

# POOJA K. AGARWAL, Ph.D.

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## EDUCATION

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<b>Ph.D., Cognitive Psychology</b> Washington University in St. Louis (Advisor: Henry L. Roediger, III)	2011
<b>M.A., Cognitive Psychology</b> Washington University in St. Louis	2009
<b>B.A., Cognitive Neuroscience &amp; Elementary Teacher Certification</b> Washington University in St. Louis	2005

## PROFESSIONAL EXPERIENCE

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<b>Adjunct Professor, Vanderbilt University, Peabody College</b> Teaching innovative graduate-level online courses on the science of learning for leaders in education	2018 – Present
<b>Assistant Professor, Berklee College of Music</b> Designing and teaching interactive psychology courses for exceptional undergraduate musicians	2016 – Present
<b>Founder and Editor-in-Chief, RetrievalPractice.org</b> Leading RetrievalPractice.org, a hub of strategies for teachers, based on the science of learning	2016 – Present
<b>Research Scientist, University of South Florida</b> Spearheaded an extensive review of applied learning research in authentic classroom settings	2015 – 2016
<b>Project Lead, Harvard University</b> Produced science content and videos for Harvard's Massive Open Online Courses (MOOCs)	2014 – 2015
<b>Post-Doctoral Research Associate, Washington University in St. Louis</b> Directed applied research with K-12 teachers, 1,500 students, and 20 research assistants	2012 – 2014
<b>Director of K-12 Student Assessment, Illinois State Board of Education</b> Directed Illinois's standardized tests for 2 million students, managed a \$43 million budget, and led policy reforms including a No Child Left Behind waiver request and transition to PARCC	2011 – 2012
<b>Director of Research in K-12 Classrooms, Washington University in St. Louis</b> Designed, implemented, and published groundbreaking research on the science of learning	2005 – 2011

## ADDITIONAL TEACHING EXPERIENCE

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**Adjunct Professor**, Washington University in St. Louis Spring 2013

- The Science of Effective Study Strategies (freshman seminar)
- The Science & Politics of Standardized Testing in the U.S. (graduate level seminar)

**Teaching Assistant**, Washington University, Cognitive Psychology Spring 2009

**Student Teacher**, St. Louis County Public Schools, Grades 4-5 2004 – 2005

**Curriculum Coordinator**, IMSA Kids Institute, Grades 2-12 1999 – 2005

## ADDITIONAL POLICY EXPERIENCE

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**Fellow**, Office of Federal Policy Summer 2008  
The College Board (Advisor: John “Jay” Cole) Washington, DC

**Intern**, Institute of Education Sciences (IES) Summer 2006  
U.S. Department of Education (Advisor: Elizabeth R. Albro) Washington, DC

**Intern**, Office of Educational Technology Summer 2003  
U.S. Department of Education (Advisor: John Bailey) Washington, DC

## HONORS & AWARDS

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Association for Psychological Science (APS) Rising Star Award 2017

American Psychological Association (APA) Graduate Researcher Student Award (\$1,000) 2009

Illinois Mathematics & Science Academy (IMSA) Alumni Titan Award 2009

Washington University Graduate Research Symposium, 1<sup>st</sup> Place in Social Sciences (\$250) 2009

