



## ISET 2018 Keynote Speaker



**Professor Joseph S. Krajcik**

### ACADEMIC BACKGROUND

- Ph.D. Science Education, The University of Iowa; August, 1986
- M.S. Curriculum and Instruction, Science Education, University of Wisconsin-Milwaukee; December, 1982
- B.A. Chemistry and Broad Field Natural Science Certification, University of Wisconsin-Milwaukee, 1976; Communication and Philosophy, University of Wisconsin-Milwaukee, 1973

#### Certification and licenses:

- State of Wisconsin Permanent Teaching Certificates: Grades 9-12 License 600 Science (All); Grades 9-12 License 610 Chemistry
- Open-Water Scuba Diver, Summer, 2004 (Belize Academy of Diving, PADI)
- Advanced Open-water Scuba Diver, Summer, 2006 (Belize Academy of Diving, PADI)

### ACADEMIC EXPERIENCE

- Sept 2011 Director the Institute for Collaborative Research for Educational Assessment and Teaching Environment for Science, Technology, Engineering and Mathematics (CREATE for STEM), and Professor of Science Education, Michigan State University
- Sept 2009 - 2010 Distinguished Professor, Ewha Womans University, Institute for Global Science, Society and Technology, Seoul, South Korea
- Sept 2007 – 2011 Co-director, the IDEA Institute, University of Michigan
- 2006 - 2011 Associate Dean for Research, School of Education, University of Michigan
- Sept. 1998- 2011 Professor, Educational Studies, School of Education, University of Michigan
- 1990 - 1994 Assistant Professor, Associate Professor, Educational Studies, School of Education, University of Michigan.
- 1986 -1989 Assistant Professor, Department of Curriculum and Instruction, College of Education, University of Maryland.
- 1983-1986 Instructor, Science Education, University of Iowa. Courses taught include: Science Methods II; Resources and Teaching Strategies; Introduction to Teaching; Computer Applications in Science Teaching. Also served as a Student Teacher Supervisor and Coordinator for Molecular Biology for the Secondary Science Training Program.
- 1976-1983 Marquette University High School, Milwaukee, Wisconsin. Science Teacher for Accelerated Chemistry, Chemistry and Physical Science; Science Club and Chess Club Moderator.
- 1981-1983 Marquette University Upward Bound Program, Milwaukee, Wisconsin. Science Teacher for Advanced Chemistry, Chemistry and Physics. Also involved in curriculum development for Accelerated Chemistry, Summers.
- 1979-1981 Milwaukee Area Technical College; Evening School; Milwaukee, WI. Instructor for High School Chemistry and General Science.
- 1974-1977 University of Wisconsin-Milwaukee, Department of Learning Skills, Milwaukee,

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University of Wisconsin-Milwaukee, Department of Learning Skills, Milwaukee, Wisconsin.  
Instructor for Mathematics workshop for high school graduates of Spanish descent, Summer.

## PUBLICATIONS

Journal Publications: (\* designates refereed manuscripts; + designates solicited manuscripts)

- \*Tapia, Sanchez-Ingrid; Krajcik, J., Reiser, B. (2017). We Don't Know What is the Real Story Anymore": Curricular Contextualization Principles That Support Indigenous Students in Understanding Natural Selection. *Journal of Research in Science Teaching*, Wiley Online Library (wileyonlinelibrary.com), DOI10.1002/tea.21422.
- \*Damelin, D., Krajcik, J., McIntyre, C., and Bielik, T. (2017). Students making system models: An accessible approach. *Science Scope*, 40(5), 78-82
- \*Krajcik, J. & Delen, I. (2017). How to support learners in developing usable and lasting knowledge of STEM. *International Journal of Education in Mathematics, Science and Technology*, 5(1), 21-28. DOI:10.18404/ijemst.
- +Krajcik, J., & Delen, I. (2017). The Benefits and Limitations of Educative Curriculum Materials. *Journal of Science Teacher Education*, 28(1), 1-10.
- \*Krajcik, J., & Delen, I. (2017). Engaging learners in STEM education. *Eesti Haridusteaduste Ajakiri. Estonian Journal of Education*, 5(1), 35-58. <https://ojs.utlib.ee/index.php/EHA/article/view/eha.2017.5.1.02b>
- \*Schneider, B., Krajcik, J., Lavonen, J., Salmela-Aro, K., Broda, M., Spicer, J., Bruner, J., Moeller, J., Linnansaari, J., Juuti, K. and Viljaranta, J. (2016), Investigating optimal learning moments in U.S. and Finnish science classes. *J. Res. Sci. Teach.*, 53: 400–421. doi: 10.1002/tea.21306
- \*Krajcik, J. 2015. Three dimensional instruction: Using a new type of teaching in the science classroom. *Science Scope* 39(3): 16–18.
- \*Harris, C. J., Penuel, W. R., D'Angelo, C. M., DeBarger, A. H., Gallagher, L. P., Kennedy, C. A., Cheng, B. H. and Krajcik, J. S. (2015), Impact of project-based curriculum materials on student learning in science: Results of a randomized controlled trial. *J. Res. Sci. Teach.*, 52: 1362–1385. doi: 10.1002/tea.21263
- \*Fortus, D., Sutherland Adams, L. M., Krajcik, J. and Reiser, B. (2015), Assessing the role of curriculum coherence in student learning about energy. *J. Res. Sci. Teach.*, 52: 1408–1425. doi: 10.1002/tea.21261
- \* Delen, I., & Krajcik, J. (2016). Using Mobile Devices to Connect Teachers and Museum Educators. *Research in Science Education*, 1-24. DOI: 10.1007/s11165-015-9512-8.
- \* Delen, I., & Krajcik, J. (2015). What Do Students' Explanations Look Like When They Use Second-Hand Data?. *International Journal of Science Education*, 37(12), 1953-1973. DOI: 10.1080/09500693.2015.1058989.
- \*Mun, K., Shin, N., Lee, H., Kim, S.-W. Choi, K., Choi, S.-Y., & Krajcik, J. S. (2015). Korean secondary students' perception of scientific literacy as global citizens: Using global Scientific Literacy Questionnaire (GSLQ). *International Journal of Science Education* 37(11), 1739-1766.
- \*Mun, K., Lee, H., Kim, S.-W. Choi, K., Choi, S.-Y., & Krajcik, J. S. (2015). Cross-cultural comparison of perceptions on the global scientific literacy with Australian, Chinese, and Korean middle school students. *International Journal of Science and Mathematics Education*, 13(2), 437-465.
- \* Krajcik, J. (2015), *Project-based Science: Engaging Students in 3-dimensional learning*. *The Science Teacher*, 81(1), 25 – 27. The National Science Teacher Association.
- \* Cooper, M. M., Caballero, M. D., Ebert-May, D., Fata-Hartley, C. L., Jardeleza, S. E., Krajcik, J. S., ... Underwood, S. M. (2015). Challenge faculty to transform STEM learning. *Science*, 350(6258), 281–282. <http://doi.org/10.1126/science.aab0933>
- \*Coppola, B. P. and Krajcik, J. S. (2014), Discipline-centered post-secondary science education research: Distinctive targets, challenges and opportunities. *J. Res. Sci. Teach.*, 51: 679–693. doi: 10.1002/tea.21165
- +Krajcik, J. (2014) How to Select and Design Materials that Align to the Next Generation Science Standards, NSTA Blog. <http://nstacomunities.org/blog/2014/04/25/equip/>
- \*Krajcik, J., Codere, S., Dahsah, C., Bayer, R., Mun, Kongu (2014). Planning Instruction to Meet the Intent of the Next Generation Science Standards, *The Journal of Science Teacher Education*, DOI 10.1007/s10972-014-9383-2, open access manuscript.
- \* Coppola, B. P. and Krajcik, J. S. (2013), Discipline-centered post-secondary science education research: Understanding university level science learning. *J. Res. Sci. Teach.*, 50: 627–638. doi: 10.1002/tea.21099
- \* Mayer, K., Damelin, D. Krajcik, J.S. (2013). Linked In: Using modeling as a link to other scientific practices, disciplinary core ideas and crosscutting concepts, *The Science Teacher*, 80(6) 57-62, The National Science Teacher Association.

- \*Starr, M. & Krajcik, . (2013) Developing and Using Models to Align with NGSS, *Science Scope*, The National Science Teacher Association, September, 2013, pages 31 – 35.
- \*Krajcik, J.S. (2013), The Next Generation Science Standards: a Focus on Physical Science, *The Science Teacher*, The National Science Teacher Association.
- \*Matz, R. L., Rothman, E. D., Krajcik, J. S., & Banaszak Holl, M. M. (2012), Concurrent enrollment in lecture and laboratory enhances student performance and retention. *Journal of Research in Science Teaching*, in press (May issue vol 49, issue 5).
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- Krajcik, J., & Merritt, J. (2012) Engaging Students in Scientific Practices: What does constructing and revising models look like in the science classroom? *The Science Teacher*, National Science Teacher Association, Vol. 79, No. 3, pgs. 10 - 13.
- \*Lee, O., & Krajcik, J. (2012), Large-scale interventions in science education for diverse student groups in varied educational settings. *Journal of Research in Science Teaching* 49(3), 271–280.
- \*Nordine, J., Krajcik, J., and Fortus, D., 2011. Transforming energy instruction in middle school to support integrated understanding and future learning. *Science Education*, 95: 670-699.
- \*Choi, K., Lee, H., Shin, N., Kim, S. & Krajcik, J. (2011). Re-conceptualization of Scientific Literacy in South Korea for the 21st Century. *Journal of Research in Science Teaching*, 48(6), 670–697.
- \*Krajcik, J. S. (2011). Learners Make Sense of Data: A 21st-Century Capability, *Science & Children*, National Science Teacher Association, January pgs. 8 & 9.
- \*+Krajcik J.S. & Sutherland, L.M (2010). Supporting Students in Developing Literacy in Science. *Science*, American Association for the Advancement of Science, 328, 456 – 459.
- \* Chang, H., Quintana, C., Krajcik, J.S. (2010). The Impact of Designing and Evaluating Molecular Animations on How Well Middle School Students Understand the Particulate Nature of Matter. *Science Education*, 94(1),73-94.
- \*Stevens, S. Y., Delgado, C. & Krajcik, J.S. (2010). Developing a Hypothetical Multi-Dimensional Learning Progression for the Nature of Matter. *Journal of Research in Science Teaching*, 47(6), 687 – 715.
- \*Alozie, N. M., Moje, E. B., Krajcik, J. S. (2010). An analysis of the supports and constraints for scientific discussion in high school project-based science. *Science Education*, 94(3), 395–427.
- \*Alozie, N., Eklund, J., Rogat, A. & Krajcik, J. (2010). Genetics in the 21<sup>st</sup> Century: The Benefits and Challenges of Incorporating a Project-Based Genetics Unit in Biology Classrooms. *American Biology Teacher*. 72(4)225-230.
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- \*Novak, A.M., McNeill, K.L., Krajcik, J.S., (2009). Helping students write scientific explanations for learning and assessments. *Science Scope*, NSTA, 33(1), 54 - 56.
- \*Schwarz, C., Reiser, B., Davis, E., Kenyon, L., Acher, A., Fortus, D., Shwartz, Y., Hug, B. & Krajcik, J.S. (2009). Developing a Learning Progression for Scientific Modeling: Making Scientific Modeling Accessible and Meaningful for Learners. *Journal of Research in Science Teaching*, 46(1), 232-254.
- \*Short, H., Lundsgaard, M.F.V., & Krajcik, J.S. (2009). How do geckos walk across ceilings: Using phenomena to frame project-based science in chemistry classes. *The Science Teacher* 75(8): 38-43.
- \*Shwartz, Y., Weizman, A., Fortus, D., Sutherland, L., Merrit, J., Krajcik, J. (2009). Science Talking: Classroom discussions and their role in inquiry-based learning environments. *Science Scope*, Summer.
- \*Shwartz, Y., Weizman, A., Fortus, D., Krajcik, J., & Reiser, B. (2008). The IQWST experience: Using coherence as a design principle for a middle school science curriculum. *The Elementary School Journal* 109 (2), pp. 199-219.
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- \*McNeill, K. L. & Krajcik, J. (2008). Scientific explanations: Characterizing and evaluating the effects of teachers' instructional practices on student learning. *Journal of Research in Science Teaching*, 45(1), 53-78.
- \*Rivet, A., & Krajcik, J. S. (2008). Contextualizing instruction: Leveraging students' prior knowledge and experiences to foster understanding of middle school science. *Journal of Research in Science Teaching*, 45(1), 79-100.

