

Anthony J. Petrosino
Curriculum Vitae

Department of Curriculum and Instruction
University of Texas at Austin
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DEGREES AWARDED

- Ph.D., 1998, Education and Human Development, Vanderbilt University
- Concentration in Science Education; minor area Cognitive Studies in Education
 - Dissertation: *The Role of Reflection and Revision in At-Risk Students' Use of Investigative Activities*. Committee: John D. Bransford (Co-Chair), Robert D. Sherwood (Co-Chair), Richard Duschl, Jim Pellegrino, and Clifford Holfwolt
 - Otto Basser Award for Outstanding Dissertation
- M.A., 1990, Educational Administration and Information Systems
Teachers College, Columbia University, New York City
Concentration: Educational Technology
- B.A., 1984, Psychology
Creighton University, College of Arts and Sciences, Omaha, NE

PROFESSIONAL APPOINTMENTS

Associate Professor, University of Texas at Austin, 2005–current

Assistant to the Superintendent of Hoboken Schools, 2007–09

Assistant Professor, University of Texas at Austin, 1999–2005

Senior Researcher, Systemic Research Collaborative for Education in Mathematics, Science, and Technology (SYRCE), 1999–2001

Postdoctoral Fellow, Wisconsin Center for Educational Research (WCER), University of Wisconsin-Madison, January 1998 – August 1999

(Top ranked department of Curriculum and Instruction and Educational Psychology in the country, according to *U.S. News and World Reports* 1999.) Mentors: Richard Lehrer and Leona Schauble

Graduate Research Assistant, Learning Technology Center, Vanderbilt University, September 1991 – December 1997

Designed, implemented, and researched an 11-week unit for investigating at-risk middle-school students' ability to bridge contextualized problem solving into a community-of-learners instructional format. Also planned and participated in a series of yearlong biweekly workshops with classroom teachers on merging cognitive learning theory with classroom instruction.

NASA Space Grant Fellow, Department of Mechanical Engineering, Tennessee Space Grant Consortium, Vanderbilt University, 1991–97

Program Evaluator, the University of Tennessee Agricultural Extension Service, January 1992 – August 1997

High School Science Teacher, Hoboken High School, Hoboken, NJ, 1987–1991

Dean of Students, St. Anthony High School, Jersey City, NJ, 1984–87

AWARDS AND RECOGNITION

- 2011 Graduate Student Research Award, American Educational Research Association–Division C). Mentor and Co-author (*Candace Walkington*)
- 2005–11 Elizabeth G. Gibb Endowed Fellow, Department of Curriculum and Instruction in Mathematics Education, College of Education, The University of Texas at Austin.
- 2008 **Petrosino, A. J.** (2008, October). *The UTeach Natural Sciences Program: Challenges and Success in Modeling University Collaboration and Systemic Reform in STEM Teacher Preparation at Multiple Levels of Scale*. Dedication Ceremony for the IDEA Institute, University of Michigan, Ann Arbor.
- 2008 **Petrosino, A. J., Svihla, V., & Brophy, S. P.** (2008). *Engineering Skills for Understanding and Improving K-12 Engineering Education in the United States* (Commissioned Report): National Academy of Engineering Committee on Understanding and Improving K-12 Engineering Education in the United States.
- 2008 *Svihla, V., Marshall, J., & Petrosino, A. J.* (2008). *K-12 Engineering Education Impacts* (Commissioned Report): National Academy of Engineering Committee on Understanding and Improving K-12 Engineering Education in the United States.
- 2003 Best Paper from the 2003 American Society of Engineering Education (ASEE) Gulf-Southwest Annual Conference, Arlington, TX.

- 2002 International Society of Technology in Education (ISTE) NETS Distinguished Achievement Award Program. Recognized as coordinating one of the top 5 programs utilizing technology in teacher education in the United States (UTeach)
- 1998 Otto Basser Award for Outstanding Dissertation in the Department of Teaching and Learning, Vanderbilt University
- 1991–96 Peabody Super Student Scholarship (competitive full tuition)
- 1990 New Jersey Governor’s Teacher Recognition Award

RESEARCH GRANTS

Principal Investigator, National Science Foundation, UTeach and NYC: A Design Research Partnership to Expand and Improve High School Computer Science Education for Underrepresented Urban Youth (CNS1837687), October 1, 2018 to September 30, 2021. (\$999,953)

Co-Principal Investigator with Co-PI Susan Empson (University of Missouri-Columbia), National Science Foundation, *Theorizing and Advancing Teachers’ Responsive Decision Making* (DRL 1316653, subaward C00056306-3), September 1, 2018 to August 31, 2019. (\$20,000)

Co-Principal Investigator with Co-PIs Walter Stroup (University of Massachusetts–Dartmouth), Uri Wilensky (Northwestern University), & Corey Brandy (Vanderbilt University), National Science Foundation, *Group-Based Cloud Computing for STEM Education Project* (DRL 1615207), September 2016 to August 31, 2019. (\$457,755)

Co-Principal Investigator with Co-PIs David Allen, Richard Crawford, & Michael Marder (all University of Texas), National Science Foundation, *UTeach Engineering: Training Secondary Teachers to Deliver Design-Based Engineering Instruction* (DUE 0831811/NSF: 0831811), September 2008 to December 2016. (\$12,500,000)

Co-Principal Investigator with Co-PI Richard Crawford (University of Texas), National Science Foundation, *Beyond Blackboards: Integrated Methods for STEM Education and Workforce Development* (DRL-0833726/NSF: 0833726), September 2009 to September 2012. (\$1,000,000)

Principal Investigator, National Science Foundation (subcontract from Tennessee Technological University), *NSF Project CAT (Critical Thinking Assessment Test)*, September 2004 to September 2007. (\$20,000)

Principal Investigator, National Science Foundation, *Challenges to Projects: VaNTH K-12 Partners in Education* (NSF 14656-S1 Amendment 4), September 2001 to September 2004. (\$150,000)

Co-Principal Investigator with Co-PIs Paul Resta & Jere Confrey, U.S. Department of Education, *Inventing New Strategies for Integrating Technology in Teacher Education* (DOE P342A000111), May 2000 to May 2004. (\$850,000)

Principal Investigator, James S. McDonnell Foundation's Cognitive Studies in Educational Practice (CSEP), *From Everyday Science to Formalized Scientific Understanding: A Cognitive Instructional Approach to Seasonal Change*, January 1998 to August 2000. (\$59,400)

Principal Investigator, Tennessee Space Grant Consortium, Vanderbilt University, *Mission to Mars Teacher Enhancement Project*, June 1998 to June 1999. (\$30,000)

FELLOWSHIPS

Elizabeth Glenadine Gibb Teaching Fellowship in Mathematics, 2005–11 (\$3,000 per year)

Big 12 Faculty Fellowship (with the University of Colorado at Boulder), Fall 2003 (\$2,500)

Meadows Faculty Fellow, Fellowship Program awarded by The University of Texas at Austin, College of Education, September 2001 to September 2002. This award helped support the development of personal digital assistants for my courses. (\$5,000)

GRANT PROPOSALS WRITTEN

National Science Foundation, *U Teach and NYC: A Design Research Partnership to Expand and Improve High School Computer Science Education for Underrepresented Urban Youth* (NSF 1837687), May 2018. (\$999,953)

National Science Foundation, *U Teach Computer Science: A Research Practice Partnership (RPP) to Implement School District K-12 Computer Science Pathways* (NSF 1837677), May 2018. Pending status. (\$999,554)

National Science Foundation, *Collaborative Research: Project BASIS: Bringing Ambitious STEM Instruction to Scale* (NSF 1813751), November 2017. (\$77,441)

National Science Foundation, *The Development of Novice STEM Teachers' Goals Informing Instructional Practice* (NSF 1761176), September 2017. (\$771,060)

National Science Foundation, *A Networked Community to Improve Teaching and Learning in U Teach CS Principles* (NSF 1738673), February 2017. (\$1,999,559)

National Science Foundation, *Project BASIS: Bringing Ambitious STEM Instruction to Scale* (NSF 1720950), December 2016. (\$2,569,300)

National Science Foundation, *UT Science of Learning Collaborative Network (SL-CN): Enhancing Student Learning and Success Through Competency-Based Online Instruction* (NSF 1640892), April 2016. (\$750,002)

National Science Foundation, *EAGER: MAKER: Implementation of Makerspaces Across Austin's Educational Ecosystem* (NSF 1623500), December 2015. (\$293,333)

National Science Foundation, *Cognitive Instructional Strategies in STEM Education for Students with Disabilities (CIS-STEM)* (NSF 1561740), September 2015. (\$499,316)

National Science Foundation, *PBI For All: A Research Agenda For Special Needs, Females, and Traditionally Under-Represented Secondary STEM Students* (NSF 1535413), February 2015. (\$2,285,558)

National Science Foundation, *The Research Spine: A Progressive Science Undergraduate Research Curriculum* (NSF 1524979), January 2015. (\$2,999,583)

National Science Foundation, *ITEST Strategies: The Longhorn K-12 Grand Challenge Scholars Program: Act Locally, Think Globally* (NSF 1312239), November 2012. (\$1,199,946)

National Science Foundation, *An Online, Challenge-based Approach for High School Students to Investigate the Connections Between Climate and Water Resources, Using the Legacy Cycle Model* (NSF 1222683), January 2012. (\$1,488,473)

National Science Foundation, *UT STEP UP: Partnering to Increase Retention and Graduation Rates* (NSF 1161309), September 2011. (\$1,870,402)

National Science Foundation, *ITEST Strategies: Design-Based Learning Outside the Classroom: Friday Night STEM Lights* (NSF 1139658), May 2011. (\$1,349,378)

National Science Foundation, *Innovative Computational Thinking Experiences for Students and Teachers at the Middle School: Research on the Impact of Game Design for Learning* (NSF 1139655), May 2011. (\$899,877)

National Science Foundation, *SYSTEMATIZE: Stimulating Youth STEM Achievement Through Interbrain Experiences* (NSF 1109828), November 2010. (\$642,299)

National Science Foundation, *FASTGEN: An Interactive Simulation Environment for Constructivist Learning* (NSF 0835452), April 2008. (\$588,432)

National Science Foundation, *FASTGEN: An Interactive Simulation Environment for Constructivist Learning* (NSF 0735710), April 2007. (\$588,431)

National Science Foundation, *Collaborative Curriculum and Professional Development for High School Engineering* (NSF 0733311), March 2007. (\$299,367)

National Science Foundation, *Collaborative Research: Energy and Resource Model* (NSF 0651558), September 2006. (\$597,868)

National Science Foundation, *Collaborative Research: Energy and Resource Model* (NSF 0651368), September 2006. (\$2,254,970)

National Science Foundation, *Texas Academy for Young Engineers* (NSF 0639713), June 2006. (\$783,923)

National Science Foundation, *FASTGEN: An Interactive Simulation Environment for Constructivist Learning* (NSF 0633964), May 2006. (\$588,621)

National Science Foundation, *Earth & Sky Human World Initiative* (NSF 0554533), September 2005. (\$1,492,351)

National Science Foundation, *Information Technology in Science Center for Learning and Teaching* (NSF 0426375), February 2004. (\$11,256,191)

National Science Foundation, *How Teachers Teach (HT2): A Multifaceted Approach to Assessing Quality Teaching* (NSF 0337739), June 2003. (\$1,695,368)

National Science Foundation, *Planning a Research Program to Design, Implement, and Assess an Undergraduate Curriculum for Biomedical Engineering* (NSF 0230577), June 2002. (\$99,983)

National Science Foundation, *ROLE Preproposal: Multifaceted Approach to Assessing Quality Teaching* (NSF 0224289), March 2002

National Science Foundation, *Analysis of Student Achievement Data Sets for Texas Systemic Initiatives* (NSF 9988049), September 1999. (\$367,613)

PUBLICATIONS

Articles in Peer-Reviewed Journals

(former/current graduate students as coauthors italicized)

Hutner, T., Petrosino, A. J., & Salinas, C. (accepted for 2019 publication). Do preservice science teachers develop goals reflective of science teacher education? *Research in Science Education*. [acceptance rate 21%]

Harris, S., Azevedo, F. S., & Petrosino, A. J. (accepted for 2018 publication). Curating knowledge and curating fun: An analysis of the expanding roles of children's museums. *Creative Education*.