National Science Foundation (NSF) Graduate Research Fellowship (\$120,000) 2007

Harry S. Truman Scholarship (\$30,000) 2005

Washington University Undergraduate Research Grants (\$5,000) 2005

## PEER-REVIEWED PUBLICATIONS

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- Agarwal, P. K.** (in press). Retrieval practice and Bloom's taxonomy: Do students need fact knowledge before higher order learning? *Journal of Educational Psychology*.
- Agarwal, P. K.**, Finley, J. R., Rose, N. S., & Roediger, H. L. (2017). Benefits from retrieval practice are greater for students with lower working memory capacity. *Memory*, *25*, 764-771.
- Agarwal, P. K.**, D'Antonio, L., Roediger, H. L., McDermott, K. B., & McDaniel, M. A. (2014). Classroom-based programs of retrieval practice reduce middle school and high school students' test anxiety. *Journal of Applied Research in Memory and Cognition*, *3*, 131-139.
- McDermott, K. B., **Agarwal, P. K.**, D'Antonio, L., Roediger, H. L., & McDaniel, M. A. (2014). Both multiple-choice and short-answer quizzes enhance later exam performance in middle and high school classes. *Journal of Experimental Psychology: Applied*, *20*, 3-21.
- Zaromb, F., Butler, A. C., **Agarwal, P. K.**, & Roediger, H. L. (2014). Collective memories of three wars in United States history in younger and older adults. *Memory & Cognition*, *42*, 383-399.
- McDaniel, M. A., Thomas, R. C., **Agarwal, P. K.**, McDermott, K. B., & Roediger, H. L. (2013). Quizzing in middle-school science: Successful transfer performance on classroom exams. *Applied Cognitive Psychology*, *27*, 360-372.
- Agarwal, P. K.** (2012). Advances in cognitive psychology relevant to education: Introduction to the special issue. *Educational Psychology Review*, *24*, 353-354.
- Agarwal, P. K.**, Bain, P. M., & Chamberlain, R. W. (2012). The value of applied research: Retrieval practice improves classroom learning and recommendations from a teacher, a principal, and a scientist. *Educational Psychology Review*, *24*, 437-448.
- Agarwal, P. K.**, & Roediger, H. L. (2011). Expectancy of an open-book test decreases performance on a delayed closed-book test. *Memory*, *19*, 836-852.
- McDaniel, M. A., **Agarwal, P. K.**, Huelser, B. J., McDermott, K. B., & Roediger, H. L. (2011). Test-enhanced learning in a middle school science classroom: The effects of quiz frequency and placement. *Journal of Educational Psychology*, *103*, 399-414.
- Roediger, H. L., **Agarwal, P. K.**, McDaniel, M. A., & McDermott, K. B. (2011). Test-enhanced learning in the classroom: Long-term improvements from quizzing. *Journal of Experimental Psychology: Applied*, *17*, 382-395.
- Fazio, L. K., **Agarwal, P. K.**, Marsh, E. J., & Roediger, H. L. (2010). Memorial consequences of multiple-choice testing on immediate and delayed tests. *Memory & Cognition*, *38*, 408-418.
- Marsh, E. J., **Agarwal, P. K.**, & Roediger, H. L. (2009). Memorial consequences of answering SAT II questions. *Journal of Experimental Psychology: Applied*, *15*, 1-11.
- Agarwal, P. K.**, Karpicke, J. D., Kang, S. H. K., Roediger, H. L., & McDermott, K. B. (2008). Examining the testing effect with open- and closed-book tests. *Applied Cognitive Psychology*, *22*, 861-876.

## BOOK, GUIDES, & ADDITIONAL PUBLICATIONS

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**Agarwal, P. K., & Bain, P. M.** (forthcoming book, spring 2019). *Powerful teaching: Unleash the science of learning*. San Francisco, CA: Jossey-Bass.

**Agarwal, P. K.** (2018, July 24). You're already harnessing the science of learning (you just don't know it). *EdSurge*. Available online at [edsurge.com](https://edsurge.com).

**Agarwal, P. K.,** Roediger, H.L., McDaniel, M. A., & McDermott, K. B. (2013, 2018). How to use retrieval practice to improve learning. Washington University in St. Louis, St. Louis, MO.

Pan, S. C., & **Agarwal, P. K.** (2018). Retrieval practice and transfer of learning: Fostering students' application of knowledge. University of California, San Diego, CA.

Rohrer, D., Dedrick, R. F., & **Agarwal, P. K.** (2017). Interleaved mathematics practice: Giving students a chance to learn what they need to know. University of South Florida, Tampa, FL.

**Agarwal, P. K.,** Lange, R., & Metcalf, L. A. (2012). Illinois's growth model approach using the value table method. Illinois State Board of Education, Springfield, IL.

White, B. R., & **Agarwal, P. K.** (2011). The principal report: The state of school leadership in Illinois. Illinois Education Research Council, Edwardsville, IL.

**Agarwal, P. K.** (2003, October/November). College life in the Internet age. *Upgrade*, 14-15.

**Agarwal, P. K.** (2001). If I could make a school. *Learning & Leading with Technology*, 29, 28-31.

## BOOK CHAPTERS

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Pyc, M. A., **Agarwal, P. K.,** & Roediger, H. L. (2014). Test-enhanced learning. In V. A. Benassi, C. E. Overson, & C. M. Hakala (Eds.), *Applying science of learning in education: Infusing psychological science into the curriculum*. APA Society for the Teaching of Psychology.

