

ELLEN J. YEZIERSKI
PROFESSOR OF CHEMISTRY

Miami University
Department of Chemistry and Biochemistry
Ph. 513-529-2819
Fax 513-529-5715

yeziere@MiamiOH.edu
360B Hughes Laboratories
651 East High Street
Oxford, OH 45056

EDUCATION

- Ph.D.** Curriculum and Instruction, Science Education, Arizona State University, May 2003.
Dissertation: *The Particulate Nature of Matter and Conceptual Change: A Cross-Age Study*
Committee: James Birk (Chair), Dale Baker, Michael Piburn, Richard Bauer, and Frederick Staley
- M.Ed.** Secondary Education with Distinction, Northern Arizona University, December 1996.
Emphasis: Educational Psychology
- B.S.** Education, University of Arizona, May 1989. Major: Chemistry; Minor: Physics

PROFESSIONAL EXPERIENCE

University Appointments

Harvard University, Science Education Department, Cambridge, MA

Visiting Scientist, September - December 2018

Miami University Department of Chemistry and Biochemistry, Oxford, OH

Director, Center for Teaching Excellence, January 2018-present

Professor July 2015-present

Associate Professor August 2010-2015

Courses Taught: Chemistry Misconceptions and Conceptual Change, Learning Theories in Chemistry, Teacher Research Seminar CER Seminar, Research for Teachers/Application of Research to Teaching; Theory and Methods of Classroom CER; Inquiry Materials Development; Inquiry Materials and Action Research Project Implementation; (graduate); College Chemistry I and II, Learning Chemistry (undergraduate)

Grand Valley State University Department of Chemistry, Allendale, MI

Associate Professor August 2008-July 2010

Assistant Professor August 2003-July 2008

Courses Taught: Introductory Chemistry, Science in Elementary Education, Introduction to the Chemical Sciences (for pre-service elementary teachers), General Chemistry I Lab, Chemistry in Secondary Education, Graduate Research Seminar (for teachers in M.Ed. Content Area Specialization - CHM)

Arizona State University Department of Chemistry and Biochemistry, Tempe, AZ

Faculty Associate Summer session 2003, taught introductory chemistry

Graduate Assistant Teacher Education for Mathematics and Science (TEAMS) M.Ed./Teacher Certification Program, Summer 2002-Spring 2003. Team taught methods courses, mentored M.Ed. students, supervised field internships and student teaching, and assisted with program coordination

Instructor Methods of Teaching Chemistry, Spring 2002

Assistant Coordinator General Chemistry Teaching Assistants, Spring 2002

Volunteer Supervisor Student Teachers, Spring 2002

Volunteer Teaching Assistant Elementary Science Teaching Methods, Fall 2001

Teaching Assistant General Chemistry I and II, Fall 2000-Fall 2001

High School Science Teaching and Administration

Science Department Chair & Chemistry Teacher, Desert Mountain HS, Scottsdale, AZ, 1995-1996.

Planner Desert Mountain HS, Scottsdale, Arizona, 1994-1995. Designed and implemented reforms such as interdisciplinary teams and advisory. Planned science, fine arts, and PE departments; hired staff and managed a \$425,000 budget.

Chemistry and Honors Chemistry Teacher, Chaparral HS, Scottsdale, AZ, 1992-1995.
Developer and Instructor Applied Science and Engineering Summer Institute for Junior High Science Teachers, Camelback HS, Phoenix, AZ, 1991.
Chemistry and Engineering Physical Science Teacher, Camelback HS, Phoenix, AZ, 1989-1992.

RESEARCH MENTORING & STUDENT COLLABORATORS

Miami University

Undergraduates

Heather Bauman
 Joshi Vadehi
 Matthew Herbst
 Megan Krug
 Brad Brock
 Amanda Schachtel
 R. Thomas Smith
 Samantha Sloane
 Destinee Johnson (REU 2013)
 Benjamin Sandlin
 Linh-Thuy Vu
 Cassandra Sandvick
 Caitlin Leoffler (REU 2017)
 Natalia Kellamis
 Logan Plumley
 Naomi Patton
 Nicholas Spurgus
 Brianna Minshall
 Dillon Frank
 Meghan Mulligan
 Vicky Borland
 Nathaniel Walter (REU 2018)
 Allison Terrell
 Michael Seballos (current)
 Krista Wilson (current)
 Mason Schmidt (current)

Aaron Turner (current)
 Woojin Lee (current)
 Evan Blake (current)

Postdoctoral Researchers

Dr. Stephanie Philipp

Doctoral Students

As Advisor

Catherine Amoateng (current)
 Adam Schafer (current)
 Justin Pratt Ph.D. 2018
 Patrick Emery (left program)
 Sara Nielsen, PhD 2016
 Justin Carmel, PhD 2015
 Jordan Harshman, PhD 2015
 Sarah Erhart (left program)
 Jorge Torres (left program)

As Committee Chair

Kim Linenberger, PhD 2011
 Ana Vasquez, PhD 2012
 Cynthia Luxford, PhD 2013
 Jana Jensen, PhD 2013
 Michael Bindis, PhD 2013
 Allie Brandreit, PhD 2014
 Kelli Galloway, PhD 2015
 Maia Popova, PhD 2018

Timothy Abell PhD 2019
 Zahilyn Roche Allred PhD 2019
 Michael Croisant (current)
 Sarah Fullington (current)
 Courtney Chatha (current)

As Committee Member

Jayanthi Sanjeevi, PhD 2014
 Daniel Drew, PhD 2019
 Abd al-karim Ali (current)

Master's Students

As Advisor

Brittany Christian (MS 2012)
 R. Thomas Smith (MS 2015)

As Committee Member

Nefertiti Muhammed

As Collaborator

Mary Mills (MS 2012)

High School Teachers

As Collaborators

Chad Husting
 Stephanie Kimberlin
 Amanda Vilaro

Grand Valley State University

Undergraduates

Brittland (Winters) DeKorver
 Brandon Klein
 Cynthia Luxford
 Christian Billman

Kristina Emery Underwood
 Karen Luxford
 Sherri Newenhouse
 Samantha Haugen

Master's Students

Laura Kennedy, MS 2008
 Divya Gunda, MS 2010
 Chad Bridle, HS teacher

PUBLICATIONS (student and postdoctoral collaborators in **bold**)

53 Total

Refereed Journal Articles (unless otherwise noted)

45. Chambers, T. M., Gravely, E. C., Hunter, W., Nielson, J. B., & Yeziarski, E. J. (2019). Refuting myths about secondary chemistry teaching: Getting the facts out to current and future educators. *Journal of Chemical Education*, ASAP. DOI: 10.1021/acs.jchemed.9b00547
44. **Kellamis, N. M.**, & Yeziarski, E. J. (2019). Applying the Next Generation Science Standards to current chemistry classrooms: How lessons measure up and how to respond. *Journal of Chemical Education*, ASAP. DOI: 10.1021/acs.jchemed.8b00840

43. **Schafer, G. L.**, Yeziarski, E. J., Hartley, C. S. (2019). Understanding thermodynamic control in self-assembly: A mixed synthetic computational experiment for the undergraduate organic chemistry teaching laboratory. *Journal of Chemical Education*, ASAP. DOI: 10.1021/acs.jchemed.8b0104642.
42. Herrington, D. G., Sweeder, R. D., Daubenmire, P. L., Bauer, C. F., Bretz, S. L., Bunce, D. M., Carmel, J. H., Cole, R., DeKorver, B. K., Kelly, R. M., Lewis, S. E., Oliver-Hoyo, M., Ryan, S. A., Stains, M., Towns., M. H., & Yeziarski, E. J. (2019). Supporting the Growth and Impact of the Chemistry-Education-Research Community. *Journal of Chemical Education*, ASAP. DOI: 10.1021/acs.jchemed.8b00823
41. **Pratt, J. M.**, & Yeziarski, E. J. (2019). Goodwill without guidance: College student outreach practitioner training. *Journal of Chemical Education*, ASAP. DOI: 10.1021/acs.jchemed.8b00882
40. **Emery, P.**, Yeziarski, E. J., & Page, R. C. (2019). Guided inquiry activity linking thermodynamic parameters of protein unfolding to structure using differential scanning fluorimetry data in the biophysical chemistry classroom. *Biochemistry and Molecular Biology Education*, 47(1), 67-75. doi.org/10.1002/bmb.21198
39. **Pratt, J. M.**, & Yeziarski, E. J. (2019). "You lose some accuracy when you're dumbing it down": Teaching and learning ideas of college students teaching chemistry through outreach. *Journal of Chemical Education*, 96(2), 203-212. DOI: 10.1021/acs.jchemed.8b00828
38. **Pratt, J. M.**, & Yeziarski, E. J. (2018). College students teaching chemistry through outreach: Conceptual Understanding of the elephant toothpaste reaction and making liquid nitrogen ice cream. *Journal of Chemical Education*, 95(12), 2091-2102. DOI: 10.1021/acs.jchemed.8b0068837.
37. **Pratt, J. M.**, & Yeziarski, E. J. (2018). A novel qualitative method to improve access, elicitation, and sample diversification for enhanced transferability applied to studying chemistry outreach. *Chemistry Education Research and Practice*, 19(2), 410-430. DOI: 10.1039/C7RP00200A
36. **Torres King, J. H.**, Wang, H., & Yeziarski, E. (2018). Asymmetric aldol additions: A guided-inquiry laboratory activity on catalysis. *Journal of Chemical Education*, 95(1), 158-163.
35. **Pratt, J. M.**, & Yeziarski, E. J. (2018). Characterizing the landscape: Collegiate organizations' chemistry outreach practices. *Journal of Chemical Education*, 95(1), 7-16. *ACS Editor's Choice*
34. **Pratt, J. M.**, Birk, J. P., Tierney, D., & Yeziarski, E. (2017). Combining novel visualizations and synthesis to explore structure-property relationships using cobalt complexes. *Journal of Chemical Education*, 94(12), 1952-1959.
33. Yeziarski, E. (2017). Announcement and description of the *Journal of Chemical Education* Editor-in-Chief Position. *Journal of Chemical Education*, 94(9), 1183-1184. DOI: 10.1021/acs.jchemed.7b00638 [Announcement]
32. **Husting, C.**, **Harshman, J.**, & Yeziarski, E. (2017). Using teacher action research in high school chemistry to develop novel assessment tools. *Journal of Teacher Action Research*, 3(2), 14-29.
31. **Harshman, J.**, & Yeziarski, E. (2017). Assessment data-driven inquiry: A review of how to use assessment results to inform chemistry teaching. *The Science Educator*, 25(2), 97-107.
30. **Vilardo, A.**, MacKenzie, A. E., & Yeziarski, E. J. (2017). Using students' conceptions of air to evaluate a guided-inquiry activity classifying matter using particulate models. *Journal of Chemical Education*, 94(2), 206-210.
29. **Nielsen, S.**, & Yeziarski, E. (2016). Beyond academic tracking: using cluster analysis and self-organizing maps to investigate secondary students' chemistry self-concept. *Chemistry Education Research and Practice*, 17, 711-722. DOI: 10.1039/C6RP00058D
28. **Kimberlin, S.**, & Yeziarski, E. (2016). Effectiveness of inquiry-based lessons using particulate level models to develop high school students' understanding of conceptual stoichiometry. *Journal of Chemical Education*, 93(6), 1002-1009. DOI: 10.1021/acs.jchemed.5b01010
27. **Harshman, J.**, & Yeziarski, E. (2016). Characterizing high school chemistry teachers' use of assessment data via latent class analysis. *Chemistry Education Research and Practice*, 17, 296-308. DOI: 10.1039/C5RP00215J
26. Herrington, D. G., Yeziarski, E. J., & Bancroft, S. F. (2016). Tool trouble: Challenges with using self-report data to evaluate long-term chemistry teacher professional development. *Journal of Research in Science Teaching*, 53(7), 1055-1081. DOI: 10.1002/tea.21323
25. **Erhart, S. E.**; McCarrick, R. M.; Lorigan, G. A.; Yeziarski, E. (2016). Citrus quality control: An NMR/MRI problem-based experiment. *Journal of Chemical Education*, 93(2), 335-339. DOI: 10.1021/acs.jchemed.5b00251