Petrosino, A. J., Mann, M. J. and Jenevein, S. (2018) Where does a tree get its mass?. *The Science Scope*. 41(9) 41-47. [acceptance rate 32%]

- Petrosino, A. J., Sherard, M. K., Harron, J. R., & Stroup, W. M.** (2018). Using collaborative agent-based computer modeling to explore tri-trophic cascades with elementary school science students. *Creative Education, 9*(4), 615-624.
- Petrosino, A. J., & Shekhar, P.** (2018). Expert blind spot among preservice and inservice teachers: Beliefs about algebraic reasoning and potential impact on engineering education. *International Journal of Engineering Education, 34*(1), 97-105. [acceptance rate 15%]
- Petrosino, A. J., & Mann, M.** (2018). Data modeling for pre-service teachers and everyone else. *Journal of College Science Teaching, 47*(3), 18-24. [acceptance rate 28%]
- Petrosino, A. J., & Mann, M.** (2017). The challenges of understanding fluid density. *Journal of Continuing Education and Professional Development, 4*(1), 28-38. doi:10.7726/jcepd.2017.1003
- Lucero, M. M., Petrosino, A. J., & Delgado, C.** (2017). Exploring the relationship between secondary science teachers' subject matter knowledge and knowledge of student conceptions while teaching evolution by natural selection. *Journal of Research in Science Teaching, 54*, 219-246. doi:10.1002/tea.21344 [acceptance rate 12.5%]
[JRST is the top-ranked science education research journal. 2015 ISI impact factor = 3.052. Rank 6/231 education and education research journals.]
- Lucero, M. M., & Petrosino, A. J.** (2017). A resource for eliciting student alternative conceptions: Examining the adaptability of a concept inventory for natural selection at the secondary school level. *Research in Science Education, 47*(4), pp. 705-730. <https://doi.org/10.1007/s11165-016-9524-z> [acceptance rate 21%]
- Petrosino, A. J., Gustafson, K. A., & Shekhar, P.** (2016). STEM integration in a research based engineering curriculum using enacted and prescribed frames. *International Journal of Engineering Education, 32*(1A), 1-11. [acceptance rate 15%]
- Petrosino, A. J., & Mann, M.** (2016). Modeling ecosystems. *Science Scope, 3*-16. doi:10.2505/4/ss16_039_05_27 [acceptance rate 32%]
- Petrosino, A. J., Lucero, M., & Mann, M.** (2015). Decentralized thinking and understanding of evolution in K-12 evolution education. *Evolution: Education and Outreach, 8*(2), 2-12. [acceptance rate 63%]
- Blanchard, S., Judy, J., Muller, C., Crawford, R. H., **Petrosino, A. J.**, White, C. K., Lin, F.-A., & Wood, K. L. (2015). Beyond blackboards: Engaging underserved middle school students in engineering. *Journal of Pre-College Engineering Education Research (J-PEER), 5*(1), Article 2. Pp 1-14 [acceptance rate 37%]
- Walkington, C., Petrosino, A. J., & Sherman, M.** (2013). Supporting algebraic reasoning through personalized story scenarios: How situational understanding mediates

- performance and strategies. *Mathematical Thinking and Learning*, 15, 89-120. doi:10.1080/10986065.2013.770717 [acceptance rate 11–20%]
- Imholz, S., & **Petrosino, A. J.** (2012). Teacher observations on the implementation of the Tools of the Mind curriculum in the classroom: Analysis of interviews conducted over a one-year period. *Creative Education*, 2(2), 185-192.
- Svihla, V., Petrosino, A. J., & Diller, K. R.* (2012). Learning to design: Authenticity, negotiation, and innovation. *International Journal of Engineering Education*, 28(4), 1-17. [acceptance rate 15%]
- Walkington, C., Sherman, M., & Petrosino, A.* (2012). ‘Playing the game’ of story problems: Coordinating situation-based reasoning with algebraic representation. *Journal of Mathematical Behavior*, 31(2), 174-195. [acceptance rate 31%]
[JMB is the no. 3 journal in mathematics education for number of citations]
- McVaugh, N. K., Birchfield, J., Lucero, M. M., & Petrosino, A. J.* (2011). Evolution education: Seeing the forest for the trees and focusing our efforts on the teaching of evolution. *Evolution: Education and Outreach*, 4(2), 286-292. [acceptance rate 63%]
- Marshall, J. A., **Petrosino, A. J.**, & Martin, T. (2010). Preservice teachers’ conceptions and enactments of project-based instruction. *Journal of Science Education and Technology*, 19(4), 370-386. [acceptance rate 21%]
[JOST is a top journal for technology in science education research. 2015 ISI impact factor = 1.12. Rank 23/40 education, scientific disciplines journals.]
- Martin, T., **Petrosino, A. J.**, Rivale, S., & Diller, K. (2006). The development of adaptive expertise in biotransport. *New Directions in Teaching and Learning*, 2006(108), 35-47.
- Petrosino, A. J.** (2004). Integrating curriculum, instruction, and assessment in project-based instruction: A case study of an experienced teacher. *Journal of Science Education and Technology*, 13(2), 447-460. doi:10.1007/s10956-004-1466-y [acceptance rate 21%]
- Bucci, T. T., & **Petrosino, A. J.** (2004). Meeting the ISTE challenge in the field: An overview of the first six Distinguished Achievement Award winning programs. *Journal of Computing in Teacher Education*, 21(1), 13-24. [acceptance rate 20%]
- Pandy, M. G., **Petrosino, A. J.**, Austin, B.A., & Barr, R. E. (2004). Assessing adaptive expertise in undergraduate biomechanics. *Journal of Engineering Education*, 93(3), 1-12. [acceptance rate 7–13%]
- Petrosino, A. J.** (2003). Commentary: A framework for supporting learning and teaching about mathematical and scientific models. *Contemporary Issues in Technology and Teacher Education*, 3(3), 288-299. [acceptance rate 21%]

- Nathan, M. J., & **Petrosino, A. J.** (2003). Expert blind spot among preservice teachers. *American Educational Research Journal*, 40(4), 905-928. [acceptance rate 11–21%]
- Bucci, T. T., Cherup, S., Cunningham, A., & **Petrosino, A. J.** (2003). ISTE standards in teacher education: A collection of practical examples. *The Teacher Educator*, 39(92), 95-114. [acceptance rate 11–20%]
- Petrosino, A. J.**, & Dickinson, G. (2003). Integrating technology with meaningful content and faculty research: The UTeach Natural Sciences Program. *Contemporary Issues in Technology and Teacher Education*, 3(1), 95-115. [acceptance rate 21%]
- Stroup, W. M., & **Petrosino, A. J.** (2003). An analysis of horizontal and vertical device design for school-related teaching and learning. *Education, Communication & Information*, 3(3), 327-345. [acceptance rate 35%]
- Petrosino, A. J.**, Lehrer, R., & Schauble, L. (2002). Structuring error and experimental variation as distribution in the fourth grade. *Mathematical Thinking and Learning*, 5(2/3), 131-156. [acceptance rate 11–20%]
- Petrosino, A. J.** (1999). Instructional design: Solving instructional design problems. *Journal of Educational Computing Research*, 19(4), 433-439. [acceptance rate 11–20%]
- Barron, B. J., Schwartz, D. L., Vye, N. J., Moore, A., **Petrosino, A. J.**, Zech, L., Bransford, J. D., & the Cognition and Technology Group at Vanderbilt. (1998). Doing with understanding: Lessons from research on problem- and project-based learning. *Journal of the Learning Sciences*, 7(3/4), 271-311. [acceptance rate 11–20%]
- Lin, X., Bransford, J. D., Hmelo, C. E., Kantor, R. J., Hickey, D. T., Secules, T., **Petrosino, A. J.**, Goldman, S. R., & the Cognition and Technology Group at Vanderbilt. (1995). Instructional design and development of learning communities: An invitation to a dialogue. *Educational Technology*, 35(5), 53-63. [acceptance rate 11–20%]
- Petrosino, A. J.** (1995). The importance of authentic situations for problem solving. *Educator's Forum '95*, 8-9. Boston, MA: Houghton Mifflin.
- Moore, J. L., Lin, X., Schwartz, D. L., **Petrosino, A.**, Hickey, D. T., Campbell, O., Hmelo, C., & the Cognition and Technology Group at Vanderbilt. (1994). The relationship between situated cognition and anchored instruction: A response to Tripp. *Educational Technology*, 34(8), 28-32. [acceptance rate 11–20%]
- Cognition and Technology Group at Vanderbilt [including **Petrosino, A. J.**]. (1993). Technological tools to enhance math education: The Jasper series. *Communications of the ACM*, 36, 52-54. [acceptance rate 19%]

Cognition and Technology Group at Vanderbilt [including **Petrosino, A. J.**]. (1993). Anchored instruction and situated cognition revisited. *Educational Technology*, 22(3), 52-70. [acceptance rate 11–20%]

Books and Book-Length Works

(former or current graduate students as coauthors italicized)

Petrosino, A. J., *Walkington, C.*, & Ekberg, D. (accepted for publication). *Frameworks for integrated project based instruction in STEM disciplines*. Charlotte, NC: Information Age.

Petrosino, A. J., Martin, T., & *Svihla, V.* (Eds.). (2006). Special Issue on Biomedical Engineering Education. *New Directions for Teaching & Learning*, 2006(108) (114 pages). Available at <https://onlinelibrary.wiley.com/toc/15360768/2006/108>

Petrosino, A. J. (1995). *Mission to Mars: An integrated curriculum* (Technical Report SFT-1). (50 pages). Nashville, TN: Vanderbilt University, Learning Technology Center (available: <https://sites.edb.utexas.edu/missiontomars/introduction/>)

In Preparation

Petrosino, A. J., *Mann, M.*, & *Tharayil, S.* (in preparation). Content and pedagogical knowledge among three groups of college students on Praxis and CRT measures.