- \*Geier, R., Blumenfeld, P., Marx, R., Krajcik, J., Fishman, B., & Soloway, E. (2008). Standardized Test Outcomes for Students Engaged in Inquiry-Based Science Curriculum in the Context of Urban Reform. *Journal of Research in Science Teaching*, 45(8), 922-939.
- \*Levy-Nahum, T., Mamlok-Naaman, R., Hofstein A., & Krajcik, J. S. (2006). Developing a New Teaching Approach for the Chemical Bonding Concept Aligned with Current Scientific and Pedagogical Knowledge. *Science Education*, 90(4), 579-604.
- \* Smith, C. L., Wisner, M., Anderson, C. W., Krajcik, J., (2006). Implications of Research on Children's Learning for Standards and Assessment: A Proposed Learning Progression for Matter and the Atomic Molecular Theory. *Measurement: Interdisciplinary Research and Perspectives*, 14(1&2), 1-98.
- \*Zhang, B., Liu, X., Krajcik, J.S., (2006). Expert models and modeling processes associated with a computer-modeling tool. *Science Education*, 90(4), 579-604.
- \*Fogleman, J., Fishman, B., Krajcik, J. (2006). Sustaining Innovations Through Lead Teacher Learning: A learning sciences perspective on supporting professional development. *Teaching Education*, 17(2), (pp. 181-194).
- \*Wu, H.-K., & Krajcik, J. S. (2006). Exploring middle school students' use of inscriptions in project-based science classrooms, *Science Education*, 90, 852-873.
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- \*Tal, T., Krajcik, J.S., Blumenfeld, P (2006). Urban Schools Teachers Enacting Project-Based Science. *Science. Journal of Research in Science Teaching*, 43, (7), 722-745.
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- \*Hug, B., Krajcik, J.S., Marx, R.W., (2005). Using Innovative Learning Technologies to Promote Learning and Engagement in an Urban Science Classroom. *Urban Education*, 40, 446-472.
- \*Schneider, R. M., Krajcik, J., Blumenfeld, P. (2005). "Enacting Reform-based Science Materials: The Range of Enactments in Reform Classrooms." *Journal of Research in Science Teaching*, Vol. 42.
- \*Marx, R.W., Blumenfeld, P.C., Krajcik, J.S., Fishman, B., Soloway, E., Geier, R., Revital, T.T. (2004). Inquiry-based science in the middle grades: Assessment of learning in urban systemic reform. *Journal of Research in Science Teaching*, 41(10), 1063 - 1080.
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- \*Rivet, A.E., Krajcik, J.S., (2004). Achieving Standards in Urban Systemic Reform: An Example of a Sixth Grade Project-Based Science Curriculum. *Journal of Research in Science Teaching*, 41(7),669 -692.
- \*Zhang, B., Krajcik, J. S., Sutherland, L.M., Wang, L., Wu, J., Qiang, Y. (2005). Opportunities and challenges of China's inquiry-based education reform in middle and high schools: Perspective of science teachers and teacher educators. *International Journal of Science and Mathematics Education*, 1(4), 477-503.
- \*Fortus, D., Dershimer, R. C., Krajcik, J. S., Marx, R. W., & Mamlok-Naaman, R. (2004). Design-Based Science and Real-World Problem-Solving. *International Journal of Science Education*.
- \*Quintana, C., Reiser, B.J., Davis, E.A., Krajcik, J., Fretz, E., Duncan, R., Kyza, E., Edelson, D., & Soloway, E. (2004). "A scaffolding design framework for software to support science inquiry". *Journal of the Learning Sciences*, 13(3), 337-386.
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- <sup>†</sup>Fishman, B., & Krajcik, J. S. (2003). What does it mean to create sustainable science curriculum innovations? *Science Education*, 87(4), 564-573.
- \*Novak, A. M., Gleason, C., Mahoney, J. & Krajcik, J. S. (2002). Inquiry through portable technology. *Science Scope*. National Science Teachers Association Publication, 26(3), 18 - 21.
- \*Hoffman, J., Wu, H-K, Krajcik, J. S., & Soloway, E. (2003). The Nature of Middle School Learners' Science Content Understandings with the Use of On-line Resources. *Journal of Research in Science Teaching*, 40(3).

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- <sup>†</sup>Krajcik, J.S. (2002). The Value and Challenges of Using Learning Technologies to Support Students in Learning Science. *Research in Science Education*, 32(4), 411-415.
- \*Zemal-Saul, C., Krajcik, J. S., & Blumenfeld, P. (2002). Elementary students teachers' science content representations. *Journal of Research in Science Teaching*, 39(6), 443-463.
- \*Schneider, R.M. & Krajcik, J. (2002). Supporting science teacher learning: The role of educative curriculum materials. *Journal of Science Teacher Education*, 13 (3), 221-245.
- \*Schneider, R.M., Krajcik, J., Marx, R., & Soloway, E. (2001). Performance of student in project-based science classrooms on a national measure of science achievement. *Journal of Research in Science Teaching*, 38(7), 821 – 842.
- \*Wu, H.-K., Krajcik, J. S., & Soloway, E. (2001). Promoting conceptual understanding of chemical representations: students' use of a visualization tool in the classroom. *Journal of Research in Science Teaching*, 38(7), 821 - 842.
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Book, handbook, and monograph chapters and commissioned papers: (\* designates refereed chapters; + designates solicited chapters)

- \*+ Berland, L. K., McNeill, K. L., Pelletier, P. & Krajcik, J. (2017). Engaging in scientific argumentation. In Schwarz, C., Passmore, C., Reiser, B.J. (Eds.). *Helping students make sense of the world using next generation science and engineering practices*. (pp. 229-258) Arlington, VA: National Science Teachers Association Press.
- \*+ Mayer, K., Krajcik, J., *Core Ideas PSI: Matter and Its Interactions* (2016). In Duncan, R., Krajcik, J., Ravit, A. Editors, (authorship is alphabetical), *Disciplinary Core Ideas: Reshaping Teaching and Learning*. Arlington, VA: National Science Teachers Association Press.
- Harris, C. J., Krajcik, J. S., Pellegrino, J. W., & McElhaney, K.W. (2016). *Constructing assessment tasks that blend disciplinary core Ideas, crosscutting concepts, and science practices for classroom formative applications*. Menlo Park, CA: SRI International.

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#### Video Production:

- Project-based Science: An Innovative Approach to Science Teaching. (Hydel, D., Krajcik, J., and Marx, R.) "7th Graders Using hi-ce's Technologies in Science Inquiry. Center for Highly-Interactive Computing in Education At UM. (Edgrin, K., Soloway, E., Krajcik, J. and Marx, R.)

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### PROFESSIONAL PRESENTATIONS

#### Invited Talks of a Substantial Nature:

- Keynote: Krajcik, J. S., (2017). Designing Environments to Promote Optimal Learning through Project Based Learning, presented at Promoting Future Learning Skills: Interventions, Impact, Internationalization, 9-10 May 2017, Academy of Finland, Hakaniemenranta.

- Plenary: Krajcik, J. S., (2017, April). Assessing three-dimensional learning: Next Generation Science Assessment (NGSA) Project. Presentation given at the NGSS@NSTA Forum at National Science Teachers Association 2017 National Conference, Los Angeles, CA.
- Plenary: Krajcik, J.S., Hug, B. (2017). Developing Assessments that Elicit Learners' Thinking, Knowledge and Skills. Presentation at Annual Conference for NIH Science Education Projects, Grand Hyatt Washington, May 30 – June 2, 2017 (Plenary).
- Keynote: Krajcik, J.S., (2016). How to Engage Learners to Develop Usable and Lasting Knowledge of STEM Institute for Science and Technology Education (ISTE), University of South Africa (UNISA) invites you to make a plenary presentation at its 7th International Conference on Mathematics, Science and Technology Education at the Kruger National Park, South Africa on 23-28 October 2016.
- Keynote presentation: Developing and Testing Instructional Materials to Support Students in Designing Solutions to Problems and Explaining Phenomena, International Conference on Education in Mathematics, Science and Technology 2016, May 19th – 22<sup>nd</sup>, 2016 Bodrum, Turkey
- Keynote Presentation: What Do the New Michigan Science Standards Mean for Instruction and Assessment, Michigan Science Teacher Association, March 4, 2026, Lansing, MI.
- Invited talk: Supporting the Implementation of the New Michigan Science Standards. Michigan State University's President's Forum, April 5th, 2016, Lansing Radisson Hotel.
- Keynote Presentation: Designing and Utilizing Three-Dimensional Assessments, Council of State Science Supervisor's Annual Meeting, Tuesday, March 29th, 2016, Nashville, TN.
- Keynote Presentation: Strategies to Support the Implementation of the Next Generation Science Standards, 2nd Annual NGSS Leadership Conference, San Diego, California, March 18, 2016
- Keynote Presentation: What is so different about NGSS? Vermont Science Teachers Association, May 1, 2015.
- Keynote Presentation: What is so different about NGSS? Nevada Science Teachers Association, Reno, Nevada, November, 2014.
- Keynote Presentation: Implementing the Next Generation of Science Standards, Wisconsin Science Teachers Annual meeting, Appleton, Wisconsin, March 2014.
- Guest Presentation: Next Generation of Science Standards and the Future of Science Education. Smithsonian International K – 12 Science Education Institute for Leadership Development and Strategic Planning, July 28<sup>th</sup>, 2013, Alexandria, VA
- Keynote Presentation: *Implications of the K -12 Science Framework and NGGS for Teaching and Learning*, Ministry of Education, Santiago, Chile, July 8<sup>th</sup>, 2013.
- Guest presentation: *Attributes of Curriculum Well-Aligned to NGSS*. Building Capacity For State Science Education (BCSSE, Council of State Science Supervisors, Omni William Penn Hotel, Pittsburgh, PA, July 7<sup>th</sup> & 8<sup>th</sup>, 2013
- Guest Presentation: *Getting to Know the Next Generation of Science Standards*. Introduction to NGGS. Michigan State University, Michigan State Department of Education, Kellogg Conference Center, Michigan State University, May 28<sup>th</sup>, 2013.
- Keynote Presentation: *Opportunities and Challenges of Project-Based Learning*; German Educational Research Association inaugural meeting, Gesellschaft für empirische Bildungsforschung, held at the University of Kiel, Kiel, Germany March 13<sup>th</sup>, 2013.
- Keynote Presentation: *Implications of the K -12 Science Framework and NGGS for Teaching and Learning*, International Conference on Science Education held at Nanjing University, Nanjing, China, October 12th – 15th, 2012.
- Keynote Presentation: *Supporting Students' Integrated Understandings of Big Ideas and Scientific Practice*. National Conference on Upgrading the quality of Science Education, Bangkok, Thailand, Ministry of Education, August 26 – 27, 2012.
- Featured Speaker. *Supporting Students' Integrated Understandings of Big Ideas and Scientific Practices Across Time*. The National Science Teachers Association (NSTA) fall conference, November 26 – 29, 2011, Settle, Washington.
- Keynote. *Designing Science Education Learning Environments to Promote Creative Problem Solving*. TERA International Conference on Education (TICE 2011), December 15 ~18, 2011, Kaohsiung, Taiwan (Conference theme: Creativity and Imagination) (Keynote).
- Invited speaker, *Supporting Students' Integrated Understandings of Big Ideas and Scientific Practices Across Time*. Eastern Asian Science Education (EASE) Chosun University, Gwangju, South Korea, October, 25 – 29, 2011. (Conference Theme: Lighting the World with Science). (Invited Speaker).

- Invited Speaker, Supporting students in building a particle model of matter. At the International Science Education Symposium on Particulate and Structural Concepts of Matter, Athens, Greece, 5-8 November 2010. G. Kalkanis & G. Tsapalis (organizers) (invited conference and invited talk).
- Keynote Speaker: Designing science education learning environments to promote student learning, The Value of Science Teaching and Learning conference, Ewha Woman's University, Seoul, South Korea (International Asian Conference), Sept., 14 – 16.
- Keynote Speaker: Developing Students' Understanding of the Transformations of Matter Over Time, 21st International Conference on Chemical Education, Chemical Education International, Taipei, Taiwan August 2010.
- Keynote Speaker: Integrating 21st Century Competencies into Science Instruction and Assessment. Instruction and Assessment for Promoting Understanding of Science Essential for 21st Century Global Citizens International Conference, Ewha Womans University, Seoul, June 2010.
- Keynote Speaker: Features of Project-Based Learning, Korean Association for Science Education, Kwandong University, Kangreng, South Korea, January, 2010.
- Keynote Speaker: New Directions for Promoting Science Learning in a Global Society, Opening Ceremony for the Institute for Global Science, Technology and Society Education, Ewha Womans University, Seoul, South Korea, November 3<sup>rd</sup>, 2009.
- Invited Speaker: Designing science education learning environments to promote student learning, Ewha Womans University, Seoul, South Korea, October, 7<sup>th</sup>, 2009.
- Invited Speaker: Supporting Science Teachers in Utilizing Model-Based Inquiry: The evolution of teachers' model-building practices. Distinguished Lecturer Series Sponsored by The Center for Research in Mathematics and Science Education. San Diego State University, San Diego, CA, April 30<sup>th</sup> and May 1<sup>st</sup>, 2009
- Keynote: Lessons learned: How to Bring About Change in Learning. The Contribution of Yesterday to Tomorrow: What can We Learn from the Experience of "Tomorrow 98?" Weizmann Institute of Science, Rehovot, Israel March 3, 2009.
- Invited presentation: IQWST Materials: Meeting the Challenges of the 21st Century. Exploring the Intersection of Science Education and the Development of 21st Century Skills: A Workshop The National Academies, Washington, D.C., February 5th and 6th, 2009. Paper available at: [http://www7.nationalacademies.org/bose/21st\\_Century\\_Skills\\_Workshop\\_Homepage.html](http://www7.nationalacademies.org/bose/21st_Century_Skills_Workshop_Homepage.html).
- Congressional Testimony to the House Committee on Science and Technology on the *National Nanotechnology Initiative Amendments Act of 2008*, Rayburn House Office Building, Washington, D.C., April 16<sup>th</sup>, 2008.
- Luncheon Briefing on Capitol Hill: Catalyzing Change in Science Education through Nanoscience. Krajcik served as panelist for a luncheon briefing on Capitol Hill on "Educating to Advance Nanotechnology" sponsored by the American Chemical Society of Science & the Congress Project and the Nano Business Alliance, January, 2008,
- Keynote: Learning-Goals-Driven Design: Developing Instructional Materials that Align with Learning Goals and Project-Based Pedagogy. *International Conference of Professional Development and Student Learning for Innovative Science Curricula*, sponsored by Taiwan's National Research Council, National Taiwan Normal University, Taipei, Taiwan, March, 6<sup>th</sup>, 2008
- Featured Presentation: Promises and Challenges of e-Learning and Digital Textbooks. *E-learning: Global Leaders Conference 2007*. Sponsored by Ministry of Education, Korea; Seoul, Korea, September 19 – 20, 2007.
- Keynote: New ideas to catalyze change in secondary science instruction. The Waterbury Summit on Secondary Education, "Re-visioning the American High School for an Engaged Citizenry". The Pennsylvania State University, The Penn Stater Conference Center Hotel, University Park, Pennsylvania, June 6-8, 2007
- Featured Presentation: Supporting Students in Learning Science through the Emerging Field of Nanotechnology: Big Ideas in Nanoscience. New Technologies: A Virtual Symposium on Nanotechnology and Biotechnology for K-12 Science Teachers, University of Wisconsin – Madison, Pyle Center, WI.
- Keynote Speaker: Designing Science Learning Materials to Foster In-depth Understanding of Content and Scientific Practices. Issues and Trends in Science Curricular Materials Research and Development Sponsored by Taiwan's National Research Council, National Taiwan Normal University, Taipei, Taiwan, February, 2007.
- Featured Presentation: Big Ideas in Nanoscience workshop for K-12 Nanoscale Science and Engineering Education, with Shawn Stevens. National Science Foundation, Washington D.C., January, 2007.

