Marita A. O'Brien

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Education

Ph.D. Georgia Institute of Technology, Engineering Psychology

(2010); Minor: Cognitive Aging

Thesis: Understanding Human-Technology Interactions: The

role of prior experience and age.

M.S. Georgia Institute of Technology, Engineering Psychology

(2006)

Thesis: Effects of shape, letter arrangements, and practice on text

entry on a virtual keyboard.

M.S. University of Colorado, Boulder, Telecommunications (1994)

Thesis: Personal mobility services and intelligent networks.

A.B. Duke University, Math/Economics (1988)

Academic Positions

Assistant Professor of Psychology, University of Alabama in Huntsville, January 2010 - present.

Lecturer, University of Alabama in Huntsville, August 2009 – December 2009.

Instructor, Georgia Institute of Technology, Atlanta, GA. May-August 2008.

Teaching

Courses Taught

- General Psychology
- Perception
- Human Research I
- Lifespan Development
- Human Factors Psychology (undergraduate and master's), Distance Learning
- Decision-making and Human Error seminar (undergraduate and master's)
- Research Design (master's)

Guest Lectures

- Thinking/Problem Solving, Decision-Making, Attention, Situation Awareness, Stress & Sleep Management, Social Perception & Influence (Professional course for NASA conducted in 2011, 2012, 2013). *Behavioral Concepts of ISS Payload Operations Integration*. UAHuntsville, Division of Professional and Continuing Studies, for NASA/Teledyne Brown.
- Facilitator: Systems Analyst Orientation. Deloitte Consulting

Students Supervised

Master's Graduate Students, Fall 2014; Spring-Fall 2013; Fall 2012; Fall 2011 Research and Creative Experience for Undergraduates, Summer 2012, 2010 President's Undergraduate Research Award, Summer 2009; Spring 2006 Senior Undergraduate Thesis, 2007-2008

Publications Under Revision

O'Brien, M.A., (under revision), Essential household capabilities for community resilience during a post-tornado blackout. *International Journal of Mass Emergencies and Disasters*.

Publications

O'Brien, M. A., and Shreeves, M. (2013). Evaluating the interactive social-cognitive model for explaining non-compliance to disaster warning. In *Proceedings of the HFES Annual 57th Meeting.* (pp. 1702-1706). Santa Monica, CA: Human Factors and Ergonomics Society.

Shreeves, M., and **O'Brien, M. A.** (2013). Decision-making and information use among residents during an extended natural disaster. *Proceedings of the HFES Annual 57th Meeting.* (pp. 1770-1774). Santa Monica, CA: Human Factors and Ergonomics Society.

Rogers, W.A., **O'Brien, M.A.,** & Fisk, A.D., (2013), Cognitive engineering to support successful aging. In J. Lee & A. Kirlik (Eds.), *Oxford Handbook of Cognitive Engineering.* (pp. 286-301). Oxford, England: Oxford University Press.

O'Brien, M.A., Bass, E.J., Bliss, J.P., Cooke, N.J., Kalsher, M.J., & Mayhorn, C.B. (2012). Improving residents' response to disaster warnings: A discussion panel. In *Proceedings of the 56th Annual Human Factors and Ergonomics Society Meeting.* (pp 2036-2039). Santa Monica, CA: Human Factors and Ergonomics Society.

O'Brien, M.A., Rogers, W.A., & Fisk, A.D. (2012). Understanding age and technology experience differences in use of prior knowledge for everyday technology interactions. *ACM Transactions on Accessible Computing, 4*(2), Article 2, doi: 10.1145/2141943.2141947.

Mitzner, T.L., **O'Brien, M.A.**, & Rogers, W. A. (2012). Emerging technologies for health care and aging. In *CHI EA '12 Extended Abstracts on Human Factors in Computing Systems*. New York: ACM.

O'Brien, M.A. & Rogers, W.A., (2012), Design for aging: Enhancing everyday technology Use. In R.Z. Zheng, R.D. Hill, & M.K. Gardner (Eds.), *Engaging Older Adults with Modern Technology: Internet Use and Information Access Needs* (pp. 105-123). Hershey, PA: IGI Publishing.