Petrosino, A. J., & Park, J. (in preparation). Social network analysis as evaluation tool.

Petrosino, A. J., *Svihla, V.*, & *Kapur, M.* (in preparation). Facts, concepts, and transfer knowledge in engineering education.

Submitted

Herron, J., & **Petrosino, A. J.** (submitted). Development of museum learning experience using virtual reality and mobile devices.

Chapters *(former or current graduate students as coauthors italicized)*

Petrosino, A. J. (2016). Teachers' use of data, measurement, and data modeling in quantitative reasoning. In R. Duschl & A. Bismarck (Eds.), *Reconceptualizing STEM education: The central role of practices* (pp. 167-180). New York, NY: Taylor & Francis/Routledge.

Petrosino, A. J. (2009). Model rockets. In B. Kerr (Ed.), *Encyclopedia of giftedness, creativity, and talent*. Pp. 743-745. Thousand Oaks, CA: Sage.

- Petrosino, A. J., & Kohler, M.** (2007). Teachers as designers: Pre- and in-service teachers' authoring of anchor video as a means to professional development. In R. Goldman, R. Pea, B. Barron, & S. Derry (Eds.), *Video research in the learning sciences*. (pp. 411-423). Mahwah, NJ: Erlbaum.
- Lehrer, R., Schauble, L., & **Petrosino, A. J.** (2001). Reconsidering the role of experimentation in science education. In K. Crowley, C. D. Schunn, & T. Okada (Eds.), *Designing for science: Implications from everyday, classroom, and professional settings* (pp. 251-278). Mahwah, NJ: Erlbaum.
- Cognition and Technology Group at Vanderbilt [including **Petrosino, A. J.**]. (2000). Adventures in anchored instruction: Lessons learned from beyond the Ivory Tower. In R. Glaser (Ed.), *Advances in instructional psychology* (Vol. 5, pp. 35-99). Mahwah, NJ: Erlbaum.
- Goldman, S. R., **Petrosino, A. J.**, & the Cognition and Technology Group at Vanderbilt. (1999). Design principles for instruction in content domains: Lessons from research on expertise and learning. In F.T. Durso (Ed.), *Handbook of applied cognition* (pp. 595-628). Chichester, England: Wiley.
- Lamon, M., Secules, T., **Petrosino, A. J.**, Hackett, R., Bransford, J. D., & Goldman, S. R. (1996). Schools for thought: Overview of the International Project and lessons learned from one of the sites. In L. Schauble & R. Glaser (Eds.), *Contributions of instructional innovation to understanding learning* (pp. 243-288). Hillsdale, NJ: Erlbaum.
- Goldman, S. R., **Petrosino, A. J.**, Sherwood, R. D., Garrison, S., Hickey, D., Bransford, J. D., & Pellegrino, J. W. (1996). Anchoring science instruction in multimedia learning environments. In S. Vosniadou, E. De Corte, R. Glaser, & H. Mandl (Eds.), *International perspectives on the psychological foundations of technology-based learning environments* (pp. 257-284). New York, NY: Springer-Verlag.
- Cognition and Technology Group at Vanderbilt [including **Petrosino, A. J.**]. (1996). Multimedia environments for enhancing learning in mathematics. In S. Vosniadou, E. De Corte, R. Glaser, & H. Mandl (Eds.), *International perspectives on the psychological foundations of technology-based learning environments* (pp. 285-305). New York, NY: Springer-Verlag.
- Cognition and Technology Group at Vanderbilt [including **Petrosino, A. J.**]. (1996). Looking at technology in context: A framework for understanding technology and education research. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 807-840). New York, NY: MacMillan.
- Sherwood, R. D., **Petrosino, A. J.**, Lin, X., Lamon, M., & the Cognition and Technology Group at Vanderbilt. (1995). Problem based macro contexts in science instruction: Theoretical basis, design issues, and the development of applications. In D. R. Lavoie (Ed.), *Toward a cognitive-science perspective for scientific problem*

solving (NARST monograph No. 6, pp. 191-214). Manhattan: Kansas State University, National Association for Research in Science Teaching.

Goldman, S. R., **Petrosino, A. J.**, Sherwood, R. D., Garrison, S., Hickey, D., Bransford, J. D., & Pellegrino, J. W. (1994). Multimedia environments for enhancing science instruction. In S. Vosniadou, E. De Corte, & H. Mandl (Eds.), *International perspectives on the psychological foundations of technology-based learning environments* (pp. 89-96). New York, NY: Springer-Verlag.

Hickey, D. T., **Petrosino, A. J.**, Pellegrino, J. W., Goldman, S. R., Bransford, J. D., Sherwood, R. D., & the Cognition and Technology Group at Vanderbilt. (1994). The Mars Mission challenge: A generative problem-solving school science environment. In S. Vosniadou, E. De Corte, R. Glaser, & H. Mandl (Eds.), *International perspectives on the psychological foundations of technology-based learning environments* (pp. 97-103). New York, NY: Springer-Verlag.

Moore, J. L., Lin, X., Schwartz, D. L., **Petrosino, A.**, Hickey, D. T., Campbell, O., Hmelo, C., & the Cognition and Technology Group at Vanderbilt. (1994). The relationship between situated cognition and anchored instruction. In H. McLellen (Ed.), *Perspectives on situated learning*. pp. 213-221 Englewood Cliffs, NJ: Educational Technology.

Cognition and Technology Group at Vanderbilt [including **Petrosino, A. J.**]. (1994). From visual word problems to learning communities: Changing conceptions of cognitive research. In K. McGilly (Ed.), *Classroom lessons: Integrating cognitive theory and classroom practice* (pp. 157-200). Cambridge, MA: MIT Press/Bradford Books.

Peer-Reviewed Copyrighted Published Conference Proceedings

(former or current graduate students as coauthors italicized)

*Harron, J., **Petrosino, A. J.**, & Jenevein, S.* (2017). Development of museum learning experience using virtual reality and mobile devices. In P. Resta & S. Smith (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 1592-1597). Austin, TX: Association for the Advancement of Computing in Education. Available at <https://www.learntechlib.org/primary/p/177441/>

Martin, T., *Rivale, S.*, Allen, D., Abraham, L., Crawford, R., Houser, M., Marder, M., & **Petrosino, A. J.** (2009). UTeachEngineering: Innovative Program to Train Qualified K-12 Engineering Teachers. In *39th IEEE Frontiers in Education Conference* (pp. 1-2), San Antonio, TX. doi:10.1109/FIE.2009.5350858

- Svihla, V., Petrosino, A. J., Martin, T., & Diller, K. R. (2009). Learning to design: Interactions that promote innovation. In W. Aung, K.-S. Kim, J. Mecs, J. Moscinski, & I. Rouse (Eds.), Innovations 2009: World Innovations in Engineering Education and Research (pp. 375-391). Arlington, VA: International Network for Engineering Education and Research.*
- Petrosino, A. J., Svihla, V., & Kapur, M. (2008). Models of expertise in process- and content-dominated areas of bioengineering. In P. A. Kirschner, J. J. G. van Merriënboer, & T. de Jong (Eds.), Proceedings of the 8th International Conference for the Learning Sciences (Vol. 3, pp. 111-112). Utrecht, the Netherlands: ISLS.**
- Svihla, V., Petrosino, A. J., & Diller, K. R. (2008). Distributed cognition and interactions in the context of bioengineering design. In P. A. Kirschner, J. J. G. van Merriënboer, & T. de Jong (Eds.), Proceedings of the 8th International Conference for the Learning Sciences (Vol. 3, pp. 136-137). Utrecht, the Netherlands: ISLS.*
- Svihla, V., Petrosino, A., & Diller, K. (2007). Distributed expertise and authenticity in the development of design expertise. In Proceedings of the International Conference on Engineering Education (pp. 1-7), Coimbra, Portugal.*
- Barr, R., Pandey, M., **Petrosino, A.**, Roselli, R., Brophy, S., & Freeman, R. (2007). The VaNTH Biomechanics learning modules. In *Proceedings of the 2005 American Society for Engineering Education ASEE/AaeE 4th Global Colloquium* (pp. 1-30). doi:10.1.1.578.5995
- Petrosino, A., Svihla, V., & Kapur, M. (2006). Calculating expertise in bioengineering education. In Proceedings of the Ninth International Conference on Engineering Education (pp. 18-21), San Juan, Puerto Rico.**
- Barr, R. E., Pandey, M. G., **Petrosino, A. J.**, Abraham, L. D., Karande, T., & Patel, B. (2004). Classroom testing of Virtual Biomechanics Laboratory (VBL) Learning Modules. *Proceedings of the 2003 ASEE Gulf-Southwest Annual Conference*, (Page 9.311.1- Page 9.311.20) Arlington, TX. [Awarded Best Paper from the 2003 American Society of Engineering Education Gulf-Southwest Conference]
- Pandey, M. G., **Petrosino, A. J.**, Barr, R. E., Tennant, L., & Seth, A. (2003). Design, implementation, and assessment of an HPL-inspired undergraduate course on biomechanics. *Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition*, (pp. Page 8.380.1- Page 8.380.9). Nashville, TN.
- Nathan, M. J., & **Petrosino, A. J.** (2002, October). Expert blind spot among pre-service mathematics and science teachers. *Proceedings of International Conference of the Learning Sciences 2002*, Seattle, WA.

Petrosino, A. J., Pfaffman, J., & the Cognition and Technology Group at Vanderbilt. (1997, December). The Mission to Mars Webliographer: A principled approach to the design of a CSCL tool. In R. Hall, N. Miyake, & N. Enyedy (Eds.), *Proceedings of the Computer Support for Collaborative Learning '97 Conference* (pp. 198-206).

Petrosino, A. J. (1996, August). The role of content expertise in the learning community. In D. Edelson & E. Domeshek (Eds.), *Proceedings of ICLS 96* (pp. 468-473). Charlottesville, VA: Association for the Advancement of Computing in Education.

Petrosino, A. J., Sherwood, R. D., Bransford, J. D., Brophy, S., & the Cognition and Technology Group at Vanderbilt. (1995). The use of cognitive tools to facilitate knowledge construction in macro context environments: Foundations, design issues, and the development of applications in applied settings. In S. Helgeson (Ed), *Proceedings: Working conference on technology applications in the science classroom*. The National Center for Research in Science Teaching and Learning.

NON-PRINT MEDIA: Significant Educational Design Products

Blogs

Petrosino, A. J. (2007–present). *Dr. Petrosino's education project* [Blog]. Available at <http://hobokencurriculumproject.blogspot.com>. With nearly 380,000 page views, this blog provides a forum for my perspective on education at the local, state, and national levels. The blog has also had 68,500 views from international readers. At all times, the basic premise is that the role of leadership is to create more leaders, not more followers. Total original posts: 1,261 with 300 average views per post.