Roediger, H. L., **Agarwal, P. K.,** Kang, S. H. K., & Marsh, E. J. (2010). Benefits of testing memory: Best practices and boundary conditions. In G. M. Davies & D. B. Wright (Eds.), *New frontiers in applied memory* (pp. 13-49). Brighton, U.K.: Psychology Press.

Roediger, H. L., Weinstein, Y., & **Agarwal, P. K.** (2010). Forgetting: Preliminary considerations. In S. Della Sala (Ed.), *Forgetting* (pp. 1-22). Hove, U.K.: Psychology Press.

## EDITORIAL & REFEREE EXPERIENCE

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**Consulting Editor**, *Scholarship of Teaching and Learning in Psychology* 2014 – Present

**Guest Editor**, *Educational Psychology Review* (special issue, September 2012) 2010 – 2012

**Invited Reviewer** 2009 – Present

*Advances in Health Education; American Educational Research Journal; American Psychologist; Applied Cognitive Psychology; British Journal of Educational Psychology; Current Directions in Psychological Science; Educational Psychology; Educational Psychology Review; Educational Researcher; Journal of Applied Research on Memory and Cognition; Journal of Educational Psychology; Journal of Experimental Psychology: Learning, Memory, & Cognition; Learning and Individual Differences; Learning and Instruction; Memory; Mind, Brain, & Education; Psychonomic Bulletin & Review; Review of Educational Research; Scholarship of Teaching and Learning in Psychology*

## INVITED KEYNOTES & WORKSHOPS FOR K-12 EDUCATORS

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**Agarwal, P. K.** (2019, April). *Powerful teaching: Unleash the science of learning*. Workshop to be delivered at the Learning & the Brain Professional Development Seminar, Boston, MA.

**Agarwal, P. K.** (2019, January). *Powerful teaching: Unleash the science of learning*. Workshop to be delivered at the Pingry School, Basking Ridge, NJ.

**Agarwal, P. K.** (2019, November). *Powerful teaching: Unleash the science of learning*. Webinar hosted by the South Carolina Governor's School for Science and Mathematics.

**Agarwal, P. K., & Bain, P. M.** (2019, November). *Powerful teaching: Unleash the science of learning*. Webinar hosted by Digital Promise.

**Agarwal, P. K.** (2018, October). *Powerful teaching: Unleash the science of learning*. Workshop delivered at St. George's School, Middletown, RI.

**Agarwal, P. K.** (2018, September). *Transform educational technology with powerful tools from the science of learning*. Keynote delivered at LearnLaunch, Boston, MA.

**Agarwal, P. K.** (2018, February). *Unleash the science of learning: Transform teaching with strategies from cognitive science*. Workshop delivered at the Interlochen Center for the Arts, Interlochen, MI.

**Agarwal, P. K.** (2017, November). *Unleash the science of learning: Evidence-based teaching strategies to transform classrooms*. Workshop delivered at the Learning & the Brain Conference, Boston, MA.

Francisco, A., & **Agarwal, P. K.** (2017, October). *Putting learning science research to work: Translating research to support education leaders*. Talk delivered at the iNACOL Symposium, Orlando, FL.