- **O'Brien, M.A.,** Weger, K., DeFour, M.E., & Reeves, S.M. (2011), Examining the role of age and experience on use of knowledge in the world for everyday technology interactions. In *Proceedings of the 55th Annual Human Factors and Ergonomics Society Meeting.* (pp 177-181), Santa Monica, CA: Human Factors and Ergonomics Society.
- Olson, K. E., **O'Brien, M.A.,** Rogers, W.A., & Charness, N. (2011). Diffusion of technology for younger and older adults. *Ageing International*, *36(1)*, 123-145. doi: 10.1007/s12126-010-9077-9.
- **O'Brien, M.A.,** Rogers, W.A. & Fisk, A.D., (2010), Understanding the role of experience in younger and older adults' interactions with a novel technology. In *Proceedings of the 54th Annual Meeting of the Human Factors and Ergonomics Society* (pp. 1827-1831), San Francisco.
- **O'Brien, M.A.**, Rogers, W.A., & Fisk, A.D. (2010). Does prior experience mitigate age-related differences in interactions with a Kindle electronic book reader? *Gerontechnology*, *9*(2), 235.
- Cullen, R.H., **O'Brien, M.A.**, Rogers, W. A., & Fisk, A. D. (2009). The persistence of content knowledge. In *Proceedings of the 53rd Annual Human Factors and Ergonomics Society Meeting* (pp 955-959), Santa Monica, CA: Human Factors and Ergonomics Society.
- **O'Brien, M.A.**, Rogers, W.A., Fisk, A.D., & Richman, M. (2008), Assessing design features of virtual keyboards for text entry. *Human Factors*, *50*, 680-698.
- **O'Brien, M.A.,** Rogers, W.A., & Fisk, A.D. (2008). Text entry interface design requirements at a glance. *Ergonomics in Design, 16 (4),16-22.*
- **O'Brien, M.A.**, Rogers, W. A., & Fisk, A. D. (2008). Developing a framework for intuitive human-computer interaction. In *Proceedings of the 52nd Annual Human Factors and Ergonomics Society Meeting* (pp 1645-1649), Santa Monica, CA: Human Factors and Ergonomics Society.
- **O'Brien, M.A.**, Olson, K.E., Charness, N., Czaja, S.J., Fisk, A.D., Rogers, W.A. & Sharit, J. (2008). Understanding technology usage in older adults. In *Proceedings of the 6th International Society for Gerontechnology (ISG08)* (CD-ROM Paper No. ICT-014). Pisa, Italy: International Society for Gerontechnology.
- **O'Brien, M.A.,** Rogers, W.A., & Fisk, A.D., (2008), Evaluating design features that affect older adults' performance on common computer tasks. In A. Mihailidis, J. Boger, H. Kautz, & L. Normie (Eds.), *Technology and Aging. Selected Papers from the 2007 International Conference on Technology and Aging: Vol. 21 Assistive Technology Research Series* (pp. 223-230). Amsterdam: IOS Press.
- Rogers, W. A., McLaughlin, A. C., & **O'Brien, M. A**. (2006). Selection and design of input devices for assistive technologies. In *Proceedings of the 9th International Conference on Control, Automation, Robotics, and Vision* (pp.92-97), New York: IEEE.

- **O'Brien, M.A.**, Rogers, W. A., & Fisk, A. D. (2006). Text entry on a virtual keyboard: Evaluating shape and practice effects. In *Proceedings of the 50th Annual Human Factors and Ergonomics Society Meeting* (pp. 747-751). Santa Monica, CA: Human Factors and Ergonomics Society.
- Caine, K. E., **O'Brien, M. A.**, Park, S., Rogers, W. A., Fisk, A. D., Van Ittersum, K., Capar, M. & Parsons, L. J. (2006). Understanding acceptance of high technology products: 50 years of research. In *Proceedings of the 50th Annual Human Factors and Ergonomics Society Meeting* (pp. 2148-2152). Santa Monica, CA: Human Factors and Ergonomics Society.
- **O'Brien, M.A.,** Rogers, W.A., & Fisk, A.D (2005). Examining keyboard shape and arrangement effects for younger and older adults. In *Proceedings of the 49th Annual Meeting of the Human Factors and Ergonomics Society* (pp. 172-176). Santa Monica: CA: Human Factors and Ergonomics Society.
- **O'Brien, M.A.** (2004). Keyboard shape and arrangement effects on keyboard design elements. In *Proceedings of the 48th Annual Meeting of the Human Factors and Ergonomics Society* (pp. 2147-2151). Santa Monica, CA: Human Factors and Ergonomics Society.