Petrosino, A. J. (2009–present). *Project based instruction in STEM education* [Blog]. Available at <https://uteachpbi.blogspot.com>. With over 101,000 page views, this blog provides information related to my University of Texas at Austin course, EDC 365E Project Based Instruction in Stem Education. This is the capstone course in the UTeach Natural Sciences professional development sequence. The blog also serves as a forum for my thoughts and ideas on project based instruction and educational reform. Total original posts: 186 with 544 average views per post.

Software Tools for Learning Environments

Petrosino, A. J. (Director, 2015) Children's Science Book Database. Created with the technical assistance of the Center for Instructional Innovation.
<https://oi2.edb.utexas.edu/childrensbooks/>

Petrosino, A. J. (Director, 2014) Legacy Cycle for Pre Service Teacher Education. Created with the technical assistance of the Center for Instructional Innovation

Petrosino, A. J. (Director) PDAShare: Online course development system for use with both desktop and personal digital assistant (PDA) devices. Used in courses at The University of Texas and Texas A&M University (110 users to date)
<http://lrc-test79.edb.utexas.edu/pdashare/>

Petrosino, A. J. (Coordinator, Austin Initiative) VOS observational system. VOS is a system for coding classroom events that looks at teacher–student interactions and student engagement to describe global indicators of effective teaching. Developed collaboratively with colleagues involved with the National Science Foundation funded VaNTH ERC (impacting over 500 students at four universities).
<http://www.edb.utexas.edu/petrosino/pda/projects/vos/index.html/>

Petrosino, A. J. (Director) Anchor Video Maker: A web site to assist teachers and UTeach students in making anchor videos for classroom instruction. Funded by a grant awarded through The University of Texas Center for Instructional Technologies' ~FAST Tex program. <http://edb.utexas.edu/anchorvideo/>

Curriculum Projects Incorporating Technology

Petrosino, A. J. (Director) (Many were collaborative constructions with teachers; most are available for classroom use from http://www.edb.utexas.edu:16080/per/teacher_legacy.htm)

- *In Search of Proof* (mathematics), Pythagorean Theorem
- *Exponential Growth of Starbucks* (mathematics), growth and decay
- *The Hydrilla Problem in Town Lake* (plant anatomy and physiology)
- *Waves* (physics), electromagnetic spectrum
- *In Search of the Perfect Diet* (health and nutrition)
- *Construct School Garden* (ecology), plan and construct a school garden
- *What Is Happening in the Beaker* (chemistry) energy exchange
- *Why Do We Need Glasses?* (optics) causes of variance in eyesight quality

Multimedia and Hardware Products

Petrosino, A. J. (Director), (2002). *Incorporating Field Experiences in Project-Based Instruction* (videotape). Austin, TX: Systemic Research Collaborative for Education in Mathematics, Science and Engineering Education and UTeach–Natural Science.

The Adventures of Jasper Woodbury (CD-ROM/videotape/laserdisc). Published by LEARNING, Inc., a division of Erlbaum. Developed collaboratively with colleagues from the Cognition and Technology Group at Vanderbilt (CTGV) 1991–98. *The Adventures of Jasper Woodbury* consists of 12 videodisc-based adventures that focus on mathematical problem finding and problem solving. The Jasper series is currently being used in classrooms in every state in the U.S., as well as in classrooms in Canada and China.

The Scientists in Action Project (CD-ROM/videotape/laserdisc). Developed

collaboratively with colleagues from CTGV 1992–98 and funded by the National Science Foundation. Intended for middle grades students but focuses on science concepts instead of mathematics.

Mission to Mars (CD-ROM/videotape). Funded by the Tennessee Space Grant Consortium. Developed collaboratively with colleagues from the CTGV 1992–93. Further development of curriculum and website was funded by a grant awarded through The University of Texas Center for Instructional Technologies' ~FAST Tex program in 2003. <http://www.edb.utexas.edu/missiontomars/>

INVITED PRESENTATIONS

Petrosino, A. J. (2012, January). *K-12 engineering professional development*. Invited talk to the Computing Education for the 21st Century CE12 Conference, National Center for Women and Information Technology, Washington, DC.

Petrosino, A. J. (2012, January). *iSTEM and learning outcomes*. Invited talk to the Committee on Integrated STEM Education (second meeting), National Academy of Engineering, National Research Council Board of Science Education, Washington, DC.

Petrosino, A. J. (2008, October). The UTeach Natural Sciences Program: Challenges and Success in Modeling University Collaboration and Systemic Reform in STEM Teacher Preparation at Multiple Levels of Scale. Dedication Ceremony for the IDEA Institute, University of Michigan, Ann Arbor.

Petrosino, A. J. (2008, October). *Anchored instruction and the relationship to the learning sciences*. Invited lecture to Instructional Technology Department, Harvard University.

Petrosino, A. J., Svihla, V., & Brophy, S. P. (2008). *Engineering skills for understanding and improving K-12 engineering education in the United States* (Commissioned report), National Academy of Engineering Committee on Understanding and Improving K-12 Engineering Education in the United States.

Petrosino, A. J. (2008, January). *UTeach and the learning sciences*. Invited lecture, Johnson & Johnson/GSE Learning Science Lecture Series, Rutgers University, New Brunswick, NJ.

Petrosino, A. J. (2007). *Vertical and horizontal integration of instructional technology*. Invited lecture, New York University, New York, NY.

Petrosino, A. J. (2005, February). *Experimentation and hands-on activity: A case of model rockets*. Invited presentation at Texas A&M University, College Station.

Petrosino, A. J. (2005). *Bringing the learning sciences to the college classroom*. Invited address to the Science Technology in Education Special Interest Group of the American Educational Research Association.

Petrosino, A. J. (2005, June). *Bring the learning sciences to the college classroom*. Invited presentation for the Monterey Summer Institute, Austin, TX. Presentation to professors of technology from Monterey University, Mexico.

Petrosino, A. J. (2004, April). *Bringing the learning sciences to the college classroom*. Invited address to the Science Technology in Education Special Interest Group of the American Educational Research Association, San Diego, CA.

Petrosino, A. J. (2003, November). *The impact of culture on science teaching and learning: A case for reflectively adaptive learning environments*. Invited Keynote Address to the China–US Conference Research Roundtable in Integrating IT in Science Education Across Cultures, College Station, TX.

Petrosino, A. J. (2002, June). *PDAShare—Using technology in the college classroom*. Invited presentation for the Monterey Summer Institute, Austin, TX. Presentation to teachers of technology from Monterey University, Mexico.

Petrosino, A. J. (2001, June). *Collaboration in project based instruction*. Invited presentation for the Monterey Summer Institute, Austin, TX. Presentation to teachers of technology from Monterey University, Mexico.

Petrosino, A. J. (1992, November). *Macrocontexts in science instruction—Scientists in action*. Invited presentation to the Kellogg Mathematics and Science Seminar, Nashville, TN.

National Presentations (Competitively Selected)

(former or current graduate students as coauthors italicized)

Brady, C. E., Stroup, W. M., **Petrosino, A. J.**, and Wilensky, U. (2018, August). *Group-based simulation and modeling: technological supports for social constructionism*. Paper presented at Constructionism 2018, Vilnius, Lithuania.

Harron, J. R., **Petrosino, A. J.**, & Jenevein, S. (2018, April). *Pre-service elementary education teacher perspectives of the use of virtual reality in science teaching*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.

Lim, W. S., & **Petrosino, A. J.** (2018, April). *Teacher sensemaking orientation as regard to their implementation fidelity*. Poster session presented at the annual meeting of the American Educational Research Association, New York, NY.

- Petrosino, A. J., Park, J., & Park, S.** (2018, April). *Investigating community of practice development during the professional development summit using social network analysis*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
- Petrosino, A. J., Stroup, W. M., Harron, J. R., & Sherard, M. K.** (2017, June). *Group-based cloud computing for STEM education*. Poster at the annual convention of the American Society of Engineering Education, Columbus, OH.
- Petrosino, A. J., & Stroup, W. M.** (2017, June). *Group-based cloud computing for secondary STEM education*. Paper presented at the annual convention of the American Society of Engineering Education, Columbus, OH.
- Petrosino, A. J., Mann, M., & Tharayil, S.** (2017, April). *Content and pedagogical knowledge among three groups of college students on Praxis and CRT measures*. Paper presented at the annual meeting of the American Educational Research Association, San Antonio, TX.
- Petrosino, A. J., & Mann, M.** (2017, March). *Pre-service teachers' knowledge*. Paper presented at the annual meeting of the Texas Academy of Science, Belton, TX.
- Hutner, T., Salinas, C. S., & Petrosino, A. J.* (2016, April). *Do preservice science teachers develop goals reflective of teacher education? An exploratory study*. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.
- Mann, M. J., & Petrosino, A. J.* (2016, March). *Understanding density*. Paper presented at the Texas Academy of Science, Junction.
- Mann, M. J., Delgado, C., Stroup, W. M., & Petrosino, A. J.* (2015). *Tensions between conceptual and metaconceptual learning with models*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
- Lucero, M. M., & Petrosino, A. J.* (2014, April). *A potential resource in eliciting student ideas: Examining the adaptability of a concept inventory for natural selection at the secondary school level*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
- Lucero, M. M., Delgado, C., & Petrosino, A. J.* (2014, April). *Measuring science teachers' pedagogical content knowledge for student ideas about natural selection using a concept inventory*. Poster presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
doi:10.13140/2.1.5017.9203

- Lucero, M. M., & Petrosino, A. J.* (2014, April). *An exploration into science teachers' subject matter knowledge and knowledge of students' natural selection alternative conceptions*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Pittsburgh, PA. doi:10.13140/2.1.2396.4805
- Lucero, M. M., Delgado, C., & Petrosino, A. J.* (2013, April). *Measuring science teachers' pedagogical content knowledge for student ideas about natural selection using a concept inventory*. Presented at the annual meeting of the National Association for Research in Science Teaching.
- Petrosino, A. J., & Gustafson, K. A.** (2013, April). *STEM integration in a research-based engineering curriculum using enacted and prescribed frames*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Crawford, R. H., White, C. K., Muller, C. L., **Petrosino, A. J., Talley, A., & Wood, K. L.** (2012). *Foundations and effectiveness of an after-school engineering program for middle school students*. Paper presented at the meeting of the American Society of Engineering Education, San Antonio, TX.
- Lucero, M. M., & Petrosino, A. J.* (2012, April). *Secondary teachers' predictions of students' natural selection alternative conceptions*. Paper presented at the annual meeting of the American Educational Research Association, Vancouver, BC, Canada.
- Lucero, M. M., Petrosino, A. J., McVaugh, N. K., & Birchfield, J.* (2011, December). *NARST: Confirmation for increased attention to four core areas of evolution understanding: Observations from classroom instruction*. Paper presented at the National Association for Research in Science Teaching sponsored session at the regional meeting of the National Science Teachers Association, Seattle, WA.
- Petrosino, A. J.** (2011, May). *Project based instruction in the UTeach classroom*. Paper presented at the annual meeting of the National Mathematics and Science Institute, Austin, TX.
- Petrosino, A. J.** (2011, April). *Algebra expert blind spot: A comparison of inservice and preservice teachers*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Lucero, M. M., Petrosino, A. J., McVaugh, N. K., & Birchfield, J.* (2011, April). *Confirmation for increased attention to four core areas of evolution understanding: Observations from classroom instruction*. Poster presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.