24. **Harshman, J.**, Yeziarski, E. (2016). Test-retest reliability of the adaptive chemistry assessment survey for teachers: Measurement error and alternatives to correlation. *Journal of Chemical Education*, 93(2), 239-247. DOI: 10.1021/acs.jchemed.5b00620
23. **Nielsen, S.**, & Yeziarski, E. (2015). Exploring the structure and function of the chemistry self-concept inventory with high school chemistry students. *Journal of Chemical Education*, 92(11), 1782-1789. DOI: 10.1021/acs.jchemed.5b00302
22. **Sandlin, B.**, **Harshman, J. H.**, & Yeziarski, E. (2015). Formative assessment in high school chemistry teaching: Investigating the alignment of teachers' goals with their items. *Journal of Chemical Education*, 92(10), 1619-1625. DOI: 10.1021/acs.jchemed.5b00163
21. **Harshman, J.**, & Yeziarski, E. (2015). Guiding teaching with assessments: High school chemistry teachers' use of data-driven inquiry. *Chemistry Education Research and Practice*, 16, 93-103. DOI: 10.1039/C4RP00188E
20. **Carmel, J. H.**, Jessa, Y., & Yeziarski, E. (2014). Targeting the development of content knowledge and scientific reasoning: Reforming college-level chemistry for nonscience majors. *Journal of Chemical Education*, 92(1), 46-51. DOI: 10.1021/ed500207t
19. **Phillip, S. B.**, **Johnson, D. K.**, & Yeziarski, E. (2014). Development of a protocol to evaluate the use of representations in secondary chemistry instruction. *Chemistry Education Research and Practice*, 15(4), 777-786.
18. Herrington, D., & Yeziarski, E. (2014). Professional development aligned with AP Chemistry curriculum: Promoting science practices and facilitating enduring conceptual understanding, *Journal of Chemical Education*, 91(9), 1368-1374.
17. **Nielsen, S. E.**, Scaffidi, J. S., & Yeziarski, E. J. (2014). Detecting art forgeries: A problem-based Raman spectroscopy lab, *Journal of Chemical Education*, 91(3), 446-450.
16. **Harshman, J. H.**, Bretz, S. L., & Yeziarski, E. J. (2013). Seeing chemistry through the eyes of the blind: A case study examining multiple gas law representation. *Journal of Chemical Education*, 90(6), 710-716.
15. **Carmel, J. H.** & Yeziarski, E. J. (2013). Are we keeping the promise? Investigation of students' critical thinking growth. *Journal of College Science Teaching*, 42(5), 71-81.
14. **Mills, M. E.**, Blue, J., & Yeziarski, E. (2013). Self-efficacy in introductory physics in students at single-sex and coeducational colleges. *American Institute of Physics: Physics Education Research Conference Proceedings*, 1513, 78-81. DOI: 10.1063/1.4789656
13. **Christian, B. N.**, & Yeziarski, E. J. (2012). A new frontier for chemistry education research. *Journal of Chemical Education*, 89(9), 1337-1339.
12. **Christian, B. N.**, & Yeziarski, E. J. (2012). Development and validation of an instrument to measure student knowledge gains for chemical and physical change for grade 6-8. *Chemistry Education Research & Practice*, 13(3), 384-393.
11. **Christian, B.**, & Yeziarski, E. (2012). A change for chemistry, *Science Scope*, 35(8), 60-65.
10. **Bridle, C. A.**, & Yeziarski, E. J. (2012). Evidence for the effectiveness of inquiry-based, particulate-level instruction on conceptions of the particulate nature of matter, *Journal of Chemical Education*, 89(2), 192-198.
9. Herrington, D., **Luxford, K.**, & Yeziarski, E. (2012). Target Inquiry: Helping teachers use a research experience to transform their teaching practices, *Journal of Chemical Education*, 89(3), 442-448.
8. Yeziarski, E. J., & Herrington, D. G. (2011). Improving practice with Target Inquiry: High school chemistry teacher professional development that works, *Chemistry Education Research and Practice*, 12(3), 344-354.
7. Herrington, D. G., Yeziarski, E. J., **Luxford, K. M.**, & **Luxford, C. J.** (2011). Target inquiry: Changing chemistry high school teachers' beliefs about inquiry instruction and their classroom practice, *Chemistry Education Research and Practice*, 12(1), 74-84.
6. Schiller, E. & Yeziarski, E. (2009). No more leaks: A process-oriented lesson exploring the invention and chemistry of disposable diapers, *Science Scope*, 33(2), 33-38.
5. **Kennedy, L. M.**, Yeziarski, E. J. & Herrington, D. G. (2008). Whose science is it anyway? Models of science according to chemistry students, faculty, and teachers, *The Science Educator*, 17(1), 1-9.
4. Yeziarski, E. J. & Birk, J. P. (2006). Misconceptions about the particulate nature of matter: Using animations to close the gender gap. *Journal of Chemical Education*, 83(6), 954-960.
3. Yeziarski, E. J. & Birk, J. P. (2006). Particulate nature of matter assessment, *Journal of Chemical Education Digital Library (Formerly QBank, Currently JCE ChemEd XChange)*.
2. Birk, J. P. & Yeziarski, E. J. (2003). Paper-and-glue unit cell models. *Journal of Chemical Education*, 80 (2), 157-159.

1. Labrie, A., Lemanowski, V., Smiley, B., Yeziarski, E., Baker, D. & Anderson-Rowland, M. (2003). A new look at gender equity professional development for secondary science/mathematics teachers and counselors. *Proceedings of the American Association for Engineering Education Annual Conference & Exposition, 2003*.

Peer-Reviewed Book Chapters

8. Hunnicutt, S. S., Ruder, S. M., Amaral, K. E., Yeziarski, E. J., & Bauer, C. F. (2019). POGIL in the large classroom. In S. R. Simonson (Ed.) *POGIL: An introduction to process oriented guided inquiry learning for those who wish to empower learners*. Stylus Publishing: Sterling, VA.
7. Gupta, T., Herrington, D., & Yeziarski, E. (copyright 2018, released 2017). Target Inquiry: A case for quality professional development. In D. Polly, M. Putnam, T. Petty, A. Good (Eds.) *Innovative Practices in Teacher Preparation and Graduate-Level Teacher Education Programs* (pp. 383-416). Hershey, PA: IGI Global.
6. Harshman, J., Yeziarski, E., & Nielsen S. (2017). Putting the R in CER: How the statistical program R transforms research capabilities. In T. Gupta (Ed.) *Computer-Aided Analysis in Chemical Education Research (CADACER): Advances and Avenues* (pp., 65-90). Washington, DC: American Chemical Society. DOI: 10.1021/bk-2017-1260-choo6
5. Hunnicutt, S. S., Ruder, S. M., Yeziarski, E., Amara, K., & Bauer, C. (in press). *Chapter 9. Large Classes in POGIL: An Introduction to Process Oriented Guided Inquiry Learning for Those Who Wish to Empower Learners*, S. Simonson, ed. Sterling, VA: Stylus Publishing.
4. Yeziarski, E. J. (2014). Observation as tool for investigating chemistry teaching and learning. In D. Bunce and R. Cole (Eds.) *Tools of Chemistry Education Research*; ACS Symposium Series; Washington, D.C.: American Chemical Society.
3. Yeziarski, E. J., & Herrington, D. G. (2013). The road to scientific literacy: How Target Inquiry is improving instruction and student achievement in high school chemistry. In B. Wojnowski and S. Koba (Eds.) *Exemplary Science Practices in Professional Development*. Washington, DC: National Science Teachers Association.
2. Herrington, D., Yeziarski, E. & Caldwell, R. (2008). Chemistry and the life science standards. In S. Lowery Bretz (Ed.), *Chemistry in the National Science Education Standards* (2nd ed.). Washington, DC: American Chemical Society Committee on Education. Recognized in *NSTA Recommends* (<http://www.nsta.org/recommends/ViewProduct.aspx?ProductID=18806>).
1. Yeziarski, E. J., Bauer, C. F., Hunnicutt, S. S., Hanson, D. M., Amaral, K. E. & Schneider, J. P. (2008). POGIL implementation in large classes: Strategies for planning, teaching, and management. In R. S. Moog & J. N. Spencer (Eds.), *Process-Oriented Guided Inquiry Learning*. Washington, DC: American Chemical Society Symposium Books.

Textbook

- Birk, J. P. & Yeziarski, E. J. (in preparation). *Chemistry*.
- Yeziarski, E., (2007). Annotated Instructor's Edition for Bauer, R., Birk, J. & Marks, P. *A Conceptual Introduction to Chemistry* (1st ed.). Dubuque, IA: McGraw-Hill Higher Education.

Invited Abstract

Yeziarski, E., (Fall 2007). Misconceptions about the particulate nature of matter: Using animations to close the gender gap, *Annals of Research in Engineering Education* (comprehensive web portal featuring education research relevant to engineering education). <http://www.areeonline.org>.

Other

- Acknowledged for contributions to Yaron, D., Freeland, R., Lange, D., Karabinos, M., Milton, J., and Belford, R. (2001). Uses of flexible virtual laboratory simulations in introductory chemistry courses, *CONFICHEM*.
- Yeziarski, E. (1996). *Solutions™ Interactive Links: Chemistry* (an interactive, web-based, high school chemistry text). Pearson Publishing.
- Acknowledged for contributions to Birk, J. & Lawson, A. (1994). *Chemistry: A critical thinking approach*. National Science Foundation.

FUNDED GRANTS

National Science Foundation Division on Research on Learning in Formal and Informal Settings (DRL)
(Funded May 21, 2019)

Yeziarski (PI) \$1,901,769 #1908121 – *Design Research on the Teaching and learning of Conceptual Understanding in High School Chemistry Through the Use of Dynamic Visualizations of Physical and Chemical Changes.*

National Science Foundation Division on Graduate Education **(Funded August 16, 2018)**

Ward, R. M. (PI), Diekman, A. (Co-PI), **Yeziarski (Co-PI)**, Bretz, S. L. (Co-PI): **\$433,997** #1806664 – *IGE: Professional and Identity Development in Graduate School: Bringing Transformative Practices in PD to Doctoral Students in Chemistry & Psychology.*

Miami University Committee on Faculty Research **(Funded December 11, 2017)**

Yeziarski, E. J. (PI): \$27,034 – *Characterizing Instructors' Use of Animations in the General Chemistry Classroom.* (Funds returned due to student withdrawing)

National Science Foundation Division of Undergraduate Education **(Funded May 1, 2017)**

Bautista, N. (PI), Wanko, J. (Co-PI), Schwartz, T (Co-PI), Blue, J. (Co-PI), **Yeziarski, E. J. (Co-PI): \$1,182,237** #1660644 – *A Community-Based and Culturally Responsive Approach to STEM Teacher Preparation, Induction and Retention.*

National Science Foundation Division of Undergraduate Education **(Funded July 2015, expires July 2016).**

Bautista, N. (PI), Wanko, J. (Co-PI), Blue, J. (Co-PI), Schwartz, T (Co-PI), **Yeziarski, E. J. (Co-PI): \$74,956** #1540102 – *Building Capacity for Miami University Robert Noyce Scholars.*

National Science Foundation Discovery Research K-12 **(Funded Aug 2011)**

Yeziarski, E. J. (PI) Miami award: \$1,349,397 – *Collaborative Research: Further Development and Testing of the Target Inquiry Model for High School Science Teacher Professional Development*
In second no cost extension year; ends July 31, 2018

Miami Co-PI: Ann MacKenzie; GVSU PI (Collaborator): Deborah Herrington

National Science Foundation Teacher Professional Continuum **(Funded April 2006)**

Yeziarski, E. J. (PI) \$1,307,990 – *Target Inquiry: Investigating the Teacher and Student Effects of a New Model in Chemistry Teacher Professional Development* (5-year award). Co-PI: Deborah Herrington

GVSU Faculty Research and Development Center **(Funded Aug 2005)**

\$1,962 – *The Impact of Target Inquiry on High School Chemistry Teachers' Classroom Instruction*
Co-Applicant: Deborah Herrington; Undergraduate Researcher: Brittlund Winters

GVSU Pew FTLC Claiming a Liberal Education **(Funded April 2005)**

\$4,600 – *Aligning Lesson Plan Requirements Across Disciplines* (Director: Yeziarski)
Collaborators: Deborah Herrington, Stephen Burton, Stephen Mattox, Keith Oliver, Linda Goossen, Ellen Schiller, Chris Dobson

GVSU Pew FTLC Teacher Scholar Award **(Funded March 2005)**

\$7,100 – *Creating Classroom-Ready Instruction and Assessments for the Chemistry Concentration*
Co-Director: Deborah Herrington

Camille and Henry Dreyfus Foundation 2005 Special Grant Program in the Chemical Sciences **(Funded Feb 2005)**

Herrington, D. G. (PI); **Yeziarski, E. Y. (Co-PI)** \$116,750 – *Bringing Inquiry to the Classroom Through Research, Inquiry Materials Adaptation, and Implementation: A New Professional Development Model for High School Chemistry Teachers*

GVSU Pew FTLC Presidential Teaching Initiatives Grant **(Funded March 2004)**

\$15,000 – *Professional Development for High School Chemistry Teachers: Bringing Inquiry to the Classroom Through Research, Curriculum Development, and Implementation.* Co-authors: Herrington, Henderleiter, Soman.

PROJECT EVALUATION, ADVISORY, CONSULTING

National Science Foundation (2018-2023) Advisory Board (Chemistry Change Agent)

PIs: Wendy Adams (PI) Colorado School of Mines; Douglas Ensley (Co-PI) APS; Monica Plisch (Co-PI) AMA; Terri Taylor (Co-PI) ACS

DUE "Collaborative Research: Get the Facts Out: Changing the Conversation around STEM Teacher Recruitment" Award # 1821710

Department of Education, Institute for Education Sciences (2017-2020) Advisory Board
 PIs: Jodi Davenport, WestED; David Yaron, Carnegie Mellon University
 STEM Education, “Investigating the Use of Virtual Labs to Promote Chemical Reasoning and Practice Skills”
 Award #R305A170049

National Science Foundation (2016-present) Advisory Board
 PIs: Hannah Sevian, University of Massachusetts Boston; Vicente Talanquer, Pamela Pelletier, University of
 Arizona
 DRL DRK-12 “Supporting Chemistry Teachers to Assess and Foster Chemical Thinking” Award #1621228

National Science Foundation (2016-2019) Evaluator
 PIs: KC Russell, Northern Kentucky University; Jeffrey Katz, Colby College
 CHE REU: “The TIM Consortium: A Dispersed REU Site in Theoretically Interesting Molecules” Award #
 1559886

National Science Foundation (2013-2015) Advisory Board
 PI: Amanda Diekman, Psychology, Miami University
 “GSE/RES: Staying in STEM: Examining communal goal congruity processes in the retention of women”
 Award #1232364

National Science Foundation (2012-2015) Advisory Board
 PIs: Vicente Talanquer, Chemistry, University of Arizona; Hannah Sevian, University of Massachusetts Boston
 “Collaborative Research: An Initial Learning Progression in Chemical Design” Award #1221494 & 1222624

Ohio Department of Education Math and Science Partnership (July 2013-August 2014)
 \$159,756 for Science Content, Communication, and Argument
 Miami University
 PI: Susan Hershberger

Ohio Board of Regents Improving Teacher Quality (January 2012-May 2013)
 \$120,448 for *Scaffolding Physical Science Inquiry through Reflective Writing*
 Miami University
 PI: Susan Hershberger

American Chemical Society Science Coaches Program – Yeziarski Research Group was contracted for 3 months to
 plan and execute evaluation of national program (February-April 2012).

