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Education:

Ph.D. 1976, Harvard University, Cambridge, Massachusetts.
B.A. 1972, Antioch College, Yellow Springs, Ohio.

Employment:

2014- Laura H. Carnell Professor, Temple University
2003- James H. Glackin Distinguished Faculty Fellow, Temple University
1987- Professor, Department of Psychology, Temple University.
Director, Undergraduate Studies, 1981-86; Associate Chair, 1986-89;
Director, Cognitive Division, 1995-99; Coordinator, Cognitive Neuroscience, 2008-12.
1981-87 Associate Professor, Department of Psychology, Temple University.
1976-81 Assistant Professor, Department of Psychology, The Pennsylvania State University.

Visiting Appointments:

2014-15 Visiting Scholar, Center for Cognitive Neuroscience, University of Pennsylvania.
2003-04 Visiting Scholar, Spatial Cognition Group, Wissenschaftskolleg, Berlin
1999-00 Visiting Scholar, Department of Psychology, Princeton University.
1993-94 Visiting Scholar, Department of Psychology, University of Pennsylvania.
1986-87 Visiting Scholar, Department of Psychology, University of Pennsylvania.

Honors:

2016 Research and Creative Achievement Award, Temple University
2015 Distinguished Scientific Contributions Award, Society for Research in Child Development
2014 William James Fellow Award, Association for Psychological Science
2014 George A. Miller Award for an Outstanding Recent Article in General Psychology, Division 1 (Society for General Psychology), American Psychological Association (2nd time won)
2011 Keynote Speaker, Psychonomic Society
2010 Invited Participant, Ernst Strüngmann Forum, Frankfurt, Germany
2008 APS Student Council Champion of Psychology
2008 Elected to the Society of Experimental Psychologists
2007 G. Stanley Hall Award for Distinguished Contribution to Developmental Psychology, Division 7 (Developmental Psychology), American Psychological Association
2006 Elected to the American Academy of Arts and Sciences, Cambridge, MA
2006 Award for Distinguished Service to Psychological Science, American Psychological Association
2006 Women in Cognitive Science Mentorship Award
2006 G. Stanley Hall Lecturer, Division 2 (Teaching), American Psychological Association
2004 Paul W. Eberman Faculty Research Award, Temple University
2004 George A. Miller Award for an Outstanding Recent Article in General Psychology, Division 1 (Society for General Psychology), American Psychological Association
1999 James McKeen Cattell Fellowship
Fellow, American Association for the Advancement of Science; American Psychological Association, Divisions 1 (General Psychology), 3 (Experimental), 7 (Developmental) and 35 (Psychology of Women); Association of Psychological Science; Cognitive Science Society; Psychonomic Society

External Funding:

2016	National Science Foundation: International Mind, Brain and Education Society (IMBES): 2016 Biennial Conference Support
2015-18	National Science Foundation: MRI: Acquisition of a 3-Tesla Magnetic Resonance Imaging (MRI) Scanner, Co-PI
2015-18	Dept. of Education: Network for Cognitive and Educational Science Postdoctoral Training Grant, PI
2014-15	National Science Foundation: REU Site Grant: Spatial Intelligence and Learning, PI
2013-16	National Science Foundation: REESE/REAL: Sketching and Self-Explanation for Diagram Comprehension in Math and Science, Co-PI
2012-16	National Science Foundation: SAVI (SILC Supplement), Thematic Network in Spatial Cognition, PI
2011-16	National Science Foundation: Spatial Intelligence and Learning Center (SILC), PI
2008-13	Dept. of Education, The 21 st Century Center for Cognition and Science Instruction, Co-PI
2008-11	National Science Foundation: Teaching Effective Use of Diagrammatic Reasoning in Biology, Co-PI
2006-11	National Science Foundation: Spatial Intelligence and Learning Center (SILC), PI
2004-07	National Science Foundation, Research on Learning and Education (ROLE): Understanding and Teaching Spatial Competence, Co-PI
2004-07	National Science Foundation: Differing Interpretations of Young Children's Geometric Skills, PI
2000-03	National Science Foundation, Research on Learning and Education (ROLE): Understanding and Teaching Spatial Competence, Co-PI
1999-2002	National Science Foundation: The Development of Spatial Coding, PI
1999-2000	American Psychological Association: Scientific Workshop Grant, PI
1999-2000	National Science Foundation: Blue Ribbon Panel Report on Transitions of Children to the Workforce, PI
1999-2000	James McKeen Cattell Fellowship
1997-2000	National Science Foundation, Learning and Intelligent Systems Initiative (LIS): Understanding and Fostering Spatial Competence, Co-PI
1996-99	National Science Foundation: The Development of Spatial Coding, PI
1994-99	National Science Foundation: Center for Excellence in Teacher Preparation, Advisory Committee

- 1994-95 National Science Foundation: Conference on the Cognitive Science Bases of Mathematics and Science Education, PI
- 1993-96 National Science Foundation: The Development of Spatial Coding, PI
- 1988-92 National Institute of Child Health and Human Development: The Development of Spatial Coding, PI
- 1984-87 National Institute of Mental Health: Timing of Puberty and Spatial Ability, PI
- 1979-80 National Institute of Mental Health: Determinants of Sex Differences in Spatial Ability, PI
- 1973-76 Canada Council Doctoral Fellowship
- 1972-73 Harvard University Fellowship

Publications

Books

- Hölscher, C., Shipley, T.F., Belardinelli, M.O., Bateman, J. & Newcombe, N.S. (Eds.) (2010). *Spatial cognition VII*. Berlin: Springer-Verlag.
- Freksa, C., Newcombe, N.S., Gardenfors, P. & Wolf, S. (Eds.) (2008). *Spatial cognition VI: Learning, reasoning and talking about space*. Berlin: Springer-Verlag.
- Newcombe, N. S. & Huttenlocher, J. (2000). *Making space: The development of spatial representation and reasoning*. MIT Press.
- Newcombe, N. (1996). *Child development: Change over time*. New York: HarperCollins. (8th edition of *Child development and personality* by P. Mussen, J. Conger, J. Kagan & A. Huston.)
- Liben, L.S., Patterson, A.H., & Newcombe, N. (Eds.) (1981). *Spatial representation and behavior across the life span*. New York: Academic Press.

Chapters in Edited Books

- Newcombe, N.S. (in press). Categorical influences on spatial bias. In T. L. Hubbard (Ed.), *Spatial Biases in Perception and Cognition*, Cambridge University Press.
- Newcombe, N.S. (in press). Cognitive development in comparative perspective: Exploring the role of language acquisition in spatial, quantitative and memory development. In Call, J. (Ed.), *APA handbook of comparative psychology*. Washington, DC: APA Books.
- Mix, K. S., Levine, S.C. & Newcombe, N.S. (2016). Development of quantitative thinking across correlated dimensions. In A. Henik (Ed.), *Continuous issues in numerical cognition: How many or how much* (pp. 3 – 35). San Diego: Academic Press.
- Newcombe, N.S., Weisberg, S.M., Atit, K., Jacovina, M.E., Ormand, C.J. & Shipley, T.F. (2015). In Glanzberg, M., Skilters, J., & Svenonius, P. (Eds.), *The lay of the land: Sensing and representing topography. Baltic International Yearbook of Cognition, Logic and Communication, Vol. 10*. <http://dx.doi.org/10.4148/1944-3676.1099>

- Newcombe, N. S & Shipley, T. F. (2015). Thinking about spatial thinking: New typology, new assessments. In J. S. Gero (ed.), *Studying visual and spatial reasoning for design creativity* (pp. 179-192). Springer.
- Newcombe, N.S. (2014). Teaching space: What, how and when. In D. R. Montello, K. Grossner, K., & D. G. Janelle (Eds.), *Space in mind: Concepts for spatial learning and education* (pp. 323-334). Cambridge, MA: MIT Press.
- Olson, I.R. & Newcombe, N.S. (2014). Binding together the elements of episodes: Relational memory and the developmental trajectory of the hippocampus. In P. J. Bauer & R. Fivush (Eds.), *Handbook on the development of children's memory, Vol. 1* (pp. 285-308). Wiley-Blackwell.
- Newcombe, N.S., Uttal, D.H. & Sauter, M. (2013). Spatial development. In P. Zelazo (Ed.), *Oxford handbook of developmental psychology, Vol. 1: Body and mind* (pp. 564-590). New York: Oxford University Press.
- Holden, M.P. & Newcombe, N.S. (2012). The development of location coding: An adaptive combination account. In Nadel, L. & Waller, D. (Eds.), *Handbook of spatial cognition* (pp. 191-209). Washington, DC: APA Books.
- Newcombe, N.S., Lloyd, M.E. & Balcomb, F. (2011). Contextualizing the development of recollection: Episodic memory and binding in young children. In S. Ghetti & P. J. Bauer (Eds.), *Origins and development of recollection: Perspectives from psychology and neuroscience* (pp. 73-100). Oxford University Press.
- Wiener, J., Shettleworth, S., Bingman, V.P., Cheng, K., Healy, S., Jacobs, L.F., Jeffery, K.J., Mallot, H.A., Menzel, R. & Newcombe, N.S. (2011). Animal navigation: A synthesis. In R. Menzel & J. Fischer (Eds.), *Animal thinking: Contemporary issues in comparative cognition* (pp. 51-76). Strüngmann Forum Report, Vol. 8, J. Lupp, series ed. Cambridge, MA: MIT Press.
- Newcombe, N.S. (2010). On tending to our scientific knitting: Thinking about gender in the context of evolution. In J. Chrisler & D. McCreary (Eds.), *Handbook of gender research in psychology* (pp. 259-274). Springer.
- Learmonth, A.E. & Newcombe, N.S. (2010). The development of place learning in comparative perspective. In F. Dolins & R. Mitchell (Eds.), *Spatial cognition: Mapping the self and space* (pp. 520-538). Cambridge University Press.
- Newcombe, N.S. (2010). What is neoconstructivism? In Johnson, S.P. (Ed.), *Neoconstructivism: The new science of cognitive development* (pp. v-viii). New York: Oxford University Press.
- Newcombe, N.S., Ratliff, K.R., Shallcross, W. & Twyman, A. (2009). Is cognitive modularity necessary in an evolutionary account of development? In L. Tommasi, L. Nadel & M.A. Peterson (Eds.), *Cognitive biology: Evolutionary and developmental perspectives on mind, brain and behavior*, Vienna Series in Theoretical Biology (pp. 105-126). Cambridge, MA: The MIT Press.
- Oakes, L.M., Newcombe, N.S. & Plumert, J.M. (2009). Are dynamic systems and connectionist approaches an alternative to "good old-fashioned cognitive development"? In J.P. Spencer, M.S.C. Thomas & J.L. McClelland (Eds.), *Toward a unified theory of development? Connectionism and dynamic systems theory re-considered* (pp. 268-285). Oxford University Press.
- Lloyd, M.E. & Newcombe, N.S. (2009). Implicit memory in childhood: Reassessing developmental

