

STEVEN M. WEISBERG, PHD

Center for Cognitive Neuroscience | University of Pennsylvania
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ACADEMIC APPOINTMENTS

2015-Present Postdoctoral Fellow
Center for Cognitive Neuroscience
University of Pennsylvania
Advisor: Dr. Anjan Chatterjee

EDUCATION

2015 PhD in Psychology
Brain and Cognitive Sciences
Temple University
Advisor: Dr. Nora Newcombe

2008 BA in Psychology, *cum laude*
Minor in Mathematics
College of William and Mary
Advisor: Dr. Jeanine Stefanucci

FELLOWSHIPS

2016-Present Ruth L. Kirschstein Postdoctoral NRSA F32DC015203: *Neural representations of spatial directions in language, schemas, and images*. Sponsors: Anjan Chatterjee and Russell Epstein

2010-2012 University Fellowship, Temple University

AWARDS AND HONORS

2018 Biomedical Postdoctoral Program Travel Award, University of Pennsylvania

2017 Collaborative Symposium Award, Psychonomic Society

2017 Postdoctoral Fellow Award, Cognitive Neuroscience Society

2016 Biomedical Postdoctoral Program Travel Award, University of Pennsylvania

2014 College of Liberal Arts Travel Award, Temple University

2013 Training in fMRI Fellowship, University of Michigan, NIH

2013 Visiting Fellowship, Martinos Center for Biomedical Imaging, Massachusetts General Hospital

2013 Collaboration Grant, Science Across Virtual Institutes, Thematic Network in Spatial Cognition, NSF

2012 Department of Psychology Travel Award, Temple University

2004-2008 Dean's List, College of William and Mary

PEER-REVIEWED PUBLICATIONS

- Weisberg, S.M.**, Marchette, S.A., & Chatterjee, A. (2018). Behavioral and neural representations of spatial directions across words, schemas, and images. *Journal of Neuroscience*, 38(21), 4996-5007 [[Paper](#)]
- Weisberg, S.M.**, & Newcombe, N.S. (2018). Cognitive maps: Some people make them, some people struggle. *Current Directions in Psychological Science*. 27(4), 220-226. [[Preprint](#)] [[Paper](#)]
- Weisberg, S.M.**, Badgio, D., & Chatterjee, A. (2018). Feel the way with a vibrotactile compass: Does a navigational aid aid navigation? *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 44(5), 667-679. [[Paper](#)] [[Data](#)]
- Nazareth, A., **Weisberg, S.M.**, Margulis, K., & Newcombe, N.S. (2018). Charting the development of cognitive mapping. *Journal of Experimental Child Psychology*, 170, 86-106. [[Paper](#)]
- Galati, A., **Weisberg, S.M.**, Newcombe, N.S., & Avraamides, M.N. (2018). When gestures show us the way: Self-generated gestures selectively facilitate navigation and spatial memory. *Spatial Cognition and Computation*. [[Paper](#)]
- Blacker, K.J., **Weisberg, S.M.**, Newcombe, N.S., & Courtney, S.M. (2017). Navigation ability, relational and location working memory. *Visual Cognition*, 25(7-8), 691-702. [[Paper](#)]
- Weisberg, S.M.**, Badgio, D., & Chatterjee, A. (2017). A CRISPR new world: Public attitudes towards innovations in genetic modification. *Frontiers in Public Health: Public Health Policy*. [[Paper](#)]
- Atit, K., **Weisberg, S.M.**, Newcombe, N.S., & Shipley, T.F. (2016). Learning to interpret topographic maps: Understanding layered spatial information. *Cognitive Research: Principles & Implications*. [[Paper](#)]
- Cromley, J.G., **Weisberg, S.M.**, Dai, T., Newcombe, N.S., Schunn, C.D., Massey, C., & Merlino, F.J. (2016). Improving middle school science learning using diagrammatic reasoning. *Science Education* 100(6), 1184-1213. [[Paper](#)]
- Weisberg, S.M.**, & Newcombe, N.S. (2016). How do (some) people make a cognitive map? Routes, places, and working memory. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 42(5), 768-785. [[Paper](#)]
- Ngo, C., **Weisberg, S.M.**, Newcombe, N.S., & Olson, I.R. (2016). The relation between navigation strategy and associative memory: An individual differences approach. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 42(4), 663-670. [[Paper](#)]
- Holmes, C.A., Nardi, D.N., Newcombe, N.S., & **Weisberg, S.M.** (2015)*. Children's use of slope to guide navigation: Sex differences relate to spontaneous slope perception. *Spatial Cognition and Computation*, 15(3), 170-185. [[Paper](#)]