State Council of Higher Education for Virginia – No Child Left Behind, Title II, Part A Competitive Grant
 \$126,403 for *Developing Experts and Advocates of Inquiry Teaching*
 Sweet Briar College (August 2010-September 2011)
 PI: Jill Granger; Co-Evaluator: Deborah Herrington

Toyota U.S.A. Foundation
 \$450,000 for the *High School Process-Oriented Guided Inquiry Learning (POGIL) Initiative*
 Franklin and Marshall College (October 2008-September 2011)
 PIs: Richard Moog and James Spencer

PRESENTATIONS

273 Total

Invited Seminars and Conference Papers (presenter in bold)

46. **Yeziarski, E.** *Conceptual Understanding As a Driving Force for Research and Reform: Classrooms, Campuses, and Communities.* Invited seminar for Academy of Distinguished Teachers in Undergraduate Education: Scholarship of Teaching, University of California, Riverside, May 29, 2019.
45. **Yeziarski, E.** *Undergraduates Teaching Chemistry through Outreach: Starting a Journey from Goodwill to Research-Based Practice.* Invited seminar for Upper Ohio Valley Local Section Annual Awards Banquet, Marietta College, April 30, 2019.
44. **Yeziarski, E.** *Undergraduates teaching chemistry through outreach: Characterizing goals, content knowledge and training.* Invited seminar at Florida International University, February 8, 2019.
43. **Yeziarski, E.** *Undergraduates teaching chemistry through outreach: Starting a journey from goodwill to research-based practice.* Invited seminar for Chemical Sciences at the Interface of Education at the University of Michigan, November 2, 2018.
42. **Yeziarski, E.** *Undergraduates teaching chemistry through outreach: Starting a journey from goodwill to research-based practice.* Invited presentation at University of Massachusetts - Boston, September 19, 2018.

41. **Pratt, J. M., & Yeziarski, E. J.** *Data-driven qualitative research: Developing and implementing a novel data collection method for accessing geographically diverse participants and eliciting their ideas.* Invited presentation at the Biennial Conference on Chemical Education, August 1, 2018, University of Notre Dame.
40. **Yeziarski, E. J., Schwartz, T., Blue, J., Wanko, J., & Bautista, N. U.** *Miami University Noyce program: Community-based and culturally responsive approach to STEM teacher preparation, induction, and retention.* Presentation at the Biennial Conference on Chemical Education, July 29, 2018, University of Notre Dame.
39. **DeKorver, B. K., & Yeziarski, E. J.** *Undergraduate research in CER: Where is it now and where are we headed? B.* Presentation at the Biennial Conference on Chemical Education, July 29, 2018, University of Notre Dame.
38. **Yeziarski, E.** *Characterizing chemistry teachers' data-driven inquiry practices: A chemistry-centered approach.* Invited presentation at the Loyola University Chicago, April 19, 2018.
37. **Yeziarski, E.** *Undergraduates teaching chemistry through outreach: Starting a journey from goodwill to research-based practice.* Invited presentation at Virginia Commonwealth University, December 7, 2017.
36. **Yeziarski, E.** *Undergraduates teaching chemistry through outreach: Starting a journey from goodwill to research-based practice.* Invited presentation at the University of Iowa, October 20, 2017.
35. **Yeziarski, E.** *Characterizing chemistry teachers' data-driven inquiry practices: A chemistry-centered approach.* Invited presentation at the University of Illinois at Chicago, September 26, 2017.
33. **Yeziarski, E.** *Characterizing chemistry teachers' data-driven inquiry practices: A chemistry-centered approach.* Invited presentation at Purdue University, September 13, 2017.
32. **Yeziarski, E., & Pratt, J.** *Undergraduates teaching chemistry through outreach: Professional development or goodwill without guidance?* Invited presentation at the 2017 Gordon Research Conference on Chemistry Education Research and Practice, Bates College, Lewiston, ME, June 22, 2017.
31. **Yeziarski, E.** *Increasing the influence and impact of CER: Developing high school teachers as chemistry education researchers.* Invited presentation at ACS Awards Symposium to honor Marcy Towns at 253rd ACS National Meeting and Exposition, April 3, 2017, San Francisco, CA.
30. **Yeziarski, E.** *Applying CER and domain-general research to create an intimate learning environment in large lecture courses.* Invited presentation at CER Research to Practice Symposium at 253rd ACS National Meeting and Exposition, April 2, 2017, San Francisco, CA.
29. **Yeziarski, E.** *Characterizing Chemistry Teachers' Data-Driven Inquiry Practices: A Chemistry-Centered Approach.* Invited seminar presented at Wake Forest University, Chemistry Department, November 16, 2016.
28. **Yeziarski, E.** *Characterizing High School Chemistry Teachers' Data-Driven Inquiry Practices: A Chemistry-Centered Approach.* Invited seminar presented at the University of South Florida, Chemistry Department, April 16, 2015.
27. **Yeziarski, E.** *Innovation diffusion in a single case: Adoption and re-invention of visualization research findings to improve applied research, instruction, and teacher professional development in chemistry.* Invited presentation at ACS Awards Symposium to honor Vickie Williamson at 249th ACS National Meeting and Exposition, March 23, 2015, Denver, CO.
26. **Yeziarski, E.** *Formative assessment on steroids: Eliciting prior knowledge to frame lesson design.* Invited presentation at Maine Center for Research in Science Education 2014 National Summer Conference, University of Maine, Orono, ME, June 15, 2014.
25. **Yeziarski, E., & Herrington, D.,** *Evaluating chemistry teacher change and student learning outcomes from a novel model for teacher development.* Invited seminar presented at Iowa State University, Chemistry Department, May 21, 2014.
24. **Yeziarski, E.** *Scientific reasoning in chemistry: How can instruction promote measurable growth?* Invited seminar presented at Hope College, February 21, 2014.
23. **Yeziarski, E.** *Scientific reasoning in chemistry: How can instruction promote measurable growth?* Invited seminar presented at Calvin College, February 20, 2014.
22. **Yeziarski, E.** *Shifting the Equilibrium: Evaluating teacher and student learning outcomes of a novel model for chemistry teacher professional development.* Invited seminar presented at University of Nebraska Lincoln, January 17, 2014.
21. **Yeziarski, E.** *Shifting the Equilibrium: Evaluating teacher and student learning outcomes of a novel model for chemistry teacher professional development.* Invited seminar presented at Michigan State University, November 21, 2013.
20. **Yeziarski, E.** *Shifting the Equilibrium: Evaluating teacher and student learning outcomes of a novel model for chemistry teacher professional development.* Invited seminar presented at University of North Carolina Wilmington, November 8, 2013.

19. **Yeziarski, E.** *Shifting the Equilibrium: Evaluating teacher and student learning outcomes of a novel model for chemistry teacher professional development.* Invited seminar presented at University of New Hampshire, October 2, 2013.
18. **Cullen, D., Johnson, D., Mason, M., Putti, A., Ragan, D., Schoenborn, R., Slater, A., Herrington, D., & Yeziarski, E.** *Engage your students in scientific practice with Target Inquiry activities developed and tested by teachers.* Invited presentation at 246th ACS National Meeting, Indianapolis, IN, September 8, 2013.
17. **Yeziarski, E.,** *Pedagogical and logistical considerations of POGILesque activities in large classes,* Plenary lecture at Great Lakes POGIL Regional Meeting, Capital University, Columbus, OH, July 13, 2013.
16. **Herrington, D. & Yeziarski, E.** *Products of the Target Inquiry project: Quality inquiry materials made for and by high school teachers that stand up to student scrutiny.* Invited Oresentation at 245th ACS National Meeting, New Orleans, LA, April 7, 2013.
15. **Yeziarski, E.** *Scientific reasoning in chemistry: How can instruction promote measurable growth?* Invited seminar presented at University of Northern Colorado, November 30, 2012.
14. **Yeziarski, E.** *Did they get it? Evaluating students' chemistry learning outcomes resulting from a novel model for teacher professional development,* Invited seminar presented at Purdue University, September 28, 2011.
13. **Yeziarski, E.** *Long-term effects on chemistry teacher quality: The Target Inquiry model for high school chemistry teacher professional development,* Invited seminar (award address) at the Western Connecticut Local ACS Section Education Night, Fairfield, CT, May 16, 2011.
12. **Herrington, D., & Yeziarski, E.** *We need labs to help students develop skills and habits of mind of scientists, in the invited symposium, "Debunking the Myths about Teaching and Learning."* Presentation at 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010.
11. **Yeziarski, E. & Herrington, D.** *Target Inquiry: Evidence of reform in instruction and student outcomes in high school chemistry.* Invited seminar at University of Iowa, October 9, 2009.
10. **Herrington, D. & Yeziarski, E.** *Target Inquiry: Evidence of reform in instruction and student outcomes in high school chemistry.* Invited co-presentation at National Academy of Sciences' Chemical Sciences Roundtable, Washington, DC, September 24, 2009.
9. **Yeziarski, E. & Herrington, D.** *Target Inquiry: Transforming teacher professional development and instruction in high school chemistry.* Invited co-presentation at the 2009 Gordon Research Conference on Chemistry Education Research and Practice, Colby College, Waterville, ME, June 23, 2009.
8. **Yeziarski, E. & Herrington, D.** *Target Inquiry: Transforming instruction and student outcomes in high school chemistry.* Invited seminar presented at Miami University, February 5, 2009.
7. **Yeziarski, E. & Herrington, D.** *Target Inquiry: Transforming teacher professional development and instruction in high school chemistry.* Invited seminar presented at Purdue University, September 24, 2008. Also presented by **D. Herrington** at University of Western Cape (September 16, 2008) and University of Cape Town (September 17, 2008), Cape Town, South Africa.
6. **Herrington, D., Yeziarski, E. & Caldwell, R.** *Chapter 5: Chemistry and the life science standards.* Presentation at 20th Biennial Conference on Chemical Education, Bloomington, IN, July 25-31, 2008.
5. **Yeziarski, E. & Herrington, D.** *High school teacher professional development: Growing a chemistry education laboratory.* Invited Presentation at 20th Biennial Conference on Chemical Education, Bloomington, IN, July 25-31, 2008.
4. **Yeziarski, E. & Herrington, D.** *Target inquiry: Transforming high school teacher professional development through research.* Invited presentation at Awards Symposium to honor Dorothy Gabel at 235th American Chemical Society (ACS) National Meeting, New Orleans, LA, April 6-10, 2008.
3. **Yeziarski, E. & Herrington, D.** *Target Inquiry: The Teacher and Student Effects of a New Model for High School Chemistry Teacher Professional Development.* Invited seminar presented at Calvin College (October 11, 2007) and University of South Florida (November 1, 2007). Also presented by D. Herrington at University of Northern Iowa (November 1, 2007).
2. **Yeziarski, E.** *Assessing for conceptual understanding in chemistry.* Invited presentation at Virginia Conference on Standards of Learning, Richmond, VA, June 23, 2006.
1. **Yeziarski, E.,** *Assessing prior knowledge for conceptual change and Standards-based instruction in real-world contexts.* Invited speaking engagements at National Conference of the Core Knowledge Foundation, Phoenix, AZ, March 7, 2003.

Refereed Research Presentations

6. **Nielsen, S. E.**, & Yeziarski, E. J. (2016). *Student beliefs: Using cluster analysis and self-organizing maps to understand high school students' chemistry self-concept*. Paper accepted to the 2016 Annual International Conference of the National Association for Research in Science Teaching, Baltimore, MD, April 15, 2016.
5. **Philipp, S. B.**, Herrington, D. G., & Yeziarski, E. J. (2015). *Evaluation of an inquiry professional development program: Student and chemistry teacher outcomes*. Paper presented at the 2015 Annual International Conference of the National Association for Research in Science Teaching, Chicago, IL, April 12, 2015.
4. **Harshman, J.**, & Yeziarski, E. J. (2015). *Data-Driven inquiry: High school chemistry teachers' of Classroom assessments*. Paper presented at the 2015 Annual International Conference of the National Association for Research in Science Teaching, Chicago, IL, April 10, 2015.
3. **Philipp, S. B.**, & Yeziarski, E. J. (2015). *Evaluating the use of chemistry representations in teacher-developed activities*. Paper presented at the Annual International Conference of the Association for Science Teacher Education, Portland, OR, January 9, 2105.
2. **Yeziarski, E. J.**, & **Herrington, D. G.** (2014). *Tool trouble: Challenges with using self-report data to evaluate long-term chemistry professional development*. Poster presented at the 2014 Annual International Conference of the National Association for Research in Science Teaching, Pittsburgh, PA, March 31, 2014.
1. **Sevian, H., Talanquer, V. A., Parchmann, I., Blonder, R., Herrington, D., Yeziarski, E., Rollnick, M. S., Shin, M., & Tal, T.** (2014). *Reconceptualizing high school chemistry based on authentic practices*. A symposium presented at the 2014 Annual International Conference of the National Association for Research in Science Teaching, Pittsburgh, PA, March, 31, 2014.