- invariance. In M.L. Courage & N. Cowan (Eds.), *The development of memory in infancy and childhood* (pp. 93-113). Hove and New York: Psychology Press.
- Newcombe, N.S., Lloyd, M.E. & Ratliff, K.R. (2007). Development of episodic and autobiographical memory: A cognitive neuroscience perspective. In R.V. Kail (Ed.), *Advances in child development and behavior* (Vol. 35, pp. 37-85). San Diego, CA: Elsevier.
- Newcombe, N.S. & Ratliff, K.R. (2007). Explaining the development of spatial reorientation: Modularity-plus-language versus the emergence of adaptive combination. In J. Plumert & J. Spencer (Eds.), *The emerging spatial mind* (pp. 53-76). Oxford University Press.
- Newcombe, N.S. & Crawley, S.L. (2007). To have and have not: What do we mean when we talk about long-term memory development? In L.M. Oakes & P.J. Bauer (Eds.), *Short- and long-term memory in infancy and early childhood: Taking the first steps toward remembering*. Oxford University Press.
- Newcombe, N.S. (2007). Taking science seriously: Straight thinking about sex differences. In S. Ceci & W. Williams (Eds.), *Why aren't more women in science? Top gender researchers debate the evidence* (pp. 69-77). Washington, DC: APA Books.
- Cheng, K. & Newcombe, N.S. (2006). Geometry, features, and orientation in vertebrate animals: A pictorial review. In M.F. Brown & R.G. Cook (Eds.), *Animal spatial cognition: Comparative, neural & computational approaches*. Comparative Cognition Press. <http://www.pigeon.psy.tufts.edu/asc/>
- Newcombe, N.S. & Huttenlocher, J. (2006). Development of spatial cognition. In D. Kuhn & R.S. Siegler (Eds.), *Handbook of child psychology* (6th edition, pp. 734-776). John Wiley and Sons.
- Dziembowski, Z. & Newcombe, N.S. (2005). Transfer of mathematical problem-solving procedures acquired through physical science instruction: When you don't see it, why not? In J. Mestre (Ed.), *Transfer of learning from a modern multidisciplinary perspective* (pp. 337-356). In *Current Perspectives on Cognition, Learning and Instruction*, Greenwich, CT: Information Age Publishing.
- Newcombe, N.S. (2005). Evidence for and against a geometric module: The roles of language and action. In J. Rieser, J. Lockman & C. Nelson (Eds.), *Action as an organizer of learning and development*. Minnesota Symposia on Child Psychology, Vol. 33 (pp. 221-241). Mahwah, NJ: Lawrence Erlbaum.
- Newcombe, N.S. & Learmonth, A.E. (2005). The development of spatial competence. In P. Shah & A. Miyake (Eds.), *Handbook of visuospatial thinking* (pp. 213-256). Cambridge University Press.
- Newcombe, N.S. & Sluzenski, J. (2004). Starting points and change in early spatial development. In G. Allen (Ed.), *Remembering where* (pp. 25-40). Lawrence Erlbaum.
- Newcombe, N.S. (2003). Development. In L. Nadel (Ed.), *The encyclopedia of cognitive science* (pp. 955-959). Nature Publishing Group, Macmillan Publishers Ltd. (UK).
- Newcombe, N.S. (2002). Biology is to medicine as psychology is to education: True or false? In D.F. Halpern & M.D. Hakel (Eds.), *Applying the science of learning to university teaching and beyond* (pp. 9-18). New Directions for Teaching and Learning series, Number 89. San Francisco: Jossey-Bass.
- Newcombe, N.S. (2002). Spatial cognition. In D. Medin (Ed.), *Cognition Volume, Stevens' Handbook of Experimental Psychology*, third edition (pp. 113-163). New York: John Wiley.

- Newcombe, N. S., Mathason, L. & Terlecki, M. (2002). Maximization of spatial competence: More important than finding the cause of sex differences. In A. McGillicuddy-De Lisi & R. De Lisi (Eds.), *Biology, society and behavior: The development of sex differences in cognition* (pp. 183-206). Westport, CT: Ablex Publishing.
- Newcombe, N.S. (2000). Early experience matters for spatial development (but different kinds at different times). In N. A. Fox, L. A. Leavitt & J. Warhol (Eds.), *The role of early experience in infant development* (pp. 165-186). Pediatric Round Table, Johnson and Johnson Pediatric Institute.
- Newcombe, N. (1997). New perspectives on spatial representation: What different tasks tell us about how people remember location. In N. Foreman & R. Gillett (Eds.), *Interacting with the environment: A handbook of spatial paradigms and methodologies* (pp. 85-102). Psychology Press.
- Newcombe, N. (1989). The development of spatial perspective taking. In H. W. Reese (Ed.), *Advances in child development and behavior* (Vol. 22), (pp. 203-247). Academic Press.
- Newcombe, N. & Baenninger, M. A. (1989). Biological change and cognitive ability in adolescence. In G. Adams, R. Montemayor, & T. Gullotta (Eds.), *Advances in adolescent development* (Vol. 1), (pp. 168-191). Newbury Park, CA: Sage.
- Branch, C. W. & Newcombe, N. (1988). The development of racial attitudes in black children. In R. Vasta (Ed.), *Annals of child development* (Vol. 5) (pp. 125-154). Greenwich, CT: JAI Press.
- Newcombe, N. & Dubas, J.S. (1986). Individual differences in cognitive ability: Are they related to timing of puberty? In R.M. Lerner & T.T. Foch (Eds.), *Biological-psychosocial interactions in early adolescence: A life-span perspective*, (pp. 249-302). Hillsdale, NJ: Lawrence Erlbaum.
- Newcombe, N. (1985). Methods for the study of spatial representation. In R. Cohen (Ed.), *The development of spatial cognition*, (pp. 277-300). Hillsdale, NJ: Lawrence Erlbaum.
- Huttenlocher, J. & Newcombe, N. (1984). The child's representation of information about location. In C. Sophian (Ed.), *Origins of cognitive skills*, (pp. 81-111). Hillsdale, NJ: Lawrence Erlbaum.
- Newcombe, N. (1982). Sex-related differences in spatial ability: Problems and gaps in current approaches. In M. Potegal (Ed.), *Spatial abilities: Development and physiological foundations*, (pp. 223-250). New York: Academic Press.
- Newcombe, N. (1982). Spatial cognition and cognitive development. In R. Cohen (Ed.), *Children's conceptions of spatial relationships*, (pp. 65-81). (New Directions for Child Development series). San Francisco: Jossey-Bass.
- Newcombe, N. (1981). Spatial representation and behavior: Retrospect and prospect. In Liben, L.S., Patterson, A.H., & Newcombe, N. (Eds.), *Spatial representation and behavior across the life span*, (pp. 373-388). New York: Academic Press.

Journal Articles

- Holmes, C.A., Marchette, S. & Newcombe, N.S. (in press). Multiple views of space: Continuous visual flow enhances small-scale spatial learning. *Journal of Experimental Psychology: Learning, Memory, and Cognition*
- Resnick, I., Davatzes, A., Newcombe, N. S., & Shipley, T. F. (in press). Using relational reasoning to learn about scientific phenomena at unfamiliar scales. *Educational Psychology Review*.

- Resnick, I., Newcombe, N.S. & Shipley, T.F. (in press). Dealing with big numbers: Representation and understanding of magnitudes outside of human experience. *Cognitive Science*.
- Möhring, W., RamsOOK, K.A., Hirsh-Pasek, K., Golinkoff, R.M. & Newcombe, N. S. (in press). Where music meets space: Children's sensitivity to pitch intervals is related to their mental spatial transformation skills. *Cognition*.
- Verdine, B.N., Golinkoff, R.M., Hirsh-Pasek, K. & Newcombe, N.S. (in press). Links between spatial and mathematical skills across the preschool years. *Monographs of the Society for Research in Child Development*.
- Miller, B.W., Cromley, J.G. & Newcombe, N.S. (in press). Improving diagrammatic reasoning in middle school science using conventions of diagrams instruction delivered in electronic warm-ups. *Journal of Computer-Assisted Learning*.
- Cromley, J.G., Weisberg, S.M., Dai, T., Newcombe, N.S., Schunn, C.D., Massey, C. & Merlino, F.J. (in press). Improving middle school science learning using diagrammatic reasoning. *Science Education*.
- Bergey, B. W., Cromley, J. G., & Newcombe, N. S. (in press). Teaching high school biology students to coordinate text and diagrams: Relations with transfer, effort, and spatial skill. *International Journal of Science Education*. doi: 10.1080/09500693.2015.1082672
- Atit, K., Weisberg, S.M., Newcombe, N.S. & Shipley, T.F. (2016). Learning to interpret topographic maps: Understanding layered spatial information. *Cognitive Research: Principles and Implications*, 1.
- Möhring, W., Newcombe, N. S. & Frick, A. (2016). Using mental transformation strategies for spatial scaling: Evidence from a discrimination task. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 42, 1473-1479.
- Newcombe, N.S. (2016). Thinking spatially in the science classroom. *Current Opinion in Behavioral Sciences*, 10, 1-6.
- 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, 768-785.
- Ngo, C.T., 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, 663-670.
- Verdine, B.N., Lucca, K.R., Golinkoff, R.M., Hirsh-Pasek, K. & Newcombe, N.S. (2016). The shape of things: The origin of young children's knowledge of the names and properties of geometric forms. *Journal of Cognition and Development*, 17, 142-161.
- Möhring, W., Frick, A., Newcombe, N. S., & Levine, S.C. (2016). Spatial proportional reasoning is associated with formal knowledge about fractions. *Journal of Cognition and Development*, 17, 67-84.
- Holden, M. P., Newcombe, N.S., Resnick, I. & Shipley, T.F. (2016). Seeing like a geologist: Bayesian use of expert categories in location memory. *Cognitive Science*, 40, 440-454. .

- Frick, A. & Newcombe, N.S. (2015). Young children's perception of diagrammatic representations. *Spatial Cognition and Computation*, 15, 227-245.
- Newcombe, N.S., Levine, S.C. & Mix, K. S. (2015). Thinking about quantity: The intertwined development of spatial and numerical cognition. *WIREs in Cognitive Science*, 6, 491-505.
- Nardi, D., Holmes, C.A., Newcombe, N.S., & Weisberg, S.M. (2015). Sex differences and errors in the use of slope for navigation. *Cognitive Processing*, 16, 323-326.
- Zosh, J.M., Verdine, B.N., Filipowicz, A., Golinkoff, R.M., Hirsh-Pasek, K., & Newcombe, N.S. (2015). Talking shape: Parental language with electronic vs. traditional shape sorters. *Mind, Brain and Education*, 9, 136-144.
- Holmes, C.A., Weisberg, S.M., Newcombe, N.S., & Nardi, D. (2015). Children's use of slope to guide navigation: Sex differences relate to spontaneous slope perception. *Spatial Cognition and Computation*, 15, 170-185.
- Möhring, W., Newcombe, N. S. & Frick, A. (2015). The relation between spatial thinking and proportional reasoning in preschoolers. *Journal of Experimental Child Psychology*, 132, 213-220.
- Bergey, B.W., Cromley, J.G., Kirchgessner, A. & Newcombe, N.S. (2015). Using diagrams versus text for spaced restudy: Effects on learning in 10th grade biology classes. *British Journal of Educational Psychology*, 85, 59-74.
- Jirout, J. & Newcombe, N.S. (2015). Building blocks for developing spatial skills: Evidence from a large representative U.S. sample. *Psychological Science*, 26, 302-310.
- Holden, M. P., Newcombe, N.S. & Shipley, T.F. (2015). Categorical biases in spatial memory: The role of certainty. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 41, 473-481.
- Weisberg, S.M., Nardi, D., Newcombe, N.S. & Shipley, T.F. (2014). Up by upwest: Is slope like north? *Quarterly Journal of Experimental Psychology*, 67(10), 1959-1976.
- Frick, A., Möhring, W., & Newcombe, N. S. (2014). Development of mental transformation abilities. *Trends in Cognitive Sciences*, 18, 536-542.
- Newcombe, N.S., Balcomb, F., Ferrara, K., Hansen, M. & Koski, J. (2014). Two rooms, two representations? Episodic-like memory in toddlers and preschoolers. *Developmental Science*, 17, 743-756.
- Jirout, J. & Newcombe, N.S. (2014). Mazes and maps: Can young children find their way? *Mind, Brain and Education*, 8, 89-96.
- Weisberg, S.M. & Newcombe, N.S. (2014). A slippery directional slope: Individual differences in using slope as a directional cue. *Memory and Cognition*, 42, 648-661.
- Möhring, W., Newcombe, N. S., & Frick, A. (2014). Zooming in on spatial scaling: Preschool children and adults use mental transformations to scale spaces. *Developmental Psychology*, 50, 1614-1619.
- Verdine, B.N., Golinkoff, R.M., Hirsh-Pasek, K., Newcombe, N.S., Filipowicz, A.T. & Chang, A. (2014). Deconstructing building blocks: Preschoolers' spatial assembly performance relates to early

