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PROFILE

My expertise is in science education. My research interests include the impact of policy and science teacher preparation programs on science teachers' knowledge development and practices, and the role of the nature of science/engineering in science teacher education. I am the former President of the Association for Science Teacher Education. I have taught at the university level since 1995, teaching undergraduate and graduate courses, mentoring graduate students, directing a research center, leading grant projects, and co-directing a secondary science teacher education program. My teaching background includes science methods, advanced pedagogy, curriculum theory, instruction theory, research design and statistics, how people learn science, and science content courses. My K-12 teaching experience includes middle school and elementary school levels in multicultural urban and suburban public school settings.

EDUCATION

- 1999 Ph.D. Curriculum & Instruction, Science Education concentration
University of Southern California
- 1993 M.A. Education
The Claremont Graduate University
- 1991 B.A. Liberal Studies, science emphasis
California State Polytechnic University, Pomona
summa cum laude

PROFESSIONAL EXPERIENCE

- 2017-present Professor, Science Education
Texas A&M University
- 2017-2019 Affiliate Faculty
Iowa State University
- 2015-2017 Professor, Science Education
Iowa State University
- 2014-2015 Director
Center for Excellence in Science, Mathematics & Engineering Education
Iowa State University
- 2013-2014 Interim Director
Center for Excellence in Science, Mathematics, & Engineering Education
Iowa State University
- 2005-2015 Associate Professor, Science Education
Iowa State University
- 1999-2005 Assistant Professor, Science Education

- Iowa State University
- 1998-1999 Lecturer, Science Education
California State University, Long Beach
Teaching Responsibility: SCED 401 A Process Approach to Science
- 1995-1999 Lecturer, Science Education
University of Southern California
Teaching Responsibility: CTSE 417a/b: From Sci. Content to a Sci. Curriculum
- 1998-1999 Exhibit Evaluator
California Science Center
- 1997-1998 Student Teacher Coordinator
University of Southern California
- 1996-1997 Elementary Teacher (Grades 3-5)
Foshay Learning Center
Los Angeles Unified School District
- 1995-1996 Middle School Teacher (Grade 6)
Foshay Learning Center
Los Angeles Unified School District
Courses taught: integrated science, mathematics, reading
- 1992-1995 Middle School Teacher (Grades 7-8)
Foothills Middle School
Arcadia Unified School District, CA
Courses taught: physical science, earth science, integrated science, mathematics, sheltered science, and integrated English/science
- 1992 Substitute Teacher (Grades K-12)
Temple City Unified School District, CA and
Arcadia Christian School, CA

PUBLICATIONS: JOURNAL ARTICLES (Refereed)

- Stewart, J., Thompson, J., Tank, K. M., Olson, J. K., Wolter, P. T., & Rentz, M. S. (in press). A course-based research and teaching experience for science majors and preservice educators. *Journal of College Science Teaching*. October 7, 2020.
- Tank, K. M., Pleasants, J., & Olson, J. K. (2021). Conceptual connections between science and engineering in elementary teachers' unit plans. *International Journal of STEM Education*.
- Pleasants, J., Olson, J. K., & De La Cruz, I. (2020). Accuracy of elementary teachers' representations of the projects and processes of engineering: Results of a professional development program. *Journal of Science Teacher Education*, 31(4), 362-383.
<https://doi.org/10.1080/1046560X.2019.1709295>
- Haughery, J. R., Raman, D. R., Freeman, S. A., Olson, J. K. (2019). Robotics, student motivation, and academic success. *International Journal of Engineering Education*, 35(6), 1859-1871.
- Pleasants, J. B., Clough, M. P., Olson, J. K., & Miller, G. (2019). Fundamental issues in the nature of technology: Implications for STEM education. *Science & Education*, 28(3), 561-597. DOI: 10.1007/s11191-019-00056-y Impact Factor: 1.265

- Pleasant, J. B., Olson, J. K., & Tank, K. M. (2019). What students learn from engineering instruction: Perspectives from elementary teachers. *Journal of Science Teacher Education*. <https://doi.org/10.1080/1046560X.2019.1595306> Impact Factor: 1.14
- Pleasant, J. B., & Olson, J. K. (2019). What is Engineering? Elaborating the Nature of Engineering for K-12 Education. *Science Education*, 103(1), 145-166. DOI: 10.1002/sce.21483 Impact Factor: 3.035
- Pleasant, J. B., & Olson, J. K. (2019). Refining an Instrument and Studying Elementary Teachers' Understanding of the Scope of Engineering, *Journal of Pre-College Engineering Education Research (J-PEER)*, 9(2), Article 1. <https://doi.org/10.7771/2157-9288.1207>
- Olson, J. K. (2018). The Inclusion of the Nature of Science in Nine Recent International Science Education Standards Documents. *Science & Education*, 27(7), 637-660. DOI: 10.1007/s11191-018-9993-8. Impact Factor: 1.265
- Herman, B. C., Olson, J. K., & Clough, M. P. (2017). The role of informal support networks in teaching the nature of science. *Research in Science Education*. DOI 10.1007/s11165-016-9610-2. Impact Factor: 1.329
- Herman, B. C., Clough, M. P., & Olson, J. K. (2017). Pedagogical reflections by secondary science teachers at different NOS implementation levels. *Research in Science Education*, 47(1), 161-184. DOI 10.1007/s11165-015-9494-6. Impact Factor: 1.329
- Olson, J. K., Bruxvoort, C. N., & Vande Haar, A. J. (2016). The impact of video case content on preservice elementary teachers' decision-making and conceptions of effective science teaching. *Journal of Research in Science Teaching*, 53(7), 1500-1523. DOI: 10.1002/tea.21335. Impact Factor: 3.179
- Rice, J. W., Clough, M. P., Olson, J. K., Adams, D. C., & Colbert, J. T. (2015). University faculty and their knowledge and acceptance of biological evolution. *Evolution: Education & Outreach*, 8(8). DOI: 10.1186/s12052-015-0036-5.
- Olson, J. K., Tippet, C. M., Milford, T., Ohana, C., & Clough, M. P. (2015). Science teacher education in a North American context. *Journal of Science Teacher Education*, 26(1), 7-28.
- Herman, B. C., Clough, M. P., & Olson, J. K. (2013). Association between experienced teachers' NOS implementation and reform-based practices. *Journal of Science Teacher Education*, 24(7), 1077-1102.
- Herman, B. C., Olson, J. K., Holtz, J., & Colbert, J. T. (2013). The relationship between environmental free-choice experiences and students' learning, attitudes, and policy views about waterways. *International Journal of Science & Mathematics Education*, 11(6), 1327-1350. Impact Factor: 1.474.
- Herman, B. C., Clough, M. P., & Olson, J. K. (2013). Teachers' NOS implementation practices two to five years after having completed an intensive science education program. *Science Education*, 97(2), 279-301. Impact Factor: 2.506
- Bergman, D. J., & Olson, J. K. (2011). Got Inquiry? *Science & Children*, 48(7), 44-48.
- Rice, J. W., Olson, J. K., & Colbert, J. T. (2011). University evolution education: The effect of evolution instruction on biology majors' content knowledge, attitude toward evolution, and theistic position. *Evolution: Education and Outreach*, 4(1), 137-144.
- Olson, J. K., & Mokhtari, K. (2010). Reading to Learn: Making Science Real. *Educational Leadership*,

67(6), 56-62.

Olson, J. K., Clough, M. P., & Penning, K. A. (2009). Prospective elementary teachers gone wild? An analysis of Facebook self-portrayals and expected dispositions of prospective elementary teachers. *Contemporary Issues in Technology and Teacher Education*, 9(4). Retrieved from <http://www.citejournal.org/vol9/iss4/general/article1.cfm>

Updated and republished as Olson, J. K., Clough, M. P., & Penning, K. A. (2013). Social networking technology and societal expectations for teachers as role models. In Clough, M. P., Olson, J. K., & Neiderhauser, D. S. (Eds.). *The nature of technology: Implications for learning and teaching* (pp. 129-156). The Netherlands: Sense Publishers.

Olson, J. K. (2009). Being deliberate about concept development. *Science & Children*, 46(6), 51-55.

Olson, J. K., & Finson, K. (2009). Developmental perspectives on reflective practices of elementary science education students. *Journal of Elementary Science Education*, 21(4), 43-52.

Clough, M. P., Berg, C. A., & Olson, J. K. (2009). Promoting effective science teacher education and science teaching: A framework for teacher decision-making. *International Journal of Science & Mathematics Education*, 7(4), 821-847. *Impact Factor: 1.474*

Olson, J. K., Levis, J. M., Vann, R., & Richardson Bruna, K. (2009). Enhancing science learning for English Language Learners. *Science & Children*, 46(5), 46-48.

Hilgers, K., Haynes, C., & Olson, J. K. (2008). Assessing a garden-based curriculum for elementary youth in Iowa: Parental perceptions of change. *HortTechnology*, 18(1), 18-23.

Olson, J. K. (2008). More than a human endeavor: The nature of science and K-4 students. *Science & Children*, 45(6), 43-47.

Metz, D., Klassen, S., McMillan, B., Clough, M. P., & Olson, J. K. (2007). Building a foundation for the use of historical narratives. *Science & Education*, 16(3-5), 313-334. *Impact Factor: 0.823*

Colbert, J. T., Olson, J. K., & Clough, M. P. (2007). Using the Web to Encourage Student-Generated Questions in Large Format Introductory Biology Classes. *Journal of Cell Biology-Life Sciences Education*, 6, 42-48.

Cox-Petersen, A. M., & Olson, J. K. (2007). Alternative assessments for English Language Learners. *Science & Children*, 44(6), 46-48.

Olson, J. K. (2007). Preservice teachers' thinking within a research-based framework: What informs decisions? *International Journal of Science & Mathematics Education*, 5(1), 49-83. *Impact Factor: 1.474*

Haynes, C., Hilgers, K., & Olson, J. K. (2006). Assessing a garden-based curriculum for first graders in Iowa: Parental perceptions of change. *HortScience*, 41(4), 974C-974.

Olson, J. K. (2006). The myth of catering to learning styles. *Science & Children*, 44(2), 56-57.

Reprinted in D. Hanuscin, & M. Park Rogers, Eds. (2013). *Perspectives: Research and Tips to Support Science Education, K-6* (pp. 77-80). Arlington VA: NSTA Press.

Madsen, A. J., & Olson, J. K. (2005). Student teachers' use of learning theories to diagnose children's learning difficulties. *Journal of Elementary Science Education*, 17(1), 55-68.

Zuniga, K. M., Olson, J. K., & Winter, M. (2005). Science Education for Rural Latino/a Students:

Course Placement and Success in Science. *Journal of Research in Science Teaching*, 42(4), 376-402. *Impact Factor*: 3.179

Clough, M. P., & Olson, J. K. (2004). The Nature of Science—Always part of the science story. *The Science Teacher*, 71(9), 28-31.

Reprinted in: Clough, M. P., & Olson, J. K. (2008). ΗΦύση της Επιστήμης: πάντοτε στον περίγυρο της επιστήμης. In Koulaidis, V., Apostolou, A. & Kampourakis, K. (Eds.). *The Nature of Sciences: Didactical Approaches* (pp. 287-296). Child Services Editions, Athens.

Olson, J. K., & Clough, M. P. (2004). What questions do you have? In defense of general questions: A response to Croom. *Teachers College Record*.
<http://www.tcrecord.org/content.asp?contentid=11366> *Impact Factor*: 0.722

Olson, J. K. (2003). Light students' interest in the nature of science. *Science Scope*, 27(1), 18-22.

Reprinted in: Olson, J. K. (2008). Light students' interest in the nature of science. In E. Brunsell (Ed.). *Readings in Science Methods: K-8* (pp. 19-26). Arlington VA: NSTA Press.

Olson, J. K., & Clough, M. P. (2001). A cautionary note: Technology's tendency to undermine serious study. *The Clearing House*, 75, 8-13.

Reprinted in: Olson, J. K., & Clough, M. P. (2013). A cautionary note: Technology's tendency to undermine serious study. In Clough, M. P., Olson, J. K., & Neiderhauser, D. S. (Eds.). *The nature of technology: Implications for learning and teaching* (pp. 183-194). The Netherlands: Sense Publishers.

Olson, J. K., Cox-Petersen, A. M. & McComas, W. F. (2001). The inclusion of informal environments in science teacher preparation. *Journal of Science Teacher Education*, 12(3), 155-173.

Cox-Petersen, A. M. & Olson, J. K. (2001). Promoting puzzlement and inquiry with pillbugs. *Science Activities*, 37(4), 20-23.

Olson, J. K. & Cox-Petersen, A. M. (2001). An authentic science conference: Presenting research as scientists do helps students appreciate the nature of science. *Science and Children*, 38(6), 40-45.

Cox-Petersen, A. M. & Olson, J. K. (2000). Authentic science learning in the digital age. *Learning and Leading with Technology*, 27, 32-35, 61.

PUBLICATIONS: EDITORIALS AND INVITED ARTICLES IN PEER-REVIEWED JOURNALS

Zeidler, D. L, Herman, B. C., Clough, M. P., Olson, J. K., Kahn, S., & Newton, M. (2016). Humanitas Emptor: Reconsidering Recent Trends and Policy in Science Teacher Education. *Journal of Science Teacher Education*, 27(5), 465-476.

Olson, J. K., & Bang, E. J. (2009). Avoiding the big scare: Six strategies for teaching environmental issues without teaching fear. *Science & Children*, 46, 52-54.

Olson, J. K., & Drake, C. (2009). The home connection: Helping parents and families help your students. *Science & Children*, 46(7), 52-55.

Olson, J. K., & Clough, M. P. (2009). Keeping it real: Don't forget the importance of outdoor experiences in nature. *Science & Children*, 46(8), 51-53.

Clough, M. P., & Olson, J. K. (2008). Teaching and assessing the nature of science: An introduction.

Science & Education, 17, 143-145. Guest Editorial.

Olson, J. K. (2008). Concept-focused teaching: Using big ideas to guide instruction in science. *Science & Children*, 46, 45-49.

Olson, J. K. (2008). Making time for science. *Science & Children*, 46, 50-53.

Olson, J. K. (2008). The crucial role of the teacher: Choosing questions and timing to improve your effect on students' learning. *Science & Children*, 46, 52-56.

Olson, J. K. (2008). Representing science concepts: The representation continuum. *Science & Children*, 46, 52-55.

Olson, J. K. (2007). Catering to Learning Styles: A Popular Myth. *Science Education Review*, 6(2), 78-80.

PUBLICATIONS: BOOKS

McKeon, R. (2016). *On Knowing: The Social Sciences*. D. B. Owen and J. K. Olson, Eds. University of Chicago Press.

Clough, M. P., Olson, J. K., & Neiderhauser, D. (Eds.) (2013). *The nature of technology: Implications for learning and teaching*. The Netherlands: Sense Publishers. ISBN: 978-6209-267-9

PUBLICATIONS: BOOK CHAPTERS

Clough, M. P., Herman, B. C., & Olson, J. K. (2020). Preparing teachers to overcome common obstacles and teach the nature of science. In W. F. McComas (Ed.). *The Nature of Science in Science Instruction* (pp. 239-251). Springer International Handbook of Education.

Pleasant, J., & Olson, J. K. (2019). Accurately communicating the nature of engineering in the science classroom. In B. Akpan (Ed.). *Science Education: Visions of the Future* (pp. 47-60). Abuja, Nigeria: Next Generation Education.

Pleasant, J., Clough, M. P., & Olson, J. K. (2019). The urgent need to address the nature of technology: Implications for science education. In B. Akpan (Ed.). *Science Education: Visions of the Future* (pp. 31-46). Abuja, Nigeria: Next Generation Education.

Olson, J. K. (2017). Teacher preparation for science education. In K. Taber and B. Akpan (Eds.). *Science Education: An International Course Companion* (pp. 523-537). Rotterdam, The Netherlands: Sense Publishers.

Olson, J. K. (2016). Afterword. In G. Buck and V. Akerson (Eds.). *Enhancing professional knowledge of pre-service science teacher education by self-study research* (pp. 457-462). Dordrecht, The Netherlands: Springer.

Olson, J. K. (2014). Foreword. In M. Kolis, T. Lenz, and B. H. Kolis. *Brainball, Science Edition: Teaching inquiry science as a team sport* (pp. ix-x). Lanham, MD: Rowman & Littlefield.