Contributed Papers (student collaborators in **bold**; presenter listed first, unless otherwise noted)

1. **Schafer, A. G.**, & Yeziarski, E. J. *Using what students know: Learning how secondary chemistry teachers apply informal analysis techniques to assessment results*. Presentation at the 258th ACS National Meeting, August 27, 2019, San Diego, CA.
2. **Schafer, A. G.**, & Yeziarski, E. *Aligning multiple data sources to investigate how secondary chemistry teachers use data to inform assessment practices*. Poster at 2019 Gordon Research Conference on Chemistry Education Research and Practice, Bates College, June, 17, 2019.
3. **Terrell, A., Seballos, M., Schafer, A. G.**, & Yeziarski, E. *Learning chemistry from YouTube? Evaluating intermolecular forces videos using multimedia principles of coherence and image comprehensibility*. Poster at 2019 the Miami University Undergraduate Research Forum, April 24, 2019, Oxford, OH.
4. **Wilson, K., Schmidt, M., Schafer, A. G.**, & Yeziarski, E. *Learning chemistry from YouTube?: Evaluating videos on intermolecular forces using multimedia principles of signaling and verbal comprehensibility*. Poster at 2019 the Miami University Undergraduate Research Forum, April 24, 2019, Oxford, OH.
5. **Borland, V., Schafer, A. G.**, & Yeziarski, E. *Investigating the alignment between secondary inquiry chemistry activities and assessments*. Poster at 2019 the Miami University Undergraduate Research Forum, April 24, 2019, Oxford, OH.
6. **Borland, V., Schafer, A. G.**, & Yeziarski, E. *Investigating the alignment between secondary inquiry chemistry activities and assessments*. Poster at 2019 the 257th ACS National Meeting, March 31, 2019, Orlando, FL.
7. **Schafer, A. G.**, & Yeziarski, E. *Using an assessment design and critique an activity to investigate secondary chemistry teachers' assessment beliefs and practices*. Poster at 2019 the 257th ACS National Meeting, March 31, 2019, Orlando, FL.
8. **Schafer, A. G.**, & Yeziarski, E. *The path to better assessment practices: Mapping the discourse between secondary chemistry educators*. Presentation at 2018 Miami University Graduate Research Forum, November 9, 2018, Oxford, OH.
9. **Schafer A. G.**, & Yeziarski, E. J. *Caught in the act: Investigating the assessment design practices of high school chemistry teachers during professional development*. Presentation at the Biennial Conference on Chemical Education, July 31, 2018, University of Notre Dame.
10. **Schafer A. G.**, & Yeziarski, E. J. *On the forefront of inquiry: Using a data-driven approach to improve secondary chemistry educators' assessment practices*. Presentation at the Biennial Conference on Chemical Education, July 31, 2018, University of Notre Dame.
11. **Jones, K. R.**, Yeziarski, E. J., & **Schafer A. G.** *Assessment development and analysis for a chemical reaction inquiry activity*. Presentation at the Biennial Conference on Chemical Education, July 31, 2018, University of Notre Dame.

12. **Becker, B. J.,** Yeziarski, E. J., & **Schafer A. G.** *Developing assessments to evaluate oxidation-reduction reaction learning outcomes.* Presentation at the Biennial Conference on Chemical Education, July 31, 2018, University of Notre Dame.
13. **Kimberlin, S.,** Yeziarski, E. J., & **Schafer A. G.** *Developing assessments for a lesson addressing relative mass and Avogadro's Law.* Presentation at the Biennial Conference on Chemical Education, July 31, 2018, University of Notre Dame.
14. **Pratt, J. M.,** & Yeziarski, E. J. *Exploring chemistry conceptual understanding and curricular beliefs of college students conducting chemistry outreach.* Presentation at the Biennial Conference on Chemical Education, July 30, 2018, University of Notre Dame.
15. **Loeffler, C. J., Schafer A. G., Pratt, J. M.,** & Yeziarski, E. J. *Addressing the call for high-quality lessons: Evaluating PhET-published chemistry activities.* Poster at the Biennial Conference on Chemical Education, July 29, 2018, University of Notre Dame.
16. **Minshall, B.,** & Yeziarski, E. *Data-driven curriculum reforms: Energy Changes during bond Making and breaking.* Poster at Miami University Undergraduate Research Forum, April 25, 2018.
17. **Frank, D. J., Spurgus, N. W., Pratt, J. M.,** & Yeziarski, E. *Chemistry and the ethic of caring: How professional development can shape teachers' attitudes and beliefs about students.* Poster at Miami University Undergraduate Research Forum, April 25, 2018.
18. **Borland, V., Emery, P., Schafer, A.,** & Yeziarski, E. *Protons, neutrons, and electrons oh my!: Investigating the development of atomic structure concepts, using guided inquiry.* Poster at Miami University Undergraduate Research Forum, April 25, 2018.
19. **Mulligan, M., Patten, N., Schafer, A., Pratt, J. M.,** & Yeziarski, E. *Question quality: Characterizing activities that use PhET simulations.* Poster at Miami University Undergraduate Research Forum, April 25, 2018.
20. **Emery, P.,** Yeziarski, E., & Page, R. C. *POGIL activity linking thermodynamic parameters of protein unfolding to structure using differential scanning fluorimetry data in the biophysical chemistry classroom.* Poster at 255th ACS National Meeting and Exposition, March 18, 2018, New Orleans, LA.
21. **Pratt, J. M.,** & Yeziarski, E. *Liquid nitrogen ice cream: College student conceptual chemistry understanding and intended goals for chemistry outreach events.* Poster at 255th ACS National Meeting and Exposition, March 18, 2018, New Orleans, LA.
22. **Schafer A.,** Yeziarski, E., & Hartley, C. S. *Using molecular polygons to characterize effects of geometry on macrocycle self-assembly in the organic teaching laboratory.* Poster at 255th ACS National Meeting and Exposition, March 18, 2018, New Orleans, LA.
23. **Minshall, B.** & Yeziarski, E. *Energy changes during bond making and breaking.* Poster at 255th ACS National Meeting and Exposition, March 19, 2018, New Orleans, LA.
24. **Frank, D. J., Spurgus, N. W., Pratt, J. M.,** & Yeziarski, E. *Chemistry and the ethic of caring: How professional development can shape teachers' attitudes and beliefs about students.* Poster at 255th ACS National Meeting and Exposition, March 19, 2018, New Orleans, LA.
25. **Pratt, J.** & Yeziarski, E. *College students teaching chemistry: Harnessing technology to develop techniques for investigating chemistry outreach.* Poster at the Miami Graduate Research Forum, November 3, 2017.
26. **Emery, P.,** Yeziarski, E., & Page, R. *Developing an activity to help students make connections among protein structure, thermodynamic factors, and experimental data.* Poster at the Miami Graduate Research Forum, November 3, 2017.
27. **Schafer, A.,** & Yeziarski, E. *On the forefront of inquiry: Characterizing assessment practices of chemistry teachers skilled in inquiry.* Poster at the Miami Graduate Research Forum, November 3, 2017.
28. Yeziarski, E. & Bretz, S. L. (co-presenters) *Discovery and concept development in large general chemistry lecture courses: How in-class simulation activities can translate research on inquiry, multimedia, and representations to practice, parts I and II.* Presentations at 254th ACS National Meeting and Exposition, August 21, 2017, Washington, DC.
29. **Pratt, J. M.,** Yeziarski, E. *Chemistry outreach: Investigating the teaching and learning of chemistry in unique and diverse contexts.* Poster presented at the Gordon Research Conference on Chemistry Education Research and Practice, Bates College, Lewiston, ME, June 22, 2017.
30. Herrington, D., & Yeziarski, E. *The importance of a critical friends network in developing scholarly teachers: Target Inquiry as an exemplar.* Poster presented at the Gordon Research Conference on Chemistry Education Research and Practice, Bates College, Lewiston, ME, June 19, 2017.

31. **Pratt, J. M.**, Yeziarski, E. J. *Eliciting conceptual understanding via chemistry outreach: The development and implementation of a novel data collection method.* Poster presented at the Online Poster Session of the Methods in Chemistry Education Research 2017 conference, April/May 2017.
32. **Minshall, B., Torres King, J., & Yeziarski, E.** *Learning in the moment: Identifying and improving student conceptual knowledge construction in general chemistry.* Poster at Miami University Undergraduate Research Forum, April 27, 2017.
33. **Frank, D. J., Spurgus, N. W., Pratt, J. M., & Yeziarski, E.** *Investigating how chemistry teachers change the use of Johnstone's levels in their descriptions of practice during a longer-term professional development program.* Poster at Miami University Undergraduate Research Forum, April 27, 2017.
34. **Kellamis, N., & Yeziarski, E.** *From NSES to NGSS: How to evaluate and respond to changing curricula in high school chemistry.* Poster at Miami University Undergraduate Research Forum, April 27, 2017.
35. **Minshall, B., Torres King, J., & Yeziarski, E.** *Learning in the moment: Identifying and improving student conceptual knowledge construction in general chemistry.* Poster at 253rd ACS National Meeting and Exposition, April 3, 2017, San Francisco, CA.
36. **Spurgus, N. W., Frank, D. J., Pratt, J. M., & Yeziarski, E.** *Investigating how chemistry teachers change the use of Johnstone's levels in their descriptions of practice during a longer-term professional development program.* Poster at 253rd ACS National Meeting and Exposition, April 3, 2017, San Francisco, CA.
37. **Pratt, J., & Yeziarski, E.** *Eliciting conceptual understanding via chemistry outreach: The development and implementation of a novel data collection method.* Poster at 253rd ACS National Meeting and Exposition, April 2, 2017, San Francisco, CA.
38. **Torres King, J., & Yeziarski, E.** *Characterizing the alignment between inorganic chemistry faculty's learning goals and assessments.* Poster at 253rd ACS National Meeting and Exposition, April 2, 2017, San Francisco, CA.
39. **Pratt, J. & Yeziarski, E.** *Combining novel visualizations and synthesis to explore structure-property relationships using cobalt complexes.* Poster at the Miami Graduate Research Forum, November 4, 2016.
40. **Torres, J. K.; Yeziarski, E.** *Characterizing the alignment between inorganic chemistry faculty's learning goals and assessments.* Poster at the Miami Graduate Research Forum, November 4, 2016.
41. **Herrington, D. G., Bancroft, S., & Yeziarski, E. J.** *Using the Framework to evaluate teacher professional development: How 3-D instruction can characterize lessons and teacher-designed activities.* Presentation at the Biennial Conference on Chemical Education, August 3, 2016, University of Northern Colorado.
42. **Torres King, J. & Yeziarski, E. J.** *Characterizing the structure and properties of the inorganic chemistry course.* Presentation at the Biennial Conference on Chemical Education, August 2, 2016, University of Northern Colorado.
43. **Pratt, J. M., & Yeziarski, E. J.** *Collegiate students and chemistry outreach: Their ideas about its purpose and chemistry content.* Presentation at the Biennial Conference on Chemical Education, August 1, 2016, University of Northern Colorado.
44. **Pratt, J. M., & Yeziarski, E. J.** *Using technology and novel visualizations to introduce the structure-property relationships underlying coordination chemistry.* Presentation at the Biennial Conference on Chemical Education, August 1, 2016, University of Northern Colorado.
45. **Pratt, J. M., Torres King, J. & Yeziarski, E. J.** *Effect on student growth in the chemistry classroom when teachers undergo intensive, sustained, and content-focused professional development.* Poster at the Biennial Conference on Chemical Education, July 31, 2016, University of Northern Colorado.
46. **Torres King, J. & Yeziarski, E. J.** *Asymmetric aldol additions: A guided inquiry laboratory activity in inorganic chemistry.* Presentation at the Biennial Conference on Chemical Education, July 31, 2016, University of Northern Colorado.
47. **Yeziarski, E., & Herrington, D.** *Further development and testing of the Target Inquiry model for middle and high school science teacher professional development,* Poster at National Science Foundation Discovery Research K-12 Principal Investigator Conference, Washington, D.C., June 1-3, 2016.
48. **Minshall, B., Nielsen, S., & Yeziarski, E.** *Characterizing secondary chemistry instruction using teacher questioning as a framework for analysis of classroom observations.* Poster at the Miami Undergraduate Research Forum, April 27, 2016.
49. **Sandlin, B., & Yeziarski, E.** *Identifying and characterizing pedagogical cues in organic chemistry texts: Analyzing R-S excerpts using an imagistic reasoning framework.* Poster at the Miami Undergraduate Research Forum, April 27, 2016.

50. **Sandvick, C., Vu, L.-T., Nielsen, S., & Yeziarski, E.** *Exploring teacher-student interactions in high school chemistry classrooms through classroom videos.* Poster at the Miami Undergraduate Research Forum, April 27, 2016.
51. **Spurgus, N. W., & Yeziarski, E.** *Attributions of change: Uncovering how secondary chemistry teachers respond to long-term, intensive, inquiry-focused professional development.* Poster at the Miami Undergraduate Research Forum, April 27, 2016.
52. **Pratt, J., & Yeziarski, E.** *Exploring collegiate students' ideas about the purpose and outcomes of chemistry outreach.* Presentation at 251st ACS National Meeting and Exposition, March 13, 2016, San Diego, CA.
53. **Torres King, J., & Yeziarski, E.** *Curricular influences and design approaches in undergraduate inorganic chemistry.* Presentation at 251st ACS National Meeting and Exposition, March 13, 2016, San Diego, CA.
54. **Pratt, J., Nielsen, S., & Yeziarski, E.** *Overcoming resistance to change: Stated and enacted inquiry practices of high school chemistry teachers.* Poster at 251st ACS National Meeting and Exposition, March 13, 2016, San Diego, CA.
55. **Torres King, J., & Yeziarski, E.** *Barriers to the implementation of inquiry-based instruction for high school chemistry teachers participating in long-term professional development.* Poster at 251st ACS National Meeting and Exposition, March 13, 2016, San Diego, CA.
56. **Herrington, D. G., & Yeziarski, E. J.** *Target Inquiry: Transforming teachers' ideas about laboratory instruction.* Invited presentation for Avi Hofstein's award symposium at 251st ACS National Meeting and Exposition, March 14, 2016, San Diego, CA.
57. **Sandvick, C., Vu, L.-T., Nielsen, S., & Yeziarski, E.** *Detecting instructional change: Capturing teacher-student interactions and teacher moves in high school chemistry classrooms before and during professional development.* Poster at 251st ACS National Meeting and Exposition, March 14, 2016, San Diego, CA.
58. **Nielsen, S. E., & Yeziarski, E.** *Exploring self-concept based groupings and item responses in high school chemistry students with cluster analysis and self-organizing maps.* Presentation at 251st ACS National Meeting and Exposition, March 15, 2016, San Diego, CA.
59. **Harshman, J., Nielsen, S., Yeziarski, E., & Becker, N.** *New approach to data mining and visual communication of data using R.* Presentation at 251st ACS National Meeting and Exposition, March 16, 2016, San Diego, CA.
60. **Bretz, S. L., & Yeziarski, E. J.** (co-presenters) *CER synergy and Miami University: Building simultaneous expertise in chemistry and education research.* Presentation at 251st ACS National Meeting and Exposition, March 17, 2016, San Diego, CA.
61. **Nielsen, S. & Yeziarski, E.** *Chemistry self-concept: Using cluster analysis and self-organizing maps to explore high school chemistry students' Beliefs.* Poster at the Miami Graduate Research Forum, October 30, 2015.
62. **Pratt, J. & Yeziarski, E.** *Exploring collegiate students' ideas about the purpose of c chemistry outreach.* Poster at the Miami Graduate Research Forum, October 30, 2015.
63. **Torres, J. K.; Yeziarski, E.** *Characterizing the structure and properties of the inorganic chemistry course.* Poster at the Miami Graduate Research Forum, October 30, 2015.
64. **Nispel, R., Morgan Theall, R., Pratt, J., & Yeziarski, E.** *Chemistry at the farmer's market.* Poster at the 250th ACS National Meeting and Exposition, August 17, 2015, Boston, MA.
65. **Erhart, S. & Yeziarski, E. J.** *Investigating the enacted and stated curriculum in physical chemistry.* Poster presented at the Gordon Research Conference on Chemistry Education Research and Practice, Bates College, Lewiston, ME, June 25, 2015.
66. **Harshman, J. & Yeziarski, E. J.** *Characterizing high school teachers' assessment practices via the adaptive chemistry assessment survey for teachers.* Poster presented at the Gordon Research Conference on Chemistry Education Research and Practice, Bates College, Lewiston, ME, June 25, 2015.
67. **Nielsen, S. & Yeziarski, E. J.** *Using self-organizing maps to visualize longitudinal chemistry self-concept inventory data.* Poster presented at the Gordon Research Conference on Chemistry Education Research and Practice, Bates College, Lewiston, ME, June 25, 2015.
68. **Sandlin, B., Harshman, J., Yeziarski, E.** *Preliminary data regarding organic chemistry molecular nomenclature.* Poster at the Miami Undergraduate Research Forum, April 15, 2015.
69. **Erhart, S.; Yeziarski, E.** *Investigating the enacted and stated curriculum in physical chemistry.* Presentation at 249th ACS National Meeting and Exposition, March 25, 2015, Denver, CO.
70. **Carmel, J.; Yeziarski, E.** *Students' growth in scientific reasoning and the implications for chemistry instruction.* Presentation at 249th ACS National Meeting and Exposition, March 24, 2015, Denver, CO.