- Featured Presentation: Designing Instruction to Support Students in Scientific Inquiry without Sacrificing the Science Content. National Science Teacher Association Area Conference, Baltimore, Maryland, November 2-4, 2006.
- Keynote: Using Learning Technologies to Support Students in Developing Integrated Understanding. The 13th International Conference on Computers in Education, Singapore, November 28th - December 2<sup>nd</sup>, 2005.
- KeyNote: Supporting Students in Developing Scientific Explanations. MSELA (Michigan Science Education Leadership Association) Dinner held in conjunction with the 53rd Annual Michigan Science Teacher Association Conference, March 2-4, 2006.
- Plenary Speaker: Designing and Implementing Technology-Driven Solutions for Sustaining SMT Reforms: A Partnership Story. Principle Investigator Leadership Institute For Systemic Initiatives, National Science Foundation, Urban Systemic Initiative Programs, Washington, DC, November 15, 2005.
- Invite Symposium Speaker: Designing Science Learning Environments to Foster In-depth Understanding of Content and Practices. University of Georgia, Learning and Performance Support Laboratory, Athens, GA, April 18, 2005.
- Invited Symposium Speaker: Scaffolding Students in Writing Evidence-based Explanations. Weston Visiting Professor of Science Education, Weizmann Institute of Science, Science Education Department, Israel, February, 2005.
- Keynote Speaker: Developing Students Understanding in Chemistry: Connections that Matter. Jahrestagung der Gesellschaft für Didaktik der Chemie und Physik (GDPC) 2003 Chemie- und physikdidaktische Forschung und naturwissenschaftliche Bildung"GDCP-Meeting at Berlin, Jahrestagung in Berlin, September 15.-18, 2003.
- Keynote Speaker: New Teaching Practices in Science Education. First International Form on Education, Tianjin Experiment High School, Tianjin, China, Sept 25<sup>th</sup> – 26<sup>th</sup>, 2002.
- Keynote Speaker: Using Ideas from Learning Theory to Design New Chemistry Materials. Beijing Normal University, Beijing, China, Sept, 2002.
- Speaker, National Science Foundation, Instructional Materials Development conference for Principal Investigators, Middle School Science Curriculum Materials: Meeting Standards and Fostering Inquiry Using Learning Technologies, National Science Foundation, Arlington, Virginia, January 26th – 29th, 2003.
- Invited Speaker: Embedding Learning Technologies into Science Curricular Materials. National Research Council Committee on Improving Learning with Information Technology, Palo Alto, California: December 11, 2001.
- Guest Lecturer: Shanghai Normal University, South China Normal University, Beijing Normal University, Academic Exchange, Lectures on the use of learning technologies and inquiry in science education, August 4 – 19, 2001.
- Keynote Speaker: Technology Tools to Support Students in Inquiry, Invited Symposium in Science Education in Honor of Professor Uri Ganiel, Weizmann Institute of Science, Rehovot, Israel, September, 2001).
- Keynote speaker: Advantages and Challenges of Using the WWW to Fosters Sustained Science Inquiry. Educational Uses of World Wide Web, sponsored by Taiwan's National Research Council, National Taiwan Normal University, Taipei, Taiwan, October, 2000.
- Seminar speaker: Designing Learning Technologies to Support Extended Inquiry. Weizmann Institute of Science, Rehovot, Israel, January 11, 1999.
- Keynote Speaker at the Second Conference on Chemical Education, Designing Curriculum materials to support the learning of science, National Taiwan Normal University, Taipei, Taiwan 11718, March 13, 1999.
- Seminar Speaker: Designing learning technologies to support science inquiry. National Taiwan Normal University, Graduate Institute of Science Education Taipei, Taiwan 11718, March 11, 1999
- Seminar Speaker: Using learning technologies to support science learning (3 hours presentation), National Kaoshiung Normal University, Kaoshiung, Taiwan, March 15, 1999.
- President's Speech at the Annual Meeting for the National Association for Research in Science Teaching: Reflections on the Past Year, Boston, MA, March, 1999.
- Keynoter Speaker at the International Workshop on Science Teachers Education: Toward the New Millennium, Using Curriculum Materials to Support Enactment of Extend Inquiry, Technion – Israel Institute of Technology, Technion City, Haifa Israel, January 5 – 6, 1999
- Keynote Speaker with Juanita Clay-Chambers, Associate Superintendent of Educational Service and Eddy Green Superintendent, Detroit Public Schools at National Science Foundation Meeting on Systemic Change, Partnerships with Institutions for Higher Education, Washington, D.C., October, 1998.

## Conference/Paper Presentation:

- Krajcik, J., Miller, E., Schneider, B. (2017). *Elementary Teachers' Experience with Project Based Learning*. Paper Presented at the NARST Annual Meeting. San Antonio, Texas. April, 2017.
- Krajcik, J., Bielik, T. Nordine, J. Fortus, D. & Neumann, K. (2017). The Centrality of Phenomena in 3-Dimensional Learning. Paper presented at the annual conference of the National Association for Research in Science Teaching, San Antonio, TX.
- Krajcik, J.S., (2017). Chair, Promoting Engagement and Learning in Elementary Science Using Multiple Literacies in Project-based Learning. Organized paper set at annual conference of the National Association for Research in Science Teaching, San Antonio, TX.
- Krajcik, J., (2017). Design Principles and Theoretical Foundation of Project-Based Learning. Paper presented at the *Annual Meeting of the American Educational Research Association*, San Antonio, TX.
- Nordine, J. C., Kubsch, M., Fortus, D., Krajcik, J. S., & Neumann, K. (2017). Supporting three-dimensional energy learning in a project-based approach that emphasizes modeling energy transfers between systems. Paper presented at the *Annual Meeting of the American Educational Research Association*, San Antonio, TX.
- Krajcik, J., Peek-Brown, D., Codere, S., "Multiple Literacies in Project-Based Learning," CREATE for STEM Strand, MSTA Pre-Conference, 3-23-17, Novi, MI.
- Peek-Brown, D., Miller, E., Codere, S., and Krajcik, J., "Using Integrated (NGSS/CCSS) PBL to Support Modeling in Elementary Science Classrooms: Multiple Literacies in Project-based Learning," NSTA National Conference, (2017), Los Angeles, CA.
- Sanchez-Tapia, I. M. and Krajcik, J. S. (2014). Culturally Relevant Science Education for Mexican Nahua Students: Design Principles for Curricular Contextualization. Paper presented at the Annual meeting of NARST, March 30<sup>th</sup> to April 4<sup>th</sup>, Pittsburgh, PA.
- Krajcik, J. Implication of the NRC Framework and the Highly Anticipated NGSS for Teaching and Learning (NGSS @ NSTA). Presentation at the National Science Teachers Association National Conference, San Antonio, Texas. April 9, 2013.
- Krajcik, J. Commentary: Monitoring Progress Toward Successful K-12 STEM Education: A Nation Advancing? Invited discussant for Commentary: Monitoring Progress Toward Successful K-12 STEM Education: A Nation Advancing? The American Educational Research Association, San Francisco, CA, April, 2013.
- Duschl, R. & Krajcik, J.S., A Critical Appraisal of Learning Progressions in Science: Exploring the Intersection of Science Assessment, Policy & Practice. Paper presented at the American Educational Research Association, San Francisco, CA, April, 2013.
- Lee, J., McGee, S., Duck, J., Choi, S., & Krajcik, J. (2013). Using Interactive Materials to Develop of High School Students' Understandings of How Objects Interact. NARST Annual Conference, Rio Grande, Puerto Rico.
- Krajcik, J., Sutherland, L .M., Smith, S., Reiser, B., Fortus, D. Comparing Student Achievement across Time in Contexts Using a Coherent Inquiry Curriculum Versus Those Using Traditional Curricula. Paper presented at the National Association for Research in Science Teaching, Philadelphia, PA, March 24 – 29, 2010.
- Choi, K, Kim, S. W., Lee, H., Krajcik, J. Re-Conceptualization of Scientific Literacy for the 21st Century in Korea. Paper presented at the National Association for Research in Science Teaching, Philadelphia, PA, March 24 – 29, 2010.
- Stevens, S. Y., **Shin, N.**, & Krajcik, J. S. (March, 2010). *Progress toward the development of an empirically tested learning progression for the nature of matter*. Paper presented at the National Association for Research in Science Teaching Annual Conference, Philadelphia, PA
- Merritt, J. & Krajcik, J. S., 2009. Developing A Calibrated Progress Variable For The Particle Nature Of Matter, Paper presented at the Learning Progressions in Science (LeaPS) Conference, June 2009, Iowa City, IA.
- Krajcik, J. S., Shin, N., Stevens, S. Y., & Short, H. (April, 2009) "*Using Learning Progressions to Inform the Design of Coherent Science Curriculum Materials.*" Paper presented at American Educational Research Association, San Diego, CA.
- Krajcik, J.S., Fogleman, J. , Sutherland, L., Finn, L.(2008) *Professional Development That Supports Reform: Helping Teachers Understand and Use Reform-Rich Materials*. Poster presented at the Annual Meeting of the American Educational Research Association, New York: NY.
- Krajcik, J.S. Catalyzing Change in Science Instruction: Big Ideas in Nanoscience. Presentation at the National Science Teacher Association Annual Meeting, Boston, March 27 - 30, 2008.



- McNeill, K.L. & Krajcik, J. (2007, April). Relationship between teacher instructional practices and curricular scaffolds in supporting students in writing scientific explanations. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Merritt, J., Shwartz, Y., & Krajcik, J. (2007). Middle school students' development of the particle model of matter. Paper presented at the Annual Meeting of the National Association of Research in Science Teaching, New Orleans, LA.
- Yonker, M., Sabelli, N., Giordano, Krajcik, S. (2007). Identifying the Big Ideas in Nanoscience. Symposium presented at the Annual Meeting of the National Association of Research in Science Teaching, New Orleans, LA.
- Shi, S., Sabelli, N., Krajcik, J., Tinker, R. & Ellenbogen, Kirsten, 2006. Learning at the Nanoscale: Research Questions that the Rapidly Evolving Interdisciplinarity of Science Poses for the Learning Sciences. The International Conference of the Learning Sciences, June, 2006, West Lafayette, IN.
- McNeill, K., Krajcik, J. (2006). Supporting Students' Construction of Scientific Explanation Through Generic Versus Context-Specific Written Scaffolds. In Reiser, B., Supporting the Practices of Argumentation and Explanation in Middle-School Classrooms. Symposium conducted at the Annual Meeting of the American Educational Research Association, April 7 – 11, San Francisco, CA.
- Blumenfeld, P., Krajcik, J., Kempler, T., Geier, R., Kam, R., & Gallagher, S. (2006). Opportunity to learn: Teacher instructional practices that account for variation in achievement in project based science in urban middle schools. Paper presented at the American Education Research Association, San Francisco.
- Krajcik, J., McNeill, K., & Reiser, B (2006). A Learning Goals Driven Design Model for Developing Science Curriculum. In Linn, M., Measuring and Teaching Science Inquiry: Four Perspectives. Symposium conducted at the Annual Meeting of the American Educational Research Association, April 7 – 11, San Francisco, CA.
- Krajcik, J. & McNeill, K. L. (2006, April). *Designing middle school science curriculum materials to foster students' developing deep understanding of key learning goals*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.
- Krajcik, J. (2006). In, Duschl, R., *Inquiry and the Learning of Science-Theories and Practices*. Symposium conducted at the Annual Meeting of the American Educational Research Association, April 7 – 11, San Francisco, CA.
- Krajcik, J. & McNeill, K. L. (2006, April). Designing middle school science curriculum materials to foster students' developing deep understanding of key learning goals. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.
- Krajcik, J. & McNeill, K. L. (2006, February). Supporting secondary students in scientific practices: Using evidence, creating models and constructing explanations. Paper presented at To Think and Act Like A Scientist: The Roles of Inquiry, Research, and Technology, Lubbock, TX.
- McNeill, K. L., Lizotte, D. J., & Krajcik, J. (2005, April). Identifying teacher practices that support students' explanations in science. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.
- McNeill, K. L., Lizotte, D. J, Krajcik, J., & Marx, R. W. (2004, April). Supporting students' construction of scientific explanations using scaffolded curriculum materials and assessments. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Davis, E. A., & Krajcik, J. (2004). Supporting inquiry-oriented science teaching: Design heuristics for educative curriculum materials. Paper presented at the annual meeting of the American Educational Research Association, San Diego.
- Fogleman, J., Scott, L. A., & Krajcik, J. (2004, April). Developing a method for determining needs for educative curriculum. Poster presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, BC.
- Lizotte, D.J., Harris, C.J., McNeill, K.L., Marx, R.W., & Krajcik, J. (2003, April). Usable Assessments aligned with curriculum materials: Measuring explanation as a scientific way of knowing. Paper presented at the annual meeting of the American Educational Research Association, Chicago.
- Krajcik, J. & Reiser, B (2003). Design Principles for Developing Inquiry Materials with Embedded Technologies. In Marx, R Partnerships for Urban Systemic Reform: The Effects of Inquiry Curriculum Developed by the Center for Learning Technologies in Urban Schools, Symposium conducted at the Annual Meeting of the American Educational Research Association, April 21 – 25, Chicago, IL.
- McNeil, K. L., Lizotte, D. L., Harris, C. J., Marx, R. & Krajcik, J. (2003). Using Backward Design to Create Standards Based Middle School Inquiry-Oriented Chemistry Curriculum and Assessment Materials. Paper