Presentations

- Alexander, S. & **O'Brien, M.A.,** (Under review), Nurse practitioner students' comfort with technology in clinical learning: A descriptive study. Submitted to *American Association of Nursing Practitioners 2014 Annual Conference.*
- Blakeley, V. & **O'Brien, M.A.** (Accepted). Understanding younger and older adults' differences in tornado knowledge. *2014 Cognitive Aging Conference*.
- Frazier, M.J., **O'Brien, M.A.,** & Schultz, E.V. (Accepted), Evaluating lead time differences on residents' responses to a tornado warning. *Special Symposium on Severe Local Storms: The Current State of the Science and Understanding Impact.* 2014 Annual Meeting of the American Meteorological Society.
- Tucker, P., **O'Brien, M.A.**, & Schultz, E.V. (Accepted), Understanding knowledge of tornado protective actions in a tornado-prone community. *Special Symposium on Severe Local Storms: The Current State of the Science and Understanding Impacts*. 2014 Annual Meeting of the American Meteorological Society.
- **O'Brien, M.A.**, & Schultz, E.V. (October 2013). *Examining tornado risk communications and the public's knowledge to take action in Huntsville, AL.* Annual Meeting of the National Weather Association. Charleston, SC.
- Myers, L., Carrasco, G., & **O'Brien, M.A.** (December 2012), Societal impacts and weather: Understanding public response to severe weather events and integrating meteorology and social sciences to improve our partnerships and better serve our users. Presented at the 2012 National Weather Service Tennessee Valley Partners Workshop, Huntsville, AL
- **O'Brien, M.A.,** Bass, E.J., Bliss, J.P., Cooke, N.J., Kalsher, M.J., & Mayhorn, C.B. (October 2012). *Improving residents' response to disaster warnings: A*

- discussion panel. Annual Meeting of the Human Factors and Ergonomics Society Meeting. Boston, MA
- **O'Brien, M.A.** & Frost, A. (May 2012), *Engaging the digital generation through online assignments*. Presented at the 2012 UA System Scholars' Institute, Birmingham, AL.
- **O'Brien, M.A.** (July 2012). Everyday technologies after a Disaster: Examining consumer usage during an extended power outage. Presented at the 37th Annual Natural Hazards Research and Applications Workshop 2012, Broomfield, CO.
- Weger, K., & **O'Brien, M.A.** (April 2012). *Understanding younger and older adults' preferences for learning to use everyday technologies*. Presented at the 2012 Cognitive Aging Conference, Atlanta, GA.
- **O'Brien, M.A.** (April 2012). The role of instructions and social support in the use of technologies among older adults, Alabama Gerontological Society Annual Meeting, Presented at Alabama Gerontological Society Annual Meeting, Huntsville, AL.
- **O'Brien, M.A.,** Weger, K., DeFour, M.E., & Reeves, S.M. (Sept. 2011). Examining the role of age and experience on use of knowledge in the world for everyday technology interactions. Annual Meeting of the *Human Factors and Ergonomics Society Meeting*. Las Vegas, NV.
- **O'Brien, M.A.** (Sept. 2011). Cognitive engineering to support an aging workforce. Presented at INCOSE Professional Meeting (International Council on Systems Engineering), Tennessee Valley Chapter, Huntsville, AL.
- Jordan, M., Weger, K., **O'Brien, M.A.**, O'Neill, J., & Whitt, A. (April 2011). *Effects of work backgrounds and interests on technology use and computer experience*. 2011 Human Factors and Applied Psychology Conference, Daytona Beach, FL.
- **O'Brien, M.A.,** DeFour, M.E., & Reese, S.M. (Jan. 2011). Assessing age and experience effects on use of external resources in technology interactions. UAB Geriatric Education Conference, Birmingham, AL.
- **O'Brien, M.A.,** & Reese, S.M., (Nov. 2010). *Examining training support use by older and younger adults for everyday technology interactions.* 63rd Scientific Meeting of the Gerontological Society of America (GSA), New Orleans, LA.
- **O'Brien, M.A.,** Rogers, W.A. & Fisk, A.D. (Oct. 2010). *Understanding the role of experience in younger and older adults' interactions with a novel technology*, 54th Annual Meeting of the Human Factors and Ergonomics Society, San Francisco.
- **O'Brien, M.A.,** Rogers, W.A. & Fisk, A.D. (May 2010). Does prior experience mitigate age-related differences in interactions with a Kindle electronic book