- Agarwal, P. K.** (2017, July). *Make it stick: Harness the science of learning & transform teaching*. Keynote delivered at the 11<sup>th</sup> Annual Teaching with Technology Symposium, Little Rock, AR.
- Agarwal, P. K., & Bain, P. B.** (2016, July). *Make it stick: How to teach economics & personal finance so students will remember*. Workshop delivered at the Federal Reserve Bank, St. Louis, MO.
- Agarwal, P. K.** (2016, June). *Retrieval practice: Learning to learn*. Talk delivered at the Character Lab Toolbox Workshop, Philadelphia, PA.
- Agarwal, P. K.** (2015, February). *The science of effective learning: Retrieval as an effective and efficient strategy in your classroom*. Keynote delivered at the Math Teachers Conference, Milton, MA.
- Agarwal, P. K.** (2014, August). *Teaching strategies + cognitive science = student success*. Workshop delivered at the IES Regional Education Laboratory Bridge Event, Chambersburg, PA.
- Agarwal, P. K.** (2014, January). *Student engagement and academic outcomes: Evidence from cognitive research*. Talk delivered at the National Association of State Boards of Education, Arlington, VA.
- Agarwal, P. K.** (2013, December). *Organizing instruction and study to improve student learning*. Workshop delivered at the IES Regional Education Laboratory Bridge Event, Laurel, DE.
- Agarwal, P. K., Obenhaus, A., & McDoniel, M.** (2013, October). *How to use retrieval practice to improve learning*. Talk delivered at the Teach for America Development Day, St. Louis, MO.
- Agarwal, P. K.** (2013, September). *Organizing instruction and study to improve student learning*. Workshop delivered at the IES Regional Education Laboratory Bridge Event, Dover, DE.
- Agarwal, P. K.** (2013, April). *The science of learning: How to use retrieval practice to improve learning*. Talk delivered at Metro Academic and Classical High School, St. Louis, MO.
- Dufault, C., & **Agarwal, P. K.** (2013, January). *Make learning stick: Applying cognitive science research to improve teaching and learning*. Talk delivered at McKinley Middle School, St. Louis, MO.
- McDaniel, M. A., & **Agarwal, P. K.** (2010, September). *How to use retrieval practice to improve your students' learning*. Talk delivered at Columbia Middle School, Columbia, IL.

## INVITED KEYNOTES & WORKSHOPS FOR HIGHER EDUCATION

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- Agarwal, P. K.** (2018, October). *Powerful teaching: Unleash the science of learning for diverse students*. Keynote delivered at the Massachusetts College of Liberal Arts, North Adams, MA.
- Agarwal, P. K.** (2018, October). *Powerful teaching: Unleash the science of learning*. Keynote delivered at Wellesley College, Wellesley, MA.
- Agarwal, P. K.** (2018, September). *Powerful teaching: Unleash the science of learning for diverse students*. Keynote delivered at Massachusetts Bay Community College, Boston, MA.

- Agarwal, P. K.** (2018, August). *Giving science away: The critical importance of effective science communication*. Talk delivered at the James S. McDonnell Foundation Teachers as Learners Meeting, St. Louis, MO.
- Agarwal, P. K.** (2018, July). *Powerful teaching: Unleash the science of learning in today's classrooms*. Talk delivered at the 2018 Truman Scholars Association Conference, Washington, DC.
- Agarwal, P. K.** (2018, June). *Harnessing the science of learning: Transforming teaching with cognitive science*. Talk delivered at the Latin American School for Education, Cognitive, and Neural Sciences, Santiago de Chile, Chile.
- Agarwal, P. K.** (2018, April). *Unleash the science of learning: Evidence-based teaching strategies that transform STEM classrooms*. Workshop delivered at the STEM Pedagogy Institute, Durham, NH.
- Agarwal, P. K.** (2018, February). *Unleash the science of learning: Bridging the gap between research, teaching, and policy*. Talk delivered at the Ontario Institute for Education, Toronto, Canada.
- Agarwal, P. K.** (2017, May). *Make it stick: Translating the science of learning and transforming student learning*. Keynote delivered at Husson University, Bangor, ME.
- Agarwal, P. K.** (2017, April). *Make it stick: Applying the science of learning and transforming student learning*. Keynote delivered at the 23<sup>rd</sup> Annual Conference of the Association for University Regional Campuses of Ohio, Huron, OH.
- Agarwal, P. K.** (2017, March). *Make it stick: Harnessing the science of learning and transforming teaching*. Talk delivered at Fontbonne University, St. Louis, MO.
- Agarwal, P. K.** (2016, October). *Retrieval practice: A powerful study strategy for improving long-term learning*. Talk delivered at Dartmouth College, Hanover, NH.
- Agarwal, P. K.** (2016, October). *The science of learning: How to teach so students learn*. Workshop delivered at Rutgers University, New Brunswick, NJ.
- Agarwal, P. K.** (2016, March). *The science of learning: Retrieval as an effective and efficient classroom strategy*. Talk delivered at the Massachusetts Institute of Technology, Boston, MA.
- Agarwal, P. K.** (2014, November). *Applying cognitive psychology research at school, work, home, and life*. Keynote delivered at Lindenwood University, St. Charles, MO.
- Agarwal, P. K.** (2013, November). *Retrieval practice improves learning: Evidence from applied research in middle schools and high schools*. Talk delivered at the McMaster University Symposium on Cognition, Learning, and Education, Hamilton, Canada.
- Agarwal, P. K.** (2013, September). *Research-based strategies for studying effectively*. Talk delivered at St. Louis University Medical School, St. Louis, MO.
- Agarwal, P. K.** (2012, August). *Retrieval practice is a powerful strategy for improving classroom learning*. Talk delivered at the University of Texas Center for Teaching and Learning, Austin, TX.
- Agarwal, P. K.** (2012, August). *Research-based cognitive strategies enhance college readiness*. Talk delivered at the University of Texas OnRamps Faculty Meeting, Austin, TX.