- presented at the annual meeting of the National Association for Research in Science Teaching. March, Philadelphia, PA.
- Reiser, B., Krajcik, J., Moje, E., & Marx, R. Design Strategies for Developing Science Instructional Materials. Paper presented at the annual meeting of the National Association for Research in Science Teaching. March, 2003. Philadelphia, PA.
- Wu, H.-K., & Krajcik, J. S. (2003). Inscriptional practices in inquiry-based classrooms: How do seventh graders construct and interpret data tables and graphs? Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, March 23-26, Philadelphia, PA.
- Rivet, A., Krajcik, J., & Reiser, B. (2003). *Design principles for developing inquiry materials with embedded technologies*. Paper presented at the annual meeting of the American Educational Research Association (AERA). April 2003: Chicago, IL.
- Rivet, A. & Krajcik, J. (2003). *Contextualizing instruction: Leveraging students' prior knowledge and experiences to foster understanding of middle school science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching. March, 2003: Philadelphia, PA.
- Fortus, D., Dershimer, R.C., Mamlok-Naaman, R., Marx, R.W., & Krajcik, J., (2003) *Design-Based Science and the transfer of scientific knowledge and 'designerly' skills*. Paper presented at the Annual Meeting of the American Educational Research Association, April 2003: Chicago, IL.
- Fortus, D., Krajcik, J., & Marx, R.W. *Well and Ill-Defined Science Problems*. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, March, 2003: Philadelphia, PA.
- Schneider, R., & Krajcik, J. (2003, April). *Why do I need to wear a Bike helmet?: Project-based science curriculum as a vehicle for reform in science education*. Paper presented at the American Educational Research Association annual meeting: Chicago, IL.
- Zhang, B. H., Krajcik, J. S., Wang, L., Hu, J., Wu, J., Qiang, Y., & Li, J. (April 21-25, 2003). Opportunities and challenges of China's inquiry-based education reform in middle and high schools: Perspectives of science teachers and teacher educators. Paper presentation, the Annual Meeting of the American Educational Research Association, Chicago, Illinois.
- Krajcik, Joseph. (2003) Designing science middle school chemistry materials aligned with national standards. Presentation at the American Association for the Advancement of Science Annual Meeting. February, 2003. Denver, CO.
- Krajcik, J., Hug, B., Schneider, R., Marx, R. (2002). Designing units for project based learning. In Kolodner, J. Integrating Project-Based Inquiry Initiatives into a Middle-Grades Science Curriculum: Essentials and Challenges, Symposium conducted at the Annual Meeting of the American Educational Research Association, April 1-5, New Orleans, LA.
- Fortus, D.L, Dershimer, R.C., Marx, R. W. & Krajcik, J. (2002). Design-Based Science (DBS) and Real-World Problem Solving. Paper presented at the Annual Meeting of the American Educational Research Association, April 1-5, New Orleans, LA.
- Fretz, E., Zhang, B., Wu, H-S., Krajcik, J.S., Soloway, E. (2002). An Investigation of Scaffolding Design and Use in a Dynamic Modeling Tool. In Reiser, J. Characterizing and Evaluating Software Scaffolds for Scientific Inquiry, Symposium conducted at the Annual Meeting of the American Educational Research Association, April 1-5, New Orleans, LA.
- Krajcik, J. (2002). Using Technology Tools to Support Urban Middle School Students in Inquiry. In Lunetta, V., The Laboratory in Science Education: Foundations for the 21st Century. Symposium conducted at the Annual Meeting of the National Association of Research in Science Teaching, April 6 - 10, New Orleans, LA.
- Hug, B., & Krajcik, J. (2002) Students' Scientific Practices Using a Scaffolded Inquiry Sequence. Paper presented at the Annual Meeting of the National Association of Research in Science Teaching, April 6 - 10, New Orleans, LA.
- Rivet, A. & Krajcik, J. (2002). Project-based science curricula: Achieving national standards in urban systemic reform. Paper presented at that annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Schneider, R. M., Krajcik, J., & Blumenfeld, P. (2002, April). Exploring the role of curriculum materials to support teachers in education reform. Paper presented at the National Association of Research in Science Teaching annual meeting: New Orleans, LA.
- Krajcik, J., Fretz, E. & Soloway, E. (2001). Studying Scaffolding in Model-It: a Dynamic Modeling Tool. In Davis, E. & Fretz, E. Finding Common Ground for Scaffolding in Science: Informing Theory and Design,

- Symposium conducted at the Annual Meeting of the American Educational Research Association, April 10 – 14, Settle, WA.
- Krajcik, J., Fishman, B & Soloway, E. (2001). Using the Framework to Understand and Respond to Challenges. In Blumenfeld, B. Creating Usable Innovations for Systemic Reform: Large-Scale Design Research in Science and Technology for Urban Schools. Symposium conducted at the Annual Meeting of the American Educational Research Association, April 10 – 14, Settle, WA.
- Fretz, E., Krajcik, J., Soloway, E. (2001). An Investigation of Scaffolding Design and Use in a Dynamic Modeling Tool. Paper presented at at the annual meeting of the National Association for Research in Science Teaching, March 25 – 28, St. Louis, Mo.
- Zhang, B., Wu, H., Krajcik, J., & Soloway, E. (2001). Exploring Middle School Students' Modeling Process and Cognitive Strategies When Using a Computational Modeling Tool. Paper presented at at the annual meeting of the National Association for Research in Science Teaching, March 25 – 28, St. Louis, Mo.
- Revital, T., Krajcik, J. and Blumenfeld, P. (2001). Urban Schools Teachers Enacting Project-Based Science. Paper presented at at the annual meeting of the National Association for Research in Science Teaching, March 25 – 28, St. Louis, Mo.
- Mamlök, R., Dershimer, R. Fortus, D. and Krajcik, J. (2001). A Case Study of the Development of a Design-Based Science Curriculum. Paper presented at at the annual meeting of the National Association for Research in Science Teaching, March 25 – 28, St. Louis, Mo.
- Hug, B. Krajcik, J., & Marx, R. (2001). Using Innovative Learning Technologies to Promote Learning and Engagement in an Urban Science Classroom. Paper presented at at the annual meeting of the National Association for Research in Science Teaching, March 25 – 28, St. Louis, Mo.
- Krajcik, J., Blumenfeld, P., Marx, R., & Soloway, E. (2001). Study Computational Technologies to Support Urban Middle School Students in Scientific Inquiry, Poster session at the NSF's January, 2000 Research, Evaluation and Communication, PI meeting, Virginia.
- Schneider, R., Krajcik, J. (2000). The role of educative curriculum materials in reforming science education. Paper presented at the Annual Meeting of the American Association for Research in Education, April 24-28, New Orleans, LA.
- Singer, J., Rivet, S., Schneider, R., Krajcik J., Amati, K., Marx, R. (2000). Setting the stage: Engaging students in water quality. Paper presented at the Annual Meeting of the American Association for Research in Education, April 24-28, New Orleans, LA.
- Krajcik, J., Marx, R., Blumenfeld, P., Soloway, E., Fishman, B., Middleton, M. (2000). Inquiry based science supported by technology: Achievement and motivation among urban middle school students. Paper presented at the Annual Meeting of the American Association for Research in Education, April 24-28, New Orleans, LA.
- Krajcik, J., Tali, T., Geier, R. (2000). Students' beliefs about science in an inquiry-based classroom. Paper presented at the Annual Meeting of the American Association for Research in Education, April 24-28, New Orleans, LA.
- Duersch, B., Batchelor, Nevsin, S., Lohr, L., Krajcik, J., Coppola, B. (2000). CSIE-PFF Fellows: A powerful model for coupling future faculty development with curriculum reform. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, April 28-May 1, New Orleans, LA.
- Krajcik, J., Marx, R., Clay-Chambers, J., Peek-Brown, D. (2000). Reforming science education through university and school district collaborations. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, April 28-May 1, New Orleans, LA.
- Wu, H., Krajcik, J. (2000). Promoting conceptual understanding of chemical representations: Students' use of a visualization tool in the classroom. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, April 28-May 1, New Orleans, LA.
- Talsma, V. L., Krajcik, J. S. (2000). Students' Changing understandings of stream ecology: A trickle or a flood? Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, April 28-May 1, New Orleans, LA.
- Rivet, A., Singer, J., Schneider, R., Krajcik, J., & Marx, R.W. (2000). *The Evolution of Water: Designing and Developing Effective Curricula*. Paper presented at the annual meeting of the National Association for Research on Science Teaching. New Orleans, LA.
- Krajcik, J. S. (1999). Inquiry in the Middle and High School Science Classroom. In C. Hoadley (Chair), Inquiry Learning: How, When, and Why Should Science Inquiry Be Brought to the Classroom? Invited Interactive Symposium conducted at the American Educational Research Association conference, Montreal, Canada.

- Peek-Brown, D., Krajcik, J. and Roy, M.(1999). Ecological Systems: Water In L. Gomez and R. Marx (chairs) At the Nexus of Challenging Curriculum Design, Learning Technologies, and School Transformation: The First Year of the Center for Learning Technologies in Urban Schools. Symposium conducted at the American Educational Research Association conference, Montreal, Canada.
- Krajcik, J. (1999). Criteria for Evaluating Educational Research and Research Proposals. In L. Suter (chair) Communicating Research to the Science Teacher: How can Science Education Researchers Better Communicate Research to the Practicing Science Teacher? Symposium conducted at the American Educational Research Association conference, Montreal, Canada.
- Krajcik, J. & Talsma V.(1999). Project-Based Science at Community High: Foundations of Science. In v. Talsma (chair) Promoting Scientific Understandings in a Project-Based Technology-Infused Science Environment: The Community High Experience. Symposium conducted at the annual meeting of the National Association for Research in Science Teaching, Boston, MA.
- Hoffman, J. & Krajcik, S. (1999). Assessing the Nature of Learners' Science Content Understandings as a Result of Utilizing On-Line Resources. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Boston, MA.
- Middleton, M., Schneider, R., Krajcik, J. & Marx, R. (1999). Case Studies of Three Middle School Science Teachers: What They Tell Us About Developing Project-Based Curriculum Materials. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Boston, MA.
- Singer, J., Krajcik, J. & Marx, R. (1999). The Design and Evaluation of Classroom Supports for Seamless Integration of a Dynamic Modeling Tool. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Boston, MA.
- Krajcik, J., Singer, J., Amati, K., Peek-Brown, D. (1999). Embedding learning technologies in curriculum to foster student learning of science. Paper present at the Michigan Science Teacher Association meeting, Lansing, MI.
- Stratford, S, Krajcik, J., & Soloway, E. (1997). Secondary students' dynamic modeling processes: analyzing, reasoning about, synthesizing, and testing models of stream ecosystems. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Krajcik, J. S., Bos, N. D., & Soloway, E. (1997). Student publishing in a digital library. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Lyons, D., Hoffman, J., Krajcik, J., & Soloway, E. (1997). An investigation of the use of the WWW for sustained inquiry in a science classroom. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Oak Brook, IL.
- Krajcik, J. S. & Starr, M. L. (1997). Integrating knowledge bases: An upper-elementary teacher preparation program. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Oak Brook, IL.
- Blumenfeld, P. & Krajcik, J. (1997). What are we learning about well started beginners? Paper presented at the annual meetings of the American Educational Research Association. Chicago. Symposium entitled: "Education psychology and teacher education: Perennial issues."
- Blumenfeld, P., Marx, R. & Krajcik, J. (1997) Teachers transitioning to project based science: Necessary supports. Paper presented at the annual meetings of the American Educational Research Association, Chicago. Symposium entitled: " Implications of new views of cognition for teaching learning and teacher education."
- Spitulnik, M.W., Stratford, S., Krajcik, J. & Soloway, E. (1996). Students constructing technological artifacts in science. Paper presented at the American Educational Research Association Annual Meeting. New York, NY. April 8, 1996.
- Zemba, C., Krajcik, J., & Blumenfeld, P. (1996). Elementary student teacher's science content representations. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, April 1 - 3, St. Louis, MI.
- Krajcik, J. S. (December, 1996). Use of new technologies in science teaching. Excellence in Teacher Preparation Principal Investigators Meeting, National Science Foundation, Arlington, Virginia.
- Krajcik, J., Marx, M., (1996). Technology tools for planning. Paper present at the Annual Meeting of the Association for the Education of the Teachers of Science, Seattle, Washington.
- Krajcik, J. (1996). Realizing the Potential of Computing and Telecommunication Technologies for Science Teaching. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, March 28 - 31, St. Louis, MI.

- Krajcik, J. & Spitulnik, M. W. (1996). Integrating new technologies for better teaching and learning. Paper presented at Syllabus 96 Annual Meeting. Sonoma State University, Rohnert Park, CA. July 20-24.
- Krajcik, J. S., Ladewski, B., Blumenfeld, P. C., Marx, R. W., & Soloway, E. (1995). Technological support for the professional development of science teachers. Symposium conducted at the Annual Meeting of the National Association for Research in Science Teaching, April 22 - 25, 1995, San Francisco, CA.
- Jackson, S., Stratford, S., Krajcik, J. and Soloway, E. Learner centered software design to support students model building. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, April 22 - 25, 1995, San Francisco, CA.
- Krajcik, J. S., Ladewski, B., Blumenfeld, P. C., & Marx, R. W. (1995). Multiple perspectives on designing, developing, and using interactive multimedia for teacher enhancement. Symposium conducted at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Marx, R.W., Blumenfeld, P.C., Krajcik, J.S., Soloway, E., Cox, G., & Breen, T. (1995). PIViT: Technology for the professional development of science teachers. In E.S. Fletcher, Using technology to prepare effective and responsible educators. Symposium conducted at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Zemal, C., Krajcik, J., & Blumenfeld, P. (1995). The role of cycles of planning, enactment and reflection in preservice teachers' understanding of content selection and representation. Symposium conducted at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Stratford, S., Jackson, S., Krajcik, J., & Soloway, E. (March, 1995). Model-It: A case study of learner-centered software for supporting model building. Paper presented at the Working Conference on Technology Applications in the Science Classroom, The National Center for Science Teaching and Learning, Columbus, OH.
- Krajcik, J.S., Ladewski, B.L., Crawford, B., & Hopkins, B. (1994). Fostering investigation and collaboration in science classrooms: Challenges and benefits. Panel presentation at the 42th National Science Teachers Association National Convention, April 30 - March 2, Anaheim, CA.
- Zemal, C.M., Krajcik, J.S., Blumenfeld, P.C., & Palincsar, A. Apprenticeship pre-service elementary teachers in developing a cognitive framework for science content representation and instruction. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, March 26 - 29, 1994, Anaheim, CA.
- Krajcik, J.S. (1995). Technological support for reform in teacher education. American Association of Colleges for Teacher Education Annual Meeting, Washington DC. Feb. 14, Invited paper.
- Magnusson, S., Krajcik, J.S., & Borko, H. (1994). Teaching complex subject matter in science: Insights from an analysis of pedagogical content knowledge. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, March 26 - 29, Anaheim, CA.
- Krajcik, J., Blumenfeld, P., Marx, R., & Soloway, E. (1993). Project-based instruction in science: Challenges for teachers. In Blumenfeld, P. Project-based Instruction: Challenges, Resolutions and Support. Symposium conducted at the Annual Meeting of the American Educational Research Association, April 12 -16, Atlanta, GA.
- Marx, R., Krajcik, J., Blumenfeld, P., & Soloway, E. (1993). The growth of wisdom: How teachers meet the challenges and how they change. In Blumenfeld, P. Project-based Instruction: Challenges, Resolutions and Support. Symposium conducted at the Annual Meeting of the American Educational Research Association, April 12 -16, Atlanta, GA.
- Soloway, E., Krajcik, J., Blumenfeld, P., & Marx, R. (1993). Technological support for implementing project-based instruction in science. In Blumenfeld, P. Project-based Instruction: Challenges, Resolutions and Support. Symposium conducted at the Annual Meeting of the American Educational Research Association, April 12 -16, Atlanta, GA.
- Ladewski, B., Krajcik, J., Connie, C. & Hopkins, B. (1993). Studying teacher change in a profession school environment. Paper presented at the Annual Meeting of the American Educational Research Association, April 12 -16, Atlanta, GA.
- Mills, K. M., Krajcik, J. & Marx, R. (1993). Change in teacher beliefs about learning and the nature of science. Paper presented at the Annual Meeting of the American Educational Research Association, April 12 -16, Atlanta, GA.
- Krajcik, J. S., Blumenfeld, P., Marx, R., Soloway, E., Blunk, M., Ellies, B., Kelly, B., Ladewski, B., & Mills, K. (1993). Case studies of project-based science instruction: Challenges of implementation. Symposium conducted at the Annual Meeting of the National Association for Research in Science Teaching, April 15-19, Atlanta, GA.