- Walkington, C., Petrosino, A., & Sherman, M. (2011, April). The impact of personalization on problem-solving in algebra.* Presentation at the annual meeting of the American Educational Research Association, New Orleans, LA. [Winner, Graduate Student Research Award, Division C.]
- Walkington, C., Sherman, M., & Petrosino, A. (2010, May). Playing the game of word problems: Situated cognition in algebra problem solving.* Paper presented at the annual meeting of the American Educational Research Association, Denver, CO.
- Svihla, V., Petrosino, A. J., Martin, T., Rayne, K., Rivale, S. R., & Diller, K. R. (2008). Learning to design: The role of authenticity and the distribution of cognition in student design teams.* Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
- Svihla, V., Rivale, S., Rayne, K., Martin, T., Petrosino, A., & Diller, K. (2007, April). Adaptive expertise across a major.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Svihla, V., Petrosino, A., Rayne, K., & Diller, K. (2007, March). The role of community in the development of adaptive expertise in bioengineering design.* Paper presented at the ASEE Gulf-Southwest Annual Conference.
- Petrosino, A. J. (2006, July). Experimentation and hands-on activity: A case of model rockets** (Presentation 97: 303 A/B). Featured presenter at the Conference for the Advancement of Mathematics Teaching, Houston, TX.
- Petrosino, A. J. (2006, April). Scientific inquiry and IT: Catalysts for an innovative professional development model for graduate students and teachers—Remarks from the learning sciences perspective.** Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Petrosino, A. J. (2006, April). Validating standardized science and mathematics assessments: Examples from Texas and Indiana** (Chair). Special Interest Group Large Scale Assessment. Presentation at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Martin, T., & Petrosino, A. J. (2006, April). Software environments that support new designs for collaborative learning and assessment.** Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Petrosino, A. J. (2005, April). Measures of adaptive expertise in bioengineering.** Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.
- Petrosino, A. J. (2005, April). Assessments, models, and professional development toward: Inquiry-oriented science teaching** (Chair). Presentation at the annual meeting of the American Educational Research Association, Montreal, Canada.

- Austin, B., & Petrosino, A. J.* (2005, April). *Teaching biomechanical engineering through How People Learn-based materials*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.
- Upadhyay, B., & Petrosino, A. J.* (2005, April). *An elementary school teacher's thinking about building discourse oriented interactions in science classroom: Life history and curriculum*. Paper presented at the annual meeting of the National Association of Research in Science Teaching, Dallas, TX.
- Vath, R., Rodriguez, S., & Petrosino, A. J.* (2004, April). Encouraging ethical reasoning in the science classroom: An examination of a PBL unit on bioethics. In A. J. Petrosino (Organizer), *University–Secondary Collaborations for Curriculum Development and Implementation*. Paper set presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, BC, Canada.
- Petrosino, A. J., Austin, B. A., & Pandey, M. G.** (2004, April). *Problem-based learning in an upper division biomedical engineering course*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, BC, Canada.
- Upadhyay, B., Petrosino, A. J., Barton, A., Koch, P., & Contento, I.* (2004, April). *Teacher thinking and student context: A comparative study of two elementary teachers*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, BC, Canada.
- Austin, B. A., & Petrosino, A. J.* (2004, April). *Planning effective science education programs using structured decomposition: A collaboration between colleges of science and education*. Presentation at the annual meeting of the National Association for Research in Science Teaching, Vancouver, BC, Canada
- Austin, B. A., & Petrosino, A. J.* (2004, February). *Planning effective science education programs using structured decomposition*. Poster presented at the meeting of the South West Region of the Association for the Education of Teachers of Science, Georgetown, TX.
- McCullough, C. A., Welch, A. J., & Petrosino, A. J.* (2004, February). *Project-based instruction using optics and the properties of light*. Poster presented at the meeting of the South West Region of the Association for the Education of Teachers of Science, Georgetown, TX.
- Lee, C., Ries, J., Tothoro, M., Resta, P., & Petrosino, A. J.* (2004). *Preparing mentor teachers to serve as technology and content role models for preservice teachers*. Paper presented at the Society for Information Technology and Teacher Education International Conference, Atlanta, GA.

- Petrosino, A. J.** (2003). *When is a difference, really a difference? Children's understanding of variation in an inquiry centered classroom*. Paper presented at the 10th Biennial Conference of the European Association for Research on Learning and Instruction (EARLI), Padova, Italy.
- Petrosino, A. J., Slaughter, R., Vath, R., & Tothoro, M.** (2003, April). *The utilization of PDAs in preservice teacher education in mathematics and science education*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Nathan, M., & **Petrosino, A. J.** (2003, April). *Views of algebra development among preservice teachers with advanced and basic mathematics knowledge: Evidence for expert blind spot*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Petrosino, A. J., Puyana, M., & Ries, J.** (2003). *Preparing Tomorrow's Teachers for Technology (PT3): A look at implementation in a Central Texas district*. Poster presented at the American Association of Colleges for Teacher Education, New Orleans, LA.
- Petrosino, A. J., & Cunningham, A.** (2003). *Situating authentic tasks with digital video: Scaffolding the development of critical thinking and reflection in preservice teacher preparation*. Paper presented at the International Conference of the Society for Information Technology and Teacher Education, Albuquerque, NM. Available at <https://www.learntechlib.org/p/18213/>
- Bucci, T., Cherup, S., Dickinson, G., **Petrosino, A.**, & Wetzel, K. (2003). *Field experiences in NETS: Distinguished Achievement Award-winning teacher preparation programs*. Session presented at the International Conference Meeting of the Society for Information Technology and Teacher Education, Albuquerque, NM.
- Cunningham, A., & **Petrosino, A. J.** (2003). *Anchoring instruction with customized video: Teacher-created situated context*. Paper presented at the annual meeting of the National Educational Computing Conference, Seattle, WA.
- Barr, R., Pandey, M. G., **Petrosino, A. J.**, Karande, T., & Chang, C. (2002, January). *Web-based biomechanics learning modules based on the HPL Legacy Cycle framework*. Paper presented at the International Conference on Engineering Education, Manchester, England.
- Pandey, M. G., **Petrosino, A.**, Chang, C., Karande, T., & Barr, R. (2001, November). *Learning modules for biomechanics: Preliminary experiences with the VaNTH ERC*. Paper presented at the International Mechanical Engineering Congress, New York, NY.

- Pandy, M. G., & **Petrosino, A. J.** (2001, November). *Applying learning theories to bioengineering education*. Paper presented at the International Mechanical Engineering Congress, New York, NY.
- Petrosino, A. J.** (2001, October). *Technology standards in teacher preparation—ISTE NETS Distinguished Achievement Award program*. Presentation at the annual meeting of the American Association of Colleges for Teacher Education, New York, NY.
- Brophy, S. P., & **Petrosino, A. J.** (2001, October). *Design principles for integrating technology based resources into biomedical engineering education*. Presented at the annual meeting of the Biomedical Engineering Society, Durham, NC.
- Pandy, M. G., **Petrosino, A. J.**, Chang, C., Karande, T., & Barr, R. (2001, June). *Jumping Jack: A learning module for movement biomechanics*. Paper presented at the annual meeting of the American Society of Engineering Education, Albuquerque, NM.
- Petrosino, A. J.**, & Pandy, M. (2001, April). *Incorporating learning science research in college biomechanics*. Paper presented at the annual meeting of the American Educational Research Association, Seattle, WA.
- Pandy, M. G., **Petrosino, A. J.**, & Chang, C. (2001). *Redesigning the learning environment for biomechanics*. Presented at the International Congress on Mechanical Engineering, Orlando, FL.
- Barr, R., Karande, T., Jin, H., Sasaki, K., Pandy, M., & **Petrosino A. J.** (2001). *Experimental biomechanics learning modules*. Presented at the American Society of Engineering Education Gulf-Southwestern Section Annual Conference.
- Chang, C., Pandy, M. G., **Petrosino, A. J.**, & Krevolin, J. (2000, April). *Simulation-based learning module for biomechanics*. Poster presented at the VaNTH Engineering Research Center for Bioengineering Teaching Technologies, National Science Foundation annual site visit, Nashville, TN.
- Petrosino, A. J.**, & Wilhelm, J. (2001). *Use of a unit on model rockets to develop teacher and student understanding*. Presented to the National Council of Teachers of Mathematics. Orlando, FL.
- Petrosino, A. J.**, Lehrer, R., & Schauble, L. (2000, April). *Distribution, a foundational resource for experiment in science education*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Anderson, C. W., **Petrosino, A. J.**, McClain, K., Passmore, C., & Puttick, G. (2000, April). *Development of reasoning about variation and change in populations*. Paper presented at the meeting of the National Association for Research in Science Teaching, New Orleans, LA.

- Petrosino, A. J.** (1999, March). *Model rockets and reflective inquiry: Design principles for effective hands-on activities*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.
- Pfaffman, J., & **Petrosino, A. J.** (1998, December). *The Mission to Mars Webliographer: A URL database search engine for the classroom*. Poster session presented at the Third Annual Meeting of the International Conference of the Learning Sciences, Atlanta, GA.
- Lehrer, R., **Petrosino, A. J.**, & Koehler, M. (1998, June). *Hypermedia technologies for case-based teacher education*. Paper presented at the Technology and NCTM Standards 2000 Conference, Arlington, VA.
- Koehler, M., **Petrosino, A. J.**, & Lehrer, R. (1998, December). *Designing cases for hypermedia environments in teacher education*. Poster session presented at the Third Annual Meeting of the International Conference of the Learning Sciences, Atlanta, GA.
- Barron, B., Schwartz, D., Vye, N., Moore, A., **Petrosino, A. J.**, Zech, L., Bransford, J. D., & the Cognition and Technology Group at Vanderbilt. (1998, April). *Doing with understanding: Lessons from research on problem- and project-based learning*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Petrosino, A. J.** (1998, April). *The orchestration of technology and theory in complex learning environments*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Diego, CA.
- Petrosino, A. J.**, & Darby, J. (1997, December). *Teacher-researcher collaboration within science classrooms*. Presentation at the meeting of the Computer Support for Collaborative Learning Conference, Toronto, Canada.
- Petrosino, A. J.** (1997, March). *Authentic experience within investigative activities: The role of reflection in the learning environment*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Petrosino, A. J.** (1996, April). *Building a virtual community: A case study of a teacher's developing pedagogy*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, St. Louis, MO.
- Petrosino, A. J.**, & Moore, J. L. (1996, April). *Mission to Mars: A developing agenda of inquiry*. Paper presented at the annual meeting of the American Association of Educational Research, New York, NY.
- Schwartz, D. L., **Petrosino, A. J.**, & Sears, D. (1996, April). *Enhancing project-based learning: Lessons from research and development*. Paper presented at the annual meeting of the American Association of Educational Research, New York, NY.