- Agarwal, P. K.** (2012, June). *Research-based cognitive strategies for enhancing college readiness*. Talk delivered at the University of Texas CRAFT Summer Institute, Austin, TX.
- Agarwal, P. K.** (2011, June). *Examining the relationship between fact learning and higher order learning via retrieval practice*. Talk delivered at the Universidade de Lisboa, Portugal, Lisbon.
- Agarwal, P. K.** (2007, October). *The secret benefit of classroom testing*. Talk delivered at the University of Missouri, Columbia, MO.

## ACADEMIC CONFERENCE PRESENTATIONS

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- Agarwal, P. K.** (2013, May). *Advances in cognitive psychology relevant to education & lessons from applied research* (Chair). Symposium presented at the 25<sup>th</sup> Annual Meeting of the Association for Psychological Science, Washington, DC.
- Agarwal, P. K.**, Roediger, H. L., McDaniel, M. A., & McDermott, K. B. (2013, May). *How to use retrieval practice to improve classroom learning*. Talk delivered at the 25<sup>th</sup> Annual Meeting of the Association for Psychological Science, Washington, DC.
- Roediger, H. L., Sanches, J. B., & **Agarwal, P. K.** (2011, November). *Does variable encoding affect learning and retention relative to constant encoding?* Talk delivered at the 52<sup>nd</sup> Annual Meeting of the Psychonomic Society, Seattle, WA.
- Roediger, H. L., Zaromb, F. M., Butler, A. C., & **Agarwal, P. K.** (2011, August). *Collective memories and national narcissism in younger and older adults*. Talk delivered at the 5<sup>th</sup> International Conference on Memory, York, England.
- Agarwal, P. K.**, McDaniel, M. A., Thomas, R. C., McDermott, K. B., & Roediger, H. L. (2011, March). *Quizzing promotes deeper acquisition in middle school science: Transfer of quizzed content to summative exams*. Talk delivered at the Annual Conference of the Society for Research on Educational Effectiveness, Washington, DC.
- Roediger, H. L., McDaniel, M. A., McDermott, K. B., **Agarwal, P. K.**, & Huelser, B. J. (2009, May). *Applying retrieval-enhanced learning in the classroom: The Columbia Middle School Project*. Keynote delivered at the 21<sup>st</sup> Annual Meeting of the Association for Psychological Science, San Francisco, CA.
- Agarwal, P. K.** & Bowden, E. C. (2002, June). *Integrating technology into science curriculum “by kids, for kids.”* Talk delivered at the National Educational Computing Conference, San Antonio, TX.
- Agarwal, P. K.**, Droste, R., Xi, S.C., & Wat, M. (2000, October). *Empowering high school students to become elementary school teachers of science*. Talk delivered at the National Association of Biology Teachers Convention, Orlando, FL.



## ACADEMIC POSTER PRESENTATIONS

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**Agarwal, P. K.** (2017, May). *Retrieval practice enhances fact learning and higher order learning in a K-12 classroom*. Poster presented at the 29<sup>th</sup> Annual Meeting of the Association for Psychological Science, Boston, MA.

