of Rising Fuel Prices and their Effect on International Business Infrastructure." South Dakota International Business Conference, Rapid City, SD.
- Scarborough, D. (2008). "Data mining applications in employee selection." Human Capital Metrics Conference; Advances in Analytics. Jac Fitz-Enz, Chair. The Conference Board, New York.
- Scarborough, D. and Somers, M. (2008). "[Master Tutorial: Update on the use of neural networks in I/O Psychology](#)." Session 114, Society for Industrial and Organizational Psychology Annual Conference. San Francisco.
- Thissen-Roe, A.; Scarborough, D.; Chambless, B. & Hunt, S. (2006) "[Inadvertent honesty: occurrence and meaning of applicant faking in unproctored personality tests](#)". Session #27 presented at the annual meeting of the Society for Industrial-Organizational Psychology, Dallas, Texas.
- Thissen-Roe, A., Scarborough, D., Chambless, B. & Jetton, M. (2005). "A computerized assessment system to predict the performance of sales associates." Submitted to *Behavior Research Methods*, paper presented at the Psychonomic Society Annual Conference, Toronto, Ontario.
- Hunt, S.T., Harris, M.M, Adamowicz, J., Bartram, D., Handler, C., Mondragon, N., Scarborough, D. (2005). [Legal and data security issues affecting internet based selection methods](#). Panel discussion #73 and paper presented at the 20th Conference of the Society for Industrial and Organizational Psychology, Los Angeles, CA.
- Truxillo, D., Gibby, R., Hemingway, Hunt, S.T., M., Irwin, J., Scarborough, D. (2004). "[Internet pre-screening: Does it lead to better hiring decisions?](#)" Panel discussion #38 and paper presented at the 19th Conference of the Society for Industrial and Organizational Psychology, Chicago, Illinois.
- Autor, D. and Scarborough, D. (2004). "Screening for Hourly Wages Jobs: Is there a tradeoff between efficiency and equality?" National Bureau of Economic Research Summer Conference, Cambridge, MA.
- Scarborough, D. and Somers, M. (2002). "[Dust bowl empiricism on steroids: A data mining approach to employee selection](#)" part of "The real A.I.: Artificial neural networks, statistics and psychological theory." Symposium 109, SIOP, Toronto, 2002.
- Scarborough, D. J., Bank, J., Bigby, D. G., Handler, C. A., Klein, S. R., Mondragon, N. J., & Ostberg, D. E. (2002). "[Should We Use the Unproctored Internet to Collect Applicant Data?](#)" Panel discussion #130 presented at the 2002 Society for Industrial and Organizational Psychology Conference. Toronto, Ontario.
- Scarborough, D. and Somers, M. (2001) "[Leveraging New Technology: Using artificial neural networks for applied problem solving](#)," Pre-conference workshop, Society for Industrial and Organizational Psychology, San Diego, California.
- Mitchell, T., Brown, S., Callender, J., Colquitt, A., Eidson, C., Futrell, D., Johnson, S., Ludwick, M., McTague, T., Papper, E., Russell, C., Scarborough, D., Warmke, D. (2000). "[Automated Technologies for Biodata](#)

[Prediction Systems](#),” Panel discussion #140, Society for Industrial and Organizational Psychology Annual Conference, New Orleans.

Current Working Paper

“[A protocol for interpreting employee selection neural networks](#).” This paper describes and applies three procedures used to evaluate and interpret a neural model of criterion validity used in a hiring decision support system. Information theoretic feature selection is used to identify and rank independent variables that contribute to model processing. Connection weights between nodes in a trained neural network can then be partitioned to confirm that the connection weight matrix has aligned with the high-contribution IVs. Multivariate graphing procedures (surface response diagrams, mosaic plots, bivariate histograms) are used to interpret neural processing in the context of behavioral theory. This hyperlink above was presented at the SIOP conference in May 2014 (see conference presentations below).

Contributions to Practice (CTP)

Board member and Certification Trainer: Black Hills Society for Human Resource Management (2014-2016).

Reviewer: Society for Industrial/Organizational Psychology Annual Conference Submissions (2012-present)

Scarborough, D. (2011). “South Dakota demographics and compensation policy.” State of South Dakota Human Resources Planning Forum, Deadwood, SD.

Scarborough, D. (2011). “Picking the winners: Practical tips for hiring in a recession.” Golden West Communications Annual Management Conference, Deadwood, SD.

Scarborough, D. (2010). “Electronic employee selection methods: Leveraging technology to assist client job search.” South Dakota Department of Labor In-Service. Pierre, SD.

Scarborough, D. (2010). “Intergenerational differences in the workforce: Managing the millenials.” Golden West Communications Annual Management Conference. Deadwood, SD

Scarborough, D. (2010). [U.S. Army Mad Scientist Future Technology Conference](#). Newport News. Invited panel discussion.

Scarborough, D. (2008). “A primer on peak oil and sustainable economic development for human resource professionals.” Wyoming Society for Human Resource Management Annual Conference, Casper.

Scarborough, D. (2007). & Kraus, A. “Ask the scientists: Mining for gold in payroll data.” KronosWorks Annual Conference, Las Vegas.