- mathematics skills. *Child Development*, *85*, 1062-1076.
- Verdine, B.N., Golinkoff, R.M., Hirsh-Pasek, K. & Newcombe, N.S. (2014). Finding the missing piece: Blocks, puzzles, and shapes fuel school readiness. *Trends in Neuroscience and Education*, *3*, 7-13.
- Newcombe, N.S. (2014). The origins and development of magnitude estimation. *Ecological Psychology*, *26*, 147-157.
- 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*, 669-682.
- Frick, A., Möhring, W. & Newcombe, N. S. (2014). Picturing perspectives: Development of perspective-taking abilities in 4- to 8-year-olds. *Frontiers in Developmental Psychology*. 5:386.
[doi: 10.3389/fpsyg.2014.00386](https://doi.org/10.3389/fpsyg.2014.00386)
- Cheng, K., Huttenlocher, J. & Newcombe, N.S. (2013). 25 years of research on the use of geometry in spatial reorientation: A current theoretical perspective. *Psychonomic Bulletin and Review*, *20*, 1033-1054.
- Fisher, K.R., Hirsh-Pasek, K., Newcombe, N.S. & Golinkoff, R.M. (2013). Taking shape: Supporting preschoolers' acquisition of geometric knowledge through guided play. *Child Development*, *84*, 1872-1878.
- Frick, A., Hansen, M. & Newcombe, N.S. (2013). Development of mental rotation in 3- to 5-year-old children. *Cognitive Development*, *28*, 386-399.
- Newcombe, N.S. (2013). Cognitive development: Changing views of cognitive change. *WIREs in Cognitive Science*, *4*, 479-491.
- Cromley, J.G., Perez, A.C., Fitzhugh, S., Tanaka, J., Newcombe, N., Shipley, T.F. & Wills, T. W. (2013). Improving students' diagram comprehension with classroom instruction. *Journal of Experimental Education*, *81*, 511-537.
- Cromley, J.C., Bergey, B.W., Fitzhugh, S., Newcombe, N., Wills, T.W., Shipley, T.F. & Tanaka, J. C. (2013). Effects of three diagram instruction methods on transfer of diagram comprehension skills: The critical role of inference while learning. *Learning and Instruction*. *26*, 45-58.
- Uttal, D.H., Miller, D.I. & Newcombe, N.S. (2013). Exploring and enhancing spatial thinking: Links to STEM achievement? *Current Directions in Psychological Science*, *22*, 367-373.
- Holden, M. P., Newcombe, N.S. & Shipley, T.F. (2013). Location memory in the real world: Category adjustment effects in 3-dimensional space. *Cognition*, *128*, 45-55.
- Schinazi, V.R., Nardi, D., Newcombe, N.S., Shipley, T.F. & Epstein, R.A. (2013). Hippocampal size predicts rapid learning of a cognitive map in humans. *Hippocampus*, *23*, 515-528.
- Koski, J., Olson, I. R. & Newcombe, N.S. (2013). Tracking the eyes to see what children remember. *Memory*, *21*, 396-407.
- Harris, J., Hirsh-Pasek, K. & Newcombe, N.S. (2013). Understanding spatial transformations: Similarities and differences between mental rotation and mental folding. *Cognitive Processing*, *14*, 105-115.

- Wan, X., Newcombe, N.S. & Fitzhugh, S. (2013). Elimination of sex differences in direction giving. *Cognitive Processing*, 14, 197-199.
- Frick, A., Ferrara, K. & Newcombe, N.S. (2013). Using a touch screen paradigm to assess the development of mental rotation between 3 ½ and 5 ½ years of age. *Cognitive Processing*, 14, 117-127.
- Göksun, T., Goldin-Meadow, S., Newcombe, N.S. & Shipley, T.F. (2013). Individual differences in mental rotation: What does gesture tell us? *Cognitive Processing*, 14, 153-162.
- Nardi, D., Newcombe, N.S. & Shipley, T.F. (2013). Reorienting with terrain slope and landmarks. *Memory and Cognition*, 41, 214-228.
- Twyman, A. D., Newcombe, N.S. & Gould, T.G. (2013). Malleability in the development of spatial reorientation. *Developmental Psychobiology*, 55, 243-255.
- Twyman, A., D., Nardi, D. & Newcombe, N. S. (2013). Two fields are better than one: Developmental and comparative perspectives on understanding spatial reorientation. *Comparative Cognition and Behavior Reviews*, 8, 78-97.
- Uttal, D.H., Meadow, N. G., Tipton, E., Hand, L. L. Alden, A. R., Warren, C. & Newcombe, N.S. (2013). The malleability of spatial skills: A meta-analysis of training studies. *Psychological Bulletin*, 139, 352-402.
- Harris, J., Hirsh-Pasek, K. & Newcombe, N.S. (2013). A new twist on studying the development of dynamic spatial transformations: Mental paper folding in young children. *Mind, Brain and Education*, 7, 49-55.
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Book Reviews

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Conference Participation

Invited Talks

- Newcombe, N.S. Do people form cognitive maps? An individual differences approach. *1st Interdisciplinary Navigation Symposium*, Bad Gastein, Austria, June 2016.
- Newcombe, N.S. Thinking about quantity: The intertwined development of spatial and numerical cognition. *Heterogeneous Contributions to Numerical Cognition*, Ghent, Belgium, June 2016.
- Newcombe, N.S. Using neuroscience in education: Are we ready? *Center for School Study Councils*, Philadelphia, May 2016.
- Newcombe, N.S. Science of learning. *Education Writers Association*, Boston, April 2016.
- Newcombe, N.S. Development of episodic memory: Which dog did I see, where and when? *Society of Experimental Psychologists*, New York City, April, 2016.

- Newcombe, N.S. Modeling adaptive combination in reorientation: What is the role of language? *Spatial Language Workshop*, San Diego, CA, January 2016.
- Newcombe, N.S. New ways of thinking about cognitive development: Implications for teaching. *38th Annual National Institute on the Teaching of Psychology*, St. Petersburg Beach, Florida, January 2016.
- Newcombe, N.S. Evidence-based teaching in the earth sciences: Where are we now? *Earth Educators' Rendezvous*, Boulder, CO, July 2015.
- Newcombe, N.S. Enhancing spatial learning for success in the STEM disciplines. *International Symposium on Science for Education*, Rio de Janeiro, July 2015.
- Newcombe, N.S. Picture this: Teaching and learning mathematics using spatial thinking. *Ontario Association for Mathematics Education*, Toronto, May 2015.
- Newcombe, N.S. Smart babies, not-so-smart children: What's up? *Midwestern Psychological Association*, Chicago, May 2015.
- Newcombe, N.S. Relations between episodic memory and spatial memory development. In "New Ideas About Memory Development", *Psychonomic Society*, Long Beach CA, November 2014.
- Newcombe, N.S. Remembering spatial location: Extending the category adjustment model to the real world. *Spatial Cognition 2014*, Bremen, Germany, September 2014.
- Newcombe, N.S. Space, development, spatial development. *Perspectives on Spatial Cognition: 10th International Symposium of Cognition, Logic and Communication*. University of Latvia, September 2014.
- Newcombe, N.S. Spatial development. *Vespucci Institute on Brain and Space*, Lisbon, Portugal, September 2014.
- Newcombe, N.S. Thinking about quantity: The intertwined development of spatial and numerical cognition. *Workshop on Making Models: Spatial Visual Reasoning in the Classroom and in Educational Research*. Fields Institute, University of Toronto, August 2014.
- Newcombe, N.S. Thinking about quantity: The intertwined development of spatial and numerical cognition. *European Association for Research on Learning and Instruction, Special Interest Group on Educational Neuroscience*, Gottingen, Germany, June 2014.
- Newcombe, N.S. Resolving the nativist-empiricist debate: A neoconstructivist approach to cognitive development *Association for Psychological Science*, San Francisco, CA, May 2014.
- Newcombe, N.S. Spatializing the curriculum from preschool through college. In Presidential Symposium "Science of Learning, the Education Sciences—Strange Bedfellows or All in the Family?" *American Educational Research Association*, Philadelphia, PA, April 2014.
- Newcombe, N.S. Enhancing spatial learning for success in the STEM disciplines. *Latin American Summer School for Education, Cognitive and Neural Sciences*. Punta del Este, Uruguay, March 2014.
- Newcombe, N.S. Challenging spatial terms in learning science and mathematics. *Spatial Language Workshop*, San Diego, CA, January 2014.

- Newcombe, N.S. Studying development comparatively. *Comparative Cognition Society*, Toronto, November 2013.
- Newcombe, N.S. Lecture series on spatial development. *International Spatial Cognition Summer Institute*. UC-Santa Barbara, August 2013.
- Newcombe, N.S. Lecture series on spatial development. *20th International Summer School in Cognitive Science*, New Bulgarian University, Sofia, Bulgaria, July 2013.
- Newcombe, N.S. Enhancing spatial learning for success in the STEM disciplines. *LearnLab's 2nd Annual Learning Science Workshop: Research and Innovation for Enhancing Achievement and Equity*. Pittsburgh, PA, June 2013.
- Newcombe, N.S. The development of magnitude estimation. *Translating Mind, Brain and Education Across Disciplines, Cultures and Contexts*. Quito, Ecuador, June 2013.
- Newcombe, N.S. Training spatial thinking and reasoning skills in students for success in STEM. *Learning and the Brain*. Arlington, VA, May 2013.
- Newcombe, N.S. Improving science learning in middle school. *Congressional Briefing: From the Lab to the Classroom: IES Research to Improve Our Nation's Math and Science Achievement*. Washington, DC, May 2013.
- Newcombe, N.S. Remembering spatial location: Adaptive combination models. *Spatial Memory: Bayes and Beyond*. Richmond, VA, May 2013.
- Newcombe, N.S. Adaptive combination in spatial development. *Views by Two* with Elizabeth S. Spelke, chaired by Lynn S. Liben, "Starting Points and Change in Spatial Development: Contrasting Perspectives". *Society of Research in Child Development*, Seattle, WA, April 2013.
- Newcombe, N.S. Spatial skills and success in STEM: Thinking about gender differences. *2013 Chicago Symposium Series on Excellence in Teaching Mathematics and Science: Research and Practice*. Chicago, February 2013.
- Newcombe, N.S. Remembering spatial location: Bayesian models. *Spatial Language Workshop*, San Diego, CA, January 2013.
- Newcombe, N.S. Developing an integrated mind: Strong beginnings, stronger endpoints. *Deutschen Gesellschaft fur Psychologie*, Bielefeld, September 2012.
- Newcombe, N.S. Play and educational outcomes. In *Workshop on Play, Attention, and Learning: How Does Play and Timing Shape the Development of Attention and Facilitate Classroom Learning?* New York Academy of Sciences, June 2012.
- Newcombe, N.S. From lab to school, and school to lab: Spatial extent, spatial scaling, measurement skills and more. Talk in *Realism to Relevance: An Ecological Approach to Perception, Action, and Cognition A Festschrift to Honor the Scientific and Mentoring Contributions of Herbert L. Pick, Jr.* Minneapolis, June 2012.
- Newcombe, N.S. Defining core knowledge: Relative magnitude estimation. In *Workshop on Core Knowledge, Language, and Culture*, Lorentz Center of Leiden University, May 29-June 1 2012.
- Newcombe, N.S. Spatial skills and success in STEM: Thinking about gender differences.