- Petrosino, A. J.** (1995, August). *Theoretical perspectives on the development of an integrated curriculum: A case of the Mission to Mars Project*. Invited presentation at the Third Annual Schools for Thought Conference, St. Louis, MO.
- Petrosino, A. J., & Schwartz, D. L.** (1995, April). *The Bernoulli effect: Initial study of open and closed systems*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.
- Petrosino, A. J., Secules, T., & Swink, J.** (1995, April). *Content domain expertise in the learning community*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Petrosino, A. J.** (1995). *Macrocontexts in science instruction*. Invited presentation to the Association for Educational Communications and Technology, Nashville, TN.
- Sherwood, R. D., **Petrosino, A. J.**, Lin, X., & the Cognition and Technology Group at Vanderbilt. (1995). *Multimedia environments for science instruction*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Sherwood, R. D., Lin, X., **Petrosino, A. J.**, & the Cognition and Technology Group at Vanderbilt. (1995). *The Scientists in Action series: Scientific inquiry for authentic learning environments*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.
- Hickey, D. T., **Petrosino, A. J.**, Pellegrino, J. W., & the Cognition and Technology Group at Vanderbilt. (1994, April). *Using content-specific personal interest to evaluate contemporary science learning environments*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Hickey, D. T., **Petrosino, A. J.**, Pellegrino, J. W., & the Cognition and Technology Group at Vanderbilt. (1994, April). *Middle-schoolers' interest in science and space science: Dimensions of content, context, actualization, and specificity*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Petrosino, A. J.**, Atkins, B., & Hickey, D. T. (1994, April). *Building at-risk students' self-esteem through science and technology*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Hickey, D. T., **Petrosino, A. J.**, & Pellegrino, J. W. (1993). *Challenger Learning Center's M.A.R.S. learning activity pilot evaluation study*. Nashville, TN: Vanderbilt Learning Technology Center.
- Sherwood, R. D., **Petrosino, A. J.**, Goldman, S. R., Garrison, S., Hickey, D. T., Bransford, J. D., & Pellegrino, J. W. (1993, April). *An experimental study of a multimedia instructional environment in a science classroom*. Paper presented at

the annual meeting of the American Educational Research Association, Atlanta, GA.

Hickey, D. T., & **Petrosino, A. J.** (1992, November). *Effects of generative video on students' scientific problem posing*. Paper presented at the annual meeting of the Mid-South Educational Research Association, Knoxville, TN.

Petrosino, A. J., with the Cognition and Technology Group at Vanderbilt. (1992, March). *Problem solving environments that enhance student learning in mathematics and science*. Paper presented at the AIAA Space Programs and Technologies Conference, Huntsville, AL.

Hickey, D. T., Pellegrino, J. W., & **Petrosino, A. J.** (1991, October). *Reconceptualizing space science education: A generative, problem solving approach*. Paper presented at the Florida Space Education Conference, Cocoa Beach, FL.

PROFESSIONAL DEVELOPMENT WORKSHOPS (National and Local)

Petrosino, A. J. (2004, June). Bringing Project Based Science to the College Classroom. *National Science Foundation Chautauqua Short Course*, Austin TX. 3-day professional development workshop for college professors.

Petrosino, A. J. (2004, June). Development of Legacy Cycles for Mathematics and Science Education. *Austin Independent School District*, Austin, TX. 3-day workshop for secondary school teachers (funded by PER-NSF).

Petrosino, A. J. (2003, July). Theory and Practice in Middle School Science Instruction. *Middle School Teachers Institute*, St. Peter's Preparatory School, Jersey City, NJ. 40-hour (5-day) workshop for teachers of students from high-poverty backgrounds.

Petrosino, A. J. (2003, June). Bringing Project Based Science to the College Classroom *National Science Foundation Chautauqua Short Course*, Austin TX. 3-day workshop for college professors.

Petrosino, A. J. (2003, June). Development of Legacy Cycles for Mathematics and Science Education. *Austin Independent School District*, Austin, TX. 3-day workshop for secondary school teachers (funded by PER-NSF).

Petrosino, A. J. (2002, July). Theory and Practice in Middle School Science Instruction. *Middle School Teachers Institute*, St. Peter's Preparatory School, Jersey City, NJ. 40-hour (5-day) workshop for teachers of students from high-poverty backgrounds.

Petrosino, A. J. (2002, June). Development of Legacy Cycles for Mathematics and Science Education. *Austin Independent School District*, Austin, TX. 3-day workshop for secondary school teachers (funded by PER-NSF).

Petrosino, A. J. (2001, July). Theory and Practice in Middle School Science Instruction. *Middle School Teachers Institute*, St. Peter's Preparatory School, Jersey City, NJ. 40-hour (5-day) workshop for teachers of students from high-poverty backgrounds.

Petrosino, A. J. (1999, Summer). Worked with classroom teachers as part of a National Science Foundation-funded project (PIs Rich Lehrer and Leona Schauble) on incorporating model-based reasoning and data interpretation in elementary school mathematics and science instruction. *Verona School District*, Verona, WI.

Petrosino, A. J. (1998, Summer). Modeling in Mathematics and Science Instruction. *National Center for Improving Student Learning and Achievement in Mathematics and Science*, Madison, WI. 2-week professional development workshop for teachers.

Petrosino, A. J. (1998, Summer). *Compton-Drew Investigative Learning Center*, St. Louis, MO. Coordinated a series of workshops on curriculum development for inservice teachers implementing technology-rich elementary science units.

Petrosino, A. J. (1995, Summer). Schools for Thought Teacher Workshop. *Vanderbilt University*, Nashville, TN, St. Louis, MO. 2-week teacher development workshop in science and uses of technology in the classroom.

Petrosino, A. J. (1995, Summer). Problem-Based Learning Workshop. *EduTech*, Georgia Tech University, Atlanta, GA. 3-day teacher training workshop introducing basis of problem based instruction.

Petrosino, A. J. (1994, Summer). Schools for Thought Teacher Workshop. *Vanderbilt University*, Nashville, TN. 1-week teacher development workshop in designing and implementing effective technology based learning environments.

ADVISING AND RELATED STUDENT SERVICE

Dissertation Chair (12 Completed)

Golubski, Christopher	(in progress)	Chair	
Pynes, Kristen D'Anna,	(2018)	Chair	Post-Doc University of Michigan
Lim, Wan Sin	(2018)	Chair	Clinical Faculty Boston College
Hutner, Todd	(2015)	Co-chair	Assistant Professor, University of Alabama
Paige, Cyntreva	(2013)	Co-chair	Austin Community College
Cid, Christina	(2013)	Chair	High Desert Museum, Bend, OR
Lucero, Margaret	(2013)	Chair	Assistant Professor, Santa Clara University

Walkington, Candace	(2010)		Associate Professor, Southern Methodist University
Svihla, Vanessa	(2008)		Associate Professor, University of New Mexico
Offer, Joey	(2007)	Chair	Austin Community College
Carrejo, David	(2004)	Co-chair	Associate Professor, UTEP
Upadhyay, Bhaskar	(2004)	Chair	Associate Professor, University of Minnesota
George, Magnia	(2003)	Co-chair	Assistant Professor, Emory University

Dissertation Committee Member (41)

Mann, Michele Johnson	(in progress)
Nelson, Joshua Ben	(in progress)
Jung, Yeonhak	(in progress)
Buontempo, Jenny	(2018)
Ko, Pat	(2018)
Park, Jungmin	(2017)
Shekhar, Prateek	(2016)
Navarrete, Cesar Chavez	(2015)
McKenna, William F.	(2014)
Hodgin, Claire Marie	(2014)
York-Hammons, Prudence	(2014)
Ekmekci, Adem	(2013)
Talley, Austin Bates	(2013)
Clark, Daniel Allen	(2013)
Zuniga, Robin Etter	(2013)
Mount, Jennifer Daniele	(2012)
Warshauer, Hiroko K.	(2011)
Greenstein, Steven	(2010)
Rivale, Stephanie Dawn	(2010)
Lopresto, Kevin Daniel	(2009)
Haile, Tesfayohannes K.	(2008)
Stefani, Francesco	(2008)
Lang, Sarah Adrienne	(2008)
Heilman, Joanne G.	(2007)
Heo, Yusung	(2007)
Hansel, Janice Marie	(2007)
Hurford, Andrew C.	(2007)
Mack, Andre Joseph	(2007)
Nankervis, Bryan	(2006)
Cushman, Jane Ries	(2006)
Kaczmarczyk, Elizabeth C.	(2005)

Junk, Debra Lynn	(2005)
Lee, Dongjoo	(2004)
Luke, Christopher Layne	(2004)
Therrell, James Alan	(2004)
Lee, Yu-Mei	(2003)
Wenrick, Melanie Renee	(2003)
Liang, Jia-Chi	(2002)
Youker, Christina Rene	(2002)
Wilhelm, Jennifer Anne	(2002)
Oh, Young-Youl	(2001)

Master's Thesis Chair Completed (28)

Pearce, Logan Anthony	(2016)	
Boklage, Audrey Ruth	(2015)	
Cid, Christina Ramsey	(2013)	
Goertz, Patrick Wayne	(2013)	
Hoffman, Shannah	(2013)	
Rodriguez, Shelly R.	(2013)	
Kendrick, Kyle Mason	(2012)	
Bohls, Carol Elaine	(2011)	
Atwood, Erin Denise	(2011)	
Gonzalez, Jose Ricardo	(2011)	
Gustafson, Katherine A.	(2011)	
Lestik, Kristina	(2010)	
Hendrix, Kimberly M.	(2009)	
Mackey, Meredith N.	(2008)	
Abernathy, Elizabeth P.	(2008)	
Aparicio, Christopher M.	(2008)	
Bomar, Ashleigh M.	(2008)	
Carrales, Adrian Manuel	(2008)	
Maxwell, Jonathan Glen	(2008)	
Negrato, Kathleen M.	(2008)	
Lujan, Vanessa Beth	(2008)	
Short, Harold B.	(2007)	
Flatt, Jill Marie	(2007)	[Co-Chair]
Armosky, Bradley J.	(2004)	
Sargent, Brian William	(2003)	
Vath, Richard Joseph	(2003)	
Waite, Elizabeth Grace	(2003)	
Williamson, Shannon C.	(2001)	

Master's Thesis Member (11)

Buono, Edward Michael	(2016)
Beam, John Phillip	(2015)

Clark, Cheryl B.	(2015)
Ng, Kevin	(2014)
Ryan, Douglas Wayne	(2013)
Tran, Ha Vy	(2011)
Walker, Jana Ja	(2008)
Sanders, Christopher A.	(2007)
Seabold, Christopher A.	(2007)
Lee, Carol Yuen-Chia	(2004)
Cen, Hao	(2004)