- Rubio, R and Krajcik, J. (1993). Influence of the use of telecommunications upon student motivation in a science classroom. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, April 15-19, Atlanta, GA.
- Starr, M. L., Krajcik, J.S., & Blumenfeld, P. (1993). Content representation: A part of the science teaching of preservice elementary teachers. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, April 15-19, Atlanta, GA.
- Breen, T.J., Krajcik, J. S., & Coppola, B. (1993). The development of preservice teachers' content knowledge in an integrated teacher preparation program. Poster session at the Annual Meeting of the National Association for Research in Science Teaching, April 15-19, Atlanta, GA.
- Zemal, C., Starr, M., Krajcik, J., & Palincsar, A. (1993). Change in preservice teacher beliefs about elementary science teaching. Poster session at the Annual Meeting of the National Association for Research in Science Teaching, April 15-19, Atlanta, GA.
- Krajcik, J., Blumenfeld, P. & Soloway, S. (1992). Integrating the knowledge bases in science teacher preparation. Presentation at the Teacher Preparation and Enhancement Principal Investigator Meeting. May 29 - 31, 1992, Washington, D.C.
- Ladewski, B., Krajcik, J. S., Levy, J. S. and Hall, R. The development of elementary school students' ideas related to the categorization of living things. Paper presented at the 65th Annual Meeting of the National Association for Research in Science Teaching, March 21 - 25, 1992, Cambridge, MA.
- Nakhleh, M. B. & Krajcik, J. S. (1992). A protocol analysis of the effect of technology on students' actions, verbal commentary, and thought process during the performance of acid-base titrations. Paper presented at the 65th annual meeting of the national association for research in science Teaching, March 21 - 25, Cambridge, MA.
- Magnusson, S., Borko, H., Krajcik, J. S., & Layman, J. W. (1992). The relationship between teacher content and pedagogical content knowledge and student content knowledge of heat energy and temperature. Paper presented at the 65th annual meeting of the national association for research in science teaching, March 21 - 25, Cambridge, MA.
- Starr, M. & Krajcik, J. S. (1992). The use of concept maps in a physical science course for elementary preservice teachers. Presentation presented at the 40th National Science Teachers Association National Convention, March 26 - 28, Boston, MA.
- Krajcik, J. S. & Borko, H. (1991). Pedagogical content knowledge: an important construct for science education. In Pedagogical Content Knowledge: Definitions and Implications for Science Teacher Education and Research, Symposium. Paper presented at the 64th Annual Meeting of the National Association for Research in Science Teaching, April 7 - 10, Lake Geneva, WI.
- Krajcik, J. S. & Starr, M. (1991). The use of concept mapping in science education research: overview and issues, panel topic. Presentation presented at the 64th Annual Meeting of the National Association for Research in Science Teaching, April 7 - 10, Lake Geneva, WI.
- Templin, M. A. & Krajcik, J. S. (1991). A comparison of lesson planning decision patterns of novice and experienced biology teachers. Poster session at the 64th Annual Meeting of the National Association for Research in Science Teaching, April 7 - 10, Lake Geneva, WI.
- Krajcik, J. S., Layman, J., Starr, M. & Magnusson, S. (1991). A comparison of middle school teachers' content knowledge and pedagogical content knowledge of heat energy and temperature with their students' content knowledge. Paper presented at the 64th Annual Meeting of the National Association for Research in Science Teaching, April 7 - 10, Lake Geneva, WI.
- Nakhleh, M. B. & Krajcik, J. S. (1991). The effect of level of information as presented by different technologies on students' understanding of acid, base and pH concepts. Presentation at the 64th annual meeting of the National Association for Research in Science Teaching, April 7 - 10, Lake Geneva, WI.
- Krajcik, J. S., Layman, J. W., Starr, M. S. & Magnusson, S. (1991). The development of middle school teachers' content knowledge and pedagogical content knowledge of heat energy and temperature. Paper presented at the Annual Meeting of the American Educational Research Association, Chicago, IL.
- Krajcik, J. S. Less is more for conceptual learning. (1990). Presentation at the National Science Teachers Association, 38th National Convention, April 5-8, 1990, Atlanta, Georgia, invited presentation.
- Krajcik, J. S., Bloyce, E., Hangey, S., Smith, T., Hicks, L., Hansen-Grafton, B., and Keranen, K. (1990). MBL in the middle school science classroom: teachers' insights. Presentation at the National Science Teachers Association, 38th National Convention, April 5-8, Atlanta, Georgia.

- Clermont, C., Borko, H., & Krajcik, J. (1990). A comparative study of the pedagogical content knowledge of experienced and novice chemical demonstrators. Paper presented at National Association for Research in Science Teaching, 63rd Annual Meeting, March 7 - 10, 1990, Atlanta, GA.
- Krajcik, J. S. Students' interactions with science software containing dynamic visuals. (1989). In M. Eisenhart & J. G. Goetz (Chairs) Meanings of Science and Technology in Schools and Communities. Symposium conducted at the 88th annual meeting of the American Anthropological Association, November, Washington, D.C.
- Krajcik, J. S. & Layman, J. W. (1989). Middle school teachers' conceptions of heat and temperature: personal and teaching knowledge. Paper presented at National Association for Research in Science Teaching, 62th Annual Meeting, March 30 - April 1, San Francisco, CA.
- Clermont, C. P. & Krajcik, J. S. (1989). The influence of intensive inservicing of pedagogical content knowledge growth among novice chemical demonstrators. Paper presented at National Association for Research in Science Teaching, 62th Annual Meeting, March 30 - April 1, San Francisco, CA.
- Sutula, V. D & Krajcik, J. S. (1988). Effective use of analogies on moles problems in high school chemistry classes. Paper presented at National Association for Research in Science Teaching, 61th Annual Meeting, April 10-13, Lake Ozark.
- Krajcik, J. S. (1988). Using computer simulations to enhance student learning of physical science concepts. Presentation at the National Science Teachers Association, 36th National Convention, April 7-10, St. Louis, Mo.
- Krajcik, J. S. (1987). Learning science concepts through computer assisted instruction. W. G. Holliday (Chair), Linking three research agendas of science teaching: studying science, classrooms in science, computers in science. A symposium conducted at the National Association for Research in Science Teaching, 60th Annual Meeting, April 23-26, Washington, D.C.
- Layman, J. & Krajcik, J. S. (1987). Research matters... to the science teacher: using the computer in science instruction. Presentation at the National Science Teachers Association, 35th National Convention, March 26-29, Washington, D.C.
- Krajcik, J. S., Lunetta, V. H. & Simmons, P. E. (1986). New models for science software development and classroom use. Presentation at the National Science Teachers Association, 34th National Conventions, March 26-29, San Francisco.
- Krajcik, J. S. Penick, J. E. & Yager, R. E. (1986). Evaluation of an innovative science teacher education program. Paper presented at National Association for Research in Science Teaching, 59th annual Meeting, March 28-31, San Francisco.
- Lunetta, V. N., Simmons, P. E. and Krajcik, J. S. (1986). A descriptive research strategy assessing computer assisted instruction in science education. Paper presented at the National Association for Research in Science Teaching, 59th Annual Meeting, March 28-31, San Francisco.
- Krajcik, J. & Haney, R. (1984). The relationship between cognitive development of high school students and their achievement in chemistry. Paper presented at the National Association for Research in Science Teaching, 57th Annual Meeting, April 27-30, New Orleans.

#### Regional and State Presentations:

- Krajcik, J. & McNeill, K. L. (2006, February). Supporting secondary students in scientific practices: Using evidence, creating models and constructing explanations. Paper presented at To Think and Act Like A Scientist: The Roles of Inquiry, Research, and Technology, Lubbock, TX.
- Krajcik, J. (February, 2002). Fostering Inquiry Using New Learning Technologies (and Backwards Design) Michigan Assessment Team, Livingston Intermediate School District, MI.
- Krajcik, J. (March, 2001). Supporting Science Teachers use of new learning technologies, Keynote speaker at the Michigan Science Teacher Leaders Association, Detroit, MI.
- Krajcik, J. & Peek-Brown, D. (Feb., 2001) Using new learning technologies to promote student understanding of science. Michigan Mathematics and Science Centers Directors Meeting, Romulus, MI.
- Krajcik, J., Singer, J., Amati, K., Peek-Brown, D. (1999). Embedding learning technologies in curriculum to foster student learning of science. Paper present at the Michigan Science Teacher Association meeting, Lansing, MI.
- Krajcik, J. S. & Berger, C. (1995). Using technology to promote student understanding in science and mathematics. Michigan's State Systemic Initiative - Teacher Education Component. Presentation to 60 individuals from colleges and university throughout Michigan, Gaylord, MI. Invited, July.

- Krajcik, J. (1995). Potential of computing and telecommunication. ISACS/AIMS Annual Regional Conference. Grosse Pointe Woods, MI, November, 10.
- Krajcik, J. (1994). Effective teaching and learning strategies. Michigan Science Teachers' Association (MSTA), February 25-26, Detroit, MI.
- Krajcik, J. (1994). Effective teaching and learning strategies. Presentation at Michigan Association for Computer-related Technology Uses in Learning (MACUL); March 10-11, Grand Rapids, MI, March 10-11.
- Krajcik, J., Ladewski, B., & Brade, K. (1994). Computer-based support for instructional planning. Presentation at Michigan Association for Computer-related Technology Uses in Learning (MACUL), March 10-11, 1994; Grand Rapids, MI, March 10-11.
- Krajcik, J. S. & Berger, C. (1994). Using multimedia in the classroom. Jackson county Presentation to Jackson County School Board, Jackson, MI. Invited paper, September 20.
- Krajcik, J. S. (1994). North Central Regional Educational Laboratories, invited presentation on Project-based Science, July 16. Moving Mathematics and Science Assessment into the 21st Century Conference, Hickory Ridge Conference, Lisle, IL.
- Krajcik, J.S. (1994). How can we make chemistry instruction authentic? Paper presented at the meeting of the Joint Regional American Chemical Society Meeting, June 3, Ann Arbor, MI.
- Layman, J. W. & Krajcik, J. S. (1990). The use of microcomputer-based laboratories in constructing science concepts. Presentation at the National Science Teachers Association, Area Convention, December 13 -15, Washington, D.C.
- Krajcik, J. S. & Layman, J. W. (1989). MBL in the middle school science classroom: teacher insights. Presentation at the Maryland Association of Science Teachers Fall Conference, November 2-4, Ocean City, MD.
- Krajcik, J. S. (1988). Research matters: preliminary results from the University of Maryland middle school probeware project. Presentation at the Computers in Science Conference, John Hopkins University, June 4, Baltimore, MD.
- Krajcik, J. S. (1987). Developing skills and competence in the use of computers and technology. V. Lunetta (Chair), Toward Excellence in Teacher Education Preparation. A symposium conducted at the National Science Teacher Association, Nov.5-7, Pittsburgh, Pennsylvania Regional Convention.
- Krajcik, J. S. & Berg, C. (1986). Using exemplary software in the science classroom. Presentation at the National Science Teacher Association, Indiana Regional Convention, October 30 - November 1, Indianapolis.
- Krajcik, J. S. & Lunetta, V. N. (1986). New models for software development. Presentation at the National Science Teacher Association, Indiana Regional Convention, October 30 - November 1, Indianapolis.
- Krajcik, J. S. & Berg, C. (1986). Using computers effectively in the science classroom. Presentation at the Iowa Science Leadership Conference--Making Iowa Science #1, Buena Vista College, March 3-4, Storm Lake, Iowa.
- Krajcik, J. S. (1985). Exemplary programs in elementary school science. Presentation at the Iowa Science Leadership Conference, December 2-3, Iowa City, IA.
- Lunetta, V. H., Simmons, P. E. & Krajcik, J. S. (1985). Using computers effectively for school science. Presentation at the Iowa Science Leadership Conference, December 2-3, Iowa City, IA.
- Penick, J. E. & Krajcik, J. S. (1985). Exemplary programs in chemistry and physics. Presentation at the Illinois Science Teachers Association State Convention. Illinois State University, October 5, Normal, Illinois.
- Krajcik, J. S. (1985). Can students successfully complete college chemistry without high school chemistry? Presentation at the Iowa Curriculum Up-Date Conference. Science Education Center, University of Iowa, July 30, Iowa City, IA.
- Krajcik, J. & Berg, C. 1985). Using exemplary software to teach science. Presentation at the Illinois Science Teachers Association State Convention. Illinois State University, October 5, Normal, Illinois.
- Krajcik, J. S. (1985). Exemplary science software. Presentation at the Science, Technology and Society Honors Workshop. Science Education Center, University of Iowa, July 31, Iowa City, IA.
- Lunetta, V. H., Huber, R., Krajcik, J. S. (1984). Computers in the science classroom. Presentation at Iowa Science Leadership Conference, December 3-4, Iowa City.
- Krajcik, J. S., Anderson, D., Penick, J. P. (1984). Teaching strategies of exemplary chemistry programs. National Science Teachers Association, October 18-20, Minneapolis Area Convention.
- Krajcik, J. S. (1984). Conductivity of solutions. Presenter at the Make and Take Workshop at the National Science Teachers Association, October 18-20, Minneapolis Area Convention.