- Plenary talk at *National Center for Women & Information Technology (NCWIT)*, Chicago, May 2012.
- Sinton, D. & Newcombe, N.S. Space, place and relationships: Exploring spatial cognition in 2012 and beyond. *NCGE Seminar*, April 2012.
- Newcombe, N.S. Barriers to evidence-based education. *Latin American Summer School for Education, Cognitive and Neural Sciences*. Calafate, Argentina. March 2012.
- Newcombe, N.S. Spatial learning and education. *Latin American Summer School for Education, Cognitive and Neural Sciences*. Calafate, Argentina. March 2012.
- Newcombe, N.S. What is neoconstructivism? *Latin American Summer School for Education, Cognitive and Neural Sciences*. Calafate, Argentina. March 2012.
- Newcombe, N.S. Developing an integrated mind. Keynote Address, *L.O.V.E. Conference*, Niagara Falls, ON, February 2012.
- Newcombe, N.S. Increasing spatial learning in formal and informal settings. Innovation in education: Connecting how we learn to educational practice and policy. *NSF-OECD Conference*, Paris, France, January 2012.
- Newcombe, N.S. Geometry: A neoconstructivist view. *Neurospin*, Saint-Aubin/Saclay, France, January 2012.
- Newcombe, N.S. Developing an integrated mind. Keynote Address, *Psychonomic Society*, Seattle, November 2011.
- Newcombe, N.S. Spatial learning in development. Invited talk at the *6th Annual Eleanor M. Saffran Cognitive Neuroscience Conference*, Temple University, September 2011.
- Newcombe, N.S. The development of spatial representation and reasoning. Plenary address at the *Conference on Spatial Information Theory (COSIT 2011)*, Belfast, Maine, September 2011.
- Newcombe, N.S. Using research on analogical reasoning, diagrammatic reasoning, and prior knowledge to improve middle school science outcomes. In Invited Symposium on Applying Cognitive Principles to Improve Science and Math Curricula. *Society for Research on Educational Effectiveness*, Washington, DC, September 2011.
- Newcombe, N.S. Some generalizations about spatial development. *Geographic Thinking Workshop*, Washington, D.C. June 2011.
- Newcombe, N.S. The future of psychology. EPA Past Presidents' Panel, *Eastern Psychological Association*, Cambridge, MA, March 2011.
- Newcombe, N.S. The whys, whats and wherefores of spatial development. *Episteme-4*, Mumbai, India, January 2011.
- Newcombe, N.S. Early education for spatial learning. *Spatial Cognition 2010*, Mount Hood, Oregon, August 2010.
- Newcombe, N.S. The geometric module debate. *Transregional Collaborative Research Center SFB/TR 8 Spatial Cognition* (U Bremen, U Freiburg) and *International Quality Network on Spatial Cognition*. June 18, 2010.

- Newcombe, N.S. Early education for spatial intelligence: Why, what and how. *Haus der Wissenschaft*, Bremen. June 17, 2010.
- Newcombe, N.S. Thinking about spatial thinking: New typology, new assessments. Workshop on *Studying visual and spatial reasoning for design creativity: Design science, computer science, cognitive science and neuroscience approaches: The state of the art*. Aix-en-Provence, June 14-15, 2010.
- Newcombe, N.S. The nativist-empiricist controversy in the context of recent research on spatial development. *12th Annual Undergraduate Summer Workshop in Cognitive Science and Cognitive Neuroscience*, University of Pennsylvania, June 6-19, 2010.
- Newcombe, N.S. Spatial navigation and episodic memory: Clues to linkage from early development? *Society of Experimental Psychologists*, Philadelphia, April 30, 2010.
- Newcombe, N.S. A. Shared and unique processes in spatial development. Paper presented as part of invited symposium on Darwin's legacy, *Psychonomic Society*, Boston MA 2009.
- Newcombe, N.S. So many myths, so little time. Presentation to the Gordon Conference, *Visualization in Science & Education: Revealing Nature, Generating Insight*, Oxford, United Kingdom, July 2009.
- Newcombe, N.S. Educating spatial intelligence: The right questions, and some answers. Keynote address at the *International Mind, Brain and Education Society*, Philadelphia, PA, May 2009.
- Newcombe, N.S. Women hate maps, men won't ask for directions: Fact or myth? Psi Chi Distinguished Lecture, *Association for Psychological Science*, San Francisco, CA, May 2009.
- Newcombe, N.S. Improving spatial visualization: The search for mechanism. Invited Talk at the *Spatial Thinking and Science Learning Conference*, Evanston, IL 60201.
- Newcombe, N.S. Educating students to use evidence in thinking about developmental psychology. Plenary Address at the 2009 SRCD Developmental Science Teaching Institute. *Society for Research in Child Development*, Denver, CO, April 2009.
- Newcombe, N.S. Increasing spatial intelligence and learning: How, why and how much? Presidential Address to the *Eastern Psychological Association*, Pittsburgh, PA, March 2009.
- Newcombe, N.S. Educating spatial intelligence. Invited Talk to the *National Geographic Society, Workshop on Spatial Learning in Geography*, October 2008.
- Newcombe, N.S. Uses and abuses of evolutionary psychology. Keynote Address, *Western Pennsylvania Undergraduate Psychology Conference*, Erie, PA, April 2008.
- Newcombe, N.S. Uses and abuses of evolutionary psychology. G. Stanley Hall Lecture, *Western Psychological Association*, Irvine, CA, April 2008.
- Newcombe, N.S. Spatial adaptation: Origins and development. In Invited Symposium: Mechanisms of cognitive development: Domain-general learning or domain-specific constraints? *Psychonomic Society*, Long Beach, CA, November 2007.
- Newcombe, N.S. Uses and abuses of evolutionary psychology. G. Stanley Hall Lecture, *New England Psychological Association*, Danbury, CT, October 2007.

- Newcombe, N.S. How minds develop: Cutting the nativist knot. G. Stanley Hall Award Talk, *American Psychological Association*, San Francisco, August 2007.
- Newcombe, N.S. Modularity vs. adaptive combination: Approaches to the development of mind in cultural and neural context. Presentation to *Workshop on Culture, Mind, Brain and Development*, Rensselaerville Conference Center, June 2007.
- Newcombe, N.S. Are men better spatial visualizers? In Invited Symposium on Learning Principles—What We Know About Learning. *Association for Psychological Science*, Washington DC, May 2007.
- Newcombe, N.S. Male/female responsiveness to spatial training. Talk given to the *Spatial Skills Curriculum Workshop*, Michigan Technical University, Houghton, Michigan, May 2007.
- Newcombe, N.S. Uses and abuses of evolutionary psychology. G. Stanley Hall Lecture, *American Psychological Association*, New Orleans, August 2006.
- Newcombe, N.S. Objects, locations, and the binding problem. Talk given at the 14th Altenberg Workshop in Theoretical Biology, *The New Cognitive Sciences: Bring Evolution and Development to Bear on Mind and Brain*. Konrad Lorenz Institute for Evolution and Cognition Research, Altenberg, Austria, June 15-18, 2006.
- Newcombe, N.S. The role of action in children's adaptive combination of spatial information. In Invited Symposium on How Symbols and Actions Influence Spatial Thinking. *Midwestern Psychological Association*, May 2006.
- Newcombe, N.S. What I did one summer vacation (and beyond). *The Art of Science: A Festschrift in Honor of Janellen Huttenlocher*. Chicago, September 2005.
- Newcombe, N.S. How education shortchanges spatial intelligence: A problem and its remedies. Division 3 Invited Address, *American Psychological Association*, Washington, DC, August 2005.
- Newcombe, N.S. So, what's the question, Nora? A belated answer. Talk invited by Division 7 for the Mentor Award symposium for Dr. Jerome Kagan, *American Psychological Association*, Washington, DC, August 2005.
- Newcombe, N.S. Back to basics: What's actually wrong with good old-fashioned cognitive development? Conference on *Connectionism and Dynamic Systems Approaches to Development: On the Cusp of a New Grand Theory or Still Too Distributed?* June 21, 2005, Iowa City, IA.
- Newcombe, N.S. What do we mean when we say modularity? Master Lecture, *Society for Research in Child Development*, Atlanta, GA, April 2005.
- Newcombe, N.S. A new paradigm for teaching cognitive development: Beyond Piaget and his critics. First Biennial SRCD Developmental Science Teaching Institute, *Society for Research in Child Development*, Atlanta, GA, April 2005.
- Newcombe, N.S. Recent evidence regarding modularity in human spatial orientation. Paper in Presidential Integrative Symposium: Interdisciplinary perspectives on spatial learning and cognition. *Eastern Psychological Association*, Boston, March 2005.
- Newcombe, N.S. Developing reorientation: Modular or not? Paper presented in invited symposium, Putting perspective in things: The role of point of view in spatial reasoning. *Psychonomic Society*, Minneapolis, November 2004.