71. **Smith, R. T.;** Yeziarski, E. *Topic-specific pedagogical content knowledge (PCK) in chemistry: A characterization of chemical bonding PCK in high school teachers.* Presentation at 249th ACS National Meeting and Exposition, March 24, 2015, Denver, CO.
72. **Erhart, S.;** Yeziarski, E. *Assessing a problem-based learning NMR & MRI laboratory experiment.* Presentation at 249th ACS National Meeting and Exposition, March 23, 2015, Denver, CO.
73. **Harshman, J.;** Yeziarski, E. *Using the ACASST to characterize high school chemistry teachers' data-driven inquiry practices.* Presentation at 249th ACS National Meeting and Exposition, March 22, 2015, Denver, CO.
74. Bancroft, S.; **Carmel, J.; Harshman, J.;** Yeziarski, E.; Herrington, D. *Describing and characterizing the affective domain in middle and high school science students.* Poster at 249th ACS National Meeting and Exposition, March 22, 2015, Denver, CO.
75. **Carmel, J.; Harshman, J.;** Yeziarski, E. *Target Inquiry at Miami University (TIMU): Uncovering novel relationships among affective and cognitive measures of high school chemistry students.* Presentation at 249th ACS National Meeting and Exposition, March 22, 2015, Denver, CO.
76. **Nielsen, S.;** Yeziarski, E. *Uncovering high school students' chemistry self-concept with cluster analysis.* Presentation at 249th ACS National Meeting and Exposition, March 22, 2015, Denver, CO.
77. Bancroft, S.; Herrington, D.; Yeziarski, E. *Tool trouble: Challenges with using self-report data to evaluate long-term chemistry teacher professional development.* Presentation at 249th ACS National Meeting and Exposition, March 22, 2015, Denver, CO.
78. Yeziarski, E. *Using simulation coupled with guided inquiry in large lecture science courses: Engaging the literature as a first step in design.* Presentation at 2014 Lilly International Conference on College Teaching, Miami University, November 23, 2014.
79. **Nielsen, S. E., &** Yeziarski, E. *The role of self-concept in the classroom.* Presentation at 2014 Lilly International Conference on College Teaching, Miami University, November 22, 2014.
80. **Harshman, J., &** Yeziarski, E. *Using data from homework, quizzes, and activities to improve instruction: Examples from chemistry instructors.* Presentation at 2014 Lilly International Conference on College Teaching, Miami University, November 22, 2014.
81. **Carmel, J. H., &** Yeziarski, E. *Design and facilitation of group work in large enrollment courses.* Presentation at 2014 Lilly International Conference on College Teaching, Miami University, November 22, 2014.
82. **Erhart, S., Yeziarski, E., &** Lorigan, G. A. *The biggest magnet: Development of a problem-based lab using the Earth's magnetic field to teach NMR spectroscopy and MRI.* Presentation at 2014 Lilly International Conference on College Teaching, Miami University, November 22, 2014.
83. **Carmel, J., &** Yeziarski, E., *Uncovering chemistry students' scientific reasoning profiles through cluster analysis.* Poster at Graduate Research Forum, Miami University, November 14, 2014.
84. **Erhart, S., &** Yeziarski, E., *Investigating the stated and enacted curriculum in physical chemistry.* Poster at Graduate Research Forum, Miami University, November 14, 2014.
85. **Harshman, J., &** Yeziarski, E., *Examining data-driven inquiry in high school chemistry teachers' evaluation of chemistry-specific formative assessment.* Poster at Graduate Research Forum, Miami University, November 14, 2014.
86. **Smith, R. T., &** Yeziarski, E., *Nuanced orientations: Comparing two high school chemistry teachers' topic-specific pedagogical content knowledge.* Poster at Graduate Research Forum, Miami University, November 14, 2014.
87. **Nielsen, S., &** Yeziarski, E., *Chemistry self-concept inventory: Exploring its structure and function with high school chemistry students.* Poster at Graduate Research Forum, Miami University, November 14, 2014.
88. Yeziarski, E. *Simulations embedded in guided inquiry activities: Targeting students' incorrect ideas about bond breaking and making.* Presentation at 248th ACS National Meeting and Exposition, August. 10, 2014, San Francisco, CA.
89. **Erhart, S., Lorigan, G., &** Yeziarski, E. *Using the biggest magnet: Development of a problem-based lab using the Earth's magnetic field to teach NMR spectroscopy.* Presentation at BCCE, GVSU, August. 7, 2014.
90. **Nielsen, S. E., &** Yeziarski, E. *Chemistry self-concept in high school classrooms.* Presentation at BCCE, GVSU, Aug. 6, 2014.
91. **Carmel, J., Jessa, Y., &** Yeziarski, E. *Targeting content knowledge and scientific reasoning development in non-science majors' chemistry.* Presentation at BCCE, GVSU, August. 5, 2014.
92. **Nielsen, S. E., &** Yeziarski, E. *High school students' chemistry self-concept: The role of the teacher and classroom climate.* Presentation at Biennial Conference on Chemical Education (BCCE), Grand Valley State University, August 4, 2014.

93. **Philipp, S. B.** (post-doc), & Yeziarski, E. *Evaluation of the use of representations in inquiry-based chemistry instruction*. BCCE, GVSU, August 4, 2014.
94. **Harshman, J.**, & Yeziarski, E. *Teachers' use of assessment results in high school chemistry classrooms: The practice of data-driven inquiry*. Presentation at BCCE, GVSU, August 4, 2014.
95. **Smith, R. T.**, & Yeziarski, E. *Uncovering the topic-specific pedagogical content knowledge of high school chemistry teachers*. Presentation at BCCE, GVSU, August 3, 2014.
96. **Carmel, J.**, & Yeziarski, E. *Uncovering students' incorrect scientific reasoning patterns*. Presentation at BCCE, GVSU, August 3, 2014.
97. Herrington, D., & Yeziarski, E. *Teachers designing activities to actively engage students*. Presentation at 2014 International Conference on Chemical Education, July 15, 2014, Toronto, Ontario, CA.
98. Gupta, T., Herrington, D., & Yeziarski, E. *Impact of Target Inquiry (TI) professional development program on teacher questioning behavior in science classroom*. Presentation at 247th ACS National Meeting and Exposition, March 18, 2014, Dallas, TX.
99. Yeziarski, E. *Observation as a tool for investigating chemistry teaching and learning*. Presentation at 247th ACS National Meeting and Exposition, March 18, 2014, Dallas, TX.
100. **Nielsen, S. E.**, & Yeziarski, E. *Chemistry self-concept: Understanding the determinants of Social Learning Theory in high school chemistry classrooms*. Poster at 247th ACS National Meeting and Exposition, March 16 & 17 (SciMix), 2014, Dallas, TX.
101. **Carmel, J.**, & Yeziarski, E. *Learning to reason: An investigation of scientific reasoning development in a non-science majors' chemistry course*. Poster at 247th ACS National Meeting and Exposition, March 16, 2014, Dallas, TX.
102. **Harshman, J.**, & Yeziarski, E. *Developing a survey to measure how high school chemistry teachers use data generated by formative assessment to guide their practice*. Poster at 247th ACS National Meeting and Exposition, March 16, 2014, Dallas, TX.
103. **Philipp, S.** (post-doc), & Yeziarski, E. *Motivation, reasoning, and conceptual understanding: Exploring novel relationships between student measures and teacher quality in high school chemistry*. Poster at 247th ACS National Meeting and Exposition, March 17, 2014, Dallas, TX.
104. **Johnson, D.** (REU student), & Yeziarski, E. *Sharpening our focus: Improving the measurement of secondary chemistry instruction with observation protocols*. Poster at 247th ACS National Meeting and Exposition, March 17, 2014, Dallas, TX.
105. **Sandlin, B.**, **Harshman, J.** (presenting author), & Yeziarski, E. *Formative assessment in high school chemistry teaching: Investigating the alignment of teachers' goals with their items*. Poster at 247th ACS National Meeting and Exposition, March 17, 2014, Dallas, TX.
106. **Schachtel, A.**, & Yeziarski, E. *Characterizing high school chemistry teacher practice: Improving methods for collecting and analyzing teacher self-report data*. Poster at 247th ACS National Meeting and Exposition, March 17, 2014, Dallas, TX.
107. **Sloane, S.**, Birk, J. P., & Yeziarski, E. *Less is more: How students' achievement in high school chemistry is affected by the number and nature of topics addressed*. Poster at 247th ACS National Meeting and Exposition, March 17, 2014, Dallas, TX.
108. **Smith, R. T.**, & Yeziarski, E. *Topic-specific pedagogical content knowledge (PCK) in chemistry: Capturing and characterizing high school chemistry acid/base instruction during a pilot study*. Poster at 247th ACS National Meeting and Exposition, March 17, 2014, Dallas, TX.
109. **Carmel, J.**, & Yeziarski, E., *Facilitating and characterizing scientific reasoning in a non-science majors chemistry course*. Poster at Graduate Research Forum, Miami University, November 1, 2013.
110. **Harshman, J.**, & Yeziarski, E. *What high school chemistry teachers are looking for in assessments: Data-driven inquiry in chemistry*. Poster at Graduate Research Forum, Miami University, November 1, 2013.
111. **Nielsen, S.** & Yeziarski, E., *Relationships among instructional methods, student self-concept, and chemistry achievement in high school classrooms: A longitudinal study*. Poster at Graduate Research Forum, Miami University, November 1, 2013.
112. **Nielsen, S.**, Yeziarski, E., & Scaffidi, J. *Authenticating art with Raman spectroscopy: An undergraduate instrumental analysis laboratory experiment*. Presentation at SciX, Milwaukee, WI, September 20, 2013.
113. **Carmel, J.**, & Yeziarski, E., *Investigating growth and patterns in scientific reasoning in a chemistry course for non-science majors*. Presentation at the 246th National ACS Meeting, Indianapolis, Indiana, September 9, 2013.
114. **Harshman, J.** & Yeziarski, E. *Interpreting formative assessment to meaningfully guide chemistry teaching*. Presentation at the 246th National ACS Meeting, Indianapolis, Indiana, September 8, 2013.