Weisberg, S.M. & Newcombe, N.S. (2014). A slippery directional slope: Individual differences in using slope as a directional cue. *Memory & Cognition*, 42, 648-661. [[Paper](#)]

Weisberg, S.M., Nardi, D.N., Newcombe, N.S., & Shipley, T.F. (2014). Up by upwest: Is slope like north? *Quarterly Journal of Experimental Psychology*. 67(10), 1959-1976. [[Paper](#)]

Weisberg, S.M., Schinazi, V.R., Newcombe, N.S., Shipley, T.F., & Epstein, R.A. (2014). Variations in cognitive maps: Understanding individual differences in navigation. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 40(3), 669-682. [[Paper](#)]

CHAPTERS, PROCEEDINGS, COMMENTARIES, REPORTS, ETC.

Weisberg, S.M. & Newcombe, N.S. (2017). Embodied cognition and STEM learning: Overview of a topical collection in CR:PI. *Cognitive Research: Principles and Implications*, 2(38). [[Paper](#)]

Weisberg, S.M.¹, Newcombe, N.S.¹, Atit, K., Jacovina, M.E., Ormand, C.J., & Shipley, T.F. (2015). The lay of the land: Sensing and representing topography. *Baltic International Yearbook of Cognition, Logic and Communication: Vol. 10*. [[Paper](#)]

Nardi, D.N., Holmes, C.A., Newcombe, N.S., & **Weisberg, S.M.** (2015)*. Sex differences and errors in the use of terrain slope for navigation. *Cognitive Processing*, 16(1), 323-326. [[Paper](#)]

Weisberg, S.M., & Newcombe, N.S. (2013). Are all types of vertical information created equal? *Behavioral and Brain Sciences*, 36, 568-569. [[Paper](#)]

Weisberg, S.M. (2012). Embodied cognition approaches in integrated science, technology, engineering, and mathematics (iSTEM) education. Commissioned report for the National Academy of Engineering Committee on Integrated STEM Education. Published in *Toward Integrated STEM Education: Developing A Research Agenda* (2014).

*After first author, authorship order is alphabetical.

¹Co-first authors.

UNDER REVIEW

Nazareth, A., Newcombe, N.S., **Weisberg, S.M.**, Velazquez, M., & Shipley, T.F. (submitted). Beyond wayfinding: Navigational skills and geoscience education.

Weisberg, S.M., Newcombe, N.S., & Chatterjee, A. (submitted). Everyday taxi drivers: Do gifted navigators have larger hippocampi? [[Preprint](#)] [[Data and Code](#)]

IN PREPARATION

Weisberg, S.M., & Chatterjee, A. (in prep). Reference frame preference differs in sports and space.

SPOKEN PRESENTATIONS

Weisberg, S.M. (2017). How to get the point: Spatial language and gesture can help teach topographic maps. Talk presented at the meeting of the *European Society for Cognitive Psychology (ESCoP)*. Potsdam, Germany.

Galati, A., **Weisberg, S.M.**, Newcombe, N.S., & Avraamides, M.N. (2015). Effects of gesturing strategies on navigation performance and spatial memory. Talk presented at *Psychonomic Society*. Chicago, IL.

Weisberg, S.M., & Newcombe, N.S. (2015). It's not can but how: Navigation aptitude and strategy. Talk presented at *International Conference on Spatial Cognition*. Rome, Italy.

Weisberg, S.M. (2014). I get around, how do you? Individual differences in navigation aptitude. Invited Colloquium, ETH-Zurich, Switzerland.

Weisberg, S.M., & Newcombe, N.S. (2014). Remembering what and where: The relation between components of navigation ability and working memory. Paper presented at the 1st annual *Pennsylvania Spatial Cognitive Symposium*. University Park, PA.

Weisberg, S.M., Epstein, R.A., Newcombe, N.S., Schinazi, V.R., & Shipley, T.F. (2012). Where do you think you are: A virtual environment assessment of navigation ability. Doctoral colloquium at *Spatial Cognition 2012*. Bavaria, Germany.

Weisberg, S.M., Brakoniecki, E., & Newcombe, N.S. (2012). The other side of the mountain: Slope as a cue in navigation. Paper presented at the *International Conference on Spatial Cognition*. Rome, Italy.

Weisberg, S.M., Brakoniecki, E., & Newcombe, N.S. (2012). The other side of the mountain: Slope as a cue in navigation. Paper presented at *Cognitive Science Society*. Sapporo, Japan.

Weisberg, S.M. (2012). Structural alignment approach to contour map interpretation. Colloquium, Northwestern University. Evanston, IL.

Weisberg, S.M. & Newcombe, N. S. (2011). Slope and navigation: All downhill? *Graduate Fellows Research Symposium*, Temple University. Philadelphia, PA.

POSTERS

Weisberg, S.M., Newcombe, N.S., & Chatterjee, A. (2018). Everyday taxi drivers: Do gifted navigators have larger hippocampi? Poster presented at *iNav*, Mt. Tremblant, Canada.

Weisberg, S.M., Newcombe, N.S., & Chatterjee, A. (2018). Everyday taxi drivers: Do gifted navigators have larger hippocampi? Poster presented at *Cognitive Neuroscience Society*. Boston, MA.

- Weisberg, S.M.**, Marchette, S.A., & Chatterjee, A. (2017). Which way: Neural decoding of spatial directions in images, schemas, and words. Poster presented at *Cognitive Neuroscience Society*. San Francisco, CA. Awarded the Postdoctoral Fellow Award.
- Nazareth, A., **Weisberg, S.M.**, Margulis, K., Do, A., Haj, R., & Newcombe, N.S. (2016). Age-related differences in cognitive mapping during spatial navigation. Poster presented at *Psychonomic Society*. Boston, MA.
- Weisberg, S.M.**, Badgio, D., & Chatterjee, A. (2016). Feel the way: Does a vibrotactile compass help you learn a space? Poster presented at *Interdisciplinary Navigation Symposium (iNav)*. Bad Gastein, Austria.
- Weisberg, S.M.**, Trinh, S., & Chatterjee, A. (2016). Recalculating...Processing words, schemas, and images of spatial directions. Poster presented at *Cognitive Neuroscience Society*. New York, NY.
- Weisberg, S.M.**, Atit, K., Newcombe, N.S., & Shipley, T.F. (2015). How to get the point: Spatial language interacts with gesture in learning topographic maps. Poster presented at *Psychonomic Society*. Chicago, IL.
- Blacker, K., **Weisberg, S.M.**, Newcombe, N.S., & Courtney, S.M. (2015). How working memory for spatial locations versus spatial relations predicts navigation ability. Poster presented at *Psychonomic Society*. Chicago, IL.
- Ngo, C., **Weisberg, S.M.**, Newcombe, N.S., & Olson, I.R. (2015). The relation between navigation strategy and associative memory: An individual differences approach. Poster presented at *International Conference on Spatial Cognition*. Rome, Italy.
- Weisberg, S.M.**, Beswick, M., & Chatterjee, A. (2015). Vento-medial Prefrontal Cortex and Stability in Art Preference. Poster presented at *Cognitive Neuroscience Society*. San Francisco, CA.
- Galati, A., **Weisberg, S.M.**, Newcombe, N.S., & Avraamides, M.N. (2014). Self-generated gestures selectively influence navigation performance and spatial memory. Poster presented at *Psychonomic Society*. Long Beach, CA.
- Ngo, C., Newcombe, N.S., Olson, I.R., & **Weisberg, S.M.** (2014). The relation between navigation strategy and associative memory: An individual differences approach. Poster presented at *Psychonomic Society*. Long Beach, CA.
- Weisberg S.M.** & Newcombe, N.S. (2014). Remembering what and where: The relation between components of navigation ability and working memory. Poster presented at *Psychonomic Society*. Long Beach, CA.

Weisberg, S.M., & Newcombe, N.S. (2014). Remembering what and where: The relation between components of navigation ability and working memory. Poster presented at *Spatial Cognition 2014*. Bremen, Germany.

Weisberg, S.M., Newcombe, N.S., & Shipley, T.F. (2013). What predicts understanding of topographic maps? Poster presented at *Psychonomic Society*. Toronto, CA.

Holmes, C.A., Nardi, D., Newcombe, N.S., & **Weisberg, S.M.** (2013). Hitting the slopes: The strength of gradient cues in child navigation. Poster presented at the Society for Research in Child Development (SRCD) Biennial Meeting, Seattle, WA.

Weisberg, S.M., Newcombe, N.S., & Shipley, T.F. (2013). Using analogical learning to improve contour map reading. Poster presented at the 6th annual *inter-Science of Learning Center*. Philadelphia, PA.

Holmes, C., Newcombe, N.S., **Weisberg, S.M.**, & Nardi, D.N. (2013). Hitting the slopes: Children's use of gradient cues for reorientation. Poster presented at the 6th annual *inter-Science of Learning Center*. Philadelphia, PA.

Weisberg, S.M., Nardi, D., Newcombe, N.S. & Shipley, T.F. (2012). Sensing the slopes: Sensory modality effects on a goal location task. Poster presented at *Psychonomic Society*. Minneapolis, MN.