- Newcombe, N.S. Statistics, assumptions and day care: Why it can be hard to use evidence to make policy decisions. Part of Presidential Symposium, *The Day Care Scare*, *American Psychological Association*, Honolulu, August 2004.
- Newcombe, N.S. One round in the nativist-empiricist debate: Is there a geometric module? George Miller Award talk, *American Psychological Association*, Honolulu, August 2004.
- Newcombe, N.S. Invited symposium: Current status of the nativism-empiricism debate. Organized symposium and gave paper entitled: Claims of a geometric module: Squaring theory and evidence. *Conference on Human Development*, Washington, DC, April 2004.
- Newcombe, N.S. Cracking the code: The enigma of sex differences in sociobiology. Plenary address at the *American Psychological Association*, Toronto, August 9, 2003.
- Newcombe, N.S. Some unanswered questions about a sociobiological theory of sex differences in spatial ability. Invited address to the *Eastern Psychological Association*, March 2003.
- Newcombe, N.S. Evidence for and against a geometric module: The roles of language and action. Presented at Minnesota Symposium on Child Development organized by J. Rieser, J. Lockman & C. Nelson, *Action as an organizer of learning and development*, October 2002.
- Newcombe, N.S. Some unanswered questions about a sociobiological theory of sex differences in spatial ability. Division 7 Presidential Address, *American Psychological Association*, Chicago, IL, August 2002.
- Newcombe, N. Invited speaker for "Science in the public eye: Issues and controversies in the communication of scientific findings." *Journal Editors' Consortium Meeting*, March 26-28, 2000.
- Newcombe, N. S. Sex differences in cognition: Belief, theory and current knowledge. Invited talk for symposium series on *The Developing Child: Brain and Behavior*, sponsored by the Erikson Institute and the University of Chicago, March 3, 2000.
- Newcombe, N. Emergentism in cognitive development. Invited address, *Inaugural Meeting of the Cognitive Development Society*, Chapel Hill, NC, October 1999.
- Newcombe, N.S. Making space: Taking cognitive development one domain at a time. Invited address as part of the *Mind, Brain and Behavior* symposium series, APA, August, 1999, Boston, MA.
- Newcombe, N.S. Developments in research on memory for early childhood. Invited presentation to Research Experience for Undergraduates Program, Skidmore College, June 28-29, 1999.
- Newcombe, N.S. The future of cognitive development. Invited presentation at conference on "Stability and change in developmental psychology", held to celebrate the career of Professor Jerome Kagan, Cambridge, MA, May 21, 1999.
- Newcombe, N.S. Invited paper at Specialists' Meeting of the Varenus Project's *Conference on Cognitive Models of Geographic Space*, sponsored by the National Center for Geographic Information and Analysis, NSF. February 18-20, 1999, Santa Barbara, CA.
- Newcombe, N.S. Invited paper at the *Johnson and Johnson Pediatric Round Table 1999: The Role of Experience in Infant Development*. Jan. 6-10, 1999, Palm Beach, Florida.
- Newcombe, N. Remembering our early childhoods: When, how and why (or why not). Invited address to

- the *American Psychological Society*, May 1998.
- Newcombe, N.S. Starting points and change in the study of spatial development. Invited address to Division 7, *American Psychological Association*, Chicago, August 1997.
- Newcombe, N. Development of spatial representation. Part of invited symposium organized by N. Newcombe, "Origins of cognitive competence", *Psychonomics Society*, St. Louis, November 1994.
- Newcombe, N., Bullock, A. & Lie, E. Children's early memories: How similar is "infantile amnesia" to real amnesia? Invited paper at the *Midwestern Psychological Association*, Chicago, May 1994.
- Newcombe, N. The paradox of proximity in early spatial representation. Invited presentation to *Conference on Landmarks in the Development of Spatial Representations*, Arizona State University, February 1988.
- Newcombe, N. & Baenninger, M. A. Gender and spatial ability: Biological and experiential hypotheses. Paper presented as part of invited symposium, "Gender and cognitive skills: Cross-cultural and ecological perspectives." *American Association for the Advancement of Science*, Boston, February 1988.
- Newcombe, N. & Dubas, J.S. Biological-psychosocial interactions in the development of sex-related differences in spatial ability. Invited presentation to *Conference on Biological-Psychosocial Interactions in Early Adolescence: A Life-Span Perspective*, Pennsylvania State University, May 1984.
- Huttenlocher, J. & Newcombe, N. The child's representation of information about location. Invited presentation to the *Carnegie-Mellon Symposium*, May 1983.
- Newcombe, N. Developmental changes in cognitive maps: Facts, artifact or none of the above? Invited paper to *Midwestern Psychological Association*, Detroit, May 1981.

Refereed Conference Papers and Posters

- Nazareth, A., Weisberg, S.M., Margulis, K., Do, A., Haj, R. & Newcombe, N.S. Age-related differences in cognitive mapping during spatial navigation. *Psychonomic Society*, Boston, November 2016.
- Holmes, C.A. & Newcombe, N.S. Integrating partial viewpoints of space: Array stability supports flexibility. *Psychonomic Society*, Boston, November 2016.
- Ngo, C.T., Newcombe, N.S. & Olson, I.R. The ontogeny of relational memory and pattern separation: A radical change in performance between 4 and 6. *Psychonomic Society*, Boston, November 2016.
- Nazareth, A. & Newcombe, N. Developmental origins of cognitive mapping. In symposium on Spatial thinking and STEM education. *International Mind Brain Education Society*, Toronto, September 2016.
- Holmes, C. & Newcombe, N. Integrating partial viewpoints of space: Array stability supports flexibility. *International Mind Brain Education Society*, Toronto, September 2016.
- Verdine, B.N., Marzouk, M.A., Brezack, N.G., Tonob, T., Rosen, A.J., Hirsh-Pasek, K., & Golinkoff, R.M. Toying around with spatial learning: How toy design influences parent-child interactions around geometric shapes. *Spatial Cognition 2016*, Philadelphia, PA, August 2016.

- Verdine, B.N., Golinkoff, R.M., Hirsh-Pasek, K., & Newcombe, N.S. Preschool spatial skills: Are they important for mathematics? *Spatial Cognition 2016*, Philadelphia, PA, August 2016.
- Lin, Y., Ngo, C.T., Newcombe, N.S. & Olson, I. R. Remembering things together and apart: The development of memory discrimination and associative memory in young children. *Eastern Psychological Association*, New York, March 2016.
- Holmes, C.A., Marchette, S. & Newcombe, N.S. It's the journey not the destination: Observer action between multiple viewpoints enhances spatial learning. *Psychonomic Society*, Chicago, November 2015.
- Blacker, K., Weisberg, S.M., Newcombe, N.S. & Courtney, S.M. How working memory for spatial locations versus relations predicts navigation ability. *Psychonomic Society*, Chicago, November 2015.
- Weisberg, S.M., Atit, K., Newcombe, N.S. & Shipley, T.F. How to get the point: Spatial language interacts with gesture in learning topographic maps. *Psychonomic Society*, Chicago, November 2015.
- Galati, A., Weisberg, S.M., Newcombe, N.S. & Avraamides, M. Effect of gesturing strategies on navigation performance and spatial memory. *Psychonomic Society*, Chicago, November 2015.
- Ngo, C.T., Weisberg, S.M., Newcombe, N.S., & Olson, I.R. The relation between navigation strategy and associative memory: An individual differences approach. *International Conference of Spatial Cognition*, Rome, Italy, September 2015.
- Holmes, C.A., Marchette, S.A., Newcombe, N.S. Remembering where: Effects of perspective change and object rotation on spatial memory. *International Conference of Spatial Cognition*, Rome, Italy, September 2015.
- Nardi, D., Holmes, C.A., Newcombe, N.S., & Weisberg, S.M. More on the ability to use slope for navigation: Evidence from children. *International Conference of Spatial Cognition*, Rome, Italy, September 2015.
- Weisberg, S.M., & Newcombe, N.S. It's not can but how: Navigation aptitude and strategy. *International Conference of Spatial Cognition* Rome, Italy, September 2015.
- Galati, A., Weisberg, S.M., Newcombe, N.S. & Avraamides, M. Individual differences in spatial ability influence the effect of gesturing on navigation and spatial memory. *Gesture and Speech in Interaction*, Nantes, September 2015.
- Xu, Y., Regier, T. & Newcombe, N. An adaptive cue combination model of spatial reorientation. *Cognitive Science Society*, Pasadena, CA, July 2015.
- Morden-Snipper, D.R., Dai, T., Booth, J.L., Chang, B.L., Cromley, J.G. & Newcombe, N.S. Cognitive factors and representation strategies in sketching math diagrams. *Cognitive Science Society*, Pasadena, CA, July 2015.
- Miller, B. W., Cromley, J. G., & Newcombe, N. S. Why does a diagram-focused intervention help students learn science? *American Educational Research Association*, Chicago, IL, April, 2015.
- Cromley, J. G., Alfieri, L., Massey, C., Merlino, F. J., Newcombe, N. S., & Schunn, C. D. Improving middle-school science instruction with analogical reasoning. Part of a symposium "Relational reasoning in STEM domains: What empirical research can contribute to the national

- dialogue. *American Educational Research Association*, Chicago, IL, April, 2015.
- Jirout, J., Holmes, C., Newcombe, N., & Ramsook, K. Scaling up spatial development: A closer look at children's scaling ability and number knowledge. *Society for Research in Child Development*, Philadelphia, PA, March 2015.
- Morden-Snipper, D., Chang, B., Dai, T., Howe, J., Cromley, J., Booth, J., & Newcombe, N. Drawing helps: Motivational and cognitive correlates of diagram creation and problem solving in math and science. *Society for Research in Child Development*, Philadelphia, PA, March 2015.
- Möhring, W., Newcombe, N., & Frick, A. Space and mathematics: Spatial scaling is related to understanding of relational quantities and whole numbers. *Society for Research in Child Development*, Philadelphia, PA, March 2015.
- Möhring, W., Ramsook, K., Hirsh-Pasek, K., Golinkoff, R.M., & Newcombe, N. The sound of space and number: Are children's spatial, numerical and musical skills related? *Society for Research in Child Development*, Philadelphia, PA, March 2015.
- Frick, W. Möhring, N. Newcombe. Spatial abilities predict later mathematics achievement: A longitudinal study. *Society for Research in Child Development*, Philadelphia, PA, March 2015.
- Galati, A., Weisberg, S.M., Newcombe, N.S. & Avraamides, M.N. Self-generated gestures selectively influence navigation performance and spatial memory. *Psychonomic Society*, Long Beach CA, November 2014.
- Weisberg, S.M. & Newcombe, N.S. Remembering what and where: The relationship between components of navigation ability and working memory. *Psychonomic Society*, Long Beach CA, November 2014.
- Ngo, C., Newcombe, N.S., Olson, I. & Weisberg, S.M. The relation between navigation strategy and associative memory. *Psychonomic Society*, Long Beach CA, November 2014.
- Newcombe, N.S., Marchette, S. & Holmes, C. Move to learn: perspective taking and rotation as methods of learning. *Psychonomic Society*, Long Beach CA, November 2014.
- Jirout, J. & Newcombe, N. Building blocks for developing spatial skills: Evidence from a large representative U.S. sample. *International Mind Brain Education Society*, Fort Worth TX, November 2014.
- Frick, A., Bergamo, N., Newcombe, N. & Möhring, W. Mentale Rotation bei 4,5- und 6-Jährigen: Ein Vergleich von prospektiven und retrospektiven Aufgaben und die Rolle des visuell-räumlichen Arbeitsgedächtnisses. *German Psychological Society*, Bochum, September 2014.
- Weisberg, S.M. & Newcombe, N.S. Remembering what and where: The relationship between components of navigation ability and working memory. *Spatial Cognition 2014*, Bremen, Germany, September 2014.
- Möhring, W., Newcombe, N. S., Levine, S. C., & Frick, A. A matter of proportions: Spatial scaling is related to proportional reasoning in 4- and 5-year-olds. *Spatial Cognition 2014*, Bremen, Germany, September 2014.
- Holmes, C.A., Marchette, S. & Newcombe, N.S. Move to learn: Perspective taking and rotation as method for learning spatial layout. *Spatial Cognition 2014*, Bremen, Germany, September 2014.

- Miller, B. W., Hart, J. R., Cromley, J. G., & Newcombe, N. S. Instruction increases diagrammatic reasoning through behavioral engagement. *American Educational Research Association*, Philadelphia, PA, April 2014.
- Miller, B. W., Cromley, J. G., & Newcombe, N. S. The critical role of knowledge gain in improving diagram comprehension. *American Educational Research Association*, Philadelphia, PA, April 2014.
- Miller, B. W., Cromley, J. G., & Newcombe, N. S., Chang, M., & Forbus, K. Using CogSketch to support student science learning through sketching with automatic feedback. *American Educational Research Association*, Philadelphia, PA, April 2014.
- Weisberg, S.M., Newcombe, N.S. & Shipley, T.F. What predicts understanding of topographic maps? *Psychonomic Society*, Toronto, November 2013.
- Jirout, J. & Newcombe, N.S. Mapping the role of representations in spatial game play. *Cognitive Development Society*, Memphis TN, October 2013.
- Möhring, W., Newcombe, N. S., Levine, S. C., & Frick, A. A sense of proportion: Spatial proportional reasoning is associated with formal knowledge about fractions. *European Congress on Developmental Psychology*, Lausanne, Switzerland, September 2013.
- Cromley, J. G., Bergey, B. W., Kirchgessner, M., Wills, T.W., & Newcombe, N. Combining conventions of diagrams instruction and repeated practice in biology classes. *American Educational Research Association*, San Francisco, April 2013.
- Cromley, J. G., Newcombe, N., & Wills, T. W. Cognitive science-based instruction in middle school science: Effects on comprehension of visual representations. *American Educational Research Association*, San Francisco, April 2013.
- Miller, B. W., Cromley, J. G., & Newcombe, N. Improving middle school science students' diagram reasoning through instruction. *American Educational Research Association*, San Francisco, April 2013.
- Newcombe, N.S., Balcomb, F., Ferrara, K.J., Hansen, M. & Koski, J. The emergence of episodic memory between 18 months and five years. Part of a symposium "The emergence and development of episodic memory: Journeys through time and space". *Society of Research in Child Development*, Seattle, WA, April 2013.
- Frick, A., Möhring, W., & Newcombe, N. Picturing perspectives: The development of perspective-taking abilities in 4- to 8-year-olds. *Society of Research in Child Development*, Seattle, WA, April 2013.
- Möhring, W., Newcombe, N., & Frick, A. Mental transformation for spatial scaling in 4- and 5-year-olds. *Society of Research in Child Development*, Seattle, WA, April 2013.
- Jirout, J. & Newcombe, N. Mazes and maps: Can young children find their way? *Society of Research in Child Development*, Seattle, WA, April 2013.
- Harris, J., George, N., Newcombe, N., & Hirsh-Pasek, K.. The mystery of misconceptions: Exploring how understanding of multiple components of motion develops. *Society of Research in Child Development*, Seattle, WA, April 2013.
- Holmes, C.A., Weisberg, S.M., Newcombe, N.S., & Nardi, D. Hitting the slopes: The strength of gradient cues in child navigation. *Society of Research in Child Development*, Seattle, WA, April 2013.

- Holden, M.P., Newcombe, N.S. & Shipley, T.F. Expertise effects in defining spatial categories. *Psychonomic Society*, Minneapolis, MN, November 2012.
- Weisberg, S.M., Nardi, D., Newcombe, N.S. & Shipley, T.F. Sensing the slopes: Sensory modality effects in using slope. *Psychonomic Society*, Minneapolis, MN, November 2012.
- Möhring, W., Newcombe, N.S. & Frick, A.. Zooming in on spatial scaling processes: Mental transformations or proportional judgments? *Psychonomic Society*, Minneapolis, MN, November 2012.
- Weisberg, S.M., Brakonieccki, E., & Newcombe, N.S. The other side of the mountain: Slope as a cue in navigation. *5th International Conference on Spatial Cognition*. Rome, Sept. 2012.
- Weisberg, S.M., Epstein, R.A., Newcombe, N.S., Schinazi, V.R., & Shipley, T.F. Where do you think you are: A virtual environment assessment of navigation ability. *Spatial Cognition 2012*. Kloster Seeon, Bavaria, Germany, August 2012.
- Frick, A. & Newcombe, N.S. The space between the lines: Young children's understanding of 2D diagrams of 3D objects. *Spatial Cognition 2012*, Kloster Seeon, Bavaria, Germany, August 2012.
- Weisberg, S.M., Brakonieccki, E., & Newcombe, N.S. The other side of the mountain: Slope as a cue in navigation. *Cognitive Science Society*, Sapporo, Japan, July 2012.
- Resnick, I., Shipley, T., Newcombe, N., Massey, C. & Wills, T. Examining the representation and understanding of large magnitudes using the hierarchical alignment model of analogical reasoning. *Cognitive Science Society*, Sapporo, Japan, July 2012.
- Koski, J., Newcombe, N. & Olson, I. Assessing relational memory across the first 6 years: What does eye tracking tell us? In symposium on Relational Memory in Infancy: What Kind and How Strong? Chair: N. Newcombe. *International Conference on Infant Studies*, Minneapolis, June 2012.
- Weisberg, S.M., Epstein, R., Newcombe, N., Schinazi, V. R., & Shipley, T. Developing a virtual environment assessment of navigation ability. *American Psychological Society*, Chicago, May 2012.
- Cromley, J. G., Bergey, B. W., Fitzhugh, S. L., Wills, T. W., & Newcombe, N.. Effectiveness of student-constructed diagrams and self-explanation instruction. *American Educational Research Association*, Vancouver, CA, April, 2012.
- Cromley, J. G., Wills, T. W., Bergey, B. W., Fitzhugh, S. L., & Newcombe, N.. Do spatial abilities matter for teaching diagram comprehension? A test of the ability-as-compensator hypothesis. *American Educational Research Association*, Vancouver, CA, April, 2012.
- Cromley, J. G., Newcombe, N.S. & Wills, T. W.. Five tests of the ability-as-compensator hypothesis in diagram comprehension instruction. Part of a symposium "Cognitive processes in comprehension of visual representations: Art, diagrams, graphs, and models", *American Educational Research Association*, Vancouver, CA, April, 2012.
- Newcombe, N.S. Cognitive science learning principles in action: Visualization. *NSTA National Conference on Science Education*, Indianapolis, March 2012.
- Frick, A. & Newcombe, N.S. Development of mental rotation in 3- to 5-year-olds. *Cognitive Development Society*, Philadelphia, PA, October 2011.

- Resnick, I., Shipley, T.F., Newcombe, N., Massey, C., & Wills, T. Progressive alignment of geologic time. *Geological Society of America*, Minneapolis, MN, October 2011.
- Nardi, D., Newcombe, N.S. & Shipley, T.F. Individual differences in reorientation. *American Psychological Society*, Washington, DC, May 2011.
- Cromley, J., Newcombe, N., Wills, T. W., Wills, M., Karakus, M., & Batchelor, M. (2011). Teaching middle school students to reason with visual representations in science. Part of symposium "The effects of curricular modifications based on principles of cognitive science for middle school science curricula". *American Educational Research Association*, New Orleans, LA, April 8-12, 2011.
- Terranova, J., Halberstadt, C., Hou, L., McManaman, M., Athanasopoulou, A., Stahl, A., Wong, W., Chang, A., Golinkoff, R., Hirsh-Pasek, K., Newcombe, N.S. (2011). Girls and boys square off: Gender differences in children's recognition of shapes. *Society for Research in Child Development*, Montreal, QC, March 2011.
- Fisher, K., Hirsh-Pasek, K., Newcombe, N.S., Golinkoff, R. (2011). Untangling playful-learning: Exploring the impact of dialogic inquiry and exploration in play-based pedagogies. *Society for Research in Child Development*, Montreal, QC, March 2011.
- Balcomb, F., Newcombe, N.S., Ferrara, K. (2011). Two rooms, two representations? Emergent episodic-like memory in early childhood. *Society for Research in Child Development*, Montreal, QC, March 2011.
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- Newcombe, N.S. (Organizer and Chair). A cross-species perspective on integration of spatial information for navigation. *American Association for the Advancement of Science*, Washington, DC, Feb. 2005.
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- Newcombe, N.S. Introduction and overview to symposium: Using science to inform preschool assessment. *National Institute for Early Childhood Professional Development, Learning from Assessment*, Baltimore, Maryland, June 20-23, 2004
- Sluzenski, J. & Newcombe, N.S. Do infants just follow their noses in coding spatial location? Discrimination of locations not directly in front of the body. *International Conference on Infant Studies*, Chicago, IL, May 2004.
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- Newcombe, N. S. Questioning the egocentric-to-allothetic shift hypothesis of infant spatial development. Part of symposium, "Do they know where they're going: The development of spatial processing in infancy", *International Conference on Infant Studies*, Brighton, England, July 2000
- Newcombe, N. S. The relation of childhood amnesia to prefrontal cortex development. Presented at conference organized by N. Newcombe, M. Farah & N. Fox, *The relations of prefrontal cortex development to children's cognitive and social behavior*, May 5-8, 2000.
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- Newcombe, N.S. Defining a "radical middle" in the study of cognitive development. Part of symposium, "Domains of change or continuity: Why is infancy so important?" *International Conference on Infant Studies*, Atlanta, April 1998.
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- Bullock, A. & Newcombe, N. Memory at three years: Robust facilitation of perceptual identification, failure of recognition. *Psychonomic Society*, Washington, D.C., November 1993.

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- Lie, E. & Newcombe, N. Young children's ability to recognize familiar and unfamiliar faces. *American Psychological Association*, Washington, D.C., August 1992.
- Newcombe, N. Children's early ability to solve perspective-taking problems. Part of symposium, "The nature of spatial location coding: Developmental and cross-species studies", organized and chaired by N. Newcombe, *Society for Research in Child Development*, Seattle, April 1991.
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- Newcombe, N. & Baenninger, M. A. Timing of puberty and spatial ability: Current status of the hypothesis. Part of symposium, "Individual differences in cognitive abilities during adolescence: An integration of environmental and physiological variables." *Society for Research on Adolescence*, Alexandria, VA, March 1988.
- Newcombe, N. A longitudinal study of predictors of spatial ability in adolescent females. *Society for Research in Child Development*, Baltimore, April 1987.
- Baenninger, M. A., Dubas, J. S. & Newcombe, N. Biological and experiential factors in sex-related differences in spatial ability. Part of symposium organized by N. Newcombe, "Sex-related differences in spatial ability: Recent meta-analyses and future directions." *Society for Research in Child Development*, Baltimore, April 1987.
- Newcombe, N. What do spatial transformation tasks tell us about spatial coding? Part of symposium, "Different frames of reference in children's spatial representation." *American Psychological Association*, Washington, DC, August 1986.
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- Newcombe, N. & Dubas, J.S. Cognitive consequences of timing of puberty: A meta-analysis. *International Society for the Study of Behavioral Development*, Tours, France, July 1985.
- Newcombe, N., Dubas, J.S., & Spies, C. Two-year-olds' coding of spatial location. *Society for Research on Child Development*, Toronto, April 1985.
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- Dubas, J.S. & Newcombe, N. The choice of non-traditional careers for women: Preference or ability? *Association of Women in Psychology*, New York, March 1985.
- Ward, S.L., Newcombe, N., & Overton, W.F. Turn left at the church, or three miles north: A study of direction giving and sex differences. *Eastern Psychological Association*, Boston, March 1985.
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- Newcombe, N. Gender issues in the study of development. Part of symposium, "Gender, power, and values: The intellectual legacy of Carolyn Wood Sherif." *American Psychological Association*, Anaheim, California, August 1983.
- Newcombe, N. & Lerner, J.C. The varieties of historical experience: Methodology in assessing the life and work of John Bowlby. *Society for Research in Child Development*, Detroit, April 1983
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- Liben, L.S. & Newcombe, N. Barrier effects on the cognitive maps of children and adults. *Southeastern Conference on Human Development*, Alexandria, Virginia, April 1980.