115. **Nielsen, S.**, & Yeziarski, E., *Chemistry self-concept, chemistry achievement, and instructional methods in high school classrooms: A longitudinal study*. Poster presented at the 246th National ACS Meeting, Indianapolis, Indiana, September 8, 2013.
116. **Nielsen, S. E.**, Scaffidi, J. S., & Yeziarski, E. J. Authentication of art with Raman spectroscopy: An analytical laboratory experiment, Presentation at the 246th National ACS Meeting, Indianapolis, Indiana, September 9, 2013.
117. **Carmel, J. H.**, & Yeziarski, E. *Investigating growth in scientific reasoning in a chemistry course for non-science majors*. Poster presented at the Chemistry Education Research Graduate Student Conference, Oxford, OH, July 27, 2013.
118. **Harshman, J.**, & Yeziarski, E. *Investigating how chemistry teachers use Assessment results to inform their practice*. Poster presented at the Chemistry Education Research Graduate Student Conference, Oxford, OH, July 27, 2013.
119. **Smith, R. T.**, & Yeziarski, E. *Uncovering the pedagogical content knowledge of high school chemistry teachers*. Poster presented at the Chemistry Education Research Graduate Student Conference, Oxford, OH, July 27, 2013.
120. **Nielsen, S. E.**, & Yeziarski, E. *Chemistry self-concept, chemistry achievement, and instructional methods in high school classrooms: A longitudinal study*. Poster presented at the Chemistry Education Research Graduate Student Conference, Oxford, OH, July 27, 2013.
121. Yeziarski, E. *Evaluating an instrument to measure students' motivation and self-regulation in learning high school chemistry*. Poster presented at the Gordon Research Conference on Chemistry Education Research and Practice, Salve Regina University, Newport, RI, June 12, 2013.
122. **Carmel, J. H.**, Jessa, Y., & Yeziarski, E. J. *Investigating growth and patterns in scientific reasoning in a chemistry course for non-science majors*. Poster presented at the Gordon Research Conference on Chemistry Education Research and Practice, Salve Regina University, Newport, RI, June 11, 2013.
123. **Gupta, T.**, Herrington, D., Lee, D., & Yeziarski, E. *A Study of the Impact of the Target Inquiry Program on Teacher Behavior in the Science Classroom*. Poster at the Gordon Research Conference on Chemistry Education Research and Practice, Salve Regina University, Newport, RI, June 12, 2013.
124. **Smith, R. T.**, & Yeziarski, E. J. *Investigating and characterizing high school chemistry teachers' pedagogical content knowledge of chemical bonding*. Poster at the Miami University Undergraduate Research Forum, April 10, 2013.
125. **Sandlin, B. G.**, **Harshman, J. T.**, & Yeziarski, E. J. *Investigating predictors of a priori chemistry knowledge: How school demographics and scientific reasoning affect conceptual understanding*. Poster at the Miami University Undergraduate Research Forum, April 10, 2013.
126. **Carmel, J. H.**, Jessa, Y., & Yeziarski, E. *Chemistry and scientific reasoning: Development and implementation of classroom activities*. Poster presented at 245th ACS National Meeting, New Orleans, LA, April 7, 2013.
127. **Harshman, J.**, & Yeziarski, E. *Informing practice from assessment results: The assessment as scientific inquiry framework*. Poster presented at 245th ACS National Meeting, New Orleans, LA, April 7, 2013.
128. **Nielsen, S. E.**, & Yeziarski, E. *Chemistry self-concept, chemistry achievement, and instructional methods in high school chemistry classrooms*. Poster presented at 245th ACS National Meeting, New Orleans, LA, April 7, 2013.
129. Yeziarski, E. & Herrington, D., *Target Inquiry: Transformative high school chemistry teacher professional development*. Presentation at the University of Minnesota STEM Center in Minneapolis, MN, May 14, 2013.
130. Yeziarski, E., & Herrington, D., *Transforming instruction: Combining RETs with inquiry materials development*. Poster at AAAS Annual Meeting, Boston, MA, February 14-18, 2013.
131. Yeziarski, E., & Herrington, D., *Target Inquiry transforms instruction: Combining RETs with inquiry materials development*. Presentation at International Teacher-Scientist Partnership Conference, Boston, MA, February 13-14, 2013.
132. **Harshman, J.**, Bretz, S.L., & Yeziarski, E., *Practical, implementable suggestions and considerations for undergraduate chemistry instructors in their task of accommodating blind students*. Independent Science: Learning in a New Direction Conference. Purdue University, West Lafayette, IN. November 16, 2012.
133. **Carmel, J.**, & Yeziarski, E. *Developing students' scientific reasoning in a chemistry course for non-science majors*, Poster at Graduate Research Forum, Miami University, November 2, 2012.
134. **Harshman, J.**, & Yeziarski, E. *Informing high school chemistry teacher practice from assessment results: The Assessment as Scientific Inquiry framework*, Poster at Graduate Research Forum, Miami University, November 2, 2012; and at Cincinnati ACS Local Section Education Night, October 12, 2012.

135. **Nielsen S.**, & Yeziarski, E. *Relationships among instructional methods, chemistry achievement and chemistry self-concept in high school classrooms*, Poster at Graduate Research Forum, Miami University, November 2, 2012.
136. Yeziarski, E., & Herrington, D., *Products of the Target Inquiry project: Quality inquiry materials made for and by high school teachers that stand up to student scrutiny*. Presentation at 244th ACS National Meeting, Philadelphia, PA, August 19-23, 2012.
137. Blue, J., **Mills, M.**, & Yeziarski, E. *Self-efficacy in introductory physics in students at single-sex and coeducational colleges*. Poster at Physics Education Research Conference, Philadelphia, PA, August 1-2, 2012.
138. Yeziarski, E., *Using non-parametric procedures in chemistry education research*. Presentation at Biennial Conference on Chemical Education, Pennsylvania State University, July 29-August 2, 2012.
139. **Harshman, J.**, Bretz, S. L., & Yeziarski, E., *Seeing chemistry through the eyes of the blind: A case study following one blind student through the math and concepts of gas laws*. Presentation at Biennial Conference on Chemical Education, Pennsylvania State University, July 29-August 2, 2012.
140. **Smith, R. T.**, **Carmel, J.**, & Yeziarski, E., *Conceptual understanding of stoichiometry: Findings from a diagnostic assessment uncovering connections among Johnstone's domains*. Poster at Biennial Conference on Chemical Education, Pennsylvania State University, July 29-August 2, 2012.
141. **Schachtel, A.**, **Christian, B.**, & Yeziarski, E., *Student success at answering algorithmic versus conceptual problems on chemical equilibrium*. Poster at Biennial Conference on Chemical Education, Pennsylvania State University, July 29-August 2, 2012.
142. **Carmel, J.**, Ward, R. M., & Yeziarski, E., *Scientific reasoning: A well-understood construct?* Poster at Biennial Conference on Chemical Education, Pennsylvania State University, July 29-August 2, 2012.
143. **Carmel, J.**, & Yeziarski, E., *Assessment of scientific reasoning skill development in a chemistry course for non-majors*. Presentation at Biennial Conference on Chemical Education, Pennsylvania State University, July 29-August 2, 2012.
144. **Nielsen, S.**, Scaffidi, J., & Yeziarski, E., *Determining art authenticity using Rama spectroscopy: An undergraduate analytical laboratory experiment*. Poster at Biennial Conference on Chemical Education, Pennsylvania State University, July 29-August 2, 2012.
145. **Nielsen, S.**, & Yeziarski, E., *Instructional effects on self-concept in high school chemistry students*. Presentation at Biennial Conference on Chemical Education, Pennsylvania State University, July 29-August 2, 2012.
146. Herrington, D., & Yeziarski, E., (co-presented) *Target Inquiry: Teachers and faculty collaboratively developing conceptually-rich inquiry activities*. Presentation at Biennial Conference on Chemical Education, Pennsylvania State University, July 29-August 2, 2012.
147. Herrington, D., & Yeziarski, E., *Helping the Target Inquiry program encourage teacher scholarship and improve dissemination*. Presentation at Biennial Conference on Chemical Education, Pennsylvania State University, July 29-August 2, 2012.
148. Herrington, D., & Yeziarski, E., & MacKenzie, A. H. *Further development and testing of the Target Inquiry model for middle and high school science teacher professional development*, Poster at National Science Foundation Discovery Research K-12 Principal Investigator Conference, Washington, D.C., June 13-15, 2012.
149. **Schachtel, A.**, & Yeziarski, E. *Students' success at answering algorithmic versus conceptual problems on chemical equilibrium*, Poster at Undergraduate Research Forum, Miami University, April 11, 2012.
150. **Smith R. T.**, **Carmel, J.**, & Yeziarski, E. *Development and use of a diagnostic assessment to explore conceptual understanding of stoichiometry through Johnstone's domains of chemistry knowledge*, Poster at Undergraduate Research Forum, Miami University, April 11, 2012.
151. **Grit, J.**, Herrington, D., & Yeziarski, E., *Can we improve research experiences to better address nature of the science concepts?* Poster at 243rd ACS National Meeting, San Diego, CA, March 25-29, 2012.
152. **Carmel, J.**, & Yeziarski, E., *Are students thinking critically? Measuring changes in chemistry students' scientific reasoning ability in a non-science majors course*. Presentation at 243rd ACS National Meeting, San Diego, CA, March 25-29, 2012.
153. **Christian, B.**, & Yeziarski, E., *Learning in science museums: Measuring student knowledge gains from a chemistry museum exhibit in a classroom environment*. Presentation at 243rd ACS National Meeting, San Diego, CA, March 25-29, 2012.
154. **Nielsen, S.**, Rush, K., Yeziarski, E., & Bretz, S. L., *Best practices in concept inventory design*. Poster at 243rd ACS National Meeting, San Diego, CA, March 25-29, 2012.
155. **Harshman, J.**, Herrington, D., & Yeziarski, E., *Determining the effect of the Target Inquiry professional development program: A multilevel analysis of student achievement*. Poster at 243rd ACS National Meeting, San Diego, CA, March 25-29, 2012.

156. **Carmel, J.**, & Yeziarski, E. *Assessment of scientific reasoning skills of students in a chemistry course for non-majors*, Poster at Graduate Research Forum, Miami University, November 4, 2011.
157. **Christian, B.**, & Yeziarski, E. *Learning in science museums: Development and validation of an instrument to measure student knowledge gains from a chemistry museum exhibit*, Poster at Graduate Research Forum, Miami University, November 4, 2011.
158. Yeziarski, E., *Learning cycles in large chemistry lectures: Implementation logistics*. Transforming Education: From innovation to Implementation Conference at Purdue University, October 10-12, 2011.
159. Yeziarski, E., **Bauman, H.**, **Schachtel, A.**, **Smith, R.**, Herrington, D. *Measuring student outcomes from long-term, research-based high school chemistry teacher professional development: Which content do students learn better?* Poster at 242nd ACS National Meeting, Denver, CO, August 28-September 1, 2011.
160. Yeziarski, E., & Herrington, D. (co-presented) Poster at Gordon Research Conference on Chemistry Education Research & Practice, Davidson College, Davidson, NC, June 26-July 1, 2011.
161. **Christian, B.**, & Yeziarski, E. *Improving content outcomes of science museums: Blending formal and informal environments to evaluate a chemical and physical change exhibit*, Poster at Chemistry Education Research Graduate Student Conference, Miami University, Oxford, OH, June 10-12, 2011.
162. **Carmel, J.**, & Yeziarski, E. *Assessment and implications of critical thinking in the college chemistry classroom*, Poster at Chemistry Education Research Graduate Student Conference, Miami University, Oxford, OH, June 10-12, 2011.
163. **Bauman, H.**, **Smith, R. T.**, **Schachtel, A.**, & Yeziarski, E. *Measurement of student performance on American Chemical Society examinations in a rural high school*, Poster Undergraduate Research Forum, Miami University, April 13, 2011.
164. **Smith, R. T.**, **Schachtel, A.**, **Bauman, H.**, & Yeziarski, E. *Using the Target Inquiry PD model to improve learning in high school chemistry*, Poster at Undergraduate Research Forum, Miami University, April 13, 2011.
165. **Schachtel, A.**, **Bauman, H.**, **Smith, R. T.**, & Yeziarski, E. *Using logistic regression to measure growth in achievement of high school chemistry students*, Poster at Undergraduate Research Forum, Miami University, April 13, 2011.
166. **Christian, B.**, Yeziarski, E., & Herrington, D. *Effects of instruction on altering students' self-efficacy and metacognition in learning science*, Poster at 241st ACS National Meeting, Anaheim, CA, March 27-31, 2011.
167. **Carmel, J.**, Yeziarski, E., & Herrington, D. *Evaluating the quality and dissemination of teacher-developed inquiry materials: Analysis of user feedback*, Poster at 241st ACS National Meeting, Anaheim, CA, March 27-31, 2011.
168. **Haugen, S.**, **Newenhouse, S.**, Herrington, D., & Yeziarski, E. *Inquiry instruction: The more you know the less you think you know*, Poster at 241st ACS National Meeting, Anaheim, CA, March 27-31, 2011.
169. Herrington, D., & Yeziarski, E. *Target Inquiry: Investigating the teacher and student effects of a new model in chemistry teacher professional development –Year 5*, Poster at National Science Foundation Discovery Research K-12 Principal Investigator Conference, Washington, D.C., December 1, 2010.
170. Yeziarski, E., & Herrington, D. *Long-term effects on teaching quality: The Target Inquiry model for high school chemistry teacher professional development*. Presentation at 21st Biennial Conference on Chemical Education, Denton, TX, August 1-5, 2010.
171. Herrington, D., & Yeziarski, E. *Does participation in a research experience for teachers (RET) program improve inquiry lessons in high school chemistry classrooms?* Presentation at 21st Biennial Conference on Chemical Education, Denton, TX, August 1-5, 2010.
172. Yeziarski, E., & Herrington, D. *Data collection in high school classrooms: Organizing the chaos*. Presentation at 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010.
173. Herrington, D., Yeziarski, E., & **Luxford, K.** *Determining the quality of secondary classroom materials developed in association with research experiences for teachers (RETs)*. Presentation at 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010.
174. Yeziarski, E. *Inquiry in High School Chemistry*. Presentation at the Inter-Institutional Teacher Education Council of West Michigan Student Teacher Fire-Up Conference, Grand Valley State University, Allendale, MI, March 8, 2010.
175. **Slater, A.**, Herrington, D., & Yeziarski, E. *Target Inquiry: Quality High School Chemistry Inquiry Activities*. Presentation at GVSU Regional Math and Science Center Fall Science Update, Grand Rapids, MI, November 18, 2009.
176. Schiller, E., & Yeziarski, E., *No More Leaks: A Process-Oriented Lesson Exploring the Invention and Chemistry of Disposable Diapers*, Presentation at GVSU Regional Math and Science Center Fall Science Update, Grand Rapids, MI, November 18, 2009.