Weisberg, S.M., Epstein, R.A., Newcombe, N.S., Schinazi, V.R., & Shipley, T.F. (2012). Developing a virtual environment assessment of navigation ability. Poster presented at *Association for Psychological Science Convention*. Chicago, Illinois.

Weisberg, S.M., Newcombe, N.S., & Shipley, T.F. (2012). Teaching contour maps using analogical learning. Poster presented at the 5th annual *inter-Science of Learning Center Conference*. San Diego, CA.

Weisberg, S.M. & Newcombe, N.S. (2011). The role of slope as a navigational cue. Poster presented at the 4th annual *inter-Science of Learning Center Conference*. Washington, D.C.

SYMPOSIA

2015 Organizer and Presenter: *Individual Differences in Navigating*, International Conference on Spatial Cognition, Rome, Italy. Speakers: Steven Weisberg, Steven Marchette, James Negen, Tim McNamara

SERVICES AND LEADERSHIP

2016 Local Planning Committee, Spatial Cognition Conference, Philadelphia, PA

2013 Local Planning Committee, inter-Science of Learning Center Conference, Philadelphia, PA

2012 SILC Planning Representative: Co-Chair, Networking Committee, inter-Science of Learning Center Conference, San Diego, CA

General Public Dissemination:

- 2014 Presenter, Quadrangle Sunrise Senior Living Services, Social Issues Committee
Presentation Series
Presenter, Philadelphia Science Festival, Spatial Intelligence and Learning Center
- 2013 Guest Lecture, Conestoga High School AP Psychology
- 2012 Presenter, Philadelphia Science Festival, Spatial Intelligence and Learning Center

Students Mentored (*Honors Student; **Published Peer-reviewed work**):

Temple University – Ryan Barnett, Edward Brakoniecki*, James Callahan, Chelsa Clofer, Brian Hickman, Benjamin Van Son, Kelsey Decker, Stephany Wilson, David Spain, Jon Bento, Hayley Van Duyn, Chrystyna Colon, Emily Auerbach, Dominique Losen, Vladislav Mendelson
University of Pennsylvania – Sam Trinh*, **Daniel Badgio**, Antonio Nicosia

Ad Hoc Reviewer (peer-reviewed journals, verified record on [Publons](#)):

American Journal of Psychology
Attention, Perception, & Psychophysics
Behavioral and Brain Sciences
Behavioral Research Methods
Child Development
Cognitive Processing
Cognitive Psychology
Cognitive Research: Principles & Implications
Frontiers in Psychology: Developmental
Journal of Experimental Education
Journal of Experimental Psychology: Applied
Journal of Experimental Psychology: Learning, Memory, and Cognition
Journal of Visualized Experiments
Learning and Individual Differences
Memory
Memory & Cognition
Quarterly Journal of Experimental Psychology
Spatial Cognition and Computation
Scientific Reports

Ad Hoc Reviewer (other):

Cognitive Science Society Conference (2018)
International Conference of Spatial Cognition (2012, 2015)
inter-Science of Learning Center Conference (2011, 2012)
Spatial Cognition Conference (2016, 2018)
Special Issue, Spatial Cognition X Proceedings (2017)

TEACHING EXPERIENCE

2014 Guest Lecturer, Spatial Cognition, Sensation & Perception
2013 Primary Instructor, Foundations in Cognitive Psychology

PRESENT POSITIONS

- 2015-Present Post-doctoral Fellow, University of Pennsylvania
Advisor: Dr. Anjan Chatterjee
- 2015-Present [Digital Associate Editor](#), Psychonomic Society

PAST POSITIONS

- 2016 Guest Editor, Special issue of *Cognitive Research: Principles & Implications, Embodied Cognition and STEM Education*
- 2010-2014 Graduate Student, Temple University, Spatial Intelligence and Learning Center
Advisor: Dr. Nora Newcombe
- 2013 Primary Instructor, Foundations in Cognitive Psychology, Temple University
- 2010 Research Assistant, Temple University, Spatial Intelligence and Learning Center
Advisor: Dr. Nora Newcombe
- 2007-2008 Research Assistant, College of William and Mary, Psychology Department
Advisor: Dr. Jeanine Stefanucci

PROFESSIONAL MEMBERSHIPS

- 2015-Present, Member, Cognitive Neuroscience Society
- 2012-Present, Member, Psychonomic Society
- 2010-Present, Member, Spatial Intelligence and Learning Center
- 2010-2012, Member, Cognitive Science Society
- 2010-2012, Member, Association for Psychological Science