- Krajcik, J. S. (1983). The relationship between cognitive development of high school students and student achievement in chemistry. Presentation at the 25th Annual Convention of the Wisconsin Science Teachers, April 15-16, Milwaukee, WI.
- Krajcik, J. S. (1983). Demonstrations to stimulate interest. Presentation at the Spring 1983 Milwaukee Archdiocese Science Teacher Association Meeting, April, Milwaukee, WI.

## RESEARCH PROJECTS

- PIRE: Crafting Optimal Learning in Science Environments," NSF 1545684, Barbara L. Schneider, Joseph S. Krajcik, September 15, 2015 and ends August 31, 2020, \$3,602,431.
- Multiple Literacy in Project-Based Learning, Lucas Education Research, a division of the George Lucas Educational Foundation, APP# 139873, \$4,999,645, January 1<sup>st</sup>, 2015 through December 31<sup>st</sup>, 2019, with a subcontract to the University of Michigan.
- Exploring Potential Learning Trajectories for the Energy Concept in Middle School, National Science Foundations, DUE-143172, \$1,499,825, September 1, 2014 through August 31, 2018 with subcontract to IPN, Germany and the Weizmann Institute of Science Israel.
- Collaborative Research: Supporting Secondary Students in Building External Models, National Science Foundation, \$918,359, DRL-1417900, August 1, 2014 through July 31, 2018.
- Collaborative Research: Designing Assessments in Physical Science Across Three Dimensions, National Science Foundations, DRL-1316908, \$757,335, 8/2013 to 7/16.
- A Model for Preparing Teachers to Implement the New Standards (National Science Foundation DRL, RAPID), Joseph Krajcik, PI, \$199,000.
- Developing and Testing a Model to Support Student Understanding of the Sub-Microscopic Interactions that Govern Biological and Chemical Processes (National Science Foundation, DRL-1232388), Joseph Krajcik PI, September 1, 2012 to August 31, 2016, \$2,104,855.
- Efficacy Study of Project-Based Inquiry Science, (DRL-1020407), to SRI (UM subcontract), Christopher J. Harris, Joseph S. Krajcik, William Penuel, August, 15<sup>th</sup>, 2010 – July 31, 2015, \$574,403.
- "Zydeco: A Mobile "Nomadic Inquiry" System to Support and Bridge Science Inquiry Between Classroom and Museum Contexts," (DRL-1020027), Christopher Quintana, Joseph S. Krajcik, August 1, 2010 to July 31, 2013, \$1,648,674.
- Moving Beyond Conceptual Models: Developing Assessments to Validate and Study Learning Progressions, (NSF, DRL-0830931), Ravit Duncan, PI, Rutgers University, Joe Krajcik, co-PI, September 15, 2008 and April 30, 2010, \$147,093.
- Developing an Empirically-Tested Learning Progression for the Transformation of Matter to Inform Curriculum, Instruction and Assessment Design (NSF; DRL-0822038): Namsoo Shin (PI) & Krajcik (co-PI), \$2,569,539.00
- Collaborative Research: Universal Design of Inquiry-Based Middle and High School Science Curriculum (NSF; DRL-0730348; 2007-2011); UM: LeeAnn Sutherland (PI) & Joe Krajcik (CoPI); CAST: David Rose (PI) & Boris Goldowsky (CoPI); EDC: Jackie Miller (PI) & June Foster (CoPI).
- Longitudinal Student Outcomes in a Scaling Urban Inquiry-Based Science Intervention (Co-PI with Phyllis Blumenfeld). Spencer foundation, \$351,900, 7/1/2006 to 6/30/2008.
- A Learning Progression for Scientific Modeling, PI, Brian J. Reiser, Co-PIs: Joseph S. Krajcik, Elizabeth Davis, Christina Schwarz, David Fortus. National Science Foundation, ESI-06281099, \$1,738,829, October 1, 2006 to September 30, 2008.
- Education for Community Genomic Awareness, from the National Institutes of Health (Co-PI with Toby Citrin from Public Health, #1 R25 RR022703-01, \$1,341,329)
- National Center for Teaching and Learning in NanoScale Science and Engineering. National Science Foundation Center for Teaching and Learning (ESI-0426328), Co-PI (Robert Chang from Northwestern University, PI).
- Collaborative Research: Developing the Next Generation of Middle School Science Materials -- Investigating and Questioning our World through Science and Technology. National Science Foundation. Award Number - ESI-0439352. Krajcik, PI. Collaborative grant with Northwestern (Brian Resier), \$6,267,023, grant period, 09/03/04 – 10/1/09.
- Center for Teaching and Learning – Developing Leadership Capacity in Science Curriculum Development, Subcontract from American Association for the Advancement of Science, 9/02 – 8/07, National Science Foundation, Award Number: 0227557, subcontract for 5 years -- \$2,438,316 (ESI-0227557).

- Middle School Science Curriculum Materials: Meeting Standards and Fostering Inquiry through Project-based Inquiry Science Units, National Science Foundation, Subcontract from Georgia Institute of Technology, Janet Kolodner, Principal Investigator, Award Number: 0137807, subcontract for three years – \$369,101.
- Middle School Science Curriculum Materials: Meeting Standards and Fostering Inquiry Through Learning Technologies, \$1,999,738. Grant period is 07/01/01 - 10/31/04. Grant to develop a comprehensive set of middle grades science materials in collaboration with Northwestern University, the University of South Carolina, AAAS, and the Education Development Centers, Inc. (ESI-0101780).
- Teaching Practices to Promote Science Understanding through Inquiry and Technology in Urban Schools, \$1,685,819. Grant period is 9/01 to 9/04. Grant to explore strategies for help urban student learn science. Krajcik, PI; Marx and Blumenfeld, Co-PIs, REC-0106959.
- Learning-Centered Design Methodology: Meeting the Nation's Need for Computational Tools for K-12 Science, \$3,000,000. E. Soloway, PI, Krajcik co-PI. National Science Foundation, Education TR, 0085946. Grant period is 9/00 - 8/03.
- Creating a Corpus of Learning-Situated Design Guidelines and Software Components: Foundation for Educational Software Research and Development (ASSESS project), \$2,040,000, E. Soloway—PI, Krajcik and Marx, co-PIs. National Science Foundation, REC 9980055. Grant period is Oct, 2000 – Sept. 2003.
- Collaboration on Urban Systemic Change (\$1,431,951) Subcontract from the Detroit's Urban Systemic Initiative. Grant Period is 7/99 – 6/04. Krajcik, PI; Marx, co-PI.
- Extending the Primary Sources Network, USDOE/OERI, \$3,986,978, 5/1/99 - 9/30/2002. Principal Investigator: Ronald Marx; Participating Investigators: Phyllis Blumenfeld, Joseph Krajcik, (Funded).
- Community Health Investigator Project, Centers for Disease Control and Prevention. 1/1/99 - 12/31/99 \$374,999, Principal Investigator: Toby Citrin; Investigators: Kathleen Ford, Joseph Krajcik (Funded).
- Studying Computational Technologies to Support Urban Middle School Students in Scientific Inquiry. \$499,964 for the period 10/1/97 to 9/31/2000 (Krajcik, PI, Blumenfeld, and Soloway co-PIs), National Science Foundation.
- Center for Learning Technologies in Urban School. \$6 million for 4 years. Gomez, L (Northwestern University), Marx, R (University of Michigan), Clay-Chambers, J.(Detroit Public Schools), and Burgess, C. (Chicago Public Schools) are the principals for the project. I served as a research scientist in the grant, helped developed the grant and was instrumental in final negotiations with the National Science Foundation.
- The Community Science Connection: A Model for K-12 Model for Science Education Reform, Office of the Provost, University of Michigan, 1996, (\$361,000) (with E. Soloway et al.)
- SubContract, Dade County, Bolt, Berankey & Newman, Total award amount - \$98,348, Award period - 7/14/95-6/30/96, Krajcik, PI).
- Computational Support for Authentic Science Inquiry. Elliot Soloway, Project Director. Joseph Krajcik, Ron Marx, Phyllis Blumenfeld and Brian Coppola, co-principal investigators. National Science Foundation, \$ 1,739,538, 4/1/96 to 3/31/2000.
- A Digital Library for Middle Schools: Supporting Authentic Science Investigations. Elliot Soloway, Project Director. Joseph Krajcik, Ron Marx, Roberta Johnson, Karen Drabenstott co-principle investigators. National Science Foundation, \$1,413,00, 10/1/95 to 9/30/98.
- Teaching Learning and Curriculum Alignment Grant. Michigan Department of Education, Eisenhower, (Grant number, 94-0053), \$64,659, 9/93 - 12/94 ; \$49,000, 9/94 - 12/96 Krajcik, PI.
- ScienceWorks: Making the Computational Science Methodology Accessible to Learners. Elliot Soloway, Project Director. Joseph Krajcik and Roy Pea co-principal investigators. National Science Foundation (RED-9353481) \$1,343,521, 9/1/93 - 8/31/97.
- Edmonson Middle School Science Effort. Michigan Partnership. Approximately \$100,000 award each during the 92-93, 93-94, 94-5 school years.
- Enhancing Achievement and Assessment in a University/Schools Program. Principal Director - Stuart Rankin. Co-principle investigator with Sam Meisels and Martin Packer, \$143,219.
- Enhancing the Teaching of Project-Based Science. Krajcik, J. S., PI, P. Blumenfeld, E. Soloway, and R. Marx; 1991, National Science Foundation (TPE-9153759), \$1,125,340. Supplemental Grant, \$62,565, 9/1/92-8/31/93.
- Upper Elementary Science Teaching: Integrating the Knowledge Bases. Co-principal Investigator with Phyllis Blumenfeld and Elliot Soloway; 1991, National Science Foundation, (TPE - 9150020), \$413,185. Supplemental Grant, \$82,512, 7/1/92-12/31/94.

LabNet Training and Teaching at the University Michigan. Co-principal director with Carl Berger. Subcontract from the Technical Education Research Center from Primary Grant LabNet. Subcontract TPE 88510465, March 31, 1990 - August 31, 1990, \$132,995.

University of Maryland Middle School Probeware Project. Co-principal director with John W. Layman. National Science Foundation. April, 1988, \$326,629.

A study of students' conceptual changes that occur while interacting with instructional software. Center for Educational Research and Development, University of Maryland, College of Education, 1987-1988, \$5,000; 1988-1989, \$3,000.

The influence of microcomputer based laboratories on students' science concept formation, graphing skill acquisition and problem-solving development. Graduate Studies and Research, University of Maryland, 1987, \$2000.

A study of students' science concept development through the use of computer graphics. Center for Educational Research and Development, University of Maryland, College of Education, 1986-1987, \$4980. Department of Curriculum and Instruction, 1986, \$500.

Influence of microcomputer Based Laboratory Experiments on Junior High Students' Concept Development and Graphing Skills. Center for Education Research and Development, University of Maryland, College of Education in collaboration with Dr. J. W. Layman, October, \$4850. Department of Curriculum and Instruction, 1986, \$500.

### HONORS & CITATIONS

- 2015 Invested as the Lappan-Phillips Professor of Science Education, College of Natural Science, MSU
- 2014 George G. Mallison Award from the Michigan Science Teachers Association for excellence of contributions to science education at the local, state and national level over a significant period of time
- 2011 Recipient of the Provost Teaching Innovation Prize (IDEA Institute).
- 2010 Recipient of the Distinguished Contributions to Science Education Through Research Award from the National Association of Research in Science Teaching
- 2010 Recipient of the University of Michigan Faculty Award for Distinguished Graduate Mentoring.
- 2009 Distinguished Professor, Ewha Womans University, Institute for Global Science, Society and Technology Education, Seoul, South Korea.
- 2009 Inducted as a Fellow of the American Educational Research Association.
- 2008 Inducted as a Fellow of the American Associate for the Advancement of Science
- 2005 Weston Visiting Professor of Science Education, Weizmann Institute of Science, Rehovot, Israel; January, 2005 – July, 2005.
- 2004 Recipient Urban Impact Award, Council of the Great City Colleges of Education, with Detroit Public Schools and research colleagues Professors Blumenfeld, Fishman, Marx and Soloway for university school district partnerships that improve the education of urban children.
- 2003 Recipient of the Class of 1923 Teaching Award, School of Education, University of Michigan.
- 2002 – 2007 Guest Professor, Beijing Normal University, Beijing, China.
- 2002 Inducted as a Fellow of the American Association for the Advancement of Science.
- 2000 Recipient of the 2000 NARST Outstanding Paper Award for a paper presented at the 1999 meeting entitled Assessing the Nature of Learners' Science Content Understandings as a Result of Utilizing On-Line Resources, with Joseph Hoffman.
- 1999 - 2000 President of the National Association of Research in Science Teaching
- 1983-1988 Assistantships awarded to pursue graduate studies in Science Education, University of Iowa.
- 1976 Award of Outstanding Tutorial Performance; University of Wisconsin-Milwaukee, Department of Learning Skills and the Division of Student Services, Spring.
- 1975 National Science Foundation Scholarship recipient; University of Wisconsin-Milwaukee, Department of Chemistry.

### PROFESSIONAL PUBLIC SERVICE

#### Editorial Work:

- 2009-212 Lead writer for the physical science disciplinary core ideas for the Framework for K – 12 Science Education, National Research Council
- 2011-2013 Lead writer for the physical science standards for NGSS and member of the NGSS leadership team, Achieve.