177. Yeziarski, E., & Herrington, D. *Target inquiry: Transforming in-service teacher professional development and instruction in high school chemistry*. Presentation at National Science Foundation Discovery Research K-12 Principal Investigator Conference, Washington, D.C., November 9, 2009.
178. Yeziarski, E., & Herrington, D. *Target Inquiry: Inquiry instruction helps students make the grade*. Presentation at 238th ACS National Meeting, Washington, DC, August 16-20, 2009.
179. **Billman, C.**, Yeziarski, E., & Herrington, D. *Target Inquiry: Transforming and detecting teachers' beliefs about science inquiry*. Poster at 238th ACS National Meeting, Washington, DC, August 16-20, 2009.
180. **Luxford, K.**, Herrington, D., & Yeziarski, E. *Target Inquiry: Shifting high school chemistry teachers' beliefs about inquiry instruction*. Presentation at 238th ACS National Meeting, Washington, DC, August 16-20, 2009.
181. Yeziarski, E., & Herrington, D. *Target Inquiry: Using observational data to detect changes in teacher practice*. Presentation at 237th ACS National Meeting, Salt Lake City, UT, March 21-25, 2009.
182. Herrington, D., & Yeziarski, E. *No quick fixes: The long road to inquiry based instruction*. Presentation at 237th ACS National Meeting, Salt Lake City, UT, March 21-25, 2009.
183. **Luxford, K.**, Herrington, D., & Yeziarski, E. *Target Inquiry: Can teacher professional development change teachers' beliefs and instructional practices?* Poster at 237th ACS National Meeting, Salt Lake City, UT, March 21-25, 2009.
184. **Luxford, K.**, **Billman, C.**, Yeziarski, E., & Herrington, D. *Target Inquiry: Can professional development overcome barriers to inquiry instruction?* Poster at West Michigan Regional Undergraduate Science Research Conference, Van Andel Institute, Grand Rapids, MI, November 2, 2008.
185. Yeziarski, E., & Herrington, D. *Target Inquiry: Investigating the Teacher and Student Effects of a New Model in Chemistry Teacher Professional Development – Yr. 3*. Poster presentation at National Science Foundation Discovery Research K-12 Principal Investigator Conference, Washington, D.C., November 13, 2008.
186. Herrington, D., & Yeziarski, E. *Target inquiry: A professional development model to improve inquiry teaching in the high school chemistry classroom*. Presentation at 20th Biennial Conference on Chemical Education, Bloomington, IN, July 25-31, 2008.
187. **Luxford, K.**, **Billman, C.**, Yeziarski, E., & Herrington, D. *Target Inquiry: Can professional development overcome barriers to inquiry instruction?* Poster at 20th Biennial Conference on Chemical Education, Bloomington, IN, July 25-31, 2008.
188. **Emery, K.**, Herrington, D., & Yeziarski, E. *Target Inquiry: How do teachers' perceptions of inquiry instruction in the classroom change?* Poster at 20th Biennial Conference on Chemical Education, Bloomington, IN, July 25-31, 2008.
189. **Kennedy, L.**, Yeziarski, E., & Herrington, D. *Target Inquiry: Teacher professional development impacts on classroom practices and teacher beliefs about inquiry instruction*. Presentation at 235th ACS National Meeting, New Orleans, LA, April 6-10, 2008.
190. **Wissner, R.**, Herrington, D., & Yeziarski, E. *Target Inquiry: Impacts of a research experience for teachers*. Poster at 235th ACS National Meeting, New Orleans, LA, April 6-10, 2008.
191. Yeziarski, E. *Inquiry in High School Chemistry*. Presentation at the Inter-Institutional Teacher Education Council of West Michigan Student Teacher Fire-Up Conference, Grand Valley State University, Allendale, MI, March 3, 2008.
192. **Putti, A.**, **Toman, S.**, **Brethauer, B.**, & Yeziarski, E. *Teacher-Developed/Tested Inquiry-Based Materials for High School Chemistry*. Presentation at Fall Science Update Seminar, Regional Math and Science Center, GVSU, November 28, 2007.
193. Herrington, D., & Yeziarski, E., *Target Inquiry: Collaborating with Teachers to Improve High School Chemistry*. Invited seminar presented at University of Northern Iowa, November 1, 2007.
194. **Wissner, R.**, Herrington, D., & Yeziarski, E. *Target Inquiry: Impacts of a Research Experience for Teachers*. Poster at West Michigan Regional Undergraduate Science Research Conference, Van Andel Institute, Grand Rapids, MI, October 20, 2007.
195. Yeziarski, E., *Inquiry in High School Chemistry*. Presentation at Inter-Institutional Teacher Education Council of West Michigan Student Teacher Fire-Up Conference, Aquinas College, Grand Rapids, MI, October 15, 2007.
196. Yeziarski, E., & Herrington, D. *Target Inquiry: Target Inquiry: Investigating the Teacher and Student Effects of a New Model in Chemistry Teacher Professional Development – Yr. 2*. Poster at National Science Foundation Discovery Research K-12 Principal Investigator Conference, Arlington, VA, September 10, 2007.
197. Yeziarski, E., & Herrington, D. Poster at Gordon Research Conference on Chemistry Education Research & Practice, Bates College, Lewiston, ME, June 24-29, 2007.
198. Yeziarski, E., *POGIL for Pre-Service Chemistry Teachers: Impacts on Teaching Philosophy and Instructional Design*. Poster at 4th POGIL National Meeting, Washington University, St. Louis, MO, May 19-22, 2007.

200. Herrington, D., & Yeziarski, E. *The Importance of an Authentic Science Inquiry Experience in Creating an Inquiry-Based Science Program*. Presentation at 223rd ACS National Meeting, Chicago, IL, March 26, 2007.
201. **Luxford, C.**, Herrington, D., & Yeziarski, E. *Target inquiry: How does a chemistry research experience impact teachers' perceptions of science?* Poster at 223rd ACS National Meeting, Chicago, IL, March 26, 2007 and GVSU Student Scholarship Day, April 11, 2007.
202. **Kennedy, L.**, Yeziarski, E., & Herrington, D. *Whose science is it anyway? Models of science according to chemistry students, faculty, and teachers*. Poster at 223rd ACS National Meeting, Chicago, IL, March 26, 2007 and GVSU Student Scholarship Day, April 11, 2007.
203. Yeziarski, E., *Inquiry in High School Chemistry*. Presentation at Inter-Institutional Teacher Education Council of West Michigan Student Teacher Fire-Up Conference, Aquinas College, Grand Rapids, MI, October 16, 2006.
204. Yeziarski, E. *Strategies, resources, and materials for high school inquiry activities*. Presentation at 19th Biennial Conference on Chemical Education, Purdue University, West Lafayette, IN, July 31, 2006.
205. **Winters, B.**, Yeziarski, E., & Herrington, D. *Relationships between inquiry-based teaching and beliefs of self-efficacy in high school chemistry*. Poster at the 19th Biennial Conference on Chemical Education, Purdue University, West Lafayette, IN, July 31, 2006.
206. **Winters, B., Klein, B.** & Yeziarski, E. *New territory: POGIL for pre-service teachers*. Poster at 3rd POGIL National Meeting, College of Charleston, Charleston, SC, May 24, 2006.
207. Yeziarski, E. & Herrington, D. *Target Inquiry: Investigating the teacher and student effects of a new model in chemistry teacher professional development*. Poster at National Science Foundation Teacher Professional Continuum Conference, Reston, VA, May 8, 2006.
208. Yeziarski, E. J., Amaral, K. E., Bauer, C. F., Hanson, D. M., Hunnicutt, S. S., & Schneider, J. *POGIL implementation: Tested strategies for large classes*. Presentation at 231st ACS National Meeting, Atlanta, GA, March 29, 2006.
209. Yeziarski, E. J., & Herrington, D. G., *Target inquiry: A new model for high school chemistry teacher professional development*. Presentation at 231st ACS National Meeting, Atlanta, GA, March 28, 2006.
210. Yeziarski, E., *Student Lesson Planning: New Tools to Teach Content and Pedagogy*. Presentation at Michigan Science Teachers Association (MSTA) 53rd Annual Conference, Lansing, MI, March 4, 2006.
211. Herrington, D., & Yeziarski, E., *Target Inquiry; Innovative Professional Development for High School Chemistry Teachers*. Presentation at MSTA 53rd Annual Conference, Lansing, MI, March 4, 2006.
212. Yeziarski, E., *From Cookbook to Inquiry: Reforming High School Chemistry*. Presentation at Fall Science Update Seminar, Regional Math and Science Center, GVSU, November 16, 2005.
213. Yeziarski, E., *Inquiry in High School Chemistry*. Presentation at Inter-Institutional Teacher Education Council of West Michigan Student Teacher Fire-Up Conference, Aquinas College, Grand Rapids, MI, October 17, 2005.
214. Herrington, D. G., & Yeziarski, E. J. Poster at the Gordon Research Conference on Chemistry Education Research and Practice, Connecticut College, New London, CT, June 29, 2005.
215. Yeziarski, E., & Herrington, D., *Target Inquiry: Innovative Professional Development for High School Chemistry*. Presentation at Michigan Science Teachers Association 52nd Annual Conference, Detroit, MI, March 5, 2005.
216. Yeziarski, E., *Inquiry Lab Experiments for High School Chemistry*. Presentation at Inter-Institutional Teacher Education Council of West Michigan Student Teacher Fire-Up Conference, Aquinas College, Grand Rapids, MI, October 18, 2004.
217. Yeziarski, E., *Active learning in chemistry lectures: Implementation logistics*. Presentations at the 18th Biennial Conference on Chemical Education, Ames, IA, July 18, 2004 and at 227th ACS National Meeting, Anaheim, CA, March 28, 2004.
218. Yeziarski, E., *Diagnosing and treating scientific misconceptions*. Presentation at Fall Science Update Seminar, Regional Math and Science Center, GVSU, November 19, 2003.
219. Yeziarski, E., & Birk, J., *Remediating students' particulate nature of matter misconceptions in middle school, high school, and college*. Presentation at 225th National ACS Meeting, New Orleans, LA, March 27, 2003.
220. Yeziarski, E., & Staley, F., *The TEAMS Fast Track: Alternative Science and Mathematics Certification & Master's Degree Program*. Poster at American Association for College Teachers of Education Annual Meeting and Exhibits, New Orleans, LA, January 2003.
221. Yeziarski, E. & Birk, J., *Paper-and-glue unit cell models*. Poster at 17th Biennial Conference on Chemical Education, Western Washington University, Bellingham, WA, July 30, 2002.

WORKSHOPS TAUGHT

- Yeziarski, E. & Ward, R.M. *Peer Coaching Toward High Quality*; Miami University Center for Teaching Excellence on April 16, 17, 18, 2019.
- Yeziarski, E. *Minimizing Item-Writing Flaws in Multiple-Choice & Free Response Questions*; Miami University Center for Teaching Excellence on March 6, 2019.
- Yeziarski, E. & Bailer, J. *Talking About Teaching: A Conversation with Knox*; Miami University Center for Teaching Excellence on February 21, 2019.
- Yeziarski, E. & Ward, R.M. *Peer Coaching Toward High Quality*; Miami University Center for Teaching Excellence on February 12, 13, and 14, 2019.
- Yeziarski, E. *Best Practices for the Teaching Section of the Dossier*; Center for Teaching Excellence on November 6, 2018.
- Yeziarski, E. & Wentzell, G. *Scholarly Teaching: Using Theory and Evidence to Maximize Students' Learning*; Miami University Center for Teaching Excellence on October 23, 2018.
- Yeziarski, E. and CTE Staff *New Faculty Orientation*, August 21, 2018.
- Ward, R. M. & Yeziarski, E. *Constructive Use of Course Evaluations: Myths, Facts, and How to Use Them to Improve Teaching and Learning*; Miami University Center for Teaching Excellence on March 6, 2018.
- Yeziarski, E. *Using Mid-Term Feedback for Instructional Improvement*; Center for Teaching Excellence on February 22, 2018.
- Yeziarski, E. *Overview of CTE Grants and Awards*; Miami University Center for Teaching Excellence on February 6, 2018 and September 7, 2017.
- Yeziarski, E. & Ward, R. M. *Constructive Use of Course Evaluations: Myths, Facts, and How to Use Them to Improve Teaching and Learning*; Miami University Center for Teaching Excellence on April 12, 2017.
- Yeziarski, E. *Using the Student Assessment of Learning Gains (SALG): A Path for Teaching Excellence*; Miami University Center for Teaching Excellence on February 9, 2016.
- Yeziarski, E. *Atoms, Molecules, and Ions - Oh My! Particulate Level Inquiry Activities*. Biennial Conference on Chemical Education on August 5, 2014 at Grand Valley State University.
- Yeziarski, E. *SimPATiCo: Simulations as performance assessment tools and instructional complements*. Orono, ME on June 15, 2014; sponsored by Maine Center for Research in Science Education.
- Yeziarski, E. & Putti, A. *Atoms, Molecules, and Ions - Oh My! Particulate Level Inquiry Activities*. Sewickley, PA on May 8, 2013; sponsored by the Society of Analytical Chemists of Pittsburgh.
- Yeziarski, E. *Atoms, Molecules, and Ions - Oh My! Particulate Level Inquiry Activities*. University of Minnesota STEM Center in Minneapolis, MN on May 14, 2013; hosted by Dr. Gill Roehrig.
- Yeziarski, E. J., *Using media coupled with guided inquiry in large lecture science courses*. Invited Presentation for Pew Faculty and Teaching Learning Center in Grand Rapids and Allendale, MI, GVSU, October 15, 2012.
- Yeziarski, E. J., *Active Learning Strategies*. Invited Presentation for Pew Faculty and Teaching Learning Center in Grand Rapids and Allendale, MI, GVSU, October 8, 2010.
- Yeziarski, E. J., *Teaching without Telling: Techniques for Lecture-less Instruction*. Pew Faculty Teaching and Learning Center Adjunct Faculty Academy, GVSU, August 11, 2007.
- Yeziarski, E. J., *Using Lecture Quizzes to Increase Students' Class Preparation*. Pew Faculty Teaching and Learning Center Adjunct Faculty Academy, GVSU, January 21, 2006.
- Yeziarski, E. J., *Process Oriented Guided Inquiry Learning (POGIL) in Large Classes*. Pew Faculty Teaching and Learning Center Fall Teaching Conference, GVSU, August 24, 2005.
- Yeziarski, E., Henderleiter, J., Herrington, D., Soman, S. & Tanis, D., *Building Confidence through Content Workshop Series: Middle Physical & Chemical Changes in Matter and Energy – Grades 5-8*. Co-authored and co-facilitated five 4-hour workshops for middle school science teachers. Regional Math and Science Center, GVSU, February-April, 2005.
- Yeziarski, E. J. & Herrington, D. G., *Engaging Students through Group Work in Lectures*. Pew Faculty Teaching and Learning Center Fall Teaching Conference, GVSU, August 25, 2004.
- Yeziarski, E. J., *Building Confidence through Content: Mastering Elementary Science Concepts (Forces, Motion, Simple Machines, Waves)*. Authored and facilitated an 8-hour workshop series for west Michigan elementary teachers. Regional Math and Science Center, GVSU, February-March 2004.
- Yeziarski, E. J., Smiley, B., Lemanowski, V., Labrie, A., *Gender Equity in Science, Math, Engineering and Technology*. Invited workshop for secondary teachers, Women in Applied Science and Engineering (WISE) Investments, College of Applied Science and Engineering, ASU, June 2002.