**Master Degrees in STEM Education Completely Funded
by NSF MSP-0831811 Awarded to Dr. Petrosino (51)**

Garcia, Carmen Matilde	(2016)
Miesner, Ella	(2016)
Beam, John	(2015)
Chagra, Christa Rene	(2015)
Deram, Matt	(2015)
Hahm, James	(2015)
Hamilton, Marisa	(2015)
Nelson, Jenna	(2015)
Piehl, Clayton	(2015)
Wyll, Natalie	(2015)
Afzal, Mariam	(2014)
Buono, Edward (Mike)	(2014)
Clark, Cheryl	(2014)
Dahanayake, Natasha	(2014)
Dees, Elizabeth	(2014)
Ekeoba, Jacqueline	(2014)
Ham, Hubert	(2014)
Martin, Spencer	(2014)
McBride, Andrea	(2014)
Negley, Maria	(2014)
Ng, Kevin	(2014)
Nusz, Jarred	(2014)
Pearce, Logan	(2014)
Robles, Mariel	(2014)
Self, Brian	(2014)
Bennett, Agatha Karen	(2013)
Casselman, James	(2013)
Crocker, Paul	(2013)
Fallin, Patrick	(2013)
Goertz, Patrick	(2013)
O'Dell, David	(2013)
Rodriguez, Chris	(2013)
Ryan, Douglas	(2013)
Brophy, Melissa	(2012)

Crouch, Heather	(2012)
Earnhart, Alison	(2012)
Evans, Michael	(2012)
Jones, Jack	(2012)
Kendrick, Kyle	(2012)
Krebsach, Michael	(2012)
Moldenhauer, Theodore	(2012)
Pierce, Kena	(2012)
Randel, Tony	(2012)
Yonnone, Patrick	(2012)
Brudigam, Kristin	(2011)
Garcia, Bobby Jo	(2011)
Gonzales, Jose	(2011)
Gustafson, Kathy	(2011)
Head, Todd	(2011)
Howard, Nicole	(2011)
Moyers, Audrea	(2011)
Ramos, Noel	(2011)

Advising

Graduate Student Advisor Spring 2010-11, 2011-12, 2012-13; UT College of Education, C&I, STEM Education Program

Courses Taught at The University of Texas at Austin

Undergraduate

- 2010–18 **Instructor**, *Elementary Science Methods* (EDC 370E)
An undergraduate course in the elementary education pre-service course sequence focusing on curriculum content and organization, teaching procedures, materials, and research in elementary school subjects.
- 2000–17 **Instructor**, *Project-Based Instruction* (EDU 365E/UTS 360)
An undergraduate course in the UTeach Natural Sciences program that explores foundations of project-based, case-based, and problem-based learning environments; principles of project-based curriculum development in mathematics and science education; and classroom management and organization of project-based learning classrooms.
- 2000–14 **Instructor**, *Knowing and Learning in Math and Science* (EDU 365C/UTS 350)
An undergraduate course in the UTeach Natural Sciences program that engages learners in the psychological foundations of learning; problem solving in mathematics and science education utilizing technology; principles of expertise and novice understanding of subject matter; implications of high-stakes testing; and foundations of formative and summative assessment.

- 2014 **Instructor**, *Evolution and the Learning Sciences* (SCI 360)
An upper-division course that includes a substantial research component. Evolution is the central unifying principle of biology and yet is an area of science rife with conflict and misunderstanding. This course focuses on five core areas of critical importance for understanding the concept of evolution—variation, selection, inheritance, deep time, and decentralization.

Graduate

- 2016–18 **Instructor**, *Intro to Qualitative Research* (EDC 386R)
- 2017–18 **Instructor**, *Advanced Topics – Learning Sci/STEM Reform* (STM 390T)
An advanced graduate-level course.
- 2017 **Instructor**, *Advanced Topics – Systemic Reform in STEM Education* (STM 390T)
An advanced graduate-level course on the major efforts at systemic reform in STEM education, including development and testing of models of reform initiatives.
- 2017 **Instructor**, *Advanced Topics – Ambitious Teaching in STEM Education* (STM 390T)
An advanced graduate-level course.
- 2000–16 **Instructor**, *Knowing and Learning in STEM Education* (STM 385)
A required course in both the doctoral and master's program in STEM Education covering behaviorism, cognitivism, models of knowledge representation, apprenticeship, and situated learning theories.
- 2001–16 **Instructor**, *Curriculum, History and Development in STEM* (STM 386)
A required course in both the doctoral and master's program in STEM Education. Historical development of school mathematics and science curricula in the United States in the last 150 years, and examination of current curricular trends. A summative project consisting of a research paper and a presentation allows students to delve deeper into a topic of individual interest.
- 2016 **Instructor**, *Advanced Topics – Expertise and Development in STEM* (STM 390T)
An advanced graduate-level course covering research in differences in problem solving between novices, intermediates, and experts in STEM disciplines. General and content specific theories are discussed.
- 2016 **Instructor**, *Advanced Topics – Data Modeling/Physical Activity Data* (STM 390T)
An advanced graduate-level course.

- 2014 **Instructor**, *Advanced Topics – Project Based Instruction in K-16 STEM Curriculum and Research* (STM 390T)
An advanced graduate-level course that identifies and characterizes historical and existing approaches to project based instruction from primary to postsecondary education and in formal and informal settings.
- 2014 **Instructor**, *Advanced Topics – Evolution and the Learning Sciences* (STM 390T)
An advanced graduate-level course that identifies and characterizes five core areas of critical importance for understanding the concept of evolution—variation, selection, inheritance, deep time, and decentralization—all that present challenges to understanding evolution.
- 2013 **Instructor**, *Advanced Topics – Integration in K-16 STEM Curriculum and Research* (STM 390T)
An advanced graduate-level course that identifies and characterizes existing approaches to integrated STEM education, both in formal and after- and out-of-school settings.
- 2012 **Instructor**, *Advanced Topics – Statistical Reasoning* (STM 390T)
An advanced graduate-level course with emphasis on data modeling as the application of statistical concepts and methods to investigate questions about the world.

Graduate

- EDC 386R: Intro to Qualitative Research (2016–18)
EDC 385: Knowing and Learning in Mathematics and Science (2000–16)
EDC 385: Curriculum and Instruction in Mathematics and Science
EDC 385s: Knowing and Learning in Engineering
EDC 385G: Advanced Topics – Statistical Reasoning (2007)
EDC 385G: Curriculum and Instruction in Science and Mathematics
EDC 382: Special Topics (Project Based Instruction; Evolution; Statistical Reasoning)
EDC 185: Forum (Multiple Topics)
STM S390T: Learning Sci/STEM Reform (2017–18)
STM 390T: Advanced Topics – Ambitious Teaching in STEM Education (2017)
STM 390T: Advanced Topics – Systemic Reform in STEM Education (2017)
STM 390T: Advanced Topics – Expertise and Development in STEM (2016)
STM 390T: Advanced Topics – Data Modeling/Physical Activity Data (2016)
STM 390T: Advanced Topics – Project Based Instruction in K-16 STEM Curriculum and Research (2014)
STM 390T: Advanced Topics – Evolution and the Learning Sciences (2014)
STM 390T: Advanced Topics – Engineering Education in STEM (Summer 2014)
STM 390T: Advanced Topics – Integration in K-16 STEM Curriculum and Research (2013)
STM 390T: Advanced Topics – Statistical Reasoning (2012)

STM 386: Curriculum History and Development in STEM Education (2001–16)
STM 385: Knowing and Learning in STEM Education (2000–16)
EDC 385G: Advanced Topics – Computational Reasoning (2012)

Undergraduate

EDC 370E: Science Education Methods (2010–18)
EDC 365E/EDC 371/UTS 360: Project Based Instruction in Mathematics and Science (2000–17)
EDC 365C/EDC 371/UTS 350: Knowing and Learning in Mathematics and Science (2000–14)
SCI 360: Evolution and the Learning Sciences (2014)

Program Development

Curriculum/Program Revision, National, UTeach Natural Science/Dept. of Curriculum and Instruction. (September 2009 – 2011). I led a team that included another professor, 3 Master teachers and 4 TAs in redeveloping the EDC 365E Project Based Instruction course in the UTeach College of Education sequence of courses. Because this revision involved UTeach, the implications of this work were felt at the department, college, university, state, and national levels.

UTeach–Natural Sciences. During the 1999-2000 academic year, I assisted in a major reformulation of the existing science and mathematics secondary teacher training program. We designed a sequence of three brand-new required courses in science and mathematics education, stipulated a new set of requirements for course taking, and worked closely with the College of Natural Sciences and the Office of Special Projects in coordinating this joint effort.

Course Development

EDC 371/UTS 360 Project-Based Instruction. I designed and taught Project-Based Instruction in Science and Mathematics (EDC 371/UTS 360), the capstone course in the UTeach sequence of required courses. This course drew on my experience of project based instruction and anchored instruction that I developed at both Vanderbilt University as part of the Cognition and Technology Group at Vanderbilt (CTGV) and at the University of Wisconsin. I have had two ~FAST Tex grants (Faculty And Student Teams for Technology) to help develop affiliated websites for the course.

EDC 371/UTS 350 Knowing and Learning. I designed and taught Knowing and Learning in Science and Mathematics (EDC 371/UTS 350), the first course in the UTeach sequence of required courses. This course drew on my research on learning in mathematics and science education, specifically with a cognitive and technological focus. I have taught this course five times and have refined it to reflect my growing understanding of research on learning mathematics and science and their integration.

EDC 385G Curriculum and Instruction. As part of our redesign of the graduate program in science and mathematics education, I was asked to design and teach the second course in our new set of required courses: EDC 385G Curriculum and Instruction in Science and Mathematics. In addition to drawing on an area of my expertise—research on integrated teaching of mathematics and science—this work required that I master a new body of literature—research on curriculum and curriculum theory. I have taught this course three times. I have refined it to reflect my growing understanding of curriculum development and theory (from the Committee of Ten to Postmodernism) as well as my background and research on integrated learning in mathematics and science education.

EDC 185 Forum. As part of our redesign of the graduate program in Science and Mathematics Education, the faculty take turns teaching a 1-hour Forum class. Each time I teach the course I pick a newly published edited volume (published within the past year and one that I have not previously read). The class and I read, discuss, and debate the merits of each chapter over the course of the semester. This takes a great deal of preparation and time, especially for a 1-hour course, but it has been a very rewarding experience. Past Forums have been based on “Designing Instruction for Mathematics and Science Education” as well as “Museum/Informal Learning in Science Education.”

SERVICE TO THE PROFESSION

National Service to the Profession

Editorial Board (2010–present), *Journal of Pre-College Engineering Education Research*

Editorial Board (2005–present), *Journal of Science Education and Technology, Contemporary Issues in Technology and Teacher Education*

Review Panelist (2000–present), National Science Foundation (multiple divisions)

External Tenure Reviewer

University of Massachusetts–Dartmouth, 2013

University of Cincinnati, 2012

University of Texas A&M–Corpus Christi, 2011

University of South Carolina, 2009

Advisory Board (2004–2007), Center for the Study of Learning, Instruction, & Teacher Development, University of Illinois at Chicago, Department of Education FIPSE grant entitled Project TRUST.