- 2010 - 2015 Co-Editor, *Journal of Research in Science Teaching*  
 2007 - 2010 Editorial Board, *Science Education*, Section Editor, Learning  
 2006 – 2004 Editorial Board, *Science Education*  
 2006 –1998 Editorial Board, *Journal of Learning Sciences*  
 2006 - 2003 Editorial Board, *International Journal of Science and Mathematics Education*  
 2006 – 2002 Editorial Board, *Research in Science Education*  
 2006 – 2005 Reviewer for AERJ  
 2003 Editor for special issue for *Research in Science Education*, The Value and Challenges of Using Learning Technologies to Support Students in Learning Science, 32(4),.  
 2002 Reviewer for special issue on curriculum design for *Science Education*.  
 2001 - 2000 Associate Editor for the *Journal of Research in Science Teaching*.  
 2004, 2001 Reviewer for the *Educational Researcher*  
 2000 -1994, 1992, 1987 Reviewer, *Journal of Research in Science Teaching*.  
 1998, 1991 Reviewer, *Interactive Learning Environments*  
 1998 Reviewer, National Evaluation Systems, Michigan Test for Teacher Certification – Physics  
 1996 Reviewer, Spencer Foundation  
 Reviewer, National Institute of Health  
 1992 – 1996 Contributing Editor, Research Notes, Journal of Computers in Mathematics and Science Teaching.  
 1996 – 1994 Editorial Board, Interactive Learning Environments.  
 1998 - 1999 Reviewer, *Science Education*  
 1989, 1996 Reviewer, *American Educational Research Journal*.  
 1988 – 1991 Editorial Board Member, *Journal of Research in Science Teaching*.  
 1986 Reviewer for Iowa Testing Service. Science examination questions. University of Iowa, Iowa City, IA., Spring.  
 1985 Reviewer for the Iowa Academy of Science and the Iowa Science Foundation.

## Advisory Boards:

- 2010 - Merck Institute for Science Education, Advisory Board Member\  
 2009 - Sangari, Brazil, International Advisory Board  
 1998 – 2000 PASCO Scientific, Middle School Advisory Board  
 2007 -- 2010 Advancement of Instructional Materials in Science Project (AIMS), --- Taiwan, National Science Council (NSC).

## Service to professional organizations, universities and school districts:

- 2017 Chair of an International Review Committee to evaluate the Science and Engineering Education Program (science, math, and technology education) at the Technion in Israel. A committee appointed by the President of the Technion, January 2017.  
 2011 Reviewer, National Research Council. Successful STEM Education: A Workshop Summary. Committee on Highly Successful Schools on Programs for K – 12 STEM Education. Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.  
 2010 Reviewer, National Research Council. Preparing teachers: Building evidence for sound policy. Committee on the Study of Teacher Preparation Programs in the United States, Center for Education. Division of Behavioral and Social Sciences and Education. Washington, DC: The National Academies Press.  
 2006, 2007 Member, Planning Committee for the Annual Meeting, American Association for the Advancement of Science  
 Reviewer, Israel Science Foundation.  
 Reviewed 5 tenure and promotion cases.  
 2006 Chair of an International Review Committee to evaluate the Science Education Program (science, math, and technology education) at the Technion in Israel. A committee appointed by the President of the Technion, April 23 – 27, 2006.  
 Reviewed fellowships for the Ford Minority Graduate and Post-doctoral fellowships program for the National Academy of Science (March 16 – 18<sup>th</sup>, 2006).  
 Reviewed 2 tenure and promotion cases.  
 2005 Chair, nomination committee, Section Q (science education), American Association for the Advancement of Science.

- 2003 - 2005 Reviewed 5 tenure and promotion cases.  
Member on National Academy Committee, the Committee on Test Design for K-12 Science Achievement  
Reviewed tenure and promotion cases.  
Member, National Science Teachers' Association Awards, Nomination and Research Committees.  
Member, National Science Teachers' Association Nomination and Research Committees.  
Member, nomination committee, Section Q (science education), American Association for the Advancement of Science.
- 2002 - 2003 Served on a special Committee on Science Education, National Academy of Science, November 9<sup>th</sup> - 10<sup>th</sup>.  
Served as an external dissertation evaluator for the Weizmann Institute of Science, Science Education Group.  
Served as an external evaluator for five national promotion cases from assistant to associate professor.  
Member, National Science Teachers' Association Awards, Nomination and Research Committees.  
Member, Science and Diversity Synthesis Team, Center for Research on Education, Diversity, and Excellence (CREDE) and the National Center for Improving Student Learning and Achievement (NCISLA) in Mathematics and Science.  
Program committee Member for the International Conference of the Learning Science, Seattle, WA, Oct. 23- 26.
- 2003 - 2000 Member, NSTA's Awards Committee
- 2003 -1996, 1994, 1990, 1986 Reviewer and/ or site visitor for the National Science Foundation
- 2002 - 2001 Reviewer for The National Research Council of Taiwan to evaluate their national educational web project.
- 2002 Served as an external evaluator for four national promotion cases from associate to full professor and one from assistant to associate.  
Annual conference reviewer: NARST annual conference and the International Conference of the Learning Sciences.
- 2001 Served as an external evaluator for two national promotion cases.
- 2000 Served as an external evaluator for 3 national and 2 international promotion and tenure cases.
- 2000 - 1997 President-elect, President, Immediate Past-President of the National Association for Research in Science Teaching
- 1999, 1998, 1996 - 1994 External tenure review report: Wrote external review for tenure and promotion.
- 1996 Section Chair, American Educational Research Association, Division C, Science.
- 1996 - 1993 Executive Board Member, National Association for Research in Science Teaching
- 1993 - 1996 Chairperson, Outstanding Paper Award Committee -- National Association for Research in Science Teaching
- 1993 - 1996 Reviewer for various divisions and groups of the American Education Research Association meetings including Division C, Division K and Subject Matter Knowledge and Conceptual Change.
- 1989 - 1991 Member, National Association of Research in Science Teaching, Research Committee.
- 1990 - 1991 Reviewer, Teaching Education.
- 1988 - 1990 Member, National Association of Research in Science Teaching, Awards Committee.
- 1989 Member, Prince George's County Public Schools, Prince George's County, MD, Middle School Task Force.
- 1987 Member, Selection Committee for the Search for Excellence in Science Supervision, Maryland State Department of Education.
- 1987 Co-chairperson, Local Arrangements Committee. National Association for Research in Science Teaching, 60th National Convention, Washington, D.C. April 23-26, 1987.
- 1986 Member of Steering Committee; Wisconsin Junior Academy; LeRoy R. Lee, WJA Director; Madison, WI.
- 1983 Member of OP-84 Advisory Committee; Milwaukee School of Engineering; William Gorman Director; Milwaukee, WI.
- 1982 - 1983 Vice-president (president elect) Milwaukee Archdiocese Science Teacher Association. Milwaukee Archdiocese, Milwaukee, WI.

## Workshops and other inservice activities (sample):

- 2014 Krajcik, J. NGSS 101. One day professional development institute held at NSTA Annual meeting, Boston, April, 2014.
- 2013 Krajcik, J. Designing and Assessing Evidence-based Explanations. Leading the Way for the Next Generation, National Science Education Leadership Association, Professional Development Institute San Antonio Texas April 10, 2013 (3 hour workshop).
- 2011, 2012, 2013 Krajcik, J. & Calebrese-Barton, A., Pre Conference Workshop, Developing High Quality Reviews for the Journal of Research in Science Teaching. National Association for Research in Science Teaching, Philadelphia, PA, March 24 – 29, 2010 & Orlando, FL, April 2nd – 4th, 2011.
- 2012, 2013 Krajcik, J. & Starr, M. Working on the Framework and NGSS Aligned Science Teaching National Science Teachers Association, National Conference, San Antonio, Texas, April, 2013 and Regional Conferences in Atlanta, Georgia, Nov 1<sup>st</sup>, 2012 and Phoenix, Arizona December 6<sup>th</sup>, 2012.
- 2010 Detroit Public School District, Detroit, Michigan, Spring, 2010. Conducted a professional development workshop for K-12 teachers to build their content knowledge of nanoscale science and help develop strategies for incorporating these ideas into their classroom teaching (with Shawn Steven).
- 2008 Krajcik, J., McNeill, K. L., & Novak, A. (2008, March). Assessing middle school students' content knowledge and scientific reasoning through written explanations. Workshop to be presented at the National Science Teachers Association Conference on Science Assessment, Boston, MA.
- Krajcik, J. & McNeill, K. L. (2008, March). Designing learning progressions in science education. Workshop presented at National Taiwan Normal University, Taipei, Taiwan, March 3<sup>rd</sup> – 5<sup>th</sup>, 2008 as part of the International Conference of Professional Development and Student Learning for Innovative Science Curriculum.
- 2007 McNeill, K. L. & Krajcik, J. (2007, August). Assessing students' content knowledge and scientific reasoning through written explanations. Workshop presented at the Geneticist-Educator Network of Alliances (GENA) summer workshop, Bethesda, MD.
- Krajcik, J. & McNeill, K. L. (2007, March). Assessing middle school students' content knowledge and scientific reasoning through written explanations. Workshop presented at the National Science Teachers Association Conference on Science Assessment, St. Louis, MO.
- 2006 Investigating and Questioning Our World through Science and Technology, Summer Professional Development Institute; University of Michigan, Ann Arbor, MI.
- Krajcik, J.S. & Schank, P. (June, 2006). Workshop to Identify and Clarify Nanoscale Learning Goals; SRI, Menlo Park, California, SRI, (funded through NSF).
- Krajcik, J. & McNeill, K. L. (2006, April). Assessing middle school students' content knowledge and scientific reasoning through written explanations. Workshop presented at the National Science Teachers Association Conference on Science Assessment, Anaheim, CA.
- 2005 Krajcik, J. & McNeill, K. L. (2005, November). Assessing middle school students' content knowledge and scientific reasoning through written explanations. Workshop presented at the National Science Teachers Association Conference on Science Assessment, Chicago, IL.
- Sutherland, L.M., McNeill, K.L., Krajcik, J. & Colson, K. (2005, April). Supporting students in creating scientific explanations. Workshop presented at the National Science Teachers Association Conference on Linking Science and Literacy in the Classroom, Dallas, TX.
- 2002 Detroit Urban Systemic Program: A Summer Institute to Promote Change, Integrating Technology into High School Chemistry, July 30<sup>th</sup> – August 1<sup>st</sup>.

- LETUS Summer Institute, Detroit Urban Systemic Program, How to build computer based models, Aug 5<sup>th</sup> – 8<sup>th</sup>.
- 2001 National Science Teacher Association; with Ann Novak and Chris Gleason. Model-It training session, Two – three hour sessions, San Diego, March, 27 –30, 2002.
- 1998 Detroit Public Schools – Workshops on Project-based learning in conjunction with the Center for Learning Technologies in Urban Schools.
- 1996 Helped coordinate and run summer workshop for the Science Learning in Context project, Concord Consortium, July, 1996.
- 1995 Project-based Science Workshop. Summer, Detroit Public Schools, Detroit, MI.
- 1995 Project-Integration Visualization Tool Workshop. Summer, Dade County, Florida School System.
- 1995, 1994 Project-based Science Institutes. Summer and school year. University of Michigan, Ann Arbor Michigan.
- 1994 Use of Microcomputer Research: Advanced Analysis and Dialog of Results, with Carl Berger, 1994, NARST Annual Meeting, Anaheim CA.
- 1993, 1994 Berger, C., Krajcik J. S. & Jackson, D. Use of microcomputers in science education research: Data gathering and analysis. Pre-session Workshop conducted at the 1993 Annual Meeting of the National Association for Research in Science Teaching, April 15-19, Atlanta, GA.
- August, 1992 Benefits and Challenges of Project-Based Learning, One day inservice for Edmonson Middle School with Barb Ladewski and Bob Geier, Ann Arbor, MI.
- June, 1992 Use of Concept Mapping in Unit Planning, one day inservice for Operation Physics Workshop, Western Michigan University, Kalamazoo, MI.
- May, 1991 Presentation for the Ann Arbor Public Schools Middle School Curriculum Committee on state-of-the-art curriculum initiative in science education, Ann Arbor, MI.
- June, 1991 Participating member in the King/Chavez/Parks Summer Institutes sponsored by the Office of Minority Affairs, University of Michigan, Ann Arbor, MI.
- Feb. 1989 Microcomputer-Based Laboratory Workshop; two and half day inservice for middle school science teachers; Prince George's Public Schools.
- Sept. 1988 Prince George's County Public School, Elementary Science Coordinators' Meeting. One day inservice on problem solving in elementary science.
- March 1988 Using the Microcomputer in the Science Classroom; half-day inservice for science teachers; University of Maryland - Northwestern High School (Prince George's Public Schools) Collaborative Program.
- Nov. 1987 Short Course with John Layman; Laboratory Computer Interfacing Workshop; National Science Teacher Association: Pittsburgh, PA; Nov. 5, 1987.
- July 1987 Workshop leader with John Layman; University of Maryland-Montgomery County Public Schools Probeware Project Summer Workshop; Montgomery County Public Schools, Montgomery County, MD; three days.
- Aug. 1986 Workshop leader "Problem Solving in Science", Summer Institute for Science Teachers, 1 1/2 days, College of St. Thomas, St. Paul, Minnesota. Sponsored by Minnesota Environmental Service Foundation, Inc.
- May 1986 One day workshop on uses of the microcomputer in science teaching. Kankakee School District III, Kankakee, Illinois.
- Jan. 1986 Three hour workshop/presentation on current trends in science education. Decorah Community Schools, Decorah, IA.
- Oct. 1985 Workshop leader for the evaluation of the BSCS ENLIST MICRO Computer Workshop. 1 day, Science Education Center, University of Iowa, Iowa City, IA.
- Jan. 1985 Learning from Exemplars, 1/2 day, Iowa Public Schools Inservice for Science Teachers, Iowa City, Iowa.
- May 1984 Workshop leader with Dr. V. Lunetta; 1 day. Talented and Gifted Program, Dubuque Public Schools, Dubuque, IA.
- Consultancies:
- 2011 Chair physical science team to develop the Next Generation of Science Standards being orchestrated by Achieve. Member leadership team for the Next Generation of Science Standards.
- 2010, 2011 National Research Council, Conceptual Framework for New Science Education Standards, Design Team Lead, Physical Science.