HONORS AND AWARDS

2019 Vice Chair & 2021 Chair of Gordon Research Conference on Chemistry Education Research & Practice
2018 Distinguished Teaching Award for Excellence in Graduate Instruction and Mentoring, Miami University
2016 Fellow of the American Chemical Society
2015 Distinguished Teaching Award, Miami University
2011 Visiting Scientist of the Western Connecticut Section of the ACS
2008 Pew Teaching Excellence Award, Grand Valley State University
College of Education Convocation Grand Marshall, December 2007
Pew Teaching and Learning Center CLAS Teaching Excellence Nominee, 2007
Preparing Future Faculty Second-Year Fellow, ASU, 2002-2003
ASU Faculty Emeriti Association Fellowship, 2002-2003
Distinguished Teaching Assistant Award, Department of Chemistry and Biochemistry, ASU, 2001-2002
Graduate Academic Scholarship, ASU, 2001-2002
Teaching Assistant Excellence Award, Department of Chemistry and Biochemistry, ASU, 2000-2001
High School Teacher of the Year, Tribune Newspapers, 1996
Presidential Award for Excellence in Science Teaching Nominee, 1996

SERVICE

Discipline – Chemistry Education

Current

Chair, ACS DivCHED Board of Publication, 2017- present
Ex-Officio Member, ACS DivCHED Executive Committee 2017-present
Appointed Member, ACS DivCHED Board of Publication for our consecutive terms (January 2009-present)
Chair, Subcommittee A, Society Committee on Education (SOCED) for ACS, January – December 2019
Appointed Member, SOCED, January 2017-present
Editorial Advisory Board Member – *Journal of Chemical Education* (co-published by ACS Publications and the Division of Chemical Education), July 2010-present
Appointed Member, ACS-Hach Board, September 2010-present
Board Of Review Member – *Journal of College Science Teaching* published by the National Science Teachers Association, April 2013-present
Reviewer – Journals: *Science*, *Journal of Chemical Education*, *Chemistry Education Research and Practice*, *Journal of Research in Science Teaching*, *Chemical Educator*, *Science Educator*, *Research in Science Education*, *Journal of Science and Technology Education*; ACS Symposium Books (*Chapters and Prospectus*), Granting Agencies: *National Science Foundation*, *National Institutes of Health*

Past

Vice Chair, Society Committee on Education (SOCED), April-December 2017
Appointed Member, ACS DivCHED High School Committee, 2009-2107
Elected to ACS Division of Chemical Education (DivCHED) Executive Committee for three consecutive 3-year terms: Two as Councilor (2012-2017) and the other as Alternate Councilor (2009-2011)
ACS Science Coach, 2017-18 academic year
Interim Chair, ACS DivCHED Board of Publication, 2016
Appointed Associate Member, SOCED, 2014-2016
Appointed Member (by ACS President, Tom Lane), ACS Award for Achievement in Research in the Teaching and Learning of Chemistry Selection Committee, 2010-2012
Appointed Member, ACS DivCHED Executive Committee: Task Force on Travel Award March 2011-2012
Appointed Member, ACS Committee on Science STEM Education Task Force, March 2010-March 2011
Appointed Member, POGIL Chemistry Education Research Committee, June 2009-2011
Appointed Member, ACS DivCHED Executive Committee: Task Forces on Outreach and Division Operations and Meeting Organization, August 2009-March 2010.
Editorial Board Member – *Science Educator* published by the National Science Education Leadership Association, January 2008-2017

Appointed Member, ACS DivCHED Long-Term Planning Committee, January 2005-December 2008
Member, ACS Exams Institute 2008 General Chemistry Conceptual Exam Committee, August 2006-2008
Tester, Assessing the Validity of Chemistry Achievement Questions for use in a national test of student learning with and without POGIL instruction. Lead evaluator, Diane Bunce, The Catholic University of America, August-December 2007

Meeting Organization

Co-Organizer and Co-President, Aligning Assessment Practices with Inquiry Learning, BCCE, University of Notre Dame, July 2018.
Poster Co-Chair, 2014 BCCE, GVSU, August 2014.
Co-Organizer, High School Chemistry Teaching as a Profession, BCCE, GVSU, August 2014.
Co-Organizer and Co-President, Particulate Level Inquiry Activities, BCCE, GVSU, August 2014.
Co-Organizer and Co-President, Inquiry Materials for Chemistry that Really Work: Teacher-Designed and Tested, BCCE, Pennsylvania State University, August 2012.
Organizer, 2011 ACS Central Regional Meeting, Indianapolis, IN, *Chemistry Education* symposium, June 2011.
President, 2010 Biennial Conference on Chemical Education, University of North Texas, Denton, TX, August 2010, *Chemical Education Research* symposium (am session), August 3, 2010.
Co-Organizer, DivCHED symposium at ACS 238th Meeting, Washington, DC, Inquiry materials developed by or for teachers, August 2009.
President, DivCHED symposium at ACS 237th Meeting and Exposition, Salt Lake City, UT, March 2009, *High school chemistry teacher professional development: What works and how we know*
Co-Organizer, BCCE symposium, Indiana University, Inquiry materials that really work: Teacher designed and tested, July 2008.
Co-Organizer/President, DivCHED symposium at ACS 235th Meeting, New Orleans, LA, Keeping it real: Inquiry instruction and the chemistry laboratory, April 2008.
Organizer/President, DivCHED symposium at ACS 231st Meeting, Atlanta, GA, Professional Development for High School Chemistry Teachers, March 2006.

College and University

Miami University

Chair, Academic Integrity Coordinator Search Committee, May 2019-present
Member, Academic Excellence Strategic Planning Subcommittee, December 2018-April 2019
Member, Academic Policy Review Committee, January 2018-present
Co-Advisor, STEM Society (new undergraduate student organization for STEM majors), August 2017-present
Chair, Teaching Excellence Senate Committee, August 2015-December 2017
Member, College of Arts and Science Personnel Committee, August 2015-2016
Member, CELTUA Grants & Awards Committee, January 2014-May 2015
Member, Liberal Education Committee Capstone Task Force, August 2014-May 2015
Appointed Member, Provost's Student Academic Achievement Award (PSAAA) Committee, 2012-2015
Appointed Board Member (representing Miami & CAS), Minorities in Math, Science & Engineering, Cincinnati, OH, November 2011-December 2017
Faculty Associate, Miami University Center for Human Development, Learning & Technology 2011-present
Member, Graduate Admission Committee for Certificate in Applied Statistics, January 2011-present
Appointed Member, Miami University Human Subjects Institutional Review Board, August 2011-August 2014
MADE @ Miami facilitator, August 2012 & August 2013
Panelist, Miami National Science Teachers Association Student Chapter, November 14, 2012.
Chair of team (Blue, J. PHY, Bretz, S. L. CHM, MacKenzie, ED) to bring Shelia Tobias to Miami for lecture and workshop series, March 13-14, 2012.

Grand Valley State University

Chair, Pew Faculty Teaching and Learning Center (FTLC) Advisory Committee, May 2008-May 2009
Associate Chair, Pew FTLC Director Search Committee, June 2008-March 2009
Appointed Member, Regional Math and Science Center Advisory Board, December 2007-present
Elected Member, Pew FTLC Advisory Committee, August 2006-April 2009
Member, GVSU Women in Science and Engineering (WISE), August 2006-present

Member, Pew FTLC Advisory Committee Grants Subcommittee, September 2006-April 2008
Appointed Member, Pew FTLC Assistant Director Search Committee, GVSU, October 2006-January 2007
Appointed Member, College of Liberal Arts & Sciences Course Evaluation Task Force, October 2005-September 2007
Representative (Chemistry Department), Teacher Education Accreditation Council, College of Education, GVSU, January 2005-December 2006
Advisor, GVSU NSTA Student Chapter, September 2004-September 2008
Elected Member, Science and Mathematics Division Teaching Effectiveness Committee, 2004-2005

Department

Miami University

Chair, Department Assessment Committee, August 2011-December 2017
Member, General Chemistry Committee, August 2010-December 2017
Member, Undergraduate Recruitment Committee, August 2015-December 2017
Member, Peer Evaluation of Teaching Committee, Fall 2011, Spring 2012, Fall 2013, Fall 2014, Fall 2015
Member, Organic Chemistry Search Committee, September 2016-March 2017
Member, CER Search Committee, September 2013-February 2013
Coordinator, Graduate Recruitment Weekend, 2011, 2012, 2013
Member, Chemistry & Biochemistry Chair Search Committee, November 2012-January 2013
Member, Hamilton Chemistry Faculty Search, October 2011-February 2012
Member, Graduate Admissions Committee, August 2010-May 2014

Grand Valley State University

Member, Curriculum Committee, August 2007-April 2009
Member, Chemistry Education Search Committee, October 2006-February 2007
Member, Academic Support Committee, October 2003-April 2009
Member, Personnel Committee, August 2005-April 2008
Member, Assessment Committee, August 2005-May 2007
Member, Chemistry Education Search Committee, December 2005-February 2006
Member, Analytical Search Committee, August 2004-March 2005

Community

Miami University

Discover the Sciences Day with Talawanda elementary schools, Miami University, 2011-present
Careers in Quantitative Skills Day, "It's a Good Hair Day Thanks to Chemistry," workshop, 2015, 2017, 2018, 2019
External Auditor for "Continuous Rotational Accreditation with External Review." *Independent Schools Association of the Central States, Cincinnati Country Day School*, April 2011

Grand Valley State University

Planner & Event Supervisor, Regional Science Olympiad, GVSU. Planned "Science Crimebusters" in 2004; co-supervised "Experimental Design" in 2005, 2006, 2008 and planned in 2007 and 2009
Air Pressure Planner & Supervisor, GVSU Super Science Saturday Open House, January 26, 2008
Workshop Co-Facilitator, Science IS for Girls, Grand Rapids Community College, February 10, 2007
Service Team Member, Grand Haven Girl Scouts, January 2007-May 2009
Planner, Girl Scouts Science Badge Workshop at GVSU (75 girls), November 11, 2006

Participant, Chemistry at the Mall for National Chemistry Week, Muskegon, MI, October 2008, October 2006 and Holland, MI, October 2004
Supervisor, Interactive Science Festival at Grandville East Elementary School, February 2006 and 2009
Slimy Science Co-Planner & Supervisor, GVSU Super Science Saturday Open House, Occartober 29, 2005
Girl Scouts USA Troop Leader, Girl Scouts Michigan Trails/Shore to Shore, October 2005-July 2010
Co-Supervisor, Interactive Science Festival at Grandville East Elementary School, February 2004

PROFESSIONAL DEVELOPMENT

Attended Five Consecutive Lilly Conferences on College Teaching at Miami, 2014-2018
Helping Students: Handling Emotional and Life-Challenging Problems (HELP!), CELTUA, October 9, 2014
Mentoring Graduate Students, CELTUA, September 25, 2014
Structural Equation Modeling, EHS Miami University, January 7, 2014
CELTUA Assessment Workshop, February 18, 2013
ALEKS Chemistry Symposium, Savannah, GA, April 12-13, 2012
NVivo 9 Webinar, February 2012
Helping Students: Handling Emotional and Life-Challenging Problems (HELP!), CELTUA, February 22, 2012
Attended Lilly Conference on College Teaching at Miami, November 17-20, 2011
RefWorks Seminar, Miami University Libraries, Fall semester 2010
Advanced *RefWorks* Seminar, February 19, 2009
Attended Professional & Organizational Network on Higher Education Conference, October 22-26, 2008, Reno, NV
Using *Sign-Up* on Blackboard Workshop, February 12, 2008
Use of Models in K-12 Science/Mathematics Classroom, Pew FTLC Teaching Circle, 2006-2007
Plagiarism and Blackboard (Turnitin) Workshop, February 20, 2007
Invited Contributor to POGIL National Meetings: Washington University (June 19-22, 2007), College of Charleston (May 22-24, 2006), Washington College, (June 13-16, 2005).
Peer Coaching for POGIL Practitioners with Barbara Gottesman, GVSU, November 12, 2005
Successful Online Discussion on Blackboard, November 9, 2005
Feng Shui Your Course Content on Blackboard, October 3, 2005
Using Student Journals to Promote Student Learning and Reflective Thinking on Blackboard, September 16, 2005
POGIL Workshops, GVSU, April & October 2004
NSF Multi-Initiative Dissemination Workshop in Chemical Education, University of Arizona, 2002
Preparing Future Faculty, Arizona State University, 2001-2002
Learning Cycles in Chemistry, Arizona State University, Summer 1992
Problem-Based Learning, Motorola University, Summers 1993, 1994

PROFESSIONAL SOCIETIES

American Chemical Society
ACS Division of Chemical Education
Alpha Chi Sigma, Beta Omega Chapter

CONSULTING EXPERIENCE (prior to Assistant Professor appointment)

Staff Editor, Peregrine Publishing, Inc. (A Pearson Co.), Scottsdale, AZ, June 2000-December 2001.
Script Writer, Global Video, Phoenix, AZ, September 1999-May 2000.
Test Author, Evans Newton, Inc., Scottsdale, AZ, February 1999-May 2000.
Custom Curriculum and In-Service Designer and Presenter, Developer and Writer for Solutions™ Links:Chemistry, Educational Management Group, Scottsdale, AZ, 1994-1999.
Explorations and Summer Technology Camp Instructor, Motorola University, Mesa, AZ, Summers 1993-1995.
Environmental Education Consultant, Motorola, Inc., Scottsdale, AZ, Summer 1992.