

JOANNE K. OLSON

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PROFILE

My expertise is in science education, and my research interests include science teachers' knowledge development, and the role of the nature of science in science teacher education. I am the President of the Association for Science Teacher Education. I have taught at the university level since 1995, including teaching both undergraduate and graduate courses, mentoring graduate students, and co-directing the secondary science teacher education program. My teaching background includes science methods, advanced pedagogy, curriculum theory, research design, and science content courses. My K-12 teaching experience includes five years at the 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

- 2013-present Interim Director
Center for Excellence in Science, Mathematics, & Engineering Education
Iowa State University
- 2005-present 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 (Refereed)

- 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.
- 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). The Netherlands: Sense Publishers.
- 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*, Available in Online First at <http://link.springer.com/article/10.1007/s10763-012-9379-3>
- 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.
- 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).
- 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: Kluwer Academic Publishers.
- Bergman, D. J., & Olson, J. K. (2011). Got Inquiry? *Science & Children, 48(7)*, 44-48.
- Rice, J. W., Olson, J. K., & Colbert, J. T. (2010). University evolution education: The effect of evolution instruction on biology majors' content knowledge, attitude toward evolution, and theistic position. *Evolution: Education and Outreach*. DOI 10.1007/s12052-010-0289-y.
- 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*, 47, 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, 821-847.

Olson, J. K., Levis, J. M., Vann, R., & Richardson Bruna, K. (2009). Enhancing science learning for English Language Learners. *Science & Children*, 47, 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, 18-23.

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

Olson, J. K. (2007). More than a human endeavor: The nature of science and K-4 students. *Science & Children*, 45, 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, 313-334.

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). Using Drawings as an Alternative Assessment Measure for English Language Learners. *Science & Children*, 44, 46-48.

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

Olson, J. K. (2006). The myth of catering to learning styles. *Science & Children*, 43, 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.

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 in association

with ASTE.

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.

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, 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, 376-402.

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

Olson, J. K., & Clough, M. P. (2004). What questions do you have? In defense of general questions: A response to Croom. *Teachers College Record*. www.TCRecord.org

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

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.

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, 155-173.

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

McComas, W. F. & Olson, J. K. (1998). The nature of science in international 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.

BOOKS

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

INVITED ARTICLES IN PEER-REVIEWED JOURNALS

- 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*, 47, 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.
- 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.

OTHER PUBLICATIONS

- 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.
- 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.
- 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. (2007). [Review of *Geology Rocks!* Series]. *Science Books and Films*, 43(6), 260.
- Olson, J. K. (2007). Catering to Learning Styles: A Popular Myth. *Science Education Review*, 6(2), 78-80.
- 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 videotape 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)

WORKS IN PROGRESS

- Olson, J. K., Richey, L. R., Kemis, M., & Vernon, E. The relationship between elementary education majors' Praxis scores and student teaching performance. In preparation for submission to the *Journal of Teacher Education*.
- Olson, J. K., Richey, L. R., Kemis, M., & Vernon, E. Is "data-driven" reform data-driven? Elementary Education majors' student teaching weaknesses and faculty predictions of weaknesses. In preparation for submission to *Teachers College Record*.

Olson, J. K., Bruxvoort, C. N., & Vande Haar, A. J. A tangled web: Preservice elementary teachers' conceptions of learning theories. In preparation for submission to the *Journal of Science Teacher Education*.

Olson, J. K., & Vande Haar, A. J. In over their heads? Orders of consciousness, teaching, and preservice teachers' preparedness to meet the demands of the profession. To be submitted to the *International Journal of Science Education*.

Clough, M. P., Olson, J. K., Vande Haar, A. J., & Taylor, J. "No matter where you go, there you are: The primacy of the nature of science in teaching and learning." Submitted to *Science & Education*.

Olson, J. K., Bergman, D. J., & Clough, I. W. "The Pokemon (R)evolution: Look who's coming to biology." In preparation for submission to *American Biology Teacher*.

PRESENTATIONS (refereed)

2014

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 accepted for presentation 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

74. Olson, J. K. (2014, February). The state of science and mathematics education and why we should care. Keynote 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 SIOP 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. 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.

68. 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.

67. 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.

66. 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.

65. 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.

64. 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.

63. 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.

62. 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.
61. 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.
60. 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.
57. 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.
56. 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.
55. 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.
54. 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.
53. 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.
52. Olson, J. K. (2008, August). "Successful supervision of elementary science teachers." Workshop provided for university supervisors. Iowa State University, Ames, IA. August 18, 2008.
51. 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.
50. 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.
49. 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.
48. 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.
47. 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.
46. 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.

45. 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.
44. 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.
43. 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.
42. 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.
41. 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.
40. 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.
39. 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.
38. 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. Ames, IA. August 4-5, 2005.
37. 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.
36. 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.
35. Olson, J. K. "Principles of Classroom Management." Presentation given to student members of the Education Club, Iowa State University. September 27, 2004.
34. 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.
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)

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. Proposal 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)

Olson, J. K., Staker, J., & Beckley, W. (2013, November). "Gateway to STEM: Collaborations to Enhance STEM Education for Iowans." Proposal submitted to the ISU Extension Strategic Initiative program. Requested \$567,647.

HONORS AND AWARDS

- 2012 Award V: Implications of Research for Educational Practice
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
- 2004 Wakonse Fellow

Iowa State University

- 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

GRADUATE STUDENTS ADVISED

Jennifer A. Reid-Smith, Ph.D. 2013 (co-chair).
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. University of South Florida
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 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

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-

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-

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
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 reviewer for individuals at other universities. 2008 (3), 2009 (1), 2013 (1)

Leadership in Professional Organizations

Association Science Teacher Education (ASTE)

President, 2014-2015

President-Elect, 2013-2014

Director at Large, 2009-2012

Technology Committee Chair, 2009-2012

Elections Committee, 2004-2007

Elections Committee Chair, 2006-07

Conference Program Co-Chair, 2002

Proposal Reviewer, 1997-2004

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-present

Northcentral Association for Science Teacher Education (NASTE)

Director 2002
Secretary 2000

State, University and School Leadership & Service

Iowa Department of Education:

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

Iowa State University:

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

Guest Instructor

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

University Committees:

- Faculty Senate, College of Human Sciences Member at Large, 2012-
- Academic Affairs Council, 2012-
- 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:

- CHS Budget Advisory Committee, 2012-
- CHS Faculty Senate Caucus, 2012-
- Academic Standards and Admissions Committee, 2010-
- 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 Committees:

- Graduate Studies Committee, 2001-2004; 2013-
- 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

Iowa State Science & Technology Fair

- Judge, 2003-present

- Advisor to Board of Directors, 2003-2006

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

- Lead Marshal, S08, F08, Sp09

University of Southern California:

Convocations Committee (1998-1999): Elected member of university committee overseeing graduation 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

Association for Science Teacher Education (ASTE)

National Association of Research in Science Teaching (NARST)

National Science Teachers Association (NSTA)

NorthCentral Association for Science Teacher Education (NASTE)

Phi Delta Kappa (PDK)

Pi Lambda Theta

PROFESSIONAL OUTREACH

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
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	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-present
Cabinet Member	Ames Community Schools Science Cabinet	1999-present