- *reader?* Presented at 7th World Congress of the International Society for Gerontechnology, 2010, Vancouver, BC.
- **O'Brien, M.A.,** Burnett, J.S., Rogers, W.A. & Fisk, A.D. (April 2010). *Understanding age-related problems in use of everyday technologies*. Presented at the Cognitive Aging Conference, Atlanta, GA.
- **O'Brien, M.A.,** Rogers, W.A., & Fisk, A.D. (Nov. 2009). The role of prior experience in everyday technology interactions. Presented at the *62nd Annual Scientific Meeting of the Gerontological Society of America (GSA)*. November 18-22, 2009. Atlanta, GA.
- **O'Brien, M.A.**, Rogers, W. A., & Fisk, A. D. (April, 2009). Discerning prior knowledge use by older adults in human technology interactions. Presented at the *Southern Gerontological Society Annual Meeting*, April 16-19, 2009, St. Petersburg, FL.
- Olson, K.E., **O'Brien, M.A.**, Rogers, W. A., & Fisk, A. D. (April, 2009). Understanding the potential for technology to support caregivers. Presented at the *Southern Gerontological Society Annual Meeting*, April 16-19, 2009, St. Petersburg, FL.
- **O'Brien, M.A.**, Rogers, W. A., & Fisk, A. D. (September, 2008). Developing a framework for intuitive human-computer interaction. Presented at the *52*nd *Annual Human Factors and Ergonomics Society Meeting*, September 22-26, 2008, New York.
- **O'Brien, M.A.**, Rogers, W. A., & Fisk, A. D. (September, 2008). Understanding intuitive technology use in older persons. Presented at the 9th Global Conference on Ageing: Ageing Design Montreal, September 4-7, 2008, Montreal, Quebec, Canada.
- **O'Brien, M.A.**, Olson, K.E., Charness, N., Czaja, S.J., Fisk, A.D., Rogers, W.A. & Sharit, J. (April, 2008). *Understanding technology usage for younger and older adults*. Presented at the 11th Cognitive Aging Conference, Atlanta, GA.
- **O'Brien, M.A**. (February, 2008). *Designing for Older Adults: Key Factors for Successful Design*. Sympathetic Devices (undergraduate Industrial Design course), Georgia Institute of Technology, Atlanta, GA.
- McLaughlin, A. C., **O'Brien, M. A.,** & Rogers, W. A. (August 2007). *Age-related cognitive differences may be ameliorated through correct input device choice*. American Psychological Association Annual Meeting, San Francisco, CA.
- Rogers, W.A., **O'Brien, M.A.**, & McLaughlin, A.C. (December, 2006). *Selection and design of input devices for assistive technologies*. Presented at the 9th International Conference on Control, Automation, Robotics, and Vision (ICARCV 2006), Singapore.
- Rogers, W.A., & **O'Brien, M.A.** (November, 2006). *Undergraduates in the Human Factors and Aging Lab.* Invited address for Successful Models for

- Merging Graduate and Undergraduate Education, Atlanta, GA: Georgia Institute of Technology's Center for the Enhancement of Teaching and Learning.
- **O'Brien, M.A.,** Rogers, W. A., & Fisk, A. D. (October, 2006). *Text entry on a virtual keyboard: Evaluating shape and practice effects.* Presented at the 50th Annual Human Factors and Ergonomics Society Meeting. San Francisco, CA.
- **O'Brien, M.A.,** & Kaye, R. (October, 2006). *UPCARE: A structured approach to describe and analyze medical device use-related problems,* Presented at Human Factors in Health Care conference, Rochester, MN: Mayo Clinic.
- **O'Brien, M.A.**, Caine, K.E., Seifert, E.M., Rogers, W.A. & Fisk, A.D. (April, 2006). *Developing a model of technology acceptance and aging.* Presented at the 10th Cognitive Aging Conference, Atlanta, GA.
- **O'Brien, M.A.** (November, 2005). *Giving back: Service through college student professional organizations*. Presentation to the National Consortium for Specialized Secondary Schools of Mathematics, Science & Technology (NCSSSMST), Atlanta, GA.
- **O'Brien, M.A.** (September, 2005). *Examining keyboard shape and arrangement effects for younger and older adults.* Presented at the annual meeting of the Human Factors and Ergonomics Society, Orlando, FL.
- **O'Brien, M.A.** (September, 2004). *Keyboard shape and arrangement effects on keyboard design elements.* Presented at the annual meeting of the Human Factors and Ergonomics Society, New Orleans, LA.
- **O'Brien, M.A.**, Richman, M., Rogers, W.A., and Fisk, A.D. (July, 2004). Assessing text entry requirements and designs for next generation devices. Presented at the annual meeting of the American Psychological Association, Honolulu, HI.