Advisory Board (2001–2005), Center for Information Technology in Science, Texas A&M, National Science Foundation-funded Center for Learning and Teaching.

Founding Committee Member (2003–2006), International Society of the Learning Sciences (ISLS)

Panel reviewer (2000, 2001, 2003), National Science Foundation. Reviewed proposals submitted to Teacher Enhancement–Emerging Technologies Program

Section co-chair (2000), American Educational Research Association, Division C, Science Education. Directed review and programming of over 120 proposals submitted for presentation at the annual meeting.

Manuscript reviewer, 1999–present

American Education Research Journal (AERJ)

Cognition and Instruction

Journal of Research in Science Teaching (JRST)

Science Education

The Journal of the Learning Sciences (JLS)

Teachers College Record

Journal of Science Education and Technology

Contemporary Issues in Technology and Teacher Education

Proposal reviewer, 1999–present

American Educational Research Association, Division C, annual meeting

International Conference of the Learning Sciences, bi-annual meeting

National Association for Research in Science Teaching, annual meeting

Discussant for paper sessions at National Conferences

Petrosino, A. J. (Discussant). (2002, October). *Contextualized accounts of science learning*. Symposium conducted at the Fifth Annual Meeting of the International Conference of the Learning Sciences, Seattle, WA.

Petrosino, A. J. (Discussant). (2000, April). *Reading, text and inquiry in the science classroom (C3-11)*. Symposium conducted at the annual meeting of the American Educational Research Association, New Orleans, LA.

Petrosino, A. J. (Discussant). (2000, April). *Project based science*. Symposium conducted at the annual meeting of the American Educational Research Association, New Orleans, LA.

Petrosino, A. J. (Discussant). (1998, April). *Science learning and technology*. Symposium conducted at the annual meeting of the American Educational Research Association, San Diego, CA.

Petrosino, A. J. (Discussant). (1998, April). *Multi-media cases for elementary science teacher education*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, San Diego, CA.

Petrosino, A. J. (Discussant). (1998, April). *Model creation by science learners*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, San Diego, CA.

Organizer for paper sessions at National Conferences

- Petrosino, A. J.** (Organizer). (2004, April). *University–secondary collaborations for curriculum development and implementation*. Paper set presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, BC, Canada.
- Petrosino, A. J.** (Organizer). (1998, April). *Issues in professional development: integrating technology and learning theory for sustained inquiry*. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, San Diego, CA.
- Petrosino, A. J.** (Organizer). (1997, March). *The reflexive nature of practice and research within learning environments*. Symposium conducted at the annual meeting of the American Educational Research Association, Chicago, IL.

State Service to the Profession

Texas Success Initiative Faculty Advisory Committee, 2013-14, 2014-15, 2015-16.
State-legislated program designed to improve student success in college

Board of Directors, 2009–present

I am a founding member of the Board of Directors for the Hoboken Dual Language Charter School in Hoboken, NJ. It is the first dual language charter school in New Jersey. I oversee operations, curriculum and instruction, personnel, budgets, and state compliance issues.

(TExMaT) Committee Member, Summer 2004

Sponsored by the State Board of Educator Certification (SBEC). Served on the Texas Examinations for Master Teachers (TExMaT) Committee, Master Science Teacher 8-12 test for certification. Reviewed and edited draft test framework.

(TExMaT) Committee Member, Spring 2004

Sponsored by the State Board of Educator Certification (SBEC). Served on the Texas Examinations for Master Teachers (TExMaT) Committee, Master Science Teacher 8-12 framework for Master Teacher certification.

Education Council, 2003-04, 2004-05, 2005-06, 2006-07

University of Texas Elementary Charter School, Austin.

Technology Advisory Group, 2003–04, 2004–05, 2005–06, 2006–07

University of Texas Elementary Charter School, Austin.

Local Service to the Profession

Professional Development Workshop Leader

Austin Independent School District, Austin, TX, VaNTH ERC Partnerships in Education Workshop (3-day meeting June 1–3, 2004; 21 hours). The focus of this workshop was the further development of teachers' understanding about using the Legacy cycle as an instructional tool to develop students' conceptual understanding.

<http://www.edb.utexas.edu/petrosino/per/workshop11.html>

Austin Independent School District, Austin, TX, VaNTH ERC Partnerships in Education Workshop (1-day meeting March 6, 2004; 7 hours). The focus of this workshop was the further development of teachers' understanding about using the Legacy cycle as an instructional tool to develop students' conceptual understanding.

<http://www.edb.utexas.edu/petrosino/per/workshop10.html>

Austin Independent School District, Austin, TX, VaNTH ERC Partnerships in Education Workshop (1-day meeting January 24, 2004; 7 hours). Teachers spent the day completing or nearing completion on their Legacy cycles.

<http://www.edb.utexas.edu/petrosino/per/workshop9.html>

Austin Independent School District, Austin, TX, VaNTH ERC Partnerships in Education Workshop (1-day meeting January 10, 2004; 7 hours). The focus of this workshop was to provide additional and sustained assistance to the teachers as they continued to design original Legacy cycles. New teachers were given separate presentations in order to familiarize them with the process of curriculum design.

<http://www.edb.utexas.edu/petrosino/per/workshop8.html>

Austin Independent School District, Austin, TX, VaNTH ERC Partnerships in Education Workshop (1-day meeting November 22, 2003; 7 hours). The focus of this workshop was to provide additional and sustained assistance to the teachers as they continued to design original Legacy (technology-rich curriculum) cycles.

<http://www.edb.utexas.edu/petrosino/per/workshop7.html>

Austin Independent School District, Austin, TX, VaNTH ERC Partnerships in Education Workshop (3-day meeting June 2–4, 2003; 21 hours). We again invited the inservice teachers who had been involved with our PT3 grant and previous PER workshops as well as members of the VaNTH Student Leadership Council.

<http://www.edb.utexas.edu/petrosino/per/workshop6.html>

Austin Independent School District, Austin, TX, VaNTH ERC Partnerships in Education Workshop (1-day meeting April 12, 2003; 7 hours). The focus of this third workshop was to provide the teacher participants with a structure to assist them as they began to design original Legacy cycles. <http://www.edb.utexas.edu/petrosino/per/workshop5.html>

Austin Independent School District, Austin, TX, VaNTH ERC Partnerships in Education Workshop (1-day meeting December, 2003; 7 hours). The purpose of the PT3 grant is to

develop a scalable model of an integrated, technology-infused educational experience for the next generation of high school and middle school teachers of mathematics and science. <http://www.edb.utexas.edu/petrosino/per/workshop3.html>

San Antonio Independent School District, Austin, TX, VaNTH ERC Partnerships in Education Workshop (3-day meeting June 19–21, 2003; 20+ hours). The workshop was offered for K-12 mathematics and science teachers involved with the San Antonio USI (USI-9554484) in an effort to present them with instructional materials that use bioengineering and related sciences as anchors and challenges for the teaching of science fundamentals at various levels in K-12.

<http://www.edb.utexas.edu/petrosino/per/workshop3.html>

Austin Independent School District, Austin, TX, VaNTH ERC Partnerships in Education Workshop (1-day meeting February 22, 2003; 7 hours). The focus of this second workshop was to continue exposing the teachers to the Legacy cycle model (technology-rich curriculum) for engaging in inquiry in the classroom.

<http://www.edb.utexas.edu/petrosino/per/workshop4.html>

Research Project Director

Principal Investigator, for 3-year National Science Foundation-funded study (NSF 14656-S1 Amendment 4). As PI, I supervised two Graduate Research Assistants and directed all teacher professional development, research design, and data collection and analysis. We worked in numerous Austin Independent School District low-income schools. This work included planning and leading professional development sessions with participating teachers; video observations of teaching; interviews with teachers about their knowledge, beliefs, and teaching; data analysis; and presenting and publishing research reports.

Co-Principal Investigator, with Paul Resta, for 4-year U.S. Department of Education grant (DOE P342A000111). As Co-PI, I supervised two Graduate Research Assistants; coordinated efforts with the project manager and Co-PI; and planned all data collection, analysis, write-ups, and most presentations; and assisted in the editing and writing of annual reports with the project manager.

The University of Texas at Austin Service

Faculty Council, College of Education Representative (elected), 2003-04, 2004-05, 2013-14, 2014-15

A-1 Committee of Counsel on Academic Freedom and Responsibility, 2013-14

B-3 Student Life and Activities Committee, 2013-14, 2014-15

B-4 Student Athletics and Activities Committee Chair, 2015-16

C-2 Calendar Committee, Standing Committee of the General Faculty (Type C: Institutional Policy and Governance) 2003-04, 2004-05

UTeach Natural Sciences, Steering Committee, 19 consecutive years, 1999-2000 to present

UT College of Education Service

Teacher Education Committee, 2014-15, 2015-16, 2016-17
 ALD Committee Member, 2014-15, 2015-16, 2016-17, 2017-18
 FRA/SRA Selection Committee, 2011-12, 2012-13
 Member- COE Dean Evaluation Committee 2013-14
 Ad-hoc Committee on Equity, 2003-04
 College of Education Research Committee 2013-2015
 Explore UT- "Cloud in a Bottle" 2015-16, 2016-17

UT Department of Curriculum & Instruction/STEM Education Program Service

Secretary for the Curriculum and Instruction Graduate Studies Committee, 2011-12
 Graduate Studies Committee: Curriculum and Instruction
 Graduate Studies Committee: STEM Education
 Awards Committee: STEM
 Chair, 2012-13, 2013-14, 2014-15
 Member, 2012-13
 Program Area Coordinator, STEM Program, 2007–Fall 2011
 Program Advisor, STEM Education, 2010-11, 2011-12, 2012-13
 Program Coordinator, STEM Education, 2009-10, 2010-11
 Search Committees:
 STEM Education Search Committee Chair, 2010-11, 2011-12, 2012-13
 Educational Psychology Search Committee, 2012-13
 Mathematics and Science Education, 2000-01
 Instructional Technology, 2000-01, 2002-03, 2003-04
 Assistant Graduate Advisor of Record, 2014-15, 2015-16
 Race and Curriculum Revision Project- 2017-18
 Diversity Dialogues (member)- 2014-2018
 Chair- Student Travel Award Committee- 2015-16, 2016-17

CERTIFICATES

Chief School Administrator (Superintendent of Schools), 2009, State of New Jersey
Permanent certificate to teach Grades K-12 Science (inclusive), 1987, New Jersey Public Schools, State of New Jersey

PROFESSIONAL AFFILIATIONS

American Educational Research Association (AERA)
 American Association for the Advancement of Science
 International Society of Learning Sciences
 International Society of Technology in Education (ISTE)
 National Association of Research in Science Teaching