Kraus, A. and Scarborough, D.(2007) “Ask the Scientists: The psychology of hiring hourly employees.” KronosWorks Annual Conference, Las Vegas

Scarborough, D. (2005) “Using technology for competitive advantage in a tight labor market” California Restaurant Association. Western Foodservice & Hospitality Expo, Los Angeles.

Scarborough, D. (2005) “Best practice case study: Gaining competitive advantage through hiring automation.” National Restaurant Association Annual Conference, Chicago, 2005.

- Scarborough, D. (2003). "Froggy brains, data mining and behavioral prediction: Understanding Smart Assessment." Center for Professional Development Lecture Series, Oregon Graduate Institute, Portland.
- Scarborough, D. (2001). "Taxonomy of Turnover." Ernst & Young Human Capital Management Conference, Dallas.
- Scarborough, D. (2001). "Introducing an innovative product in a market with entrenched competition." Center for Professional Development Lecture Series, Oregon Graduate Institute, Portland.
- Scarborough, D. (1997) "A Comprehensive Survey of Characteristics, Needs and Attitudes of Foodservice and Non-Foodservice Employees," Industry of Choice, The Educational Foundation, National Restaurant Association (1996). Principal investigator for Phase II and co-author. Contract research under grant from Coca-Cola U.S.A. Results were presented at three national and international hospitality industry conventions (COEX '97, CHART '97, and the CHRIE Educator/Industry Forum of the NRA Convention, Chicago, 1997).

Media Projects, Appearances, Quotations (MP)

- Fisman, R. (2009). "[Testing Testing: Employment tests may be racially biased but what if they're less biased than human beings?](#)" Slate Magazine, Mar.3.
- O'Connell, V. (2009). "[Test for dwindling retail jobs spawns a culture of cheating.](#)" The Wall Street Journal, January 7, 2009 (page 1). Interviewed and quoted.
- Scarborough, D. Barr, R. Earl, S. and Happy Trails Animation, Inc. (2008). [Kronos Marketing Video](#). Spokesperson, script writer and narrator. *This video won a 2008 Summit Marketing Effectiveness Award in the "Corporate/Image" category.* Frauenheim, E., "Unicru beefs up data in latest screening tool," Workforce Management, 85(5) (March, 2006). Interviewed and quoted.
- Pallack, B. (2006). "[Applying for jobs becomes faceless.](#)" Arizona Daily Star, July 31. Interviewed and quoted.
- "[Online Applications for Hourly Jobs Skyrocket.](#)" (2006). Fast Casual Magazine, June 27. Interviewed and quoted.
- "[Unicru Beefs Up Screening Tool.](#)" Workforce, March 17, 2006.
- "[Dealing with Teenage Workers.](#)" (2006). Restaurant Business News. Feb. 11. Interviewed and quoted.
- Rafter, M. "Unicru breaks through in the science of "smart hiring." Workforce Management 84(5), 76-78. (May, 2005). Interviewed and quoted.
- "[Unicru unveils Frontline Reliability Assessment; Largest study of its kind produces next-generation screening tool fo improving employee reliability.](#)" (2005) Businesswire. Interviewed and quoted.
- Frazier, M. "Help Wanted." Chain Store Age, April 2005, 81(4), 37-39. Interviewed and quoted.
- "Safety first: Hire conscientious employees to cut down on costly workplace accidents." (2005). Nation's Restaurant News, 40(16) 22-24. Interviewed and quoted.
- "[In Retail Can a Shrink Shrink Shrink?](#)" FierceRetail. Aug. 27, 2004.
- Jacobs, L. (2004). "[Filtering Job Applicants by Computer.](#)" ABCNEWS Radio. Sept. 3. Interviewed and quoted.

Overhold, A. (2002) "[True or False: You're hiring the right people.](#)" Interviewed for feature article in *Fast Company Magazine*. Interviewed and quoted.

Meredith, J.(2001), "[A.I. identifying steady workers: E-recruiting firm offering tool to determine how long job seeker will stay around.](#)" Chicago Tribune, July, 17 2001. Interviewed and quoted.

"Industry increases applicant screening amid labor surplus, security concerns," Nations Restaurant News, 36(8). Interviewed and quoted.

Intellectual Contributions Summary Grid

Category	CTP	IP	MP	SC	Total
Articles in Refereed Journals				1	1
Published Conference Proceedings (Peer reviewed)				2	2
Conference Presentations (Peer reviewed)	19				19
Presentations at Industry, Government and Corporate Conferences (non-refereed)	13				13
Media Projects, Press Appearances, quotations			9		9
Other Research Contributions Book				1	1
Book chapter				1	1
Grant Research Monograph	1				1
Patents and Patent Apps.		15			15
Totals	33	15	9	5	62

Western New Mexico University Service

Current Committee Assignments at WNMU:

- Salary & Benefits Committee
- Research Committee
- Search Committee: Assistant Professor of Marketing
- Threat Assessment Committee
- ACBSP Re-Accreditation Committee
- WNMU Studio G Business Incubator, Champion
- Delta Mu Delta Honor Society, Faculty Advisor