Workshops

- Mitzner, T.L., **O'Brien, M.A.**, & Rogers, W. A. (May 2012). Emerging technologies for health care and aging. Presented at *Computer Human Interaction (CHI) 2012*, May 5-10, 2012, Austin, TX.
- **O'Brien, M.A.**, Fausset, C.B., Rogers, W. A., & Fisk, A. D. (September, 2008). Translating science into practice: Design principles for older users. Presented at the *9th Global Conference on Ageing: Ageing Design Montreal*, September 4-7, 2008, Montreal, Quebec, Canada.

Technical Reports

- **O'Brien, M.A.** (2011) Refining a process for describing human-technology interactions. Huntsville, AL. 2011 Young Faculty Research Proceedings
- **O'Brien, M. A.,** Rogers, W. A., & Fisk, A. D. (2010). *Developing an organizational model for intuitive design*. (HFA-TR-1001). Atlanta, GA: Georgia

Institute of Technology, School of Psychology, Human Factors and Aging Laboratory.

Van Ittersum, K., Rogers, W. A., Capar, M., Caine, K.E., **O'Brien, M.A.**, Parsons, L.J. & Fisk, A.D. (2008). *Understanding technology acceptance: Phase 3 (part 1) – quantitative modeling,* (Technology Report HFA-TR-0705). Atlanta, GA: Georgia Institute of Technology, School of Psychology, Human Factors and Aging Laboratory.

Van Ittersum, K., Rogers, W. A., Capar, M., Caine, K.E., **O'Brien, M.A**., Parsons, L.J. & Fisk, A.D. (2007). *Understanding technology acceptance: Phase 2 – identifying and validating the metrics & preliminary testing of a quantitative model,* (Technology Report HFA-TR-0604). Atlanta, GA: Georgia Institute of Technology, School of Psychology, Human Factors and Aging Laboratory.

Van Ittersum, K., Rogers, W. A., Capar, M., Caine, K.E., **O'Brien, M.A.**, Parsons, L.J. & Fisk, A.D. (2007). *Understanding technology acceptance: Phase 2 (part 2) – refining the quantitative model,* (Technology Report HFA-TR-0604). Atlanta, GA: Georgia Institute of Technology, School of Psychology, Human Factors and Aging Laboratory.

Van Ittersum, K., Rogers, W. A., Capar, M., Caine, K.E., **O'Brien, M.A.**, Parsons, L.J. & Fisk, A.D. (2006). *Understanding technology acceptance: Phase 1 literature \ review and qualitative model development* (Technology Report HFA-TR-0602). Atlanta, GA: Georgia Institute of Technology, School of Psychology, Human Factors and Aging Laboratory.

In Preparation

O'Brien, M.A., Beam, K., & Frazier, M. (In preparation). Evaluating mental models in a target audience to tornado improve risk communications.

O'Brien, M.A., Schultz, E.V. & Tucker, P. (In preparation). Describing perceptions of the public's knowledge of tornadoes, tornado warnings, and protective actions among diverse subject matter experts in the Southeastern U.S.

Professional History

Medical Device Fellow, Human Factors, Center for Devices and Radiological Health (CDRH) U.S. Food & Drug Administration (FDA), Rockville, MD May – September 2006 Duties included:

- Developed prototype for revised Human Factors portion of web site for medical device manufacturers, health care professionals and engineers, consumers, and other FDA employees
- Recommended human factors components for medical device guidance documents
- Evaluated human factors safety components of pre-market submissions for medical devices
- Advised post-market surveillance committee on possible use-related issues related to adverse events.