1996 - 1997	Concord Consortium, Science Learning In Context project.
1996, 1997	Project MOST, Missouri Science Teachers, University of Missouri, James Laffey Project Director, 1996 & 1997.
1996	American Association for the Advancement of Science (AAAS), Project 2061, review and critique chemistry curriculum to determine if the match AAAS' Benchmarks, June & July, 1996.
1996	3M Chemistry, Oakland University, Chemistry Department, Dr. Joel Russell, Oakland, MI.
1991, 1992	Technical Education Research Center, Cambridge, MA. LabNet
1990, 1991	West Bloomfield School District, West Bloomfield, MI, Science Curriculum Consultant.
Summer, 1989	<u>Conduit</u> . Interfacing software workshop and software consultation.
1988, 1989	MacMillan Publishing Company. Workshops and Professional Presentation on how to use the <u>Journey Through Science</u> Curriculum materials.

#### Organization memberships:

Since 1983	National Association for Research in Science Teaching
Since 1977	National Science Teacher Association
Since 1986	American Educational Research Association
Since 1999	American Association for the Advancement of Science
1989, 1994	Association for the Education of Science Teachers
1993	Sigma Xi, The Scientific Research Society (Member)
1996 – 1998	Council of Scientific Society Presidents (member, representing NARST)

#### UNIVERSITY SERVICE at the University of Michigan

##### University

2001 – 2002	Served on Chemistry Promotion and Tenure committee for one faculty member going up for promotion to full professor.
2001	Co-chair with Brian Coppola, Instructional Sub-Committee for the Life Sciences “L-Shaped Building”
2000 – 2001	Served at Rackham representative on three proposal defenses in chemistry Served on the promotion committee for a chemistry faculty member
1993 - 1994	Member Search Committee, Environmental Education, School of Natural Resources
1993 - 1994	Member, Faculty Task Force on Instructional Technology
<i>School</i>	
2006 – 2011	Associate Dean for Research
2002 – 2004	Member, Executive Committee
2001-2002	Promotion and Tenure Committee and Special Committee for reviewing performs of one instructor going up for review.
2000 - 2001	Member, Executive Committee Member, Provost Teaching Seminar Planning Group
1998 - 2000	Chair, Instructional Technology Planning Promotion and Tenure committee
1997	Member, Graduate Affairs Committee
1997-1994	ITD/School of Education Liaison Person
1992 - 1995	Member, Executive Committee
1994, 1995	Co-chair, Search Committee for Educational Technology Position

##### Program

1998 - 2004	Unit Coordinator – Science Education and Educational Technology
2002 – 2003	Search Chair – Learning Technologies
2001-2002	Search Chair – Science Education
1998 - 2000	Executive Committee, Educational Studies Program
1997 -1998	Chair, Science Education Search Committee
1997 -1998	Member, Secondary Teacher Education Program
1995 -1997	Science Education Coordinator
1995 -1997	Member, Search Committee (Science Education and Educational Technology)
1992 - 1993	Chair, Science Education Search Committee
1992 - 1993	Co-chairperson, Teacher Education Committee
1991 - 1992	Member, Teacher Education Committee



1990 - 1991 Chair, Science Education Search Committee  
 1990 - 1991 Member, Center for Research on Learning and Schooling Advisory Board  
 1990, Winter Member, Search Committee

### **INSTRUCTION AND ADVISING**

*Courses taught at the University of Michigan:*

ED 713\* Seminar in Science Education  
 ED 728\* Designing Multimedia Materials  
 ED 833\*\* Developing Expertise in Science Teaching  
 ED 831\* Theory and Research on Learning and Instruction in Science (originally, ED 625)  
 ED 737\*\* Designing Science Education Learning Environments  
 ED 831 Theory and Research on Learning and Instruction in Science  
 ED 421\* Elementary Science Methods  
 ED 832\*\* Technology in Science Teaching  
 ED 528\* Workshop in Elementary Science Methods  
 ED 422\*\* Teaching Science in Secondary Schools

\* Courses developed; \*\* Course revised

Doctoral Committee Chairperson:

1. Angela Kolonich, Michigan State University, Teacher Education, 2017, co-chair with Dr. Gail Richmond
2. Kristin Mayer, Michigan State University, Teacher Education, 2016, co-chair with Dr. Alicia Alonzo
3. Consuelo Morale, University of Michigan, Educational Studies, 2016, co-chair with Donald Freeman from UM.
4. Ibrahim Delen, Michigan State University, Teacher Education, 2015, Chair
5. Ingrid Sanchez, University of Michigan, Science Education, 2014, Chair.
6. Nirit Glazer, University of Michigan, Science Education, 2011, Chair
7. Molly Yunker, Ph.D, University of Michigan, Science Education, 2010, Chair (Post-doctoral Fellow, Weizmann Institute of Science, Fullbright)
8. Joi Merrit, Ph.D., University of Michigan, Science Education, 2010, Chair (Post-doctoral Fellow, Michigan State University)
9. Eric Fretz, Ph.D., University of Michigan, Combine Program Psychology and Education, 2010, Chair (Instructor, University of Michigan)
10. Jay Fogleman, Ph.D., University of Michigan, Science Education, 2009, Chair, (Assistant Professor University of Rhode Island)
11. Nonye Alozie, Ph.D., University of Michigan, 2010, Science Education, co-chair with Elizabeth Moje (Post-doctoral Fellow, Wayne State University).
12. Anna Switzer, Ph.D., University of Michigan, 2009, Science Education, Chair (School Designer, Expeditionary Learning Schools)
13. Alan Kiste, Ph.D., University of Michigan, Chemistry and Science Education, 2009, co-Chair with Brian Coppola, Chemistry (Instructor University of Michigan)
14. Cesar Delgado, Ph.D., University of Michigan, Science Education, 2009, Chair (Assistant Professor, University of Texas – Austin)
15. Phil Piety, Ph.D., University of Michigan, Learning Sciences, 2008, co-Chair with Pamela Moss (Research scientist, independent employment).
16. Jeff Nordine, Ph.D., University of Michigan, Science Education, 2007, Chair (Assistant professor, Trinity College in Texas)
17. Hsin-Yi, Chang, Ph.D. University of Michigan, Science Education and Learning Technology, 2007, Co-Chair with Chris Quintana (Assistant Professor, Graduate Institute of Science Education, National Kaohsiung Normal University, Taiwan)
18. Meilan Zhang, Ph.D. University of Michigan, Learning Technology, 2007, Co-chair with Chris Quintana

- (Assistant Professor, University of El Paso)
19. Charles Dersheimer, Ph.D. University of Michigan, Science Education, 2007, Co-chair with E. Moje (Assistant Director, Center for Research on Learning and Teaching University of Michigan)
  20. Kate McNeill, Ph.D., University of Michigan, Science Education, 2006, Chair (Assistant Professor, Boston College)
  21. Barbara Ladewski, Ph. D. University of Michigan, Science Education, 2006, Co-chair with Annemaria Palincsar
  22. Julie Plummer, Rackham Ph. D. Degree in Astronomy and Education, University of Michigan 2006, Co-chair with Mario Mateo, Astronomy (Assistant Professor of Education, Arcadia University)
  23. Christopher Harris, University of Michigan, Combine Program Psychology & Education, Ph.D., 2006, (Co-Chair with R. Marx) (Research Scientist, SRI)
  24. Valerie Talsma, Ph.D. University of Michigan, Science Education 2004 (Chair)
  25. Bob Grier, Ph.D. University of Michigan, Science Education, 2004, (Co-Chair with P. Blumenfeld) (Research Associate, University of Michigan)
  26. Jake Foster, University of Michigan, Science Education, 2004 (Co-chair with Lesley Rex) (Science Coordinator, Massachusetts)
  27. Baohui Zhang, University of Michigan, Learning Technology, 2003 (Chair), (Research Scientist, National Institute of Education, Singapore)
  28. David Fortus, Ph.D., University of Michigan, Science Education 2003 (co-Chair with Ron Marx) (Assistant Professor, Weizmann Institute of Science)
  29. Ann Rivet, Ph.D., University of Michigan, Science Education 2003 (Chair) (Associate Professor, Columbia University)
  30. Rebecca Schneider, Ph.D., University of Michigan, Science Education 2002 (co-Chair with P. Blumenfeld) (Professor, University of Toledo)
  31. Hsin-Kai Wu, Ph.D., University of Michigan, Science Education 2002 (Chair); (Associate Professor, Graduate Institute of Science Education, National Taiwan Normal University, Taiwan).
  32. April Luehmann, Ph.D. University of Michigan, Science Education (dual degree with Engineering) 2002 (co-Chair) (Assistant Professor, University of Rochester).
  33. Joe Hoffmann, Ph.D. University of Michigan, Science Education 1999 (Chair) (Science and Technology Director, West Bloomfield Schools, MI)
  34. Neil Skov, Ed.D. University of Michigan, Science Education, 1999, (Co – Chair with Carl Berger)
  35. Michele Wisnudel-Spitulnik, Ph.D University of Michigan, Science Education, 1998 (Chair) Director for the Center of Science Education, CCJDS
  36. Tim Breen, Ph.D University of Michigan, Science Education, 1998 (Chair)
  37. Mark Templin, Ph.D., University of Michigan, Science Education, 1998 (Co-chair with P. Moss) (Associate Professor, University of Toledo).
  38. Nathan Bos, Ph.D., University of Michigan, Combine Program in Education & Psychology, 1998 (Chair) (Senior Research Associate, Johns Hopkins Applied Physics Laboratory)
  39. Karen Mills, Ph.D University of Michigan, Science Education, 1997 (Chairperson)
  40. Steve Stratford, Ph.D. University of Michigan, Learning Technologies, 1996 (Chair) (Professor, Director of Institutional Research, Maranatha Baptist College).
  41. Carla Zembal, Ph.D. University of Michigan, Science Education, 1996 (Co-chair with P. Blumenfeld) (Professor, Penn State)
  42. Barbara Crawford, Ph.D., University of Michigan, Science Education, 1996 (Co-chair with Ron Marx) (Professor, Cornell University)
  43. Mary Starr, Ph.D. University of Michigan, Science Education, 1996 (Chair) (Research and Outreach coordinator, IDEA Institute, University of Michigan)
  44. Shirley Magnusson, Ph.D., University of Maryland, Science Education, 1991 (Co-chair with Hilda Borko)
  45. Mary Nakhleh, Ph.D., University of Maryland, Science Education, 1990 (Chair) (Professor, Purdue

University)

46. Fred Klappenberger, Ph. D. University of Maryland, Educational Technology, 1989 (Chair)

47. Christian Clermont, Ph.D., University of Maryland, Science Education, 1989 (Chair)

#### Doctoral Committee Membership:

Carrie Beyer, University of Michigan, Science Education, Chair, Betsy Davis, Committee Member

Randon Walker, Ph.D., University of Michigan, Chemistry, Chair, Mark Banaszak Holl <mbanasza@umich.edu>

Beth Kubitskey, Ph.D., University of Michigan, Science Education, 2006, Chair, Barry Fishman, Committee Member

Debbie Pettish, Ph.D. University of Michigan, Science Education, 2004, Chair, Betsy Davis, Committee Member

Ryan Sweeder – Ph.D. University of Michigan, Chemistry, May, 2003, Mark M. Banaszak-Hol, Chair, Cognate Member

Hee-Sun Lee – Ph.D. University of Michigan, Educational Studies, May, 2003, Nancy Songer, chair; member.

Matthew Braun – Ph.D. University of Michigan, Chemistry, Oct, 2001, Omar M Yaghi, chair, Cognate Member.

Cory Steffek – Ph.D., Ph.D. University of Michigan, Chemistry Oct, 2001, Omar Yahi Chair, Cognate member.

Chris Quintana, Ph.D., University of Michigan, Computer Science, spring 2001, Elliot Soloway, chair, cognate member.

Raven Wallace, University of Michigan, Ph.D. Summer, 2000, Committee Member.

Shari Jackson, Ph.D., University of Michigan, Computer Science. 1999, (Graduate School Representative).

Barbara Fife, Ph.D., University of Michigan, Spring, 1997 (Committee Member--Acting Chair)

Kenneth Williams, Ph.D., University of Michigan, Spring, 1997 (Committee Member)

Carolyn Keys, Ph.D., University of Michigan, Spring, 1994 (Committee Member)

James Hovick, Ph.D., Chemistry University of Michigan, Spring, 1993 (Graduate School Representative)

John Butler, Ph.D., University of Michigan, Spring, 1993 (Committee Member)

Mary Louise Bellamy, Ph. D. University of Maryland, August, 1990 (Committee Member)

Helen Flagg, Ph. D. University of Maryland, August, 1990 (Committee Member)

Elizabeth Teles, Ph.D., University of Maryland, May, 1989 (Committee Member)

Todd Trout, Ph.D., Chemistry, University of Maryland, May, 1989 (Graduate School Representative)

#### Post-Doctoral Fellow

Phyllis Pennock (MSU Current)

Tom Bielik (MSU, Current)

Andrew Falk (2008 – 2010)

Yael Bamberger (2008 – 2010)

Jennifer Eklund (2006 – 2009)

Shawn Stevens (2005 – 2008)

Yael Shwartz (2005 - 2007)

Bob Geier (2005 – 2008)

Aaron Rogat (2003 – 2006)

Rachel Mamlok-Naaman

Jonathan Singer

Tali Tal

Barbara Hug

Megnia George (2004 – 2005)

#### Accomplishments of Former doctoral students and Post-Doctoral Fellow

Outstanding Doctoral Dissertation Award from the National Association for Research in Science Teaching

- 2003 Hsin-Kai Wu Joseph Krajcik
- 2004 David L. Fortus Ronald Marx and Joseph Krajcik
- 2007 Julia Plummer Joseph S. Krajcik

Early Career Research Award

- Mary B. Nakhleh
- 2008 Hsin-Kai Wu
- 2011 Katherine McNeill

Masters Advisees

Gretchen Hahn

Teresa Wiltse

Amy Wefel (Graduated, Spring 2001)

*June 11, 2016*