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Branch, C. & Newcombe, N. Racial attitudes in preschoolers as related to level of parental civil rights activism. *Eastern Psychological Association*, Philadelphia, Pennsylvania, April 1979.

Lerner, J.C. & Newcombe, N. Britain between the wars: The historical context of Bowlby's theory of attachment. *Society for Research in Child Development*, San Francisco, California, March 1979

Newcombe, N. & MacKenzie, D.L. Development of encoding and decision processes in visual recognition. *American Psychological Association*, Toronto, Ontario, August 1978

Newcombe, N. & Arnkoff, D.B. Speech styles and sex stereotypes. *Association of Women in Psychology*, Pittsburgh, Pennsylvania, March 1978.

Newcombe, N. & Huttenlocher, J. Semantic effects on immediate ordered recall by young children. *Society for Research in Child Development*, Denver, Colorado, April 1975.

Professional Service Talks

Newcombe, N.S. Introduction for Dr. Martha Farah, *Society for Research in Child Development*, Philadelphia, PA, March 2015.

Newcombe, N.S. & Hawes, Z. (Chairs), Symposium on "The relationship between spatial thinking and mathematics in early childhood", *Society for Research in Child Development*, Philadelphia, PA, March 2015.

Newcombe, N.S. Introduction for Dr. Laurence Steinberg, *Cognitive Development Society*, Philadelphia, PA, October 2011.

Newcombe, N.S. Introduction for Dr. Marcia Johnson's address in connection with the Distinguished Scientific Contribution Award, *American Psychological Association*, Washington DC, August 2011.

Newcombe, N.S. Participant in panel on Academic Careers in Psychology, *Eastern Psychological Association*, Cambridge, MA, March 2011.

Newcombe, N.S. Participant in "Writing effective graduate school letters of recommendation". *Eastern Psychological Association*, Pittsburgh, PA, March 2009.

Newcombe, N.S. Introduction for Dr. Janellen Huttenlocher's address in connection with the Distinguished Scientific Contribution Award, *American Psychological Association*, Boston, August 2008.

Newcombe, N.S. Five burning questions of the professoriate. *Cognitive Development Society*, Santa Fe, NM, October 2007.

Newcombe, N.S. & Hagen, J.W. Conversation hour on Presidential Task Force on Math and Science Education, *American Psychological Association*, San Francisco, CA, August 2007.

Newcombe, N.S. How to get published: Advice from journal editors. *Association for Psychological Science*, Washington DC, May 2007.

- Newcombe, N.S. Presenter at APA Career Workshop, *Society for Research in Child Development*, Boston, March 2007.
- Newcombe, N.S. Moderator for Establishing Professional Connections and Collaborations: A Panel Discussion. Women in Cognitive Science, *Psychonomic Society*, Houston, November 2006.
- Newcombe, N.S. Introduction for Dr. Ann Masten's Division 7 Presidential Address, *American Psychological Association*, New Orleans, August 2006.
- Newcombe, N.S. Introduction for Dr. Douglas Medin's address in connection with the Distinguished Scientific Contribution Award, *American Psychological Association*, Washington, DC, August 2005.
- Newcombe, N.S. Introduction for Dr. Nathan Fox's Division 7 Presidential Address, *American Psychological Association*, Honolulu, August 2004.
- Newcombe, N.S. Co- Chair for Roundtable Breakfast Discussion, Reconsidering Domain Specificity and Domain Generality in Infant Cognition. *International Conference on Infant Studies*, Chicago, IL, May 2004.
- Newcombe, N.S. Introduction for Dr. Richard J. Davidson, *Cognitive Development Society*, Park City, Utah, October 2003.
- Newcombe, N.S. How to negotiate. Paper in Academic Career Workshop for new Ph.D.s. *Society for Research in Child Development*, Tampa, FLA, April 2003.
- Newcombe, N.S. Participant in Town Meeting on the United Nations Convention on the Rights of the Child. *American Psychological Association*, Chicago, August 2002.
- Newcombe, N.S. Participant in Conversation Hour on IRBs and research with children—Protecting children and promoting research. *American Psychological Association*, Chicago, August 2002.
- Newcombe, N.S. Introduction for Dr. Janellen Huttenlocher's G. Stanley Hall Award Lecture, *American Psychological Association*, Chicago, August 2002.
- Newcombe, N.S. Introduction for Dr. Amanda Woodward's McCandless Award Lecture, *American Psychological Association*, San Francisco, August 2001.
- Newcombe, N.S. How to publish: The editor's perspective. *American Psychological Association*, San Francisco, August 2001
- Newcombe, N.S. How to negotiate. Paper in Academic Career Workshop for new Ph.D.s. *Society for Research in Child Development*, Minneapolis, MN, April 2001.
- Newcombe, N.S. Introduction for Dr. Judy DeLoache's Division 7 Presidential Address, *American Psychological Association*, Washington, DC, August 2000.
- Newcombe, N.S. Introduction for Dr. Judy DeLoache's Master Lecture on Cognitive Development, *Society for Research in Child Development*, Albuquerque, April 1999
- Newcombe, N.S. How to publish: The editor's perspective. *American Psychological Association*, Chicago, August 1997.

Newcombe, N.S. An editor's perspective on electronic publishing. Part of symposium, Where is Electronic Publishing Taking APA? *American Psychological Association*, Chicago, August 1997.

Newcombe, N. How to get your articles published. *Southeastern Psychological Association*, Norfolk, March 1996.

Discussant Comments

Newcombe, N.S. Discussant for symposium "A new approach to memory development". *Society for Research in Child Development*, Philadelphia, PA, March 2015.

Newcombe, N.S. Discussant for symposium "Memory for objects in spatial context: Developmental change examined with ERP, MRI and in atypical development". *Society for Research in Child Development*, Seattle, WA, April 2013.

Newcombe, N.S. Discussant and Co-Organizer for symposium "Educating spatial skills at varied ages with varied approaches: Are STEM outcomes affected? *Society for Research in Child Development*, Seattle, WA, April 2013.

Newcombe, N.S. Discussant for symposium "Where are we now? Understanding spatial skills, strategies, and navigation". *American Psychological Society*, Washington, DC, May 2011.

Newcombe, N.S. Discussant for symposium "When representational systems collide: Aligning space and language". *International Society on Infant Studies*, Baltimore, MD, March 2010.

Newcombe, N.S. Discussant for symposium "Visualizations in the mind and in the world: Implications for STEM education", *American Association for the Advancement of Science*, San Diego, CA, February 2010.

Newcombe, N.S. Looking in from the outside: The view from space and the view from language. Discussant comments for Conference on *The INS and OUTS of Spatial Language*. Chicago, June 2008.

Newcombe, N.S. Discussant for symposium, "What goes in must come out': Developmental differences in encoding and the effects on source monitoring." *Society for Research in Child Development*, Boston, March 2007.

Newcombe, N.S. Discussant for the symposium "Perspectives on space: Development, representation and spatial dysfunction in William's syndrome. *Eastern Psychological Association*, Baltimore, MD, March 2006.

Newcombe, N.S. Discussant for symposium, "Early gender differences in spatial skills: How to intervene to improve spatially-based mathematical thinking. *Society for Research in Child Development*, Atlanta, GA, April 2005.

Newcombe, N.S. Discussant for symposium, "Early development of relational coding: Abilities and limitations. *Society for Research in Child Development*, Atlanta, GA, April 2005.

Newcombe, N.S. Discussant for Presidential symposium, New perspectives on language acquisition, *Cognitive Development Society*, Park City, Utah, October 2003.

Newcombe, N.S. Discussant for symposium, "Spatial cognition and the rest of cognition: Relations between spatial and nonspatial thinking." *Society for Research in Child Development*, Tampa,

April 2003.

Newcombe, N.S. Discussant for symposium, "Infant working memory: Development, measurement, and functionality." *Society for Research in Child Development*, Minneapolis, MN, April 2001.

Newcombe, N. S. Discussant for symposium, "Expectancy, perseveration, and permanence: What information do we get from looking and reaching tasks?" *International Conference on Infant Studies*, Brighton, England, July 2000.

Newcombe, N. Discussant for John Bruer's talk, *The myth of the first three years: Implications for child development and public policy*, Temple University, March 13, 2000.

Newcombe, N. Discussant for Spatial Coding session, Symposium Co-Organized by N. Newcombe, J. Huttenlocher and B. Landau, *Fostering Spatial Competence: Behavioral, Symbolic and Brain Aspects*, Chicago, Oct 17-19, 1999.

Newcombe, N.S. Discussant for symposium, "The representation of continuous quantity in infants and children", *Society for Research in Child Development*, Albuquerque, April 1999.

Newcombe, N. Discussant for invited symposium on early memory, organized by P. Bauer, *American Psychological Society*, New York, July 1995.

Newcombe, N. Discussant for paper session: Young children's thinking. *Jean Piaget Society*, Philadelphia, PA, June 1990

Newcombe, N. Discussant for symposium: Do gender differences in horizontality result primarily from cognitive or perceptual factors? *Eastern Psychological Association*, Philadelphia, PA, April 1990.

Newcombe, N. Discussant for paper session: Spatial relations. *Jean Piaget Society*, Philadelphia, PA, June, 1989.

Newcombe, N. Discussant for paper session: Young children's cognition. *Jean Piaget Society*, June 1988.

Newcombe, N. Discussant for paper session: Spatial representation. *Jean Piaget Society*, Philadelphia, May 1987.

Newcombe, N. Discussant for paper session: Spatial representational processes. *Jean Piaget Society*, Philadelphia, May 1986.

Newcombe, N. Discussant for M.C. Linn & A.C. Petersen, Emergence and characterization for gender differences in spatial ability: A meta-analysis. *American Educational Research Association*, Montreal, April 1983.

Newcombe, N. Discussant for symposium: Cognitive mapping. *American Psychological Association*, Washington, DC, August 1982.

Newcombe, N. Discussant for symposium: Current perspectives in large-scale spatial cognition. *Society for Research in Child Development*, Boston, April 1981.

Newcombe, N. Discussant for symposium: Sex differences in cognition: Exploring alternative explanations. *American Psychological Association*, Montreal, September 1980.

Colloquia

2016—Gallaudet University, Boston College, University of Wisconsin
 2015—University College London, UC-Berkeley, Kent State, University of Western Ontario
 2014---Villanova, Rutgers, ETH Zurich, University of Lausanne, Northern Illinois, University of Pennsylvania (Center for Cognitive Neuroscience)
 2013—Georgia State
 2012—Florida International University, Pennsylvania State University (Geography), University of Western Ontario, University of Bern
 2011—Columbia University, University of California-Berkeley, University of Chicago (Education), University of Kansas (Visiting Scholar)
 2010—University of Chicago (Psychology), Radcliffe Institute, Lehigh Valley Association of Independent Colleges
 2009—Brown University (Schlosberg Lecture), Johns Hopkins, Lehigh University, University of Pennsylvania (IRCS), UC-Santa Barbara
 2008— Robert Wood Johnson Medical School, UC-Davis, UC-San Diego, University of Colorado, University of Delaware, Wesleyan University
 2007—Georgetown University, Ohio State University, Suffolk University
 2006—Cornell, Washington University, University of Arizona, University of Maryland
 2005---Carnegie-Mellon, Harvard, Johns Hopkins, Rutgers-Camden
 2004—Ursinus College
 2003-- Brooklyn College, Hunter College, Rutgers, Yale
 2002—NYU, University of Pennsylvania, University of Texas at Dallas, University of Toronto
 2001—University of Maryland
 2000—Lehigh, McMaster, Princeton, University of Chicago, University of Iowa
 1999—NYU, Princeton, University of Delaware
 1998—Emory, Harvard, Robert Wood Johnson Medical School
 1997—Northwestern, Pennsylvania State University, Villanova
 1996—Bryn Mawr, Community College of Philadelphia, LaSalle, University of Minnesota
 1995-- University of Delaware
 1994—NYU, University of Illinois
 1993-- University of Pennsylvania
 1992-- Arizona State University, University of Arizona
 1988—Concordia, University of Maine
 1986—Dartmouth, Rutgers, Tulane
 1985-- University of Pennsylvania
 1983—University of Maryland
 1982---Bryn Mawr
 1980—Bucknell
 1979—Lycoming College

Professional Service

Current Editorial Positions:

Action Editor, *Cognitive Psychology*, 2007-
Associate Editor, *Cognitive Research: Principles and Implications* (Founding Editorial Board), 2015-
Editorial Team, *Policy Insights from Behavioral and Brain Sciences*, 2014-16
Consulting Editor, *Psychonomic Bulletin and Review*, 2005- , *Child Development*, 2008- , *Spatial Cognition and Computation*, 2008- , *Developmental Science*, 2014- , *Cognition*, 2015- ,
Reviewer for many other journals, e.g., *Current Biology*, *Journal of Cognition and Development*, *Journal of Experimental Psychology: Learning, Memory, and*

Cognition, Psychological Bulletin, Psychological Review, PNAS.

Current Professional Society Positions:

Section on Psychology (J), American Association for the Advancement of Science, Chair-Elect 2016-17, Chair 2017-18, Past Chair 2018-19.
Federation of Associations in Behavioral & Brain Sciences, President-Elect, 2016-17, President 2017-18, Past President 2018-19.
Governing Board, Cognitive Science Society, 2013-18
Chair-Elect 2014-15, Chair 2015-16, Past Chair 2016-17.

Other Service (Current):

Advisory Board for P01 project "Development and Neurobiology of Categorization", 2016-2021.
American Academy of Arts and Science, Task Force on the *Public Face of Science*, 2016-
Databrary Advisory Board, 2015-
GSS Advisory Committee, 2014-
Committee on Science and the Arts, The Franklin Institute, 2013-

Past Editorial Positions:

Associate Editor, *WIREs in Cognitive Science*, 2008-2016.
Associate Editor, *Cognitive Processing*, 2012-2016.
Guest Co-Editor, Special Issue on Social Cognition: From Babies to Robots. *Neural Networks*, 2010.
Guest Co-Editor, Special Issue on Spatial Frameworks, *Journal of Experimental Psychology: Learning, Memory and Cognition*, 2008-09.
Associate Editor, *Perspectives on Psychological Science*, 2005-09.
Invited Co-Editor, Special Issue on Interactions among Scientists and Policy Makers: Challenges and Opportunities, *American Psychologist*, March 2002.
Editor, *Journal of Experimental Psychology: General*, 1996-2001.
Guest Editor, Special Issues on Early Memory, *Journal of Experimental Child Psychology*, 1993-94.
Associate Editor, *Psychological Bulletin*, 1990-94
Consulting Editor, *Developmental Psychology*, 1981-87, *Child Development*, 1982-1996, 2007-13, *Journal of Experimental Child Psychology*, 1983-2005, *Psychological Bulletin*, 2002-04, *Psychological Science*, 2004-10

Past Grant Reviewing:

NSF STC Pre-Proposals, Reviewer, February 2015
NSF SBE MPRF Panel, Reviewer, January 2012.
NIH Program Project Grant, Reviewer, April 2011, May 2012.
Research and Evaluation on Education in Science and Engineering (REESE), NSF, February 2010.
Developmental and Learning Sciences Advisory Panel, NSF, 2003-06.
Developmental and Learning Sciences Advisory Panel, NSF, November 2001.
Learning and Intelligent Systems Initiative, NSF, 1998.
Perception and Cognition Review Group, NIH, 1993.
Human Cognition and Performance Advisory Panel, NSF, 1989-93.
Mental Health Small Grant Review Panel, NIMH, 1987-89, Chair 1988-89.
Adolescent Family Life Review Group, NIH, 1985

Past APA Activity:

Board of Scientific Affairs, Member 2009-11, Chair 2011
Member-at-Large, Division 3 Executive Committee, 2007-10.
Editor Search Committee, *Journal of Experimental Psychology: General*, 2010

Host at Mentoring Breakfast, APA Meeting, Boston, August 2008.
 Delegate, Grand Challenges Summit, October 2007.
 Chair, APA Task Force on Math and Science Education, 2007.
 Delegate, Education Leadership Conference, 2007.
 Delegate, Science Leadership Conference, 2005, 2006, 2007, 2010, 2011
 Candidate for APA President, 2006.
 APA Board of Scientific Affairs Representative to the Federation of Behavioral,
 Psychological, and Cognitive Sciences, 2006-8.
 Delegate, APA Membership Summit, 2006
 Editor Search Committee, *Journal of Experimental Psychology: General*, 2006
 APA Board of Scientific Affairs Representative to AAAS Section J, 2005-8.
 Committee on Scientific Awards, 2004-2006, Chair 2006
 Koppitz Fund Committee, American Psychological Foundation, 2003-7.
 APA Testimony to Congress on the NSF Budget, April 2002.
 President-Elect, Division 7, 2000-2001; President, 2001-2002; Past President,
 2002-2003.
 Executive Committee, Division 1 (General), 1999-2000.
 Publications and Communications Board Liaison, 1998-2000
 Chair-Elect (1998-99), Chair (1999-2000), Council of Editors
 Division 7 Representative to Council, 1998-2000.
 Chair, Division 7 Early Career Award Committee, 1995.
 Member, Division 7 Credentials Committee, 1994-96.
 Chair, Division 7 Dissertation Award Committee, 1993.
 Member-at-Large, Division 7 Executive Committee, 1991-93.
 Track Chair, Science Weekend, 1989; Program Chair, Division 7, 1989.

Past Professional Society Positions:

Board of the International Mind, Brain, Education Society, 2009-16
 American Academy of Arts and Sciences' Class III, Section 1
 (Social and Developmental Psychology) Membership Panel, 2012-14
 President-Elect 2007-9, President 2010-11, Past President 2012-13, Cognitive
 Development Society
 Program Chair, 2011, International Mind, Brain, Education Society.
 President-Elect 2007-8, President 2008-9, Past President 2009-10, Eastern
 Psychological Association
 Secretary, Section on Psychology (J), American Association for the
 Advancement of Science, 2002-2010.
Perspectives Editor Search Committee, APS, 2009
 Lifelong Learning at Work and at Home Taskforce, APS, 2006-09
 Psychonomic Society representative to AAAS Section J, 2005-09.
 Women in Cognitive Science Board, 2004-08.
 Board of the Cognitive Development Society, 2003-9; Program Chair, 2005.
 Governing Board, Psychonomic Society, 2002-8
PB&R Editor Search Committee 2005.
 Host, Lunch with the Leaders, SRCD, Albuquerque, NM, April 1999.
 Program Committee, Society for Research in Child Development, 1993-99,
 Co-Chair, 1995-97.

Past NSF-Related Activity:

Invited Participant, Design-Based Implementation Workshop, San Francisco,
 June 2011.
 Research Methodology Expert Panel, NORC, April 25, 2011.
 Invited Participant, UCSB Spatial Literacy Workshop, February 2011.
 Invited Participant, NSF Neuroscience Workshop, Arlington, VA, Dec. 2007

Invited Participant, Transfer of Learning Workshop, March 2002.
 Invited Participant, Applying the Science of Learning, Claremont, CA, Feb. 2001.
 Co-Organizer of Conference on Fostering Spatial Competence: Behavioral, Symbolic and Brain Aspects, Chicago, Oct 17-19, 1999. NSF Sponsored.
 Co-Chair, Blue Ribbon Panel on Transition of Children to the Workforce, 1999-2000.
 Advisory Committee on Children and Learning, 1998.
 Workshop on Contributions of the Social Sciences to the NSF Review of Undergraduate Education, 1996.
 Co-Chair, Conference on Cognitive Science Bases of Math and Science Education, 1995.

Other Service (Past): Advisory Board, VISUAL Project, UC-Berkeley, 2010-2015
 Nominating Committee, AAAS Section on Psychology, 2012-2014
 Advisory Board, National Living Laboratory, 2011-13
 Advisory Panel, Wechsler Preschool and Primary Scale of Intelligence–Fourth Edition (WPPSI–IV), 2010-12
 Coordinator, Science of Learning Center PI Committee, 2010 and 2011.
 External Review Board, University of Minnesota Interdisciplinary Training Program in Cognitive Science, 2006-11.
 Co-Program Chair, Spatial Cognition 10, Mount Hood, Oregon.
 Co-Program Chair, Spatial Cognition 08, Freiburg, Germany.
 Advisory Board, Hegarty-Stieff Chemistry Education Grant, 2008-10
 National Academy Panel to Review the National Children’s Study Research Plan, 2007-8.
 Congressional visits on behalf of the Coalition for National Science Funding, Hill Day, September 13, 2006.
 Presentation, Women in Science Congressional Briefing Lunch, May 24, 2005.
 Presentation to 10th Annual Coalition for National Science Funding, Science@Work, Capitol Hill, June 22, 2004.
 Presentations to the Mathematical Sciences Education Board, National Academy of Sciences, Nov. 5, 2003 and March 22, 2004.
 Advisory Board, Cornell Institute for Research on Children (CIRC), 2003-5.
 Co-Organizer, Working Conference on Using Scientific Knowledge of Development to Inform Preschool Assessment, Temple University Center City, Jan. 30-31, 2003.
 Co-Organizer, Conference on the Relations of Prefrontal Cortex Development to Children’s Cognitive and Social Behavior, Chestnut Hill, PA, May 5-8, 2000. Sponsored by Temple University and APA.
 Presenter and Discussion Leader on Cognitive Development, Research Opportunities in Child and Adolescent Development, Forum on Research Management, Dec 16-17, 1999.
 Presentation to 4th Annual Coalition for National Science Funding, Capitol Hill, June, 1998.
 External Examiner, Swarthmore College, 1992.
 External Examiner, Doctoral Dissertation, University of Toronto, 1987.
 External Evaluator, Psychology Dept., University of Massachusetts-Boston, 1986.

Memberships: American Association for the Advancement of Science, Association for Psychological Science, Cognitive Development Society, Cognitive Science Society, Eastern Psychological Association, International Society for Infant Studies, Jean Piaget Society, Psychonomic Society, Sigma Xi, Society for

Research in Child Development

Teaching:

Undergraduate: introduction to psychology, developmental psychology, research methods, cognitive development, memory, infancy, adolescence, cognitive bases of education

Graduate: developmental core, cognitive core, cognitive development, developmental theory, development of memory, spatial cognition and development, cognitive development and education.