Saddawi-Konefka, D., Cottral, J., **Agarwal, P. K.**, Karpicke, J. D., Oettingen, G., Gollwitzer, P., & Baker, K. (2016, May). *Can strategies from cognitive psychology improve self-directed learning in residents? A two-center multidisciplinary randomized comparative effectiveness trial*. Poster presented at the Executive Committee on Teaching and Education Symposium, Boston, MA.

**Agarwal, P. K.**, Rose, N. S., & Roediger, H. L. (2010, November). *Testing levels the playing field for students with lower working memory capacity*. Poster presented at the 51<sup>st</sup> Annual Meeting of the Psychonomic Society, St. Louis, MO.

**Agarwal, P. K.**, Roediger, H. L., McDaniel, M. A., & McDermott, K. B. (2010, June). *Improving student learning with classroom quizzes: Three years of evidence from Columbia Middle School*. Poster presented at the 5<sup>th</sup> Annual Institute of Education Sciences Research Conference, Washington, DC.

Butler, A. C., Zaromb, F. M., **Agarwal, P. K.**, & Roediger, H. L. (2010, June). *Individual and collective memories of U.S. history in younger and older adults*. Poster presented at the Theoretical Perspectives on Autobiographical Memory Conference, Aarhus, Denmark.

**Agarwal, P. K.**, Roediger, H. L., McDaniel, M. A., & McDermott, K. B. (2010, March). *Improving student learning through the use of classroom quizzes: Three years of evidence from the Columbia Middle School project*. Poster presented at the Annual Conference of the Society for Research on Educational Effectiveness, Washington, DC.

**Agarwal, P. K.**, Roediger, H. L., McDaniel, M. A., & McDermott, K. B. (2009, November). *Feedback increases middle school students' resolution and retention of correct responses*. Poster presented at the 50<sup>th</sup> Annual Meeting of the Psychonomic Society, Boston, MA.

Roediger, H. L., McDaniel, M. A., McDermott, K. B., **Agarwal, P. K.**, & Huelser, B. J. (2009, June). *What is an effective quizzing schedule for middle school students?* Poster presented at the 4<sup>th</sup> Annual Institute of Education Sciences Research Conference, Washington, DC.

**Agarwal, P. K.**, Huelser, B. J., McDaniel, M. A., & McDermott, K. B., & Roediger, H. L. (2009, May). *Test-enhanced learning: Transfer of knowledge in middle school classrooms*. Poster presented at the 21<sup>st</sup> Annual Meeting of the Association for Psychological Science, San Francisco, CA.

Roediger, H. L., McDaniel, M. A., McDermott, K. B., & **Agarwal, P. K.** (2008, June). *Test-enhanced learning in the classroom: The Columbia Middle School project, year 2*. Poster presented at the 3<sup>rd</sup> Annual Institute of Education Sciences Research Conference, Washington, DC.

**Agarwal, P. K.**, Roediger, H. L., McDaniel, M. A., & McDermott, K. B. (2008, May). *Improving student learning using classroom quizzes*. Poster presented at the 20<sup>th</sup> Annual Meeting of the Association for Psychological Science, Chicago, IL.

Roediger, H. L., McDaniel, M. A., McDermott, K. B., & **Agarwal, P. K.** (2007, November). *Test-enhanced learning in the classroom: The Columbia Middle School project*. Poster presented at the 48<sup>th</sup> Annual Meeting of the Psychonomic Society, Long Beach, CA.

Roediger, H. L., McDaniel, M. A., McDermott, K. B., & **Agarwal, P. K.** (2007, June). *Test-enhanced learning in the classroom: The Columbia Middle School project*. Poster presented at the 2<sup>nd</sup> Annual Institute of Education Sciences Research Conference, Washington, DC.

**Agarwal, P. K.**, Karpicke, J. D., Kang, S. H. K., Roediger, H. L., & McDermott, K. B. (2006, November). *Long term retention is greater following closed-book tests than open book tests*. Poster presented at the 47<sup>th</sup> Annual Meeting of the Psychonomic Society, Houston, TX.

**Agarwal, P. K.**, Karpicke, J. D., Kang, S. H. K., Roediger, H. L., & McDermott, K. B. (2006, May). *Open-book or closed-book tests? Effects of testing on learning depend on feedback*. Poster presented at the 18<sup>th</sup> Annual Meeting of the Association for Psychological Science, New York, NY.