Clough, M. P., & Olson, J. K. (2015). Connecting science and engineering practices: A cautionary perspective. In Annetta, L., & Minogue, J. (Eds.). *Connecting science and engineering practices in meaningful ways*. Dordrecht, The Netherlands: Springer.

Finson, K., Olson, J. K., & Emig, B. (2015). Navigating visual data literacy and inscriptions in the classroom. In Petersen, J., & Finson, K. (Eds.). *Teaching the use of visual data in the*

classroom. Charlotte, NC: Information Age Publishers.

Olson, J. K. (2013). The purposes of schooling and the nature of technology: The end of education? In M. P. Clough, J. K. Olson, & D. S. Neiderhauser (Eds.). *The nature of technology: Implications for learning and teaching* (pp. 211-242). Rotterdam, The Netherlands: Sense Publishers.

Olson, J. K. (2013). Education rather than training: Cognitive pluralism and science teacher education. In Finson, K., & Pedersen, J. (Eds.). *Visual Data in Science Education* (pp. 97-126). Charlotte, NC: Information Age Publishing.

Clough, M. P., & Olson, J. K. (2012). Impact of a Nature of Science and Science Education Course on Teachers' Nature of Science Classroom Practices. In K. Myint Swe (Ed.). *Advances in Nature of Science Research: Concepts and Methodologies* (pp. 247-266). The Netherlands: Springer Academic Publishers.

Olson, J. K. & Appleton, K. (2006). Considering curriculum for elementary science methods courses. In K. Appleton (Ed.). *Elementary science teacher education: International perspectives on contemporary issues and practice* (pp. 127-151). New Jersey: Lawrence Erlbaum.

Olson, J. K., & Katz, A. (2005). Strategies for assessing learning: How can teachers document what students know? In A. K. Fathman & D. Crowther (Eds.). *English through Science: A guide for developing skills in English and Science* (pp. 61-78). Arlington VA: NSTA Press.

Cox-Petersen, A. M., & Olson, J. K. (2002). Assessing student learning. In Bybee, R. (Ed.). *Learning Science and the Science of Learning* (pp. 105-118). Arlington, VA: NSTA Press.

McComas, W. F. & Olson, J. K. (1998). The nature of science in international science education standards documents. In W. F. McComas (Ed.). *The nature of science in science education: Rationales and strategies* (pp. 41-52). The Netherlands: Kluwer Academic Publishers.

MANUSCRIPTS SUBMITTED FOR REVIEW

Pleasant, J. B., Dux, E., & Olson, J. K. (submitted). Elementary students' representations of scientists and engineers before and after a semester-length experience with a STEM professional. Submitted to *School Science & Mathematics*.

Olson, J. K., Pleasant, J., & Tank, K. M. (submitted). The Impact of a Triad Student Teaching Model with an Engineering Graduate Student on Elementary Teachers' Science Lesson Quality. *Journal of Research in Science Teaching*. November, 2020.

OTHER PUBLICATIONS

Weakland, M. A. (2014). *Smash!: Wile E. Coyote experiments with simple machines*. Mankato, MN: Capstone Press. [C. Cornia, illustrator; J. K. Olson, consultant]

Slade, S. (2014). *Splat!: Wile E. Coyote experiments with states of matter*. Mankato, MN: Capstone Press. [C. Cornia, illustrator; J. K. Olson, consultant]

Slade, S. (2014). *Zap!: Wile E. Coyote experiments with energy*. Mankato, MN: Capstone Press. [A. Martinez Ricci, illustrator; J. K. Olson, consultant]

Weakland, M. A. (2014). *Thud!: Wile E. Coyote experiments with forces and motion*. Mankato, MN: Capstone Press. [C. Cornia, illustrator; J. K. Olson, consultant]

Harbo, C. L. (2014). *Frankenstein's Monster and Scientific Methods*. Mankato, MN: Capstone Press. [C.

- Aon, illustrator; J. K. Olson, consultant].
- Jensen Shaffer, J. (2013). *Vampires and Light*. Mankato, MN: Capstone Press. [Gervasio, illustrator; J. K. Olson, consultant]
- Weakland, M. (2013). *Zombies and Electricity*. Mankato, MN: Capstone Press. [Jok, illustrator; J. K. Olson, consultant]
- Olson, J. K. (2012). [Review of *The Three Failures of Creationism: Logic, Rhetoric, and Science*]. *Science Books and Films*, 48(10), 274.
- Olson, J. K. (2012). [Review of *Music of the Brain*]. *Science Books and Films*, 48(3), 85-86.
- Alpert, B. (2011). *Electricity all Around*. Mankato, MN: Capstone Press. [J. K. Olson, consultant editor]
- Weakland, M. A. (2011). *Zombies and Forces and Motion*. Mankato, MN: Capstone Press. [Gervasio, illustrator; J. K. Olson, consultant]
- Slingerland Hammond, J. (2011). *Werewolves and States of Matter*. Mankato, MN: Capstone Press. [J. K. Olson, consultant]
- Schuh, M. (2011). *Soil basics*. Mankato, MN: Capstone Press. [G. Saunders-Smith, Consulting Editor; J. K. Olson, consultant]
- Schuh, M. (2011). *Compost basics*. Mankato, MN: Capstone Press. [G. Saunders-Smith, Consulting Editor; J. K. Olson, consultant]
- Schuh, M. (2011). *All about matter*. Mankato, MN: Capstone Press. [G. Saunders-Smith, Consulting Editor; J. K. Olson, consultant]
- Olson, J. K. & Clough, M. P. (2010). How to Use the Historical Science Short Stories, <http://www.storybehindthescience.org/pdf/howtouse.pdf>. *The Story Behind the Science: Bring Science and Scientists to Life* project website, <http://www.storybehindthescience.org>.
- Olson, J. K. & Clough, M. P. (2010). Additional Tips for Creating Discussions in Large Class Settings. <http://www.storybehindthescience.org/pdf/tips2.pdf>. *The Story Behind the Science: Bring Science and Scientists to Life* project website, <http://www.storybehindthescience.org>.
- Olson, J. K. & Clough, M. P. (2010). Tips for Creating Effective Class Discussions, <http://www.storybehindthescience.org/pdf/tips1.pdf>. *The Story Behind the Science: Bring Science and Scientists to Life* project website, <http://www.storybehindthescience.org>.
- Olson, J. K. (2008). [Review of *Roadside Geology of Florida*]. *Science Books and Films*, 44(5), 191.
- Olson, J. K. (2007). [Review of *Geology Rocks! Series*]. *Science Books and Films*, 43(6), 260.
- Cervato, C., Clough, M., Colbert, J.T., Domino, L., Olson, J.K., and Wilson, D.B. (2005). Humanizing science to improve undergraduate education: short stories on geologic time. *Geological Society of America Abstracts with Programs*, v. 37, No. 7, p. 153.
- Douglas, D., Levis, J., Olson, J. K., Richardson Bruna, K., & Vann, R. (2005). *Enhancing and Advancing Science for English Language Learners: A Professional Development Manual*. Iowa Department of Education.
- Henriques, L., Colburn, A., Olson, J., Ritz, W.C., Siegel, M.A., & Cheng, B. (2003). Learning about assessment: Elementary Science Teacher Leadership (ESTL) 3. Berkeley, CA: SEPUP,

Lawrence Hall of Science, University of California, Berkeley.

Olson, J. K. (2003). [Review of the instructional video *Forces that Shape the Earth*]. *Science Books and Films*, 39, 135-136.

Olson, J. K. (2002). [Review of the book *Tips for the Science Teacher: Research-based Strategies to Help Students Learn*]. *Science Books and Films*, 38, 499.

McComas, W. F. (Producer), Olson, J. K., & Melber, L. (Writers). (2000). *Enhancing the Field Trip Experience* [Instructional Video]. (Available from University of Southern California, 1001 WPH, Los Angeles, CA 90089-0031).

Clough, M. P. & Olson, J. K. (2000). [Review of the six video series *Wildlife in my Window: Birds – Bird Migration, Bird Habitats, Bird Classification, Bird Adaptations, Bird Reproductive Systems, Bird Feeding & Bird Watching*]. *Science Books and Films*, 36, 87-89.

Cox, A. M. & Olson, J. K. (1997). *Empowering teachers as researchers*. (ERIC Document Reproduction Service No. ED 403141)

PRESENTATIONS (refereed)

2021

215. Olson, J. K., De La Cruz, I. E., & Pleasants, J. (2021, April). Disciplinary conflation in integrated science and engineering. Paper presented at the annual meeting of NARST. April 7-9.

214. Olson, J. K. (2021, February). The impact of NGSS and STEM on elementary science instruction. Paper presented at the annual meeting of the American Association for the Advancement of Science (AAAS). February 8-11.

213. Pleasants, J., & Olson, J. K. (2021). Supporting the instruction of engineering practices: Limitations of “The Engineering Design Process.” Paper presented at the annual meeting of the Association for Science Teacher Education. January 14-15.

212. Herman, B. C., Clough, M. P., Rao, A., Olson, J. K., Sobotka, A., Olson, A. R., & Poor, S. (2021, January). Influence of COVID-19 science perceptions and sociocultural membership on university biology students’ pandemic decisions. Paper presented at the annual meeting of the Association for Science Teacher Education. January 14-15.

211. Olson, J. K., & Pleasants, J. (2021, January). Instructional time and sense-making in elementary classrooms. Paper presented at the annual meeting of the Association for Science Teacher Education. January 14-15.

210. De La Cruz, I. E., Pleasants, J., Lincoln, W., & Olson, J. K. (2021, January). When collaboration goes awry: A failure analysis of teaching triads. Paper presented at the annual meeting of the Association for Science Teacher Education. January 14-15.

2020

209. Olson, J. K., Pleasants, J., & Tank, K. M. (2020, March). Losing Science: An examination of NGSS and STEM in elementary schools. Paper accepted for presentation at the NARST international meeting. Portland, OR: March 15-18. [conference cancelled]

208. Pleasants, J., De La Cruz, I., Tank, K. M., & Olson, J. K. (2020, March). Development of a nature of engineering instrument: Results from field tests. Paper accepted for presentation at the NARST international meeting. Portland, OR: March 15-18. [conference cancelled]

207. Olson, J. K., Pleasants, J., & Tank, K. M. (2020, January). A reform without time: NGSS and time for sense-making in elementary classrooms. Paper presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX: January 9-11.

206. Tank, K. M., Pleasants, J., & Olson, J. K. (2020, January). Exploring factors related to the connections between science and engineering instruction. Paper presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX: January 9-11.

205. Pleasants, J., Olson, J. K., & De La Cruz, I. (2020, January). Elementary teachers' portrayals of the products and processes of engineering. Paper presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX: January 9-11.

2019

204. Olson, J. K., Alaqra, M., & Amin, S. (2019, November). Teaching the Causes of Seasons so they finally understand it. Presentation given at the Science Teachers Association of Texas Conference for the Advancement of Science Teaching (CAST). Dallas, TX: November 21-23.

203. Olson, J. K., & De La Cruz, I. (2019, November). Making Sense of the Invisible: Teaching about Gases and Matter. Presentation given at the Science Teachers Association of Texas Conference for the Advancement of Science Teaching (CAST). Dallas, TX: November 21-23.

202. Olson, J. K. (2019, October). Why science left the building: NGSS, STEM, and Elementary Science Instruction. Paper presented at the annual meeting of the Southwest Association for Science Teacher Education. Fayetteville, AR.

201. Olson, J. K. (2019, October). No time for reform: NGSS and science learning. Paper presented at the annual meeting of the Southwest Association for Science Teacher Education. Fayetteville, AR.

200. Pleasants, J. B., & Olson, J. K. (2019, April). What is the nature of engineering? Toward a construct for K-12 science education. Paper presented at the NARST international meeting. Baltimore, MD: March 31-April 3.

199. Tank, K. M., Pleasants, J. B., & Olson, J. K. (2019, April). Elementary teachers' attempts at integrating science and engineering over the course of a semester. Paper presented at the NARST international meeting. Baltimore, MD: March 31-April 3.

198. Olson, J. K., Pleasants, J. B., & Tank, K. M. (2019, April). Simultaneous preservice and inservice professional development for elementary science. Paper presented at the NARST international meeting. Baltimore, MD: March 31-April 3.

197. Kunz, K., & Olson, J. K. (2019, February). Free choice education within science education graduate coursework. Presentation given at the annual meeting of the Informal Science Education Association of Texas. Rockport, TX: February 20-22.

196. Olson, J. K., McComas, W. F., Clough, M. P., & Pleasants, J. B. (2019, February). STEM Education and its unintended consequences on teaching and learning. Poster presented at the annual meeting of the American Association for the Advancement of Science (AAAS). Washington DC: February 14-17.

195. Pleasants, J. B., Olson, J. K., & Tank, K. M. (2019, January). Elementary teachers' portrayals of the nature of engineering when supported by a STEM professional in the classroom. Paper presented at the annual meeting of the Association for Science Teacher Education. Savannah, GA: January 3-5.

194. Olson, J. K., Pleasants, J. B., & Tank, K. M. (2019, January). The impact of an engineer: Using a triad model on student teachers' science lesson quality. Paper presented at the annual meeting of the Association for Science Teacher Education. Savannah, GA: January 3-5.

193. Pleasants, J. B., Dux, E., Dawson, A., & Olson, J. K. (2019, January). Elementary students' images of scientists and engineers before and after a semester-length experience with a STEM professional. Paper presented at the annual meeting of the Association for Science Teacher Education. Savannah, GA: January 3-5.

192. Clough, M. P., Herman, B. C., & Olson, J. K. (2019, January). Preparing science teachers to overcome common obstacles and teach the nature of science. Paper presented at the annual meeting of the Association for Science Teacher Education. Savannah, GA: January 3-5.

2018

191. McComas, W. F., Burgin, S., Wissehr, C., & Olson, J. K. (2018, October). The Impact of STEM on Elementary Science. Presentation given as part of "Science Education in a STEM Environment: Implications for Science Teacher Development and Practice." Panel Presentation given at the Southwest Association for Science Teacher Education meeting. Norman, OK: October 12-13.

190. Olson, J. K. (2018, October). Enhancing elementary student teaching with STEM professionals. Paper presented at the Southwest Association for Science Teacher Education meeting. Norman, OK: October 12-13.

189. Pleasants, J. B., Olson, J. K., & Spinler, C. D. (2018, March). Teaching about engineering versus teaching about science: Perspectives from elementary teachers. Paper presented at the NARST annual meeting. Atlanta, GA: March 10-13.

188. Olson, J. K. (2018, March). International Standards Documents' Inclusion of the Nature of Science: A Twenty Year Retrospective. Paper presented at the NARST annual meeting. Atlanta, GA: March 10-13.

187. Olson, J. K. (2018, February). STEM's impact on elementary school science: Implications for informal science educators. Paper presented at the annual meeting of the Informal Science Education Association (ISEA) of Texas. Ft. Worth., TX. February 21-23.

186. Clough, M. P., Pleasants, J. B., & Olson, J. K. (2018, January). Framing technological literacy: Questions worth exploring in STEM education. Paper presented at the annual meeting of the Association for Science Teacher Education. Baltimore, MD. January 4-6.

185. Olson, J. K. (2018, January). On Jackalopes, STEM, and the Rapid Decline of Elementary Science Instruction. Paper presented at the annual meeting of the Association for Science Teacher Education. Baltimore, MD. January 4-6.

2017

184. Pleasants, J. B., Spinler, C. D., & Olson, J. K. (2017, October). How Do Elementary Teachers View Learning about Science Versus Learning about Engineering? Paper presented at the annual meeting of the NorthCentral Association for Science Teacher Education. Rochester, MN. October 5-7.

183. Spinler, C. D., Pleasants, J. B., Olson, J. K., & Henning, J. (2017, April). Factors associated with the functionality of triads in an alternative student teaching placement. Paper presented at the NARST international meeting. San Antonio, TX. April 22-25.

182. Pleasants, J. B., Olson, J. K., & Spinler, C. D. (2017, April). Investigating teachers' developing knowledge of engineering during a STEM professional development experience. Paper presented at the NARST international meeting. San Antonio, TX. April 22-25.

181. Spinler, C. D., Pleasants, J. B., & Olson, J. K. (2017, January). A Review of Group Functionality Levels Reached by Triads in an Alternative Student Teaching Placement. Paper presented at the annual meeting of the Association for Science Teacher Education. Des Moines, IA. January 12-14.

180. Pleasants, J. B., Spinler, C. D., & Olson, J. K. (2017, January). Teachers' Conceptions of the Nature of Engineering after a Semester-Length Triad Teaching Experience with an Engineer. Paper presented at the annual meeting of the Association for Science Teacher Education. Des Moines, IA. January 12-14.

179. Olson, J. K., Spinler, C. D., & Pleasants, J. B. (2017, January). The Impact of a Triad-Based Student Teaching Semester using a STEM Researcher on Student Teachers' Lesson Quality. Paper presented at the annual meeting of the Association for Science Teacher Education. Des Moines, IA. January 12-14.

2016

178. Haughery, J., Raman, D. R., Kaleita-Forbes, A. L., Olson, J. K., Martin, R. A., & Freeman, S. A. (2016, November). Quantitative analysis of mechatronics and student motivation in a first-year applied engineering course: Preliminary results. Paper accepted for the annual meeting of The Association of Technology, Management, and Applied Engineering (ATMAE). Orlando, FL. Nov. 3-4.

177. Spinler, C., Pleasants, J. B., Olson, J. K., & Henning, J. (2016, October). Efficacy beliefs and content knowledge of participants in an alternative student teaching placement. Paper presented at the annual meeting of the NorthCentral Association for Science Teacher Education (NC-ASTE). Des Moines, IA. October 7-8.

176. Clough, M. P., & Olson, J. K. (2016, October). Structure of and instruction in a course that impacts preservice teachers' understanding and teaching of the nature of science. Paper presented at the annual meeting of the NorthCentral Association for Science Teacher Education (NC-ASTE). Des Moines, IA. October 7-8.

175. Pleasants, J. B., Spinler, C., & Olson, J. K. (2016, October). Developing knowledge of engineering through a student teaching experience supported by an engineering graduate student. Paper presented at the annual meeting of the NorthCentral Association for Science Teacher Education (NC-ASTE). Des Moines, IA. October 7-8.

174. Spinler, C., Olson, J. K., & Pleasants, J. B. (2016, October). Levels of group functionality reached by triads participating in an alternative student teaching placement. Paper presented at the annual meeting of the NorthCentral Association for Science Teacher Education (NC-ASTE). Des Moines, IA. October 7-8.

173. Clough, M. P., & Olson, J. K. (2016, January). Connecting Science and Engineering Practices: A Cautionary Perspective. Paper presented as part of a themed paper set: Zeidler, D., Kahn, S., Clough, M. P., Olson, J. K., Herman, B. C., & Newton, M. "Humanitas Emptor: Reconsidering Trends and Policy in Science Teacher Education." Association for Science Teacher Education (ASTE) international conference. Reno, NV. Jan. 7-9.

172. Pleasants, J. B., Spinler, C., & Olson, J. K. (2016, January). Engineering in the elementary grades: The current state and future directions. Paper presented at the annual meeting of the Association for Science Teacher Education. Reno, NV. January 7-9.

171. Wilcox, J., Ihrig, L. M., Clough, M. P., & Olson, J. K. (2016, January). Are beginning science teachers in over their heads? How beginning teachers handle the complexities of teaching science while facing institutional constraints. Paper presented at the annual meeting of the Association for Science Teacher Education. Reno, NV. January 7-9.

170. Clough, M. P., & Olson, J. K. (2016, January). Teacher preparation matters! Teachers' classroom practices 2-5 years after having completed an intensive secondary science teacher education program.

Paper presented at the annual meeting of the Association for Science Teacher Education. Reno, NV. January 6-9.

2015

169. Olson, J. K., Raman, D. R., Estapa, A. E., Tank, K. M., Spinler, C., Pleasants, J. B., Lamm, M., & Sundararajan, S. (2015, October). A model for STEM teacher preparation. Paper presented at the annual meeting of the Northcentral Association for Science Teacher Education. Peoria, IL. Oct. 8-10.

168. Olson, J. K. (2015, September). Exploring engineering through decomposition. Presentation given at the Iowa Science Teachers Section meeting of the Iowa Academy of Science. West Des Moines, IA. September 19.

167. Hanuscin, D., Luft, J., Olson, J. K., & Sampson, V. (2015, April). Publishing research for practitioner audiences. Presentation given at the annual meeting of the National Association for Research in Science Teaching. Chicago, IL. April 11-14.

166. Ihrig, L. M., Olson, J. K., & Clough, M. P. (2015, April). "The Impact of Socialization on Beginning Science Teachers' Pedagogical Decision Making and Science Instruction." Paper presented at the annual meeting of the National Association for Research in Science Teaching. Chicago, IL: April 11-14.

165. Finson, K. D., Olson, J. K., & Emig, B., Miller, M. T., Krockover, G. H., Lee, H., Feldman, A., Bodzin, A. M. (2014, January). "Applications of Visual Data in the Science Classroom." Themed paper set presented at the annual meeting of the Association for Science Teacher Education. Portland, OR. January 7-10.

164. Reid-Smith, J., Clough, M. P. & Olson, J. K. (2015, January). Integrating Historical Short Stories and the Nature of Science in Secondary Science Instruction: Teachers' Implementation Decisions and Students' Reactions. Paper presented at the Association for Science Teacher Education (ASTE) International Conference, Portland, OR, January 7-10, 2015.

163. Herman, B. C., Clough, M. P., & Olson, J. K. (2015, January). Nature of Science Classroom Observation Protocol (NOS-COP). Paper presented for the annual meeting of the Association for Science Teacher Education (ASTE). Portland, OR, January 7-10, 2015.

162. Ihrig, L. M., Olson, J. K., & Clough, M. P. (2015, January). How the pedagogy of poverty and administrative power drove highly qualified and effective beginning science teachers from a NCLB turnaround school. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE).

2014

161. Olson, J. K., & Clough, M. P. (2014, October). The nature of science for elementary students. Presentation given at the Iowa Science Teachers Section meeting of the Iowa Academy of Science. Ames, IA. October 22.

160. Olson, J. K., & Colbert, J. T. (2014, October). Using biodiversity to teach the nature of science and logic flows to preservice elementary teachers. Paper presented at the annual meeting of the NorthCentral Association for Science Teacher Education. Eau Claire, WI. October 9-11.

159. Ihrig, L. M., Clough, M. P., & Olson, J. K. (2014, March). Effects of Formal and Informal Support Relationships on Experiences and Practices of First-year Science Teachers. Paper presented at the annual meeting of the National Association for Research in Science Teaching. Pittsburgh, PA. March 30-April 2.

158. Olson, J. K. (2014, January). The nature of engineering in U.S. science education. Paper presented in a themed paper set: Kruse, J. W., Clough, M. P., Olson, J. K., Herman, B. C. The nature of technology: implications for learning, teaching, and teacher education. Papers presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX. January 15-18.

157. Wilcox, J. L., & Olson, J. K. (2014, January). An analysis of ontological and epistemological underpinnings of science methods textbooks and syllabi. Paper presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX. January 15-18.

156. Ihrig, L. M., Wilcox, J. L., Olson, J. K., & Clough, M. P. (2014, January). I bamboozled them: How novice science teachers working to implement reforms-based instruction may resist socialization into school. Paper presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX. January 15-18.

2013

155. Olson, J. K. (2013, October). Testing teacher education reforms: An analysis of Praxis and data on graduates. Paper presented at the Northcentral Association for Science Teacher Education conference. Moline, IL. October 10-12.

154. Ihrig, L.M., Wilcox, J., Olson, J.K., & Clough, M.P. (2013, October). The role of superordinates in socialization of novice science teachers working to implement reforms-based instruction. Poster presented at the North Central Association for Science Teacher Education Conference. Moline, IL. October 10-12.

153. Olson, J. K. (2013, October). Implications of the nature of technology for science education, teacher education, and society. Paper presented at the Northcentral Association for Science Teacher Education conference. Moline, IL. October 10-12.

155. Clough, M. P., Olson, J. K., Ihrig, L. M., & Wilcox, J. L. (2013, September). Structure and efficacy of the ISU secondary science teacher education program. Paper presented at the annual Iowa STEM Summit. Des Moines, IA. September 19.

152. Herman, B. C., Clough, M. P., & Olson, J. K. (2013, July). NOS teaching practices and factors accounting for those practices: Implications for science teacher education. Paper presented at the East-Asian Science Education Conference, Hong Kong, China, 05 July, 2013.

151. Olson, J. K. (2013, June). The philosophy of technology in U.S. science education reform efforts—Practices and products, or a liberal education? Paper presented at the International History, Philosophy, and Science Teaching (IHPST) group biennial conference. Pittsburgh, PA. June 19-22.

150. Herman, B. C., Clough, M. P., & Olson, J. K. (2013, June). Association between Experienced Teachers' NOS Implementation and General Reform-Based Science Teaching Practices (GRBSTP). Paper presented at the International History, Philosophy, and Science Teaching (IHPST) group biennial conference. Pittsburgh, PA. June 19-22.

149. Smith, J. A. R., Clough, M. P., & Olson, J. K. (2013, June). The Use of Nature of Science Short Stories in High School Classrooms: Influences on Teachers' Implementation and the Impact on Students. Paper presented at the International History, Philosophy, and Science Teaching (IHPST) group biennial conference. Pittsburgh, PA. June 19-22.

148. Richey, L. R., & Olson, J. K. (2013, January). An analysis of the nature of science in grades 3-5 life science curriculum materials. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Charleston, SC. January 9-13.

147. Clough, M. P., Herman, B. C., & Olson, J. K. (2013, January). Factors Associated with Teachers' NOS Implementation Efforts: Implications for Science Teacher Preparation. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Charleston, SC. January 9-13.

146. Olson, J. K., Smith, J. A. R., & Clough, M. P. (2013, January). Influences on high school science teachers' use of nature of science short stories. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Charleston, SC. January 9-13.

145. Ihrig, L. M., Wilcox, J. L., Olson, J. K., & Clough, M. P. (2013, January). Factors that impact reform-oriented teaching of first year science teachers. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Charleston, SC. January 9-13.

144. Smith, J. A. R., Clough, M. P., & Olson, J. K. (2013, January). The impact of nature of science short stories on high school science students. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Charleston, SC. January 9-13.

2012

143. Olson, J. K. (2012, October). The Demarcation of Science and Engineering in the "STEM" Era. Paper presented at the annual meeting of the Northcentral Association for Science Teacher Education. Cedar Falls, IA. October 11-13.

142. Ihrig, L. M., Olson, J. K., & Wilcox, J. L. (2012, October). How Do We Teach Science Content standards? Instructional Planning as Represented by Science Methods Textbooks, Science Methods Course Syllabi, and Teachers' Science Instructional Units. Paper presented at the annual meeting of the Northcentral Association for Science Teacher Education. Cedar Falls, IA. October 11-13.

141. Olson, J. K. (2012, March). Building elementary science units to meet standards. Presentation given at the annual conference of the National Science Teachers Association (NSTA). Indianapolis, IN. March 29-April 1.

140. Olson, J. K., & Wilcox, J. L. (2012, March). Planning effective units: Helping students make connections between individual lessons. Presentation given at the annual meeting of the National Science Teachers Association (NSTA). Indianapolis, IN. March 29-April 1.

139. Schrauth, B., & Olson, J. K. (2012, March). The portrayal of the nature of science in K-2 physical science curriculum materials. Paper presented at the annual meeting of the National Association for Research in Science Teaching (NARST). Indianapolis, IN. March 25-28.

138. Olson, J. K. (2012, January). Using McKeon's Modes of Thought for Analysis and Development of Elementary Science Methods Courses. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Tampa, FL. January 5-8.

137. Herman, B. C., Clough, M. P., & Olson, J. K. (2012, January). Teachers' NOS implementation practices two to five years after having completed an intensive science education program. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Tampa, FL. January 5-8.

2011

136. Olson, J. K. (2011, October). Why I Hate Inquiry. Presentation given at the annual meeting of the Iowa Science Teachers Section of the Iowa Academy of Science. Ames, IA. October 18.

135. Clough, M. P., Kruse, J. W., & Olson, J. K. (2011, October). The nature of technology: Implications for learning and teaching. Presentation given at the annual meeting of the Northcentral Association for Science Teacher Education (NASTE). St. Cloud, MN. October 6-8.

134. Olson, J. K. (2011, October). Philosophic orientations that underpin teacher education practices. Paper presented at the annual meeting of the Northcentral Association for Science Teacher Education (NASTE). St. Cloud, MN. October 6-8.

133. Richey, L. R., & Olson, J. K. (2011, October). The portrayal of the nature of science in upper elementary instructional materials. Paper presented at the annual meeting of the Northcentral Association for Science Teacher Education (NASTE). St. Cloud, MN. October 6-8.

132. Herman, B. C., Clough, M. P., & Olson, J. K. (2011, January). Teaching the Nature of Science: Practices and Associated Factors. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Minneapolis, MN. January 20-22.

131. Olson, J. K., & Ihrig, L. M. (2011, January). The Lethal Mutation of Content Standards: Why Inquiry and Learning Progressions are Necessary but Insufficient for Student Learning of Central Concepts in Science. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Minneapolis, MN. January 20-22.

2010

130. Olson, J. K. (2010, October). Putting Flesh on the Iowa Core. Presentation given to the Iowa Science Teachers Section of the Iowa Academy of Science fall meeting. Ames, IA.

129. Herman, B. C., Olson, J. K., Colbert, J. T., & Holtz, J. D. (2010, January). Environmental Service Learning: The Relationship between Participation in the Skunk River Navy and Students' Learning, Personal Attitudes, and Policy Views about Iowa Waterways. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Sacramento, CA. January 14-16.

128. Olson, J. K. (2010, January). Is "Professional Teacher" an Oxymoron for the Facebook Generation? A Longitudinal Study of Facebook Use by Preservice Teachers into the Induction Years. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Sacramento, CA. January 14-16.

2009

127. Herman, B. C., Olson, J. K., Colbert, J. T., & Holtz, J. (2009, October). Deep Learning: The Relationship between Participating in the Skunk River Navy and Students' Environmental Attitudes and Understanding. Presentation given at the annual meeting of the Iowa Science Teachers Section of the Iowa Academy of Science. Des Moines, IA, October 28.

126. Olson, J. K. (2009, October). Still gone wild? Elementary teachers' use of Facebook into the induction years. Paper given at the annual meeting of the Northcentral Association for Science Teacher Education (NASTE). Dubuque, IA. October 8-10.

125. Clough, M. P., Olson, J. K., & Berg, C. A. (2009, October). Promoting effective science teacher education and science teaching: A framework for teacher decision-making. Paper given at the annual meeting of the Northcentral Association for Science Teacher Education (NASTE). Dubuque, IA. October 8-10.

124. Olson, J. K., & Shirley, S. (2009, October). Preparing teachers to use learning theory to make instructional decisions without repeating educational psychology. Presentation given at the annual meeting of the Northcentral Association for Science Teacher Education (NASTE). Dubuque, IA. October 8-10.

123. Kruse, J. W., Clough, M. P., Olson, J. K., & Colbert, J. T. (2009, June). Investigating college biology majors' struggles to understand the nature of science from historical short stories. Paper presented at the

bi-annual conference of the International History, Philosophy, and Science Teaching group. South Bend, IN. June 24-28.

122. Olson, J. K., Bruxvoort, C. N., & Vande Haar, A. J. (2009, April). Teaching preservice teachers to use learning theory to make instructional decisions. Paper presented at the annual meeting of the National Association for Research in Science Teaching (NARST). Garden Grove, CA. April 17-20.

121. Colbert, J. T., Holtz, J. D., Herman, B. C., & Olson, J. K. (2009, February). Deep Learning: The impact of Skunk River Navy experience on attitudes toward, and understanding of, Iowa's Streams. Paper presented at the annual meeting of the Iowa Academy of Science, February 2009.

120. Olson, J. K., Bruxvoort, C. N., Vande Haar, A. J. (2009, January). The effect of scaffolded critical incidents on preservice teachers' understanding of learning theory and its use in making instructional decisions. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Hartford, CT. January 7-11.

119. Kruse, J. W., Clough, M. P., & Olson, J. K. (2009, January). Student and instructor reactions to the use of historical short stories in a post-secondary introductory biology course. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). Hartford, CT. January 7-11.

2008

118. Clough, M. P., Olson, J. K., & Herman, B. C. (2008, October). The Nature of Science: Its crucial role in teaching science content. Paper presented at the annual meeting of the Iowa Science Teachers Section of the Iowa Academy of Science. Des Moines, IA. October 23.

117. Bergman, D. J., Clough, M. P., Olson, J. K. and Kruse, J. W. (2008). Eating Their Young: Beginning Teachers and Fierce Institutional Constraints. Academy for Educational Studies Conference, Branson, MO, October 20-21.

116. Davis, G., Westerlund, J., Clough, M. P., & Olson, J. K. (2008, October). Enduring ideas in science education: The use and efficacy of natural history and field trips in science teaching. Presentation given at the annual meeting of the Northcentral Association for Science Teacher Education (NASTE). Winona, MN. October 9-11.

115. Olson, J. K. (2008, October). Hands-on and over their heads? Presentation given at the annual meeting of the Northcentral Association for Science Teacher Education (NASTE). Winona, MN. October 9-11.

114. Olson, J. K. (2008, October). Improving preservice elementary teachers' understanding and use of learning theory. Paper presented at the annual meeting of the Northcentral Association for Science Teacher Education (NASTE). Winona, MN. October 9-11.

113. Olson, J. K., Clough, M. P., Vanderlinden, D. W., & Kruse, J. W. (2008, March). Should "proof" and "truth" be targeted first? Evidence for addressing some nature of science concepts and misconceptions earlier than others. Paper presented at the annual meeting of the National Association for Research in Science Teaching (NARST). Baltimore, MD. March 30-April 2.

112. Brownstein, E., Dykstra, D., Veal, W., Hagevik, R., & Olson, J. K. (2008, January). Preparing for the 2008 NSTA teacher preparation standards revision. Presentation given at the annual meeting of the Association for Science Teacher Education (ASTE). St. Louis, MO. January 8-11.

111. Clough, M. P., Berg, C. A., Olson, J. K., Bergman, D. J., & Kruse, J. (2008, January). Eating their young: Beginning teachers and fierce institutional constraints. Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). St. Louis, MO. January 8-11.

110. Olson, J. K., & Penning, K. (2008, January). "Elementary teachers gone wild? Preservice teachers' self-portrayals on the internet and public expectations of elementary teachers." Paper presented at the annual meeting of the Association for Science Teacher Education (ASTE). St. Louis, MO. January 8-11.

2007

109. Olson, J. K. (2007, October). "Exploring the Earth/Moon/Sun system." Presentation given to the Iowa Science Teachers Section of the Iowa Academy of Science (ISTS). Cedar Rapids, IA. October 18.

108. Olson, J. K. (2007, October). "The Myth of Catering to Learning Styles." Paper presented at the annual meeting of the NorthCentral Association for Science Teacher Education (NASTE). Madison, WI. October 11-13.

107. Metz, D., Klassen, S., McMillan, B., Clough, M. P., & Olson, J. K. (2007, June). "The role of narratives in science teaching: One size doesn't fit all." Plenary session presented at the bi-annual meeting of the International History, Philosophy, & Science Teaching (IHPST) group. Calgary, AB. June 24-28.

106. Clough, M. P., Olson, J. K., de Berg, K., McComas, W. F., & Ryder, J. (2007, June). "Teaching and Assessing the Nature of Science: Issues and Complexities." Plenary Session presented at the bi-annual meeting of the International History, Philosophy, & Science Teaching group. Calgary, AB. June 24-28.

105. Olson, J. K., Clough, M. P., Vanderlinden, D. W. (2007, June). "Undergraduates' NOS Conceptions and the Role of Historical Narratives: A Very Tangled Web." Paper presented at the bi-annual meeting of the International History, Philosophy, & Science Teaching group. Calgary, AB. June 24-28.

104. Clough, M. P., & Olson, J. K. (2007, February). "Humanizing science to improve the teaching and learning of science content." Paper presented at the annual meeting of the Western Canadian Association for Student Teaching (WestCAST). Winnipeg, Manitoba. February 15-16.

103. Clough, M. P., Olson, J. K., Vanderlinden, D. W., & Bruxvoort, C. N. (2007, January). "The Impact of Historical Short Stories on Post-Secondary Biology and Geology Students' Understanding of Science Content and the Nature of Science." Paper presented at the annual meeting of the Association for Science Teacher Education. Clearwater, FL. January 5-7.

102. Olson, J. K., & Finson, K. D. (2007, January). "Developmental perspectives on reflective practices of elementary science education students." Paper presented at the annual meeting of the Association for Science Teacher Education. Clearwater, FL. January 5-7.

2006

101. Clough, M. P., & Olson, J. K. (2006, October). "Humanizing science to improve the teaching and learning of biology." Paper presented at the regional meeting of the National Science Teachers Association. Omaha, NE. October 19-21.

100. Olson, J. K., & Bergman, D. (2006, October). "The Pokemon Revolution: Look Who's Coming to Biology." Paper presented at the regional meeting of the National Science Teachers Association. Omaha, NE. October 19-21.

99. Haynes, C., Hilgers, K., & Olson, J. K. (2006, July). "Assessing a Garden-based Curriculum for First Graders in Iowa: Parental Perceptions of Change." Paper presented at the annual meeting of the American Society for Horticultural Science. New Orleans, LA. July 27-30.

98. Clough, M. P., & Olson, J. K. (2006, April). "Humanizing science to improve the teaching and learning of chemistry content." Paper presented at the annual meeting of the National Science Teachers Association. Anaheim, CA. April 6-9.

97. Bergman, D. J., & Olson, J. K. (2006, January). "Student teachers' growth using paired student teaching and lesson study." Paper presented at the annual meeting of the Association for Science Teacher Education. Portland, OR. January 12-14.

96. Clough, M. P., & Olson, J. K. (2006, January). "The impact of historical short stories on students' understanding of issues in the nature of science." Paper presented at the annual meeting of the Association for Science Teacher Education. Portland, OR. January 12-14.

95. Olson, J. K. (2006, January). "Are Preservice Teachers 'In Over their Heads'? The Mental Demands of Teaching and Preservice Teachers' Preparedness to meet those Demands." Paper presented at the annual meeting of the Association for Science Teacher Education. Portland, OR. January 12-14.

2005

94. Clough, M. P., & Olson, J. K. (2005, October). "Humanizing Science to Improve the Learning of Biology Content." Presented at the annual meeting of the Iowa Science Teachers Section of the Iowa Academy of Science (ISTS). Des Moines, IA. October 20.

93. Cervato, C., Clough, M. P., Colbert, J. T., Olson, J. K., & Wilson, D. (2005, October). "Humanizing science to improve undergraduate geoscience education: Short stories on geologic time." Presented at the annual meeting of the Geological Society of America (GSA). Salt Lake City, UT. October 16-19.

92. Olson, J. K. (2005, October). "Are inservice elementary teachers 'In over their heads?' An analysis of the demands of teaching and teachers' ability to meet those demands." Paper presented at the annual meeting of the Northcentral Association for Science Teacher Education (NASTE). Cedar Falls, IA. October 6-8.

91. Olson, J. K. (2005, July). "Assessment of the NOS—Successes and Challenges" Paper presented at the bi-annual meeting of the International History, Philosophy, and Science Teaching group. Leeds, England. July 15-19.

90. Olson, J. K., Clough, M. P., Bruxvoort, C. N., & Vanderlinden, D. W. (2005, July). "Improving Students' NOS Understanding through Historical Short Stories in College Level Introductory Geology and Biology Courses." Paper presented at the bi-annual meeting of the International History, Philosophy, and Science Teaching group. Leeds, England. July 15-19.

89. Olson, J. K., Clough, M. P., Madsen, A. J., & Taylor, J. (2005, April). "No matter where you go, there you are: The primacy of the nature of science in science literacy." Paper presented at the annual meeting of the National Association for Research in Science Teaching (NARST). Dallas, TX. April 4-7.

88. Olson, J. K., & Clough, M. P. (2005, April). "Teaching electricity and the nature of science." Presented at the annual conference of the National Science Teachers Association. Dallas, TX. March 31-April 3.

87. Clough, M. P., & Olson, J. K. (2005, April). "Teaching the nature of science through the use of historical narratives." Presented at the annual conference of the National Science Teachers Association. Dallas, TX. March 31-April 3.

86. Clough, M. P., Olson, J. K., Madsen, A. J., & Taylor, J. (2005, January). "No matter where you go, there you are: The primacy of the nature of science in science literacy." Paper presented at the annual meeting of the Association for the Education of Teachers of Science (AETS). Colorado Springs, CO. January 13-16.

85. Madsen, A. J., Bruxvoort, C. N., & Olson, J. K. (2005, January). "Beyond Bandura and Past Piaget: Preservice elementary teachers' conceptions of learning theories and their implications for teaching."

Paper presented at the annual meeting of the Association for the Education of Teachers of Science (AETS). Colorado Springs, CO. January 13-16.

2004

84. Clough, M. P., Olson, J. K., & Colbert, J. T. (2004, October). "Humanizing science to improve the teaching and learning of biology content." Presentation given at the annual meeting of the Iowa Science Teachers Section of the Iowa Academy of Science (ISTS). Des Moines, IA. October 21.

83. Olson, J. K. (2004, October). "Self-assessment strategies for science teaching." Presentation given at the annual meeting of the Iowa Science Teachers Section of the Iowa Academy of Science (ISTS). Des Moines, IA. October 21.

82. Olson, J. K. (2004, October). "Preservice teachers' misconceptions about learning theories and their implications for teaching." Paper presented at the annual meeting of the North Central Association for the Education of Teachers of Science (NC-AETS). Dubuque, IA. October 7-9.

81. Clough, M. P., Olson, J. K., Madsen, A. J., & Taylor, J. (2004, October). "No matter where you go, there you are: The nature of science." Paper presented at the annual meeting of the North Central Association for the Education of Teachers of Science (NC-AETS). Dubuque, IA. October 7-9.

80. Clough, M. P., & Olson, J. K. (2004, April). "But what was the treatment? An explicit analysis of an NOS course used as a treatment in NOS research." Paper presented at the annual meeting of the National Association for Research in Science Teaching (NARST). Vancouver, BC. March 31-April 3.

79. Olson, J. K., Bruxvoort, C. N., Madsen, A. J., & Clough, M. P. (2004, April). "The Effect of Problem-Based Learning Video Case Content on Preservice Elementary Teachers' Conceptions of Teaching." Paper presented at the annual meeting of the National Association for Research in Science Teaching (NARST). Vancouver, BC. March 31-April 3.

78. Clough, M. P., Olson, J. K., & Hand, B. M. (2004, January). "Rationale, design, and development of a Master of Arts in Teaching program." Presented at the annual meeting of the Association for the Education of Teachers of Science (AETS). Nashville, TN. January 8-11.

77. Eick, C. J., Luft, J., Marek, E. A., Pedersen, J., Moscovici, H., Van Sickle, M., Patterson, P., Svec, M., Thomas, J., Moseley, C., Jablon, P., Olson, J. K., & Spector, B. (2004, January). "What Kind of Preservice Program Graduates New Teachers Who Really Do Inquiry in Their First Few Years?" Poster Symposium presented at the annual meeting of the Association for the Education of Teachers of Science. Nashville, TN (AETS). January 8-11.

76. Olson, J. K., Clough, M. P., Madsen, A. J., Bruxvoort, C. N., & Numedahl, P. (2004, January). "Using Oral Defenses in Methods Classes." Paper presented at the annual meeting of the Association for the Education of Teachers of Science (AETS). Nashville, TN. January 8-11.

2003

75. Williams, M., Clough, M. P., & Olson, J. K. (2003, October). "Who 'Discovered' the Atom?: Improving Students' Understanding of Science Content using Activities and Historical Accounts." Paper presented at the annual meeting of the Iowa Science Teachers Section of the Iowa Academy of Science (ISTS). Des Moines, IA. Oct. 16.

74. Clough, M. P., & Olson, J. K., & Williams, M. (2003, October). "Humanizing Science to Improve the Teaching and Learning of Content." Paper presented at the annual meeting of the Iowa Science Teachers Section of the Iowa Academy of Science (ISTS). Des Moines, IA. October 16.

73. Olson, J. K. (2003, October). "Stages of Teachers' Knowledge Development: The Case For and the Case Against." Paper presented at the annual meeting of the North-Central Association for the Education of Teachers of Science (NC-AETS). Rochester, MN. October 2-4.

72. Clough, M. P., & Olson, J. K. (2003, October). "Design of a Master of Arts in Teaching Program to Attract and Prepare Effective Science Teachers." Paper presented at the annual meeting of the North-Central Association for the Education of Teachers of Science (NC-AETS). Rochester, MN. October 2-4.

71. Bruxvoort, C., Olson, J. K., & Clough, M. P. (2003, July). "Assessment of Teachers' Understandings of Effective NOS Instruction: Teachers' Thinking and Implications for Research Methodology." Paper presented at the International History, Philosophy, and Science Teaching (IHPST) conference. Winnipeg, Manitoba. July 30-Aug. 2.

70. Olson, J. K., & Clough, M. P. (2003, July). "Opening the Black Box of Nature of Science Instruction." Paper presented at the International History, Philosophy, and Science Teaching (IHPST) conference. Winnipeg, Manitoba. July 30-Aug. 2.

69. Olson, J. K., & Clough, M. P. (2003, April). "Effects of Contextualized and Decontextualized Nature of Science Instruction on Teachers' Practices." Paper presented at the annual meeting of the American Educational Research Association (AERA). Chicago, IL. April 21-25.

68. Olson, J. K. (2003, March). "Problem-Based Learning in Context: The Effects of Embedding PBL within a Research-Based Framework for Teaching on Preservice Teachers' Conceptions of Teaching and Learning." Paper presented at the annual meeting of the National Association for Research in Science Teaching (NARST). Philadelphia, PA. March 23-26.

67. Olson, J. K., Clough, M. P., Vanderlinden, D., Bruxvoort, C. (2003, January). "Methodological Issues in Assessing Nature of Science Understandings through the Use of Writing Tasks." Paper presented at the annual meeting of the Association for the Education of Teachers of Science (AETS). St. Louis, MO. January 30-February 3.

66. Olson, J. K. (2003, January). "Structure of an Elementary Science Methods Course Reflecting and Promoting a Research-Based Framework." Paper presented at the annual meeting of the Association for the Education of Teachers of Science (AETS). St. Louis, MO. January 30-February 3.

65. Harris, R. L., Penick, J. E., Bonnsetter, R., Dass, P. M., Enger, S., Tillotson, J. W., Varrella, G. F., Veronesi, P., Weld, J., Clough, M. P., & Olson, J. K. (2003, January). "Rationale Papers in Methods Courses." Panel discussion at the annual meeting of the Association for the Education of Teachers of Science (AETS). St. Louis, MO. January 30-February 3.

64. Hand, B. M., Bintz, J., Olson, J. K., & Clough, M. P. (2003, January). "Developing Partnerships with Schools: How to Undertake the Process." Paper presented at the annual meeting of the Association for the Education of Teachers of Science (AETS). St. Louis, MO. January 30-February 3.

63. Olson, J. K. (2003, January). "The Effects of Embedding Problem-Based Learning within a Research-Based Framework for Teaching on Preservice Teachers' Understandings of Teaching." Paper presented at the annual meeting of the Association for the Education of Teachers of Science (AETS). St. Louis, MO. January 30-February 3.

2002

61. Clough, M. P., Olson, J. K., Vanderlinden, D., Bruxvoort, C. (2002, October). "Compelling Rationales and Strategies for Teaching the Nature of Science." Paper presented at the annual meeting of the Iowa Science Teachers Section (ISTS) of the Iowa Academy of Science (IAS). Des Moines, IA. October 17.

60. Olson, J. K. & Clough, M. P. (2002, October). "Technology's Tendency to Undermine Serious Study and Teaching." Paper presented at the annual meeting of the Iowa Science Teachers Section (ISTS) of the Iowa Academy of Science (IAS). Des Moines, IA. October 17.
59. Olson, J. K., Bruxvoort, C. N., Vanderlinden, D., & Clough, M. P. (2002, October). "Assessing Nature of Science Understanding with Writing Instruments: Issues & Strategies." Paper presented at the annual meeting of the North-Central Association for the Education of Teachers of Science (NC-AETS). Bettendorf, IA. October 3-5.
58. Olson, J. K. (2002, October). "Contextualizing Problem-Based Learning within a Research-Based Framework for Teaching Science." Paper presented at the annual meeting of the North-Central Association for the Education of Teachers of Science (NC-AETS). Bettendorf, IA. October 3-5.
57. Olson, J. K. & Hand, B. M. (2002, April). "The Impact of Secondary-Elementary Partnerships on Teachers' Professional Development." Paper presented at the annual meeting of the National Association for Research in Science Teaching (NARST). New Orleans, LA. April 7-10.
56. Olson, J. K. & Hand, B. M. (2002, January). "Elementary-Secondary Partnerships to Improve Elementary Science Teaching." Paper presented at the annual meeting of the Association for the Education of Teachers in Science (AETS). Charlotte, NC. January 10-13.
55. Clough, M. P. & Olson, J. K. (2002, January). "A Cautionary Note: Technology's Tendency to Undermine Serious Study." Paper presented at the annual meeting of the Association for the Education of Teachers in Science (AETS). Charlotte, NC. January 10-13.

2001

54. Clough, M. P. & Olson, J. K. (2001, November). "Structure of a Course Promoting Contextualized and Decontextualized Nature of Science Instruction. Paper presented at the International History, Philosophy and Science Teaching (IHPST) conference. Denver, CO. November 8-11.
53. Olson, J. K. & Clough, M. P. (2001, November). "Secondary Science Teachers' Implementation Practices Following a Course Emphasizing Contextualized and Decontextualized Nature of Science Instruction." Paper presented at the International History, Philosophy and Science Teaching conference (IHPST). Denver, CO. November 8-11.
52. Olson, J. K. & Clough, M. P. (2001, October). "The Tendency of Technology to Undermine Serious Study." Paper presented at the annual meeting of the North Central Association for the Education of Teachers in Science (NC-AETS). Madison, WI. October 11-13.
51. Olson, J. K. & Clough, M. P. (2001, October). "Creating Non-Traditional Science Assessments." Presented at the annual meeting of the Iowa Science Teachers Section of the Iowa Academy of Science. Des Moines, IA. Oct. 18.
50. Clough, M. P. & Olson, J. K. (2001, October). "Reconstructing Science Activities." Presentation given at the annual meeting of the Iowa Science Teachers Section of the Iowa Academy of Science. Des Moines, IA. Oct. 18.
49. Olson, J. K. (2001, July). "The Impact of a Contextualized Nature of Science Course on Classroom Practices of Secondary Science Teachers." Paper presented at the annual conference of the Australasian Science Education Research Association (ASERA). Sydney, NSW Australia. July 11-14.
48. Olson, J. K. (2001, July). "Supporting Inquiry-based Instruction in Rural Primary Schools: The Science Co-Operatives Project." Paper presented at the annual conference of the Australasian Science Education Research Association (ASERA). Sydney, NSW Australia. July 11-14.

47. Cox-Petersen, A. M. & Olson, J. K. (2001, April). "Assessing African-American and Latino elementary students' conceptual understanding of science: Challenges and triumphs." Paper presented at the annual meeting of the American Educational Research Association (AERA). Seattle, WA.

46. Clough, M. P. & Olson, J. K. (2001, March). "Effects of contextualized and decontextualized nature of science instruction on teachers' classroom implementation practices." Paper presented at the annual meeting of the National Association for Research in Science Teaching (NARST). St. Louis, MO. March 25-28.

45. Clough, M. P. & Olson, J. K., Beisel, M., & Robinson, C. (2001, March). "Characteristics of a Nature of Science Course that Impact Teachers' Implementation Practices." Paper sponsored by the Association for the Education of Teachers in Science (AETS) at the annual meeting of the National Science Teachers Association (NSTA). St. Louis, MO. March 22-25.

44. Olson, J. K., Anderson, J., Halley, A., Jensen, J., Klocksieben, T., Leager, C., & Metz, K. (2001, March). "The Heart of Effective Teaching: The Critical Role of the Teacher." Paper presented at the annual conference of the National Science Teachers Association (NSTA). St. Louis, MO. March 22-25.

43. Olson, J. K. & Clough, M. P. (2001, March). "Teaching the Nature of Science to Elementary Students." Paper presented at the annual conference of the National Science Teachers Association (NSTA). St. Louis, MO. March 22-25.

42. Shymansky, J. A., Yore, L. D., Czerniak, C., Lumpe, A., Hand, B., & Olson, J. K. (2001, January). "Documenting, Interpreting, and Evaluating Local Systemic Change: Core Requirements and Site-Specific Issues." Paper presented at the annual meeting of the Association for the Education of Teachers in Science (AETS). Costa Mesa, CA. Jan. 18-21.

41. Cox-Petersen, A. M. & Olson, J. K. (2001, January). "Challenges and Triumphs: Assessment of Urban Elementary Students' Understanding of Science." Paper presented at the annual meeting of the Association for the Education of Teachers in Science (AETS). Costa Mesa, CA. Jan. 18-21.

40. Clough, M. P., Olson, J. K., Hand, B., Numedahl, P., Penick, J. E., & Berg, C. A. (2001, January). "Research Based Framework: Directions for Researchers." Paper presented at the annual meeting of the Association for the Education of Teachers in Science (AETS). Costa Mesa, CA. Jan. 18-21.

39. Olson, J. K. & Clough, M. P. (2001, January). "Contextualized Nature of Science Instruction: A Success Story." Paper presented at the annual meeting of the Association for the Education of Teachers in Science (AETS). Costa Mesa, CA. Jan. 18-21.

2000

38. Olson, J. K. & Clough, M. P. (2000, October). "Teaching the Nature of Science to Elementary Students." Presentation given at the annual conference of the Iowa Science Teachers Section of the Iowa Academy of Science (IAS). Des Moines, IA. Oct. 26.

37. Clough, M. P., Olson, J. K., Robinson, C. (2000, October). "Teaching the Nature of Science to Secondary Students." Presentation given at the annual conference of the Iowa Science Teachers Section of the Iowa Academy of Science (IAS). Des Moines, IA. Oct. 26.

36. Olson, J. K. (2000, October). "Preparing Teachers to Assess Urban Elementary Students' Conceptual Understanding of Science." Paper presented at the annual meeting of the North-Central Association for the Education of Teachers in Science (NC-AETS). Eau Claire, WI. Oct. 12-14.

35. Olson, J. K. (2000, May). "Learner Factors Associated with Three Levels of Conceptual Change in Undergraduates." Paper presented at the annual meeting of the National Association of Research in Science Teaching (NARST). New Orleans, LA. April 28-May 1.

34. Clough, M. P. & Olson, J. K. (2000, April). "Evaluation of a Teacher Education Course Emphasizing Explicit Decontextualized and Contextualized Nature of Science Instruction." Paper presented at the annual meeting of the Iowa Academy of Science. Des Moines, IA. April 21-22.
33. Olson, J. K. & Clough, M. P. (2000, April). "No, You *Can't* Stop Thinking!" AETS sponsored session presented at the National Science Teachers Association (NSTA) national meeting. Orlando, FL. April 6-9.
32. Olson, J. K. & Clough, M. P. (2000, April). "Beyond Discrepant Events: Keeping the Heat on Students' Misconceptions about the Nature of Science." Presentation given at the National Science Teachers Association (NSTA) national meeting. Orlando, FL. April 6-9.
31. Cox-Petersen, A. M. & Olson, J. K. (2000, January). "Urban Science Education: A Case of Inclusive Practice." Paper presented at the annual meeting of the Association for the Education of Teachers in Science (AETS). Akron, OH. Jan. 6-9.
30. Olson, J. K. (2000, January). "Influences on the Conceptual Change Process: Motivation, Prior Experiences with Science, and Classroom Activities." Paper presented at the annual meeting of the Association for the Education of Teachers in Science (AETS). Akron, OH. Jan. 6-9.

1999

29. Clough, M. P., Olson, J. K., & Beisel, M. (1999, October). "The Role of the Teacher and Science Activities in Accurately Portraying the Nature of Science" Presentation given at the Iowa Science Teachers Section (ISTS) meeting of the Iowa Academy of Science. Des Moines, IA. Oct. 14.
28. Olson, J. K., Clough, M. P., & Frist, S. (1999, October). "Engaging Students Who Attempt to Exit from Cognitively Demanding Tasks." Presentation given at the Iowa Science Teachers Section (ISTS) meeting of the Iowa Academy of Science. Des Moines, IA. Oct. 14.
27. Downs, G. & Olson, J. K. (1999, October). "Teaching Elementary Science with an 'Eye' on the National Science Standards." Presentation given at the Iowa Science Teachers Association (ISTS) meeting of the Iowa Academy of Science. Des Moines, IA. Oct. 14.
26. Olson, J. K. & Clough, M. P. (1999, September). "Preparing Teachers to Maintain Student Engagement in Cognitively Demanding Tasks." Paper presented at the annual conference of the North Central Region of the Association for the Education of Teachers in Science (NC-AETS) Conference. Eau Claire, WI. Sept. 30-Oct. 2.
25. Olson, J. K. (1999, March). "A Qualitative Analysis of the Field Trip Experience: A Formal Trip in an Informal Setting." Paper presented at the annual meeting of the National Association for Research in Science Teaching (NARST). Boston, MA. March 28-31.
24. Olson, J. K. & Henriques, L. (1999, February). "Integrating Technology and Instruction for Preservice Elementary Teachers." Paper presented at the annual meeting of the American Association of Colleges of Teacher Education (AACTE). Washington DC.
23. Finson, K. D., Thomas, J., Pedersen, J. E., Olson, J. K., Rigges, I. M., Jesunathadas, J., & Barman, C. R. (1999, January). "Redevelopment of the Draw-A-Science Teacher Test (DASTT-C) Checklist." Presentation given at the annual meeting of the Association for the Education of Teachers in Science (AETS). Austin, TX. Jan. 14-17.
22. Henriques, L., Olson, J. K. & Colburn, A. (1999, January). "Beyond Outcomes: Standardizing Performance Assessments in a College Science Course." Paper presented at the annual meeting of the Association for the Education of Teachers in Science (AETS). Austin, TX. Jan. 14-17.

21. Olson, J. K., Cox, A. M. & McComas, W. F. (1999, January). "The Inclusion of Informal Environments in Teacher Preparation." Paper presented at the annual meeting of the Association for the Education of Teachers in Science (AETS). Austin, TX. Jan. 14-17.

1998

20. Cox, A. M. & Olson, J. K. (1998, October). "Authentic Science Learning in the Digital Age." Paper presented at the Seventh International Conference on Telecommunications and Multimedia in Education of the International Society for Technology in Education (ISTE). Victoria, British Columbia, Canada. Oct. 30-31.

19. Olson, J. K. (1998, October). "Strategies for Field Trip Success." Presentation given at the Northwest regional conference of the National Science Teachers Association (NSTA). Seattle, WA. Oct. 29-31.

18. Olson, J.K. (1998, April). "The Effect of Exhibit Label Copy on Parent-Child Communication at the Zoo." Paper presented at the annual conference of the National Association of Research in Science Teaching (NARST). San Diego, CA. April 19-22.

17. Olson, J.K. & Cox, A.M. (1998, January). "Improving University Teaching Effectiveness through the Use of Peer Coaching." Presentation given at the annual conference of the Association for the Education of Teachers in Science (AETS). Minneapolis, MN. Jan. 8-11.

1997

16. Craig, D.V., Stewart, J., Cox, A.M. & Olson, J.K. (1997, December). "Digital Communities: Universities, Schools, and Students." Presentation given at the annual conference of the National Science Teachers Association (NSTA). Nashville, TN.

15. Olson, J.K. (1997, October). "Brain Based Learning: Myths and Reality." Presentation given at the annual conference of the California Science Teachers Association (CSTA). Palm Springs, CA.

14. Norman, K.I. & Olson, J.K. (1997, October). "Science Success for Beginning Teachers." Presentation given at the annual conference of the California Science Teachers Association (CSTA). Palm Springs, CA.

13. Olson, J.K. (1997, June). "John Dalton and the Atomic 'Theory:' Misrepresenting the History and Nature of Science." Paper presented at the conference of the History & Philosophy of Science and Science Teaching group (HPSST). Calgary, Canada.

12. McComas, W.F. & Olson, J.K. (1997, June). "Nature of Science Elements in International Standards Documents: A Qualitative Consensus Analysis." Paper presented at the conference of the History & Philosophy of Science and Science Teaching group (HPSST). Calgary, Canada.

10. Wang, H.C., Cox, A.M., & Olson, J.K. (1997, April). "History in a Science Classroom?" Presentation given at the annual conference of the National Science Teachers Association (NSTA). New Orleans, LA. April 3-6.

9. Craig, D.V., Cox, A.M., Stewart, J., & Olson, J.K. (1997, April). "Telecurricular Ecosystems: Technology Connects the River and the Bay." Presentation given at the annual conference of the National Science Teachers Association (NSTA). New Orleans, LA. April 3-6.

8. Cox, A.M. & Olson, J.K. (1997, April). "Beyond the Four Walls: Informal Learning and Marine Environments." Presentation given at the annual National Science Teachers Association (NSTA) conference. New Orleans, LA. April 3-6.

7. Olson, J.K., Lafferty, S.K. (1997, February). "Building University Partnerships to Create Thematic Interdisciplinary Curricula." Presentation to given at the annual conference of the California League of Middle Schools (CLMS). San Diego, CA.

1996

6. Cox, A. M. & Olson, J. K. (1996, December). "Empowering Teachers as Researchers." Presentation given at the National Science Teachers Association Global Summit on Science Education (NSTA). San Francisco, CA.

5. Olson, J. K. & Wang, H. C. (1996, October). "Dalton Myths: Exploding the Billiard Ball." Presentation given at the state convention of the California Science Teachers Association (CSTA). Sacramento, CA. October 3-6.

4. Wang, H. C. & Olson, J. K. (1996, October). "A Review of the National Science Standards." Presentation given at the state convention of the California Science Teachers Association (CSTA). Sacramento, CA. October 3-6.

3. Olson, J. K. & Cox, A. M. (1996, October). "Using Informal Learning Environments to Teach Animal Classification." Presentation given at the Western Regional Convention of the National Science Teachers Association (NSTA). Phoenix, AZ.

2. Cox, A. M. & Olson, J. K. (1996, October). "Theory into Practice: Using Action Research in the Classroom." Presentation given at the Western Regional Convention of the National Science Teachers Association (NSTA). Phoenix, AZ.

1. Cox, A.M. & Olson, J.K. (1996, March). "Investigating What Works: Steps and Procedures for Action Research in the Science Classroom." Presentation given at the national convention of the National Science Teachers Association (NSTA). St. Louis, MO. March 28-31.

WORKSHOPS, SYMPOSIA, AND INVITED PRESENTATIONS

94. Olson, J. K., & Clough, M. P. (2019, March 8). Issues in Curriculum. Professional development workshop provided to the Azusa Pacific University School of Nursing. Monrovia, CA.

93. Pleasants, J. P., Olson, J. K., Tank, K. M., & Spinler, C. D. (2019, March 1). Teaching fair testing in engineering and science. Trinect professional development workshop. Des Moines Public Schools. Des Moines, IA.

92. Pleasants, J. P., Olson, J. K., Tank, K. M., & Raman, D. R. (2018, Nov 30-Dec 1). Teaching engineering and science for conceptual understanding. Trinect professional development workshop. Ames, IA.

91. Olson, J. K., & Spinler, C. D. (2018, October 5). The nature of science/nature of engineering, and moving beyond a stepwise engineering design process. Trinect professional development day. Des Moines Public Schools. Des Moines, IA.

90. Pleasants, J. B., Olson, J. K., Tank, K. M., & Raman, D. R. (2018, July 30-Aug 3). Teaching science and engineering in urban elementary settings. Trinect professional development workshop. Ames, IA.

89. Olson, J. K., Tank, K. M., Pleasants, J. B., & Spinler, C. D. (2018, March 2). Integration models for STEM education in a science teaching context. Trinect professional development day. Des Moines Public Schools. Des Moines, IA.

88. Olson, J. K., Tank, K. M., & Raman, D. R. (2017, December 1-2). Triad teaching for student STEM success. Two-day professional development for the Spring 2018 Trinect cohort. Iowa State University.
87. Tank, K. M., & Olson, J. K. (2017, October 3). Addressing the nature of science and nature of engineering in STEM units. Trinect professional development day. Des Moines Public Schools. Des Moines, IA.
86. Olson, J. K., Estapa, A., & Tank, K. M. (2017, March 3). Logical progressions of science units. Trinect professional development day. Des Moines Public Schools. Des Moines, IA.
85. Estapa, A., Tank, K. M., & Olson, J. K. (2016, December 1-2). STEM teaching in triads. Two-day professional development workshop for the Spring 2017 Trinect cohort. Iowa State University.
84. Tank, K. M., Olson, J. K., & Estapa, A. (2016, October). Enhancing concept development in STEM subjects. Trinect professional development day. Des Moines Public Schools. Des Moines, IA.
83. Olson, J. K., Estapa, A., & Tank, K. M. (2016, August 1-5). Teaching STEM effectively in grades 3-5. Week-long, full day professional development for the second Trinect cohort. Iowa State University.
82. Estapa, A., & Olson, J. K. (2016, April). Co-teaching for success. Evening workshop for student teachers and engineers for the Fall 2016 Trinect cohort. Iowa State University.
81. Tank, K. M., Olson, J. K., & Estapa, A. (2015, December 4-5). Triad teaching for effective STEM education. Two-day professional development workshop for the Spring 2016 Trinect cohort. Iowa State University.
80. Estapa, A., Tank, K. M., Olson, J. K. (2015, October 23). Engineering Education in the elementary grades. Follow-up Trinect professional development day. Des Moines Public School District, Des Moines, IA.
79. Olson, J. K., Estapa, A., Tank, K. M. (2015, August 3-7). Effective STEM teaching in the elementary grades. Week-long, full-day professional development for the first Trinect cohort. Iowa State University.
78. Science Teacher Education in an Era of Science Education Reform: A Global Perspective (2015). Invited Presidential Plenary Session at the National Association for Research in Science Teaching meeting. Chicago, IL.
Africa: Ogunniyi, M.
Asia: Liu, E.
Australia: Treagust, D.
Europe: Dillon, J.
North America: Olson, J. K.
South America: Cofre, H.
77. Olson, J. K. (2014, December). STEM education for grade 3-5 students. Invited presentation at the 2014 Symposium: Advancing Literacy and STEM. Iowa Department of Education, Iowa Reading Research Center, and Iowa State University. Ames, IA. Dec. 17.
76. Olson, J. K. (2015, January). Creating a curriculum vita. Workshop presented at the graduate student forum for the Association for Science Teacher Education. Portland, OR. January 7-11.
75. Olson, J. K. (2015, January). Do we believe our own research? Presidential address given to the Association for Science Teacher Education. Portland, OR. January 11.
74. Olson, J. K. (2014, February). The state of science and mathematics education and why we should care. Invited speaker for the Collegiate United Methodist Church. Ames, IA. February 23.

73. Olson, J. K. (2014, February). Assessing English Language Learners in Science Contexts. Keynote speaker for the Center for Research on Leadership in Education's Innovations in ELL STEM Education conference. Texas Tech University. Lubbock, TX. February 15, 2014.
72. Ihrig, L., M., Barrow, L., Olson, J. K., Walker, R. (2014, January). Assisting graduate students through the lonely job search process part 1: The job market, creating CVs, and the interview. Workshop presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX. January 15-18.
71. Clough, M. P., Olson, J. K., Berg, C. A., Roehrig, G. H., Tillotson, J. W., & Kruse, J. W. (2014, January). Developing and maintaining high quality secondary science teacher education programs: Strategies for overcoming institutional constraints. Workshop presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX. January 15-18.
70. Finson, K. D., Olson, J. K., & Emig, B. (2014, January). Visual data representations: Generating and using them in the science classroom. Workshop presented at the annual meeting of the Association for Science Teacher Education. San Antonio, TX. January 15-18.
69. Finson, K. D., & Olson, J. K. (2013, October). Utilization of visual data representations in teaching science concepts. Workshop presented at the annual meeting of the North Central Region of the Association for Science Teacher Education. Moline, IL. October 9-11.
68. Olson, J. K. (2013, January). Creating a curriculum vita. Presentation given as a part of: Ihrig, L. M., Barrow, L., Olson, J. K., Walker, R., & McComas, W. F. (2013, January). Assisting graduate students through the lonely job search process. Workshop conducted for the graduate student forum of the Association for Science Teacher Education. Charleston, SC. January 10, 2013.
67. Olson, J. K. (2012, October). Engineering in the Science Standards: Opportunities and a Cautionary Note. Featured Speaker at the Iowa Science Teachers Section meeting of the Iowa Academy of Science. October 16, 2012.
66. Olson, J. K. (2012, September). Improving teaching practices. Workshop conducted with faculty in the RN to BSN program at Azusa Pacific University School of Nursing. September 6, 2012.
65. Olson, J. K. (2012, September). Promoting Learning in Clinical Settings. Presentation and workshop conducted with adjunct instructors at the Azusa Pacific University School of Nursing. September 7, 2012.
64. Olson, J. K. (2011, March). Philosophical and psychological considerations for the design and development of methods courses. Seminar presented to faculty and graduate students at the University of Missouri. March 2, 2011.
63. Clough, M. P., Herman, B. C., & Olson, J. K. (2011, January). Knowing the NOS is One Thing, Actually Teaching it is Another: Preparing Teachers who actually do Effectively Teach the NOS. Preconference workshop provided for the annual meeting of the Association for Science Teacher Education. Minneapolis, MN. January 19, 2011.
62. Olson, J. K. (2010, May). Planning for Success in Teaching toward Standards. Professional development workshop provided for the Iowa Every Learner Inquires initiative, Iowa Department of Education. Cedar Rapids, IA. May 10, 2010.
61. Olson, J. K., & Clough, M. P. (2010, March). Promoting and Assessing Learning in a Practice Profession. Professional development workshop provided for faculty of the Azusa Pacific University School of Nursing. March 12, 2010.

60. Olson, J. K. (2010, February). Inquiry in the Standards Era. Workshop provided for high school physics teachers and Iowa Department of Education science consultants. Iowa State University, Ames, IA. February 15, 2010.
59. Olson, J. K. (2009, October). The role of the teacher in inquiry-based science instruction. Inservice teacher workshop provided for the Algona High School science department. October 21.
58. Olson, J. K., Vande Haar, A. J., & Bruxvoort, C. N. (2009, August). Developing Preservice Elementary Teachers' Decision-Making: A summary of studies that examine how preservice and inservice elementary teachers diagnose and react to classroom events in science. Invited presentation at the Iowa Science & Mathematics Teacher Education Summit. Grand View College, Des Moines, IA. August 14.
57. Olson, J. K. (2009, May). Twenty years after Postman: Are we "Amusing Ourselves to Death?" Presentation given to participants of the CEAI Teacher Camp. Montour, IA. May 19.
56. Gess-Newsome, J., Schwartz, R., Hanuscin, D., Olson, J. K., Smith, D., Pasquale, M., & Levy, A. (2009, April). The importance of elementary science education in the NCLB era. Invited symposium presented at the annual meeting of the National Association for Research in Science Teaching (NARST). Garden Grove, CA. April 17-21.
55. Olson, J. K., Clough, M. P., & Herman, B. C. (2009, February). "Enhancing supervision practices in secondary science." Workshop provided for university secondary science supervisors and cooperating teachers. Iowa State University, Ames, IA. February 11, 2009.
54. Olson, J. K., & Clough, M. P. (2008, October). "Partnerships for successful science teaching." Workshop conducted for university secondary science supervisors and cooperating teachers. Des Moines, IA. October 16, 2008.
53. Olson, J. K. (2008, August). "Successful supervision of elementary science teachers." Workshop provided for university supervisors. Iowa State University, Ames, IA. August 18, 2008.
52. Olson, J. K., & Clough, M. P. (2008, August). "The critical role of the teacher." Invited speaker at the University Teaching Seminar. Iowa State University, Ames, IA. August 14, 2008.
51. Olson, J. K. (2008, March). "The role of experience in learning." Half day workshop provided to faculty in the School of Nursing, Azusa Pacific University, Azusa, CA. March 14, 2008.
50. Olson, J. K. (2008, January). "Educational Research vs. Educational Evaluation: Making the Best Choice for Programmatic Reform." Invited speaker at the Van Andel Education Institute. Grand Rapids, MI. January 14, 2008.
49. Clough, M. P., & Olson, J. K. (2007, September). "The nature of science: Implications for the learning and teaching of science." Invited speaker at the University of Manitoba. Conference on Understanding the Nature of Science. Winnipeg, MB. September 22, 2007.
48. Olson, J. K. (2006, November). "Habits of Mindlessness? The nature of schooling and the preparation of teachers to teach differently." Invited speaker for the Science Education faculty at Western Michigan University. Kalamazoo, MI. November 15, 2006.
47. Olson, J. K. (2006, November). "A Most Complex System: Why Teaching Science is a Difficult Undertaking." Invited speaker at Calvin College. Grand Rapids, MI. November 14, 2006.
46. Olson, J. K. (2006, October). "Models for Understanding Preservice Teachers." Keynote speaker for the NorthCentral Association for Science Teacher Education conference. Eau Claire, WI. October 5-7, 2006.

45. Vann, R., Olson, J. K., Richardson Bruna, K., Levis, J., & Douglas, D. (2006, August). "Enhancing Science Education for Iowa's English Language Learners." Four day workshop conducted for Area Education Agency Science Consultants and secondary science teacher teams from ELL districts through the Iowa Department of Education. Ames, IA. August 8-11, 2006.
44. Olson, J. K. (2006, August). "Inquiry Science at the Elementary Level." Two day workshop conducted for K-5 teachers in the St. Charles Public School District 303. St. Charles, IL. August 3-4, 2006.
43. Olson, J. K. (2006, April). "Effective Elementary Science Teaching Strategies." After school workshop conducted for K-8 teachers in the Heartland Area Education Agency region (Central Iowa). Heartland AEA, Johnston, IA. April 25, 2006.
43. Olson, J. K. (2006, January). "Improving How We Teach Science: The Critical Role of the Teacher." Invited speaker for the Geology and Atmospheric Science Seminar, Iowa State University. January 27, 2006.
42. Olson, J. K. (2005, September). "Asking better questions in class discussions." Invited seminar for the Graduate Teaching Academy, Texas A&M University, September 27, 2005.
41. Olson, J. K. (2005, September). "The role of the teacher in class discussions." Seminar given at the ISU Center for Excellence in Learning and Teaching Springbrook Conference, September 24, 2005.
40. Olson, J. K. (2005, August). "Questioning, Wait Time, Responding: The Critical Core of Effective Teaching." Presentation given at the University Teaching Seminar, Iowa State University. August 16, 2005.
39. Vann, R., Olson, J. K., Richardson Bruna, K., Levis, J., & Douglas, D. (2005, August). "Enhancing Science Instruction for ELLs in Iowa." Two day workshop conducted for Area Education Agency Science Consultants and secondary science teacher teams from ELL districts through the Iowa Department of Education. Amana, IA. August 4-5, 2005.
38. Olson, J. K., & Clough, M. P. "Teaching and assessing the nature of science." Symposium presented at the bi-annual meeting of the International History, Philosophy, and Science Teaching group (IHPST). Leeds, England. July 15-19, 2005.
37. Olson, J. K., & Clough, M. P. "Inquiry-based science instruction." Full day inservice workshop conducted for middle school science teachers of the St. Charles School District, IL. February 18, 2005.
36. Olson, J. K. "Principles of Classroom Management." Presentation given to student members of the Education Club, Iowa State University. September 27, 2004.
35. Olson, J. K. "A Most Complex System: The Study of Teachers' Decision-Making in Elementary Science Instruction." Presentation given to members of the Institute for Science & Society, Iowa State University. September 22, 2004.
34. Colbert, J. T., Clough, M. P., & Olson, J. K. (2004, May). BETAL: Bridging the gap between biology and pedagogy. Presentation given at the Iowa State University Learning Communities Institute. Ames, IA. May 4, 2004.
33. Clough, M. P., & Olson, J. K. "The role of data collection, self-reflection, and peer coaching in implementing teacher behaviors and interaction patterns that promote student learning." Full day inservice workshop conducted at Mayville Middle School. Mayville, WI. April 23, 2004.
32. Olson, J. K. "Modifying Science Activities." Invited presentation to 86 K-12 teachers in the Science CoOperatives Project. Ames, IA. January 27, 2004.

31. Clough, M. P., & Olson, J. K. "Effectively teaching the nature of science to secondary students: The role of decontextualized and contextualized instruction." Half day workshop for Williamsburg Community School District secondary science teachers. Williamsburg, IA. January 21, 2004.
30. Olson, J. K. "Improving Elementary Science Teaching and Learning." Three day workshop conducted as part of the Science Co-Operatives Project for elementary teachers from 7 school districts in Southern Iowa. Ottumwa, IA. June 2-4, 2003.
29. Clough, M. P. & Olson, J. K. "Modifying cookbook activities to mentally engage students." Full day workshop conducted at Mayville Middle School. Mayville, WI. April 24, 2003.
28. Olson, J. K. "Consolidating Student Ideas." Invited presentation to 21 school districts in the Science CoOperatives Project. Ames, IA. January 14, 2003.
27. Olson, J. K., Clough, M. P., & Madsen, A. J. "The role of the teacher in the science classroom." Full day workshop conducted with science teachers of Council Bluffs, AHST and Tri-Center School Districts. Council Bluffs, IA. November 11, 2002.
26. Clough, M. P., Olson, J. K., Madsen, A. J., & Williams, M. "Modifying activities to reflect how students learn." Full day workshop conducted with science teachers of Council Bluffs, AHST, Griswold, and Tri-Center School Districts. Council Bluffs, IA. September 16, 2002.
25. Clough, M. P., Olson, J. K., Williams, M., & Madsen, A. J. "Modifying Science Activities to Promote Student Goals." Full day workshop conducted with science teachers of Council Bluffs, AHST, Griswold, and Tri-Center School Districts. Council Bluffs, IA. August 15, 2002.
24. Olson, J. K. "Teaching Elementary Science Through Inquiry: The Role of the Teacher." Five day workshop conducted as part of the Science Co-Operatives Project for elementary teachers from 7 school districts in Southern Iowa. Centerville, IA. June 3-7, 2002.
23. Olson, J. K. "Where Formal and Informal Settings Collide: Maximizing Informal Learning Sites to Achieve Formal Educational Goals." Invited presentation given to the Informal Science Education research group at North Carolina State University. Raleigh, NC. April 5, 2002.
22. Olson, J. K. "Improving your Teaching." Invited presentation to 21 school districts in the Science CoOperatives Project. Ames, IA. February 12, 2002.
21. Olson, J. K. "Developing Research-Based Science Teaching Practices: The Role of Assessment in Science Teacher Preparation." Invited presentation given at the Iowa State University Horticulture Department Seminar. Ames, IA. October 22, 2001.
20. Olson, J. K. "Teaching Elementary Science through Inquiry." Five day workshop conducted as part of the Science Co-Operatives Project for elementary teachers from 7 school districts in Southern Iowa. Centerville, IA. June 18-22, 2001.
19. Cox-Petersen, A. M., Ellenbogen, K., Griffin, J., McComas, W. F., Olson, J. K., Simmons, P. "Museums, Aquariums, Zoos, and Field Sites: Partners in Science Teacher Education and Student Learning." Half day workshop conducted at a joint session of the National Association for Research in Science Teaching (NARST) and the National Science Teachers Association (NSTA). St. Louis, MO. March 25, 2001.
18. Olson, J. K. "The Nature of Science in the Elementary Classroom." Half day workshop conducted at the Iowa Science Teachers Section of the Iowa Academy of Science. Des Moines, IA. Oct. 25, 2000.

17. Olson, J. K. "Inquiry and its Implications for the Elementary Science Classroom." Two day workshop conducted for the Iowa Governor's Academy on Mathematics and Science Education, Des Moines. August 2-4, 2000.
16. Hand, B. M. & Olson, J. K. "Partnerships to Improve Elementary Science Teaching and Learning." Series of professional development workshop sessions conducted as part of the Science Co-Operatives Project summer workshop for secondary science teachers from 57 school districts across Iowa and Missouri. St. Louis, MO. June 19-23, 2000.
15. Clough, M. P. & Olson, J. K. "Linking Constructivism, Active Learning, and Performance Assessment." Half day inservice workshop for Cedar Rapids School District Science Teachers, Cedar Rapids, IA. January 26, 2000.
14. Olson, J. K. & Clough, M. P. "Engaging Students Who Attempt to Exit from Cognitively Demanding Tasks." Workshop conducted with teachers and administrators of the Science Bound project, Des Moines Community Schools, Ames Lab, and NSF. November 16, 1999.
13. Clough, M. P. & Olson, J. K. "Modifying Lessons to Promote Inquiry and Mentally Engage Students." Full day inservice workshop for Cedar Rapids School District Science Teachers, Cedar Rapids, IA, August 10, 1999.
12. Olson, J. K. (1999, January). "Teaching Elementary Life Science: The Critical Role of the Teacher." Full day workshop conducted with elementary teachers of the Cypress Unified School District, CA. January 1999.
11. Olson, J. K. (1998, October). "Learning and Museum Design: Perspectives from Neuroscience, Cognitive Psychology and Informal Learning Research." Full day workshop conducted with staff of the Natural History Museum of Los Angeles County.
10. Olson, J. K. (1998, October). "Education and the Human Brain: What Do We Know?" Presentation given at the annual meeting of the Alpha Iota chapter of Pi Lambda Theta. Claremont, CA.
9. Olson, J.K. (1998, March). "Tutoring Middle School Students: Strategies for Success." Presentation given to inner-city tutors with the Heart of Los Angeles Youth (HOLA) program. Los Angeles, CA.
8. Olson, J.K. (1997, December). "Human Learning: Perspectives from Neuroscience and Cognitive Psychology." Presentation given to the Education Division staff of the Natural History Museum of Los Angeles County. Los Angeles, CA.
7. Olson, J. K. (1997, October). "The Future of Elementary Science Education: Where are we going?" Full day workshop conducted with teachers, administrators, university faculty, and industry leaders across Southern California. Funded by the Galaxy Institute.
6. Olson, J.K. (1996, October). "The Ultimate Teacher Workshop: The United States Space Academy." Presentation given at the annual meeting of the Alpha Iota chapter of Pi Lambda Theta. Claremont, CA.
5. Olson, J.K. & Cox, A.M. (1996, October). "Literacy in the Science Classroom." Presentation given to the faculty of the Los Angeles Unified School District at the annual Manual Arts Cluster Literacy Summit. Los Angeles, CA.
4. Olson, J.K. & Cox, A.M. (1996, October). "Literacy in Math and Science." Presentation given to the faculty of Foshay Learning Center during fall staff development workshop. Los Angeles, CA.
3. Olson, J. K. & McComas, W. F. (1996, July). "Constructivism: What does it mean for the science classroom?" Full day workshop conducted with teachers of Miramonte Elementary School, Los Angeles Unified School District, CA.

2. McComas, W. F. & Olson, J. K. (1996, May). "What's Happening in Science Education?" Full day workshop conducted with elementary teachers of Los Angeles County. Funded by the University of Southern California.

1. Olson, J.K., Sims, C. & Thot, I. (1996, March). "Educational Reforms across the Disciplines." Invited speaker on a panel discussion at the Pi Lambda Theta Spring Forum. Claremont, CA.

GRANTS (funded)

Quek, F., Olson, J. K., & Schlegel, R. (2019). Collaborative research: Science modeling through physical computing: Contextualized computational and scientific learning in the grade 5-6 classroom. National Science Foundation STEM+C Partnership Program. Funded at \$1,799,813.

Wijekumar, K., Joshi, R.M., Hernandez, A. & Lei, P-W (2018). Massively Open Online Virtual Practice-Based Professional Development for Teachers in High Need Schools. U.S. Department of Education Institute of Education Sciences. Funded at \$7,580,548. Co-Investigator.

Olson, J. K., Fahrenweld, C., Slattery, P., Clough, M. P., & Kwok, A. (2018). Preparing principals for science education. Texas A&M University College of Education & Human Development Catapult funding. Funded at \$10,000.

Stewart, T., Thompson, J., Nunez, C., Rentz, M., Wolter, P., Olson, J. K., & Tank, K. M. (2016). Research, teaching, and community engagement: Experiential learning through field ecology. Iowa State University Miller Faculty Fellowship Award. Funded at \$8,000.

Olson, J. K., Leshem, A., Raman, D. R., Cox, C., & Estapa, A. (2014). TEC-STEM Partnerships: Teachers and Engineers Collaborate for STEM Learning in K-5. National Science Foundation (NSF) STEM-C Partnership Program. Requested \$5,312,175. Award ID 1440446. Funded at \$4,515,047.

Olson, J. K., Staker, J., & Beckley, W. (2014). "Gateway to STEM: Collaborations to Enhance STEM Education for Iowans." ISU Extension Strategic Initiative program. Requested \$567,647. Funded at \$500,000.

Olson, J. K. (2013). *Support of Mathematics and Science Teacher Recruitment Activities*. Iowa Mathematics and Science Education Partnership, University of Northern Iowa. \$108,204.

Olson, J. K. (2013). *Faculty Line Support in Mathematics/Science Education*. Iowa Mathematics and Science Education Partnership, University of Northern Iowa. \$100,000.

Olson, J. K. (2008). Enhancing transitions into and through science teacher education. Project funded by the State of Iowa Mathematics and Science Education Partnership. Funded at \$5,616.

Wurtele, E., Bassham, D., Dickerson, J., Zoe, M., & Olson, J. (2008). "Meta!Blast: A cell and metabolic biology interactive learning environment for high school students." Project funded by the U.S. Department of Health and Human Services. Funded at \$735,988.

This project received an Honorable Mention in the 2011 International Science and Engineering Visualization Challenge, sponsored by AAAS. This is featured in the Feb. 3, 2012 issue of *Science*.

Olson, J. K., Clough, M. P., Whaley, D., & Huey, G. (2008). "Seamless transitions into and through science teacher education." Project funded by the State of Iowa Mathematics and Science Education Partnership. Fully funded at \$58,496.

Olson, J. K., Fath, J., Michelini, C., Davis, N., & Baker, E. (2008). "Enriching the classroom with interactive whiteboards." Project funded by the Iowa State University Computer Advisory Committee (CAC). Funded at \$13,192.99.

Olson, J. K., & Clough, M. P. (2007). "Secondary Science Education for Today's Complex Classrooms." Project funded by the Iowa State University Miller Faculty Fellowship program. Funded at \$18,277.

Clough, M. P., Olson, J. K., Colbert, J. T., Cervato, C., Stanley, M. (2006). Humanizing Science to Improve Post-Secondary Science Education: Pursuing the Second-Tier. Proposal submitted to the National Science Foundation (NSF) CCLI Program. Award Number 0618446. Funded at \$293,718.

Seymour, J., Drake, C., Herbel-Eisenmann, B., Andreotti, A., Thompson, H., Olson, J. K., & Clough, M. P. (2006). "Connecting Mathematics, Mathematics Teaching, and Science Teaching." Iowa State University Miller Faculty Fellowship. Funded at \$21,976.

Vann, R., Bruna, K. R., Douglas, D., Levis, J., & Olson, J. K. (2004). "*Enhancing Science Instruction for English Language Learners (ELLs) in Iowa.*" Iowa Department of Education. Funded at \$69,855.

Clough, M. P., Olson, J. K., Colbert, J. T., Cervato, C., & Wilson, D. (2004). "*Humanizing Science to Improve the Teaching and Learning of Science Content.*" Iowa State University Miller Fellowship. Funded at \$24,606.

Clough, M. P. & Olson, J. K. (2003). "*Modifying Science Activities for Improved Science Teaching and Learning.*" Council Bluffs Community School District. Continuing funding at \$13,000.

Clough, M. P. & Olson, J. K. (2002). "*Modifying Science Activities for Improved Science Teaching and Learning.*" Council Bluffs Community School District. Funded at \$13,000.

Andre, T., Hand, B., Sharp, J., Lubienski, S., Davis, N., Olson, J., & Clough, M. (2002). "*Recruiting, Educating, Inducting, Supporting and Retaining Mathematics and Science Teachers To Improve the Quality of Mathematics, Science, and Technology Education for K-12 Students in the 21st Century.*" United States Department of Education. Funded at \$149,982.

Andre, T., Hand, B., Sharp, J., Lubienski, S., Davis, N., Olson, J., & Clough, M. (2001). "*Recruiting, Educating, Inducting, Supporting and Retaining Mathematics and Science Teachers to Improve the Quality of Mathematics, Science and Technology Education for K-12 Students in the 21st Century*" United States Department of Education. Funded at \$249,398.

Hand, B., Clough, M., & Olson, J. (2000). "*Preparing Exemplary Science Teachers: The Necessary Role of Reflection In and On Practice*" Iowa State University Miller Faculty Fellowship. Funded at \$24,700.

Olson, J. K. (2000). "*Preparing Exemplary Elementary Teachers through Reflective Analysis of Pedagogy*" Iowa State University Instructional Development Grant. Funded at \$1,980.

Henriques, L., Colburn, A., & Olson, J. (1998). "*Assessing Student Learning Outcomes: SCED 401*" California State University, Long Beach Office of Professional Development. Funded at \$6,500.

Olson, J., & Cox, A. M. (1997). "*Twenty-first Century Teaching: Embryology.*" Toyota Innovation Grant in Math and Science. Funded at \$1,500.

Griffin, S., Lafferty, S. K., Doino, J., Olson, J. K., & Cox, A. M. (1996). "*Island Explorers*" University of Southern California Neighborhood Outreach Grant. Funded at \$28,000.

SUBMITTED PROPOSALS (under review)

SUBMITTED PROPOSALS (not funded)

Kietzman, K., & Olson, J. K. (2014). STEM Education Library Program. Proposal submitted to the Prairie Meadows Casino Polk County Grant Program. Requested \$41,583.

Wurtele, E., Bassham, D., Olson, J. K., & Passonneau, S. (2013). "Does interactive learning in 3D aid understanding of complex concepts? Proposal submitted to the National Science Foundation (NSF) Division of Undergraduate Education. Proposal No. 1348805. Requested \$1,434,444.

Litchfield, R. E., Lanningham-Foster, L., Hutchison, A., Olson, J. K., Chen, S., Vazou, S., Campbell, C., Tallman, K. M., & Haynes, C. L. (2013). "Childhood Obesity Prevention: Moving School Zones to Wellness Zones." Proposal submitted to the USDA National Institute of Food program. Requested \$4,330,563.

Olson, J. K., Wolters, T. S., Mokhtari, K., & Biechler, D. (2012). "The Story Behind Science & Engineering: Bringing STEM to Life for Elementary Students." Proposal submitted to the National Science Foundation (NSF) REESE program. Proposal Number 1252401. Requested \$1,097,279.

Olson, J. K., Wolters, T. S., Mokhtari, K., Biechler, D., Cervato, C., Colbert, J. T., Genalo, L., Greenbowe, T., Rosentrater, K. A., Taylor, J., Richey, L. R., Hewitt, A. M., & Clough, M. P. (2012). "The Story behind Science & Engineering: Bringing STEM to Life for Elementary Students." White Paper submitted to the Iowa State University Presidential Initiative for Interdisciplinary Research. Requested \$63,797.

Olson, J. K., Marek, E. A., Anderson, M., Jadrich, J., Bruxvoort, C. N., Bergwerff, K. A., Kruse, J. W., & Welch, G. (2011). "Collaborative Research: Doing and Understanding Elementary Teaching of Science (DUETS)." Proposal submitted to the National Science Foundation (NSF) Discovery Research K-12 program. Proposal Number 113823. Requested \$1,577,722.

Olson, J. K., Marek, E. A., Cooper, R. A., Jadrich, J., Bruxvoort, C. N., & Bergwerff, K. A. (2010). "Collaborative Research: Doing and Understanding Elementary Teaching of Science (DUETS)." Proposal submitted to the National Science Foundation (NSF) Discovery Research K-12 program. Proposal Number 1019836. Requested \$1,289,875.

Olson, J. K., Marek, E. A., Jadrich, J., Bruxvoort, C. N., & Bergwerff, K. A. (2009). "Doing and Understanding Elementary Teaching of Science (DUETS)." Proposal submitted to the National Institutes of Health (NIH) Challenge Grants in Health and Science Research (RC1) program. Requested \$851,559.

Wurtele, E., Satterfield, D., Dickerson, J., Herrnstadt, S., Bassham, D., Call, A., & Olson, J. (2006). "Meta!Blast Virtual Cell." Proposal submitted to the United States Department of Education Institute of Education Sciences. Proposal number R305B07577. Requested \$1,650,382. Not funded.

Cruz-Neira, C., Basham, D., Wurtele, J., Dickerson, J., Reiners, D., Olson, J. K., Yu, K. C., Storksdieck, M., Haley Goldman, K., Koke, J., Schoemer, J. (2006). "Metablast! Interactive Scientific Learning Environments inside a Planetarium Dome." Proposal submitted to the National Science Foundation (NSF) Informal Science Education (ISE) program. Proposal Number 0629079. Requested \$1,678,974. Not funded.

Zachary, L., Kinzler, D., Olson, J. K., & Colbert, J. T. (2005). "*Science and Engineering Serving Society: Collaborations for Middle School STEM Education.*" Proposal submitted to the National Science Foundation (NSF) GK-12 Program. Proposal Number 0538459. Requested \$1,520,378. Not funded.

Shapiro, H., Olson, J. K., & Pate, M. (2005). "*Developing an Energy Ethics Program.*" Proposal submitted to the National Science Foundation (NSF) EESE Program. \$380,000. Not funded.

Olson, J. K., Clough, M. P., Shelley, M. C., Bonnsetter, R. J., & Berg, C. A. (2004). "Classroom Research to Determine the Effects of Preservice Science Teacher Preparation." Proposal submitted to the United States Department of Education. \$842,059. Not funded.

Clough, M. P., Olson, J. K., Colbert, J. T., Cervato, C., & Wilson, D. (2004). "Humanizing Science to Improve the Teaching and Learning of Science Content." Preproposal 0437831 submitted to the National Science Foundation (NSF) Instructional Materials Development program. Amount requested: \$583,868.

Clough, M. P. & Olson, J. K. (2003). "Investigating the Effect of Content Relevant Historical Short Stories on Science Teachers' Nature of Science Implementation Practices." Proposal submitted for ISU University Research Grants (URG) program. \$17,919.50. Not funded.

Clough, M. P., & Olson, J. K. (2003). "Development of Content Relevant Historical Short Stories to Promote Understanding of Fundamental Science Ideas and the Nature of Science." Proposal submitted to the National Science Foundation (NSF). \$234,766. Not funded.

Clough, M. P., & Olson, J. K. (2003). "Investigating the Effect of Content Relevant Historical Short Stories on Science Teachers' Nature of Science Implementation Practices and Student Achievement." Proposal submitted for ISU SPRIG program. \$14,670.10. Not funded.

Clough, M. P., & Olson, J. K. (2002). "Investigating the Effect of Content Relevant Historical Short Stories on Science Teachers' Nature of Science Implementation Practices." Proposal submitted for ISU SPRIG program. \$15,809.50. Not funded.

HONORS AND AWARDS

- 2021 Implications of Research for Educational Practice Award
Association for Science Teacher Education
Olson, J. K., Pleasants, J. B., & Tank, K. M. (2020). *A Reform without Time: NGSS and Time for Sense-Making in Elementary Classrooms*
- 2020 Outstanding New Faculty Award
College of Education and Human Development
Texas A&M University
- 2017 Innovation in Teaching Science Teachers Award
Association for Science Teacher Education
Clough, M. P., & Olson, J. K. (2016). *Teachers' Classroom Practices 2-5 Years after having Completed an Intensive Secondary Science Teacher Education Program*
- 2015 NARST Outstanding Paper Award
National Association for Research in Science Teaching
Ihrig, L. M., Clough, M. P., & Olson, J. K. (2014). *Effects of Formal and Informal Support Relationships on Experiences and Practices of First-year Science Teachers*
- 2012 Implications of Research for Educational Practice Award
Association for Science Teacher Education
Herman, B. C., Clough, M. P., & Olson, J. K. (2012). *Teachers' NOS Implementation Practices Two to Five Years after Having Completed an Intensive Science Education Program*
- 2010 Influential Faculty Member in Fostering Academic Achievement
Iowa State University Greek Community
- 2005 Iowa Senate Resolution 31
State Senate Resolution acknowledging the 2005 ASTE award

- 2005 Outstanding Science Teacher Educator of the Year
Early Career Award
Association for Science Teacher Education (ASTE)
- 2004 NARST Outstanding Paper Award
National Association for Research in Science Teaching
Olson, J. K. (2004). *Preservice teachers' thinking within a research-based framework: What informs decisions?*
- 2002 Iowa State University Foundation Award for Early Achievement in Teaching
- 2000 VEISHEA Outstanding Faculty Member of the Year nominee
Iowa State University
- 1999 Dissertation Award
University of Southern California Rossier School of Education
- 1994 Outstanding Teacher Award
Johns Hopkins University Center for Talented Youth & SDB Foundation of Fallbrook, CA
Teacher Recognition Program
- 1993 Peter Lincoln Spencer Award
Alpha Iota chapter of Pi Lambda Theta Professional Honor Association in Education
The Claremont Graduate University
Recognizing innovative first year teaching
- 1992 Outstanding Graduating Senior
California State Polytechnic University, Pomona
Award presented to the graduating student with the highest GPA in each academic department

DOCTORAL STUDENTS ADVISED

Jacob B. Pleasants, Ph.D. 2018 (co-chair). Keene State College
Christopher D. Spinler, Ph.D. 2018 (co-chair).
Jesse L. Wilcox, Ph.D. 2017 (co-chair). M.A.T. 2007. Drake University; Simpson College
Lori M. Ihrig, Ph.D. 2014 (co-chair). University of Iowa
Jennifer A. Reid-Smith, Ph.D. 2013 (co-chair). Albuquerque Public Schools
Jerrid W. Kruse, Ph.D. 2010 (co-chair), M.A.T. 2005. Drake University
Benjamin C. Herman, Ph.D. 2010 (co-chair), M.A.T. 2004. (NARST Early Career Research Award, 2015)
University of South Florida; University of Missouri, Columbia; Texas A&M.
David W. Vanderlinden, Ph.D. 2007 (co-chair). Des Moines Area Community College
Andrea J. Vande Haar (Madsen), Ph.D. 2005, M.S. 2001. University of Northern Iowa
Crystal N. Bruxvoort, Ph.D. 2005. Calvin College
Deanna Poudel, Ph.D. 2005. Longview Community College

PROFESSIONAL LEADERSHIP

Editorial Positions

Associate Editor, *Journal of Research in Science Teaching*, March 2019-December 2019.

Associate Editor, *Journal of Elementary Science Education*. 2008-2010.

Science Teacher Education Column Editor, *Journal of Elementary Science Education*. 2004-2007.

Invited Guest Editor, *Science & Education*, two volume special issue: "The nature of science: Its teaching and assessment." Guest editor with Dr. Michael Clough. February 2008.

Reviewer Positions

Journal of Teacher Education: 2018-

Journal of Research in Science Teaching (JRST): 2016-

International Journal of Science and Mathematics Education (IJSME): 2003-

Journal of Chemical Education: 2000-

Journal of Science Teacher Education: 2010-

Science & Education: 2005-

Teachers College Record, 2006-2012

Journal of Elementary Science Education, Editorial Review Board, 2002-2006; 2010-2014.

Iowa Science Teachers Journal, 2010-2012

Science Books & Films, American Association for the Advancement of Science (AAAS): Reviewer of K-12 commercial science materials. 1999-

Contemporary Issues in Technology and Teacher Education (CITE): Editorial Board member, science education section. 2000-2005

Capstone Press: Reviewer of preK-12 commercial science materials. 2010-2014

The Science Teacher, Guest reviewer for special issue on teaching the nature of science, 2004.

Science Education, Guest reviewer, 2004

Journal of Geoscience Education, Guest reviewer, 2004

Grant Proposal Reviews:

National Science Foundation (NSF): Panel Reviewer
Discovery Research K-12 (DRK-12). 2021.
Research & Evaluation in Science & Engineering (REESE), Fostering Interdisciplinary Research on Education (FIRE) program. 2011.
Elementary, Secondary and Informal Education (ESIE) Teacher Enhancement program. 2000.

No Child Left Behind Act Title IIA: Improving Teacher Quality State Grant Program. Administered through the Iowa Board of Regents. Panel Reviewer, 2011, 2012.

National Institutes of Health (NIH): Reviewer for STEM Education proposals. 2009.

Iowa Mathematics and Science Education Partnership (IMSEP): Proposal Reviewer. 2008.

Nebraska Research Initiative (NRI): Proposal Reviewer. 2008, 2012.

Other Reviews:

Promotion & Tenure external reviewer: 2008 (3), 2009 (1), 2013 (1), 2014 (2), 2015 (1), 2017 (1), 2019 (1), 2020 (2)

Taylor & Francis, textbook reviewer. 2015.

Leadership in Professional Organizations

Association Science Teacher Education (ASTE)

Conference Chair, 2017 international conference

- Procured keynote speakers (Diane Ravitch, NY University; Sara Vispoel, ACT, Inc.)
- Co-planned pre-conference field trip
- Planned off-site poster reception
- Coordinated local arrangements (hotel, catering, buses, vans, room set-up, A/V)
- Organized recruitment and publicity
- Coordinated sponsorship, fundraising, and exhibitors

Past-President, 2015-2016

- Represented ASTE at the National Technology Leadership Summit and the Council of Scientific Society Presidents (CSSP), both in Washington DC, 2015
- Chaired the Oversight Committee

President, 2014-2015

- Planned the 2014-2015 budget
- Conduct business meetings of the ASTE board and ASTE Executive Committee
- Appoint ad hoc committees for Teacher Education Position Statement review and creation of a practitioner journal for science teacher educators—*Innovations in Science Teacher Education*

President-Elect, 2013-2014

- Represented ASTE at the National Survey of Science & Mathematics Education (NSSME) meeting, and the National Technology Leadership Summit—both in Washington DC, 2013.
- Filled open committee seats
- Served on the ASTE Executive Committee to run daily operations of the association
- Pursued affiliate status with the National Science Education Leadership Association (NSELA)

Director at Large, 2009-2012

Technology Committee Chair, 2009-2012

Elections Committee, 2004-2007

Elections Committee Chair, 2006-07

Conference Program Co-Chair, 2002

Thread Coordinator, Policy & Reform, 2020-present

Proposal Reviewer, 1997-2004; 2018-present

National Association for Research in Science Teaching (NARST)

JRST Paper Award Committee: 2005-2007

Outstanding Paper Awards Committee: 2000-2002

Strand 3 Coordinator, 2002-03, 2003-04

Proposal Reviewer: Strand 9 (Learning in Informal Contexts), 1997-2002

Strand 1 (Learning: Students' Conceptions & Conc. Change), 1999-2003

Strand 3 (Teaching), 2000-2012, 2018-present

Northcentral Association for Science Teacher Education (NASTE)

Director 2002

Secretary 2000

NCATE Auditor Board Member 2007-2008

State, University and School Leadership & Service

Texas Education Agency

- Texas Essential Knowledge and Skills (TEKS) Science Revision Workgroup E (K-2). Fall 2020-Spring 2021.

Texas A&M University

University Committees

- University Sustainability Committee. Fall 2018 (completed J. Singleton's term)

College and Cross-College Committees:

- CEHD Strategic Plan "Transformational Learning" work group co-chair. 2018-2019
- CEHD Outstanding Alumni Award Selection Committee. 2019-present
- Council of Principal Investigators Committee. TLAC Representative, 2018-present
- CEHD Lecture and Speaker Series Committee. TLAC Representative, 2018-present
- Sitton Award Evaluation Committee. CEHD Representative, 2017-present

Department Committees

- EDCI 601 Revision ad hoc Committee. Chair. 2020-
- Interfolio Transition A-1 Committee. 2020
- Undergraduate Curriculum Audit Committee. 2018
- A-1 Revision ad hoc Committee. 2018
- Tenure-Line Evaluation Committee. 2018-2019
- TLAC Awards Committee. 2018-present
- STEM Faculty Fellowship ad hoc selection committee. Chair. 2018.

Iowa Department of Education

- Building Capacity in State Science Education Team, 2011-2013
- State of Iowa Science Education Leadership Team, 2010-2011
- Assessment Advisory Committee Member, 2008-2010

Iowa State University

Guest Instructor

- ME 605: 2016
- Hort 282: 2000, 2001, 2004, 2012, 2016
- CI 245: 2011
- CI 615: 2001, 2012
- CI 602: 2012

Biology Education Teaching and Learning (BETAL) Community (2003-2007). Faculty: Jim Colbert, Michael Clough, Charles Drewes, Joanne Olson, Michael Zeller

University Committees:

- Faculty Senate, College of Human Sciences Member at Large, 2012-2015
- Academic Affairs Council, 2012-2015
- Educator Preparation Coordinating Council, 2008-2012
- Accreditation Steering Committee, 2012-13
- Margaret Ellen White Scholarship Committee, 2010-2011
- Center for Excellence in Learning & Teaching (CELT)
 - Advisory Board Member, 2004-2007
 - Hubbard Award Committee Member, 2006

- Wakonse Conference on College Teaching ISU Coordinator, 2006

College Committees:

- Academic Standards and Admissions Committee, 2010-2015
- CHS Budget Advisory Committee, 2012-2015
- CHS Faculty Senate Caucus, 2012-2015
- Educator Preparation Coordinating Council, 2011-2014
- School of Education Implementation Graduate Programs Subcommittee, 2012
- Undergraduate Student Scholarship and Awards Committee, 2006-2010
- Faculty and Staff Honors and Awards Committee, 2005-2006

Department/School Committees:

- Budget Advisory Committee, 2015-2017
- Graduate Studies Committee, 2001-2004; 2013-2014
- Promotion and Tenure Committee, 2005-2008, 2011-2012
- Undergraduate Studies Committee, 2008-2012
- Chair of Ad hoc Committee on Standards and Program Coherence, 2008-2011
- Field Experiences Advisory Committee, 1999-2002, 2004-2005
- Faculty Search Committees, 2004, 2007, 2011, 2012, 2013, 2014 (chair)

Iowa State Science & Technology Fair

- Judge, 2003-2014
- Advisor to Board of Directors, 2003-2006

Faculty Marshal, 1999-2000, 2004, 2008, 2013, 2015

- Lead Marshal, S08, F08, S09

University of Southern California

Convocations Committee (1998-1999): Elected member of university committee overseeing graduation and convocations ceremonies.

Graduate & Professional Student Senate (GPSS): Elected School of Education representative (1998-99)

Education Graduate Organization (EGO): Vice President (1998-1999).

The Claremont Graduate University

Peter Lincoln Spencer Fellowship Coordinator: Coordinated the disbursement of funds from this \$142,000 fellowship for the Alpha Iota chapter of Pi Lambda Theta professional honor association in education (1994-1999).

California State University, Long Beach

Science Olympiad: CSULB Planning Team member, Event Judge (1998).

Arcadia Unified School District

Science Curriculum Committee: Served on this district committee to write 7-12 science curriculum and modify elementary science kits (1994-1995).

Science Department Chair: Foothills Middle School, Arcadia Unified School District (1994-1995).

Lab Assistant Program Director: Foothills Middle School, Arcadia Unified School District (1994-1995).

Coach: Science Olympiad Team, Track & Field Team, Pep Club. Foothills Middle School, Arcadia Unified School District (1992-1995).

CURRICULUM DEVELOPMENT

Walker, S. H., & Damon-Randall, K. (1998). *Oceanography and coastal processes resource guide*. Institute of Marine Sciences, Biloxi, MS.

I developed curriculum components for this guide and field-tested activities. This project was funded by the National Oceanic and Atmospheric Administration, United States Navy, U.S. Department of the Interior, and United States Sea Grant Program.

Island Explorers. USC Sea Grant

I developed and field-tested activities for this interdisciplinary curriculum with a theme of Southern California marine environments. This project was developed in conjunction with the "Island Explorers" grant funded by the USC Neighborhood Outreach Program and USC Sea Grant.

FELLOWSHIPS

- 2004 Wakonse Fellow
Iowa State University representative to national Wakonse conference on tertiary teaching
- 1996 Operation Pathfinder, A Sea Grant Fellowship
Hatfield Marine Science Center Newport, Oregon
- 1994 United States Space Academy Fellowship
Funded through the Arcadia Unified School District

PROFESSIONAL MEMBERSHIPS (Current)

- Association for Science Teacher Education (ASTE)
- National Association of Research in Science Teaching (NARST)
- National Science Teachers Association (NSTA)
- SouthWest Association for Science Teacher Education (SW-ASTE)
- Informal Science Education Association of Texas (ISEA)
- Science Teachers Association of Texas (STAT)
- Texas Council of Elementary Science (TCES)
- Phi Delta Kappa (PDK)
- Pi Lambda Theta

PROFESSIONAL OUTREACH

Expert Speaker

Faculti.net

Dec. 2020

Radio Guest	NPR Chicago, WBEZ 91.5 http://www.wbez.org/news/museum-helps-build-better-science-teachers-109924	March 27, 2014
Radio Guest	Iowa Public Radio River to River program	Dec. 11, 2012
Curriculum Consultant	Azusa Pacific University School of Nursing RN to BSN program	2012, 2019
Science Ed. Consultant	University of California, Berkeley UC Museum of Paleontology (UCMP) www.understandingscience.org teacher education section Funded by NSF	2012
Science Ed. Consultant	Capstone Press	2018-2019 2010-2013
Curriculum Consultant	American College Testing (ACT)	2008
Evaluation Consultant	Van Andel Education Institute	2008, 2009
Talk Radio Guest	Science and Society on World Talk Radio www.scienceandsociety.net	March 9, 2005
Committee Member	Science Center of Iowa Science Advisory Committee	2002-2017
Cabinet Member	Ames Community Schools Science Cabinet	1999-2010

COMMUNITY AND VOLUNTARY SERVICE

Mandolinist	The Barn Owl Band Ames, IA	2012-present
Mandolinist	Onion Creek Band Ames, IA Inducted into the U.S. Old Time Music Hall of Fame, 2014	2007-present
Mandolinist	Blue Moon Players Ames, IA	2012-2017
Neighborhood Liaison	Bloomington Heights Neighborhood Association City of Ames	2010-2017
Flutist	Heartland Senior Services Jazz Jam Ames, IA	2010-2011
Volunteer	Skunk River Navy Watershed monitoring and trash removal	2007-2017
Volunteer	Story County Disaster/Emergency Relief Flood relief—sandbagging, water distribution	2010-2017
Volunteer	Squaw Creek Watershed Coalition	2008-2017

Volunteer	Head Start Program Mid-Iowa Community Action, Ames IA	2006-2008
Kung Fu Instructor	Tae Kwon Do Masters Seminar Family Martial Arts Center, Ames IA	2005
Division Director	Tokushima Budo Council, USA Division of Martial Arts Teacher Education	2002-05
Volunteer	Midnight Madness 5K/10K, Ames IA Corner Marshal: Traffic Control	1999-2019
Career Day Speaker	Temple City High School Temple City Unified School District, CA	May 1998
Volunteer	Neurolinguistics and Speech Science Laboratory Veteran's Administration Outpatient Clinic Los Angeles, CA	1997
Volunteer Reader	Recording for the Blind and Visually Impaired University of Southern California	1996
Flutist	San Gabriel Valley Concert Band	1994
Flutist/Piccolo	Temple City Community Concert Band	1986-87
Flutist	Lake Avenue Flute Ensemble Pasadena, CA	1991-92
Volunteer Notetaker	California State Polytechnic University, Pomona Office of Disabled Student Services	1991
Marathon Volunteer	The City of Los Angeles Marathon Mile 19 Race Clock	1986-93