Senior Manager, Deloitte Consulting, Atlanta, GA and Sydney, Australia 1994 – 2003 Duties included:

- Provided management consulting expertise for twelve international corporations on speech recognition system design, IVR design, call center operations, call center technologies, network management operations, data center design, data communications design and customer service models.
- Managed consulting teams of up to twenty-five consultants at client-site projects.
- Taught two-week orientation course on 'Consulting Basics' for new systems analysts.
- Supervised career development for ten management consultants.
- Recruited management consultants to Deloitte by interviewing potential staff and coordinating recruiting events at the University of Colorado, Boulder.
- Served on Women's Leadership Committee in Atlanta, 2001-2003.

Network Analyst, Morgan Stanley & Company, NY 1988 – 1992 Duties included:

- Coordinated installation and maintenance of PC software and hardware for 150 investment banking personnel.
- Designed, configured and supported international data communications network.
- Identified and resolved data communications problems in central communications operations support center.

Awards & Honors

Student Member with Honors Human Factors & Ergonomics Society, 2006

Georgia Institute of Technology, Psychology Department Aging Traineeship - National Institute of Aging (2004 - 2009)

Professional and Honor Societies

Tennessee Valley Chapter of Human Factors and Ergonomics Society Treasurer, 2013 - present President, 2011-2012

National HFES

Aging Technical Group Program Chair 2013
Aging Technical Group Secretary/Treasurer, 2010-2012
Association for Psychological Science
American Psychological Association, Division 20 and 21
Fellowship of Catholic Scholars
American Meteorological Society

Other Service Activities

Presentation, Sigma Nu Fraternity at UAHuntsville, Seven Habits of Highly Effective People and Applications to Personal Development November 7, 2013.

Faculty supervisor for undergraduate student development of UAH psychology department experiment scheduling system, *Psych Sign-up;* Summer & Fall 2012.

Reviewer: Gerontechnology, Applied Ergonomics, Journal of Homeland Security and Emergency Management, International Journal of Human-Computer Studies, Theoretical Issues in Ergonomics, IEEE Transactions on Human-Computer Systems, Journal of Telemedicine and Telecare, Austrian Science Fund.

Psychology department webmaster (Level 3 Joomla), 2012-present.

Faculty co-coordinator to *Careers in Aging* panel at UAHuntsville, co-sponsored by AGS (Alabama Gerontological Society) and Office of Diversity, April 2012.

Committee Member, UAH Task Force on Strategic Leadership Planning; Spring 2012.

Presentation, Faculty RELACS, In the aftermath of a storm: Decision-Making in Madison County after the April 27 Power Outage. February 22, 2012.

Panel Moderator, INCOSE Professional Meeting (International Council on Systems Engineering), *Moving human factors to the left in systems design.* Tennessee Valley Chapter, Huntsville, AL, February 16, 2012.

Presentation, Undergraduate Honors Colloquium, *Psychology of hazardous weather warnings*. February 2, 2012.

Reviewer, APCHI, DIS 2012, CHI 2013, CHI2014 conferences

Presentation, HFES Professional Meeting (Human Factors & Ergonomics Society), Everyday Technologies in Emergencies: Examining Consumer Usage from the 2011, Tornado-Driven power outage in Madison County, AL. Tennessee Valley Chapter, Huntsville, AL, August 9, 2011.

Presentation, PsiChi at UAHuntsville, *How should I prepare for the GRE?* 2010, 2011, 2012, 2013.

Presentation, Undergraduate Honors Colloquium, *Decision-making and Human error*. March 3, 2011.

Reviewer, TG's for annual Human Factors and Ergonomics Society Conference, Aging (2007, 2008, 2009, 2010, 2010, 2011); Student (2006, 2007, 2008, 2009, 2011); Training (2010, 2011, 2012), Safety (2012), Cognitive Engineering and Decision-Making (2010, 2011);

Judge, Alabama Science & Engineering Fair, Behavioral Sciences Division, 2010, 2011, 2013

Mentor, Sci-Quest, Expanding Your Horizon Conference. April 27, 2010.

Big Sister. Big Brothers & Big Sisters of Atlanta, 2002 – 2009