

GREGORY J. KELLY
Senior Associate Dean, College of Education
Distinguished Professor, Science Education

College of Education
277 Chambers Building
The Pennsylvania State University
University Park, PA 16802-3205

office: 814-863-1489
cell: 814-404-8554
email: gkelly@psu.edu

EDUCATION

- Ph.D. Cornell University, 1994
Graduate Field of Education, Ph.D. minor in Physics
Dissertation: *Physics Students' Conceptual Change in a Microcomputer-Based Laboratory Course*. ProQuest, # 9501227
Committee: William S. Carlsen, Kenneth A. Strike, Richard Galik
- B.S. State University of New York at Albany, 1986
Major in Physics, minor in Mathematics
Degree awarded Magna Cum Laude
Presidential Award for Undergraduate Research

ACADEMIC AND TEACHING POSITIONS

- 2018–present Distinguished Professor, Curriculum and Instruction (Science Education)
College of Education
The Pennsylvania State University
- 2004–2018 Professor of Science Education
Department of Curriculum and Instruction
College of Education
The Pennsylvania State University
- 1994–2004 Assistant/Associate/Full Professor of Education
Department of Education
University of California Santa Barbara
- 1990–1994 Teaching Assistant & Instructor: Physics Department; Engineering Minority
Programs Office; and Pre-Freshman Summer Program
Cornell University
- 1986–1990 Physics and Chemistry Teacher
Teacher Educator and Coordinator for Science Education in Regional
Inspectorate, Peace Corps Togo, West Africa

SELECTED ADMINISTRATIVE AND LEADERSHIP EXPERIENCES

Senior Associate Dean

Research, Outreach, & Strategic Planning (2020–present)

College of Education, The Pennsylvania State University

Responsibilities:

Lead College research enterprise including supporting externally funded projects, defining policy for uses of research funