

CURRICULUM VITAE

Emily H. van Zee

Associate Professor of Science Education
Senior Researcher
Department of Physics
College of Science
267 Weniger Hall
Oregon State University
Corvallis, OR 97331-6507
(541) 737-1880 (541) 737- 1683 (FAX)
Email: Emily.vanZee@science.oregonstate.edu or vanzeee@onid.orst.edu

<u>Education:</u>	University of Washington (Awarded with honors)	Ph.D. (Psychology)	1989
	University of Washington	M.S. (Physics)	1982
	Radcliffe College, Harvard University (Awarded with honors)	B.A. (Physics)	1964

Employment:

2005-present Associate Professor/Senior Researcher, Oregon State University
2005-present Associate Professor Emerita, University of Maryland
2001-2005 Associate Professor, University of Maryland, College Park
1995- 2001: Assistant Professor
Department of Curriculum and Instruction
College of Education
University of Maryland at College Park

1992-1995 SESAME Lecturer
Graduate Group in Science and Mathematics Education
Graduate School of Education
University of California, Berkeley
Berkeley, California

1991-1992 Lecturer
Department of Psychology
University of Washington
Seattle, Washington

1990-1992 Postdoctoral Fellow: James S. McDonnell Foundation
Program in Cognitive Studies for Educational Practice
Department of Psychology, University of Washington

1988-1989 Consultant
Physics project, Mercer Island High School

Emily H. van Zee

Mercer Island, Washington

- 1985-1988 Assistant Director, Physics Education Group
Department of Physics, University of Washington
- 1977-1988 Teaching Associate, Physics Education Group
Department of Physics, University of Washington
- 1970-1985 Parent volunteer, Seattle Public Schools
- 1965-1967 Research and Editorial Assistant
Harvard Project Physics, Harvard University
- 1964-1965 Middle School Science Teacher, International School
The Hague, Holland

Research

Edited Books:

- Roberts, D., Bove, C. & van Zee, E.H. (Eds.) (2007). *Teacher research: Stories of learning and growing*. Arlington, VA: National Science Teachers Association.
- Hammer, D. & van Zee, E.H. (Eds.) (2006). *Seeing the science in children's thinking: Case studies of student inquiry in physical science*. Portsmouth, NH: Heinemann.
- Minstrell, J. & van Zee, E.H. (Eds.) (2000). *Inquiring into inquiry learning and teaching in science*. Washington, D.C.: American Association for the Advancement of Science.

Book Chapters:

- van Zee, E.H. (2010). The role of leadership in fostering inquiry learning and teaching. In J. Rhoton (Ed.) *Science education leadership: Best practices for the new century*. Arlington, VA: National Science Teachers Association Press.
- van Zee, E. H., Long, M., & Windschitl, M. (2009). Research on secondary science teaching methods courses. In Collins A. & Gillespie, N.(Eds.). *The continuum of secondary science teacher preparation: Knowledge, questions and research recommendations*. Boston: Sense
- van Zee, E. & Roberts, D. (2006). Engaging teachers in research on science learning and teaching. In J. Rhoton (Ed.), *Issues and trends in science teaching and learning for the 21st century* (pp. 53-66). Arlington, VA: National Science Teachers Association Press.
- van Zee, E.H. (2005). Teaching science teaching through inquiry. In K. Appleton (Ed.), *Elementary science teacher education: International perspectives on contemporary issues and practice* (pp. 239-257). Mahwah, NJ: Lawrence Erlbaum.

- Minstrell, J. & van Zee, E.H. (2003). Using questioning to assess and foster student thinking. In J. M. Atkin & J.E. Coffey, *Everyday assessment in the science classroom* (pp. 61-74). Arlington, VA: National Science Teachers Association Press.
- van Zee, E.H. (2001). Talking together about the moon. In D. Tippins, T. Koballa, and B. Payne (Eds.), *Science teaching and learning in the elementary classroom: A classroom case handbook* (pp. 131-134). Boston: Allyn & Bacon.
- van Zee, E.H. (2000). Ways to foster teachers' inquiries into science learning and teaching. In J. Minstrell & E.H. van Zee (Eds.) *Inquiring into inquiry learning and teaching in science* (pp. 100-119). Washington, D.C.: American Association for the Advancement of Science.
- Beach, L.R., Mitchell, T.R., Paluchowski, T.F., & van Zee, E.H. (1992). Image theory: decision framing and decision deliberation. In F. Heller (Ed.), *Decision Making and Leadership* (pp. 172-188). Cambridge: Cambridge University Press.

Articles in Refereed Journals:

- van Zee, E. H., Roberts, D., & Grobart, E. (in press). Ways to include global climate change in courses for prospective teachers. *Journal of College Science Teaching*.
- van Zee, E. H., Jansen, H., Winograd, K., Crowl, M. & Devitt, A. (2013a). Fostering scientific thinking by prospective teachers in a course that integrates physics and literacy learning. *Journal of College Science Teaching*, 42(5), 29-35.
- van Zee, E. H., Jansen, H., Winograd, K., Crowl, M. & Devitt, A. (2013b). Integrating physics and literacy learning in a physics course for prospective elementary and middle school teachers. *Journal of Science Teacher Education*. 24(3), 665-691. DOI 10.1007/s10972-012-9323-y
- Crowl, M., Devitt, A., Jansen, H., van Zee, E., & Winograd, K. (2013). Encouraging prospective teachers to engage friends and family in exploring physical phenomena. *Journal of Science Teacher Education*. 24(1), 93-110. DOI 10.1007/s10972-012-9310-3
- Niess, M., van Zee, E.H., Gillow-Wiles, H. (2010-2011). Knowledge growth in teaching mathematics/science with spreadsheets: Moving PCK to TPACK through online professional development. *Journal of Digital Learning in Teacher Education*. 27(2), 42-52.
- van Zee, E.H. (2009). Should professional development include analyzing and coaching ways of speaking during inquiry-based science instruction in elementary classrooms? *Cultural Studies of Science Education*, 4(4), 847-854.
- van Zee, E.H. & Roberts, D. (2006). Making science teaching and learning visible through web-based "snapshots of practice." *Journal of Science Teacher Education*. 17(4), 367-388.

- Valli, L., van Zee, E.H., Rennet-Ariev, P., Mikeska, J., Roy, P. & Catlett-Muhammad, S. (2006). Initiating and sustaining a culture of inquiry in a teacher leadership program. *Teacher Education Quarterly*, 33(3), 97-114.
- van Zee, E.H. (2006). Teacher research: Studying student thinking and learning. *Science Educator*, 25(1), 29-36.
- van Zee, E.H. (2005). Using web-based "Snapshots of Practice" to explore science learning and teaching in a course for prospective teachers, *Issues in Teacher Education*, 14(1), 63-79.
- van Zee, E.H., Hammer, D., Bell, M., Roy, P. & Peter, J. (2005). Learning and teaching science as inquiry: A case study of elementary school teachers' investigations of light. *Science Education*, 89, 1007-1042.
- van Zee, E.H., Lay, D. & Roberts, D. (2003). Fostering collaborative inquiries by prospective and practicing elementary and middle school teachers. *Science Education*, 87, 588-612.
- van Zee, E.H. & Roberts, D. (2001). Using pedagogical inquiries as a basis for learning to teach: Prospective teachers' perceptions of positive science learning experiences. *Science Education*, 85, 733-757.
- van Zee, E.H., Iwasyk, M., Kurose, A., Simpson, D., & Wild, J. (2001). Student and teacher questioning during conversations about science. *Journal of Research in Science Teaching*, 38, 159-190.
- van Zee, E.H. (2000). Analysis of a student-generated inquiry discussion. *International Journal of Science Education*, 22, 115-142.
- Schoenfeld, A., Minstrell, J. & van Zee, E. (1999). The detailed analysis of an established teacher's non-traditional lesson. *Journal of Mathematical Behavior*, 18, 281-325.
- van Zee, E.H. (1998a). Fostering elementary teachers' research on their science teaching practices. *Journal of Teacher Education*, 49, 245-254.
- van Zee, E. H. (1998b). Preparing teachers as researchers in courses on methods of teaching science. *Journal of Research in Science Teaching*, 35, 791-809.
- van Zee, E. H. & Minstrell, J. (1997a). Reflective discourse: Developing shared understandings in a high school physics classroom. *International Journal of Science Education*, 19, 209-228.
- van Zee, E. H. & Minstrell, J. (1997b). Using questioning to guide student thinking. *The Journal of the Learning Sciences*, 6, 229-271.
- van Zee, E. H., Paluchowski, T.F., & Beach, L.R. (1992). The effects of screening and task partitioning upon evaluations of decision options. *Journal of Behavioral Decision Making*

5, 1-19. Reprinted in Beach, L.R. (Ed.) (1998). *Image theory: Theoretical and empirical foundations* (pp. 61-72). Mahwah, NJ: Erlbaum.

McDermott, L., Rosenquist, M. L. & van Zee, E. H. (1987). Student difficulties in connecting graphs and physics: Examples from kinematics. *American Journal of Physics* 55, 503-513.

McDermott, L.C., Rosenquist, M.L. & van Zee, E.H. (1983). Strategies to improve the performance of minority students in the sciences. *New Directions for Teaching and Learning*, 16, 59-72.

Invited Critique:

van Zee, E. H. & Minstrell, J. (1998). The promise of a theory of teaching-in-context: A critique of "Toward a theory of teaching-in-context" by Alan Schoenfeld. *Issues in Education*, 7, 141-147.

Conference Proceedings:

Manogue, C., Roundy, D., Kustus, M. B., van Zee, E. H. & Dray, T. (2013, July). From fear to fun in thermodynamics: Multiple research perspectives for assessing learning during a curricular sequence. Proceedings of the Physics Education Research Conference, American Association of Physics Teachers, Portland, OR.

van Zee, E. H. & Manogue, C. (2010, July). Documenting and interpreting ways to engage students in 'thinking like a physicist.' Proceedings of the Physics Education Research Conference, American Association of Physics Teachers, Portland, OR.

Rosenberg, J. & van Zee, E. (2007). Tracing the development of prospective teachers' understanding about learning and teaching science as inquiry. Proceedings of the annual meeting of the Association of Science Teacher Educators, Clearwater, FL.

Iwasyk, M., Kurose, A., Simpson, D., van Zee, E.H., & Wild, J. (1996). Case studies by a group of collaborating educators: How do student and teacher questions facilitate learning? In P.A. Rubba, P.F. Keig, and J.A. Rye (Eds.), *Proceedings of the 1996 Annual International Conference of the Association for Educators of Teachers of Science* (pp. 118-129) ERIC Document Reproduction Service No. ED 398 060.

van Zee, E. H., Wild, J., & Flanagan, P. (1993). Relation between student and teacher questioning during conversations about the moon. In J. Novak (Ed.), *Proceedings of the Third International Seminar on Misconceptions and Educational Strategies in Science and Mathematics*, Ithaca, N.Y.: Cornell University.

van Zee, E. H. & McDermott, L.C. (1987). Investigation of student difficulties with graphical representations in physics. In J. Novak (Ed.), *Proceedings of the Second International Seminar on Misconceptions and Educational Strategies in Science and Mathematics*, (pp. 531-539), Ithaca, N.Y.: Cornell University.

Emily H. van Zee

van Zee, E.H. (1985). How to facilitate cooperation between the schools and colleges, with both teachers and administrators. In J. Wilson (Ed.), *Proceedings of Conference on Teacher Institutes and Workshops, American Association of Physics Teachers* (pp. 43-46), Arlington, VA.

McDermott, L.C. & van Zee, E.H. (1984). Identifying and addressing student difficulties with electric circuits. *Proceedings of the International Workshop: Aspects of Understanding Electricity* (pp. 39-48), Pädagogische Hochschule Ludwigsburg, W. Germany.

Contributed Papers:

van Zee, E., Roberts-Harris, D., & Grobart, E. (2015, January). Ways to include climate change in courses for prospective teachers. Association for Science Teacher Education conference, Portland, OR,

van Zee, E. (2014, April). Engaging prospective teachers in exploring climate change issues in a course integrating physics and literacy learning. National Science Teachers Association conference, Boston.

van Zee, E. (2014, April). Collaborative explorations of global climate change. National Science Teachers Association conference, Boston.

van Zee, E. (2013, July). What happens when sunlight shines on the Earth? Design of a physics course for teachers. American Association of Physics Teacher conference, Portland, OR.

van Zee, E., Manogue, C., Roundy, D., Kustus, M.B., Gire, E., & Auparay, N. (2013, July). The purpose, preparation, and power of narratives. Physics Education Research Conference, Portland, OR.

van Zee, E. (2013, April). Engaging prospective elementary teachers in learning how to integrate science and literacy. Annual conference of the National Science Teachers Association, San Antonio.

van Zee, E. (2013, April). Integrating mathematics, science, and technology in a Master's program for practicing teachers. Annual conference of the National Science Teachers Association, San Antonio.

van Zee, E., Niess, M., Willow-Giles, H. & Staus, N. (2012, April). Teachers teaching teachers: In-school professional development integrating mathematics, science, and technology learning. National conference of the American Educational Research Association, Vancouver, B.C.

van Zee, E. (2012, April). Learning in physics and literacy contexts. Annual conference of the National Science Teachers Association, Indianapolis.

Emily H. van Zee

- van Zee, E. (2011, March). Engaging prospective teachers in physics and literacy learning. Annual conference of National Science Teachers Association, San Francisco.
- van Zee, E. (2010, July). Narrative interpretations of ways of speaking during Physics Paradigm discussions. Summer meeting of American Association of Physics Teachers, Portland, OR.
- van Zee, E., Jansen, H., Winograd, K., Crowl, M., & Devitt, A. (2010, July). Physics and literacy learning in a course for prospective teachers. Summer meeting of American Association of Physics Teachers, Portland, OR.
- van Zee, E. & Crowl, M. (2010, March). Using physics as the context for literacy learning. Annual conference of National Science Teachers Association, Philadelphia.
- van Zee, E. (2010, January). Fostering literacy learning in a physics course for prospective elementary and middle school teachers. Annual meeting of Association for Science Teacher Education, Sacramento.
- van Zee, E. & Roberts-Harris, D. (2009, December). Using science as the focus for literacy learning . Regional conference of National Science Teachers Association, Phoenix.
- van Zee, E., Crowl, M., Devitt, A., & Kizer, K. (2009, October). Integrating science and literacy learning at home, school, and youth club settings. Annual conference of Oregon Science Teachers Association, Salem.
- van Zee, E.H., Bove, C. & Roberts-Harris, E. (2009, March). Fostering teacher researcher collaborations. Annual conference of the National Science Teachers Association, New Orleans.
- van Zee, E.H., Roberts-Harris, D. (2009, March). Science Inquiry Group Network (SING-N). Annual conference of the National Science Teachers Association, New Orleans.
- van Zee, E. H. (2009, March). Engaging prospective teachers in integrating physics and literacy learning. Annual conference of the National Science Teachers Association, New Orleans.
- van Zee, E.H. (2008, November). Collaborative conversation about teacher research. Regional conference of National Science Teachers Association, Portland, OR.
- van Zee, E. H. (2008, November). Learning to teach science and literacy in a physics course for prospective teachers. Regional conference of National Science Teachers Association, Portland, OR.
- van Zee, E.H., (2008, March). Integrating literacy and science learning in a physics course for prospective elementary and middle school teachers. Annual conference of the National Science Teachers Association, Boston.

Emily H. van Zee

- van Zee, E.H., Jansen, H., & Winograd, K. (2008, March). Integrating physics and literacy learning. Annual meeting of the American Educational Research Association, New York City.
- van Zee, E.H. (2007, March). Interpreting video case studies of science learning and teaching. Annual conference, National Science Teachers Association, St. Louis.
- van Zee, E.H., Hammer, D. & Rosenberg, J. (2007, January7). Using video case studies of student inquiry in physical science. Annual meeting of the Association of Science Teacher Educators, Clearwater, FL.
- Rosenberg, J. & van Zee, E.H. (2007, January). Tracing the development of prospective teachers' understanding about learning and teaching science as inquiry. Annual meeting of the Association of Science Teacher Educators, Clearwater, FL.
- van Zee, E.H. & Bove, C. (2006, April). Engaging prospective teachers in exploring inquiry-based science learning through "snapshots of practice" on the Internet. Annual meeting of the American Educational Research Association, San Francisco.
- van Zee, E.H. & Hammer, D. (2006, April). Developing interpretations of video cases of student inquiry in physical science. Annual meeting of the National Association for Research in Science Teaching, San Francisco.
- van Zee, E.H. & Hammer, D. (2006, April). The influence of video case studies on elementary teachers' practices. Annual meeting of the American Educational Research Association, San Francisco.
- van Zee, E.H. & Roberts, D. (2006, April). Getting started with teacher research. Annual convention of the National Science Teachers Association, Anaheim.
- van Zee, E.H. (2006, January). Teacher thinking about elementary student thinking about motion. Winter meeting of the American Association of Physics Teachers, Anchorage, Alaska
- van Zee, E.H. (2006, January). Looking at data. Annual meeting of the Association of Science Teacher Education, Portland, OR
- van Zee, E.H. & Roberts, D. (2005, April). Looking at data I & II. Annual meeting of the National Association for Research in Science Teaching, Dallas.
- van Zee, E.H. & Hammer, D. (2004, April). Developing interpretations of student inquiries in physical science: What did Khawar mean in line 147? Annual meeting of the American Educational Research Association, San Diego
- van Zee, E.H. (2004, April). Making teaching visible with "snapshots of practice." Teaching with Technology Conference, University of Maryland, College Park.

Emily H. van Zee

van Zee, E.H. (2004, April). Teaching teachers with “snapshots of learning.” International Conference on Teacher Research, San Diego.

External Research Grants:

- 2013-present Co-Principal Investigator, National Science Foundation grant with Corinne Manogue and David Roundy, Department of Physics, Tevian Dray, Department of Mathematics, College of Science, and Eric Weber, College of Education, Paradigms in Physics: Representations of Partial Derivatives, (\$599,487)
- 2010-present Co-Principal Investigator, National Science Foundation grant with Tevian Dray, Department of Mathematics, and Corinne Manogue, Department of Physics, College of Science, Paradigms in Physics: Interactive Electromagnetic Curricular Materials (\$399,922)
- 2008-2011 Co-Principal Investigator, Oregon state Math/Science Partnership grant, Professor Margaret Niess, PI: Central Oregon Consortium for Using Technology to Enhance Science and Mathematics Learning (\$892,317)
- 2007-2012 Co-Principal Investigator, National Science Foundation grant with Professor Henri Jansen, Department of Physics, College of Science, and Professor Kenneth Winograd, Department of Teacher and Counselor Education, College of Education
Integrating Physics and Literacy Instruction in a Physics Course for Prospective Elementary and Middle School Teachers (\$149,709)
- 2006-2009 Co-Principal Investigator, National Science Foundation grant with Professor Corinne Manogue, Department of Physics, College of Science. Paradigms in Physics: Multiple Entry Points (\$498,124.00)
- 2000-2006 Co-Principal Investigator, National Science Foundation
with Professor David Hammer
Case Studies of Elementary Student Inquiry in Physical Science
(\$1,022,034)
- 1996-2003 Principal Investigator, Spencer Foundation
Program for Practitioner Research: Communication and Mentoring Grants:
- 2000-2003 Fostering Teachers’ Inquiries into Science Learning (\$50,000)
- 1998-1999 Documentation and Interpretation of the Emerging Practices
of the Science Inquiry Group (\$15,000)
- 1997-1998 Inquiring into Science Learning and Teaching Extension (\$15,000)
- 1996-1997 Inquiring into Science Learning and Teaching (\$4,000)
- 1992-1997 Principal Investigator, National Science Foundation
Program for Research on Teaching and Learning
Investigation of Questioning Processes during Conversations about Science
(\$190,475)

Emily H. van Zee

Fellowships:

2004-2005 Fellow, Academy for Excellence in Teaching and Learning
University of Maryland, College Park

2003-2004 Pew National Fellowship for Carnegie Scholars

2000-2001 Carnegie Foundation for the Advancement of Teaching

1999-2000 Lilly-Center for Teaching Excellence Teaching Fellow
University of Maryland, College Park

1990-1992 Postdoctoral Fellow: James S. McDonnell Foundation
Program in Cognitive Studies for Educational Practice
Department of Psychology, University of Washington
Project: Investigation of Questioning Processes
during a Cognitive Approach to Physics Instruction

1964 Ireland Traveling Fellowship, Radcliffe College, Harvard University

Memberships in Professional Societies

Association of Science Teacher Education
American Association of Physics Teachers
American Educational Research Association
National Association for Research in Science Teaching
National Science Teachers Association

Service

Associate Editorship:

1999-2001 Associate Editor: *Journal of Research in Science Teaching*

Committee Memberships in Professional Organization

2000-2005 Co-Chair, Ad Hoc Committee on Practitioner Research, National Association for
Research in Science Teaching

2000-2002 Co-Coordinator, Teacher Education Strand, National Association for Research in
Science Teaching

1996-1999 JRST Award Committee, National Association for Research in Science Teaching

Advisory Boards:

2000-2005 Prince George's County Regional Professional Development Network

1998-2000 Capitol Children's Museum, Washington, D.C.

1995- 1997 Center for Extreme Ultraviolet Astrophysics Science Education Advisory Board,
Berkeley, CA

Paid Consultancies:

2010 Knowles Science Teaching Foundation

2009 Knowles Science Teaching Foundation
University of Melbourne, Australia

2008 Portland State University
National Science Teachers Association Press

2007 National Science Teachers Association Press

2006 Knowles Science Teaching Foundation

2006 Lesson Lab, Santa Monica, CA

Emily H. van Zee

2001 Spencer Foundation conference facilitator

1998-1999 American Association for the Advancement of Science
Middle School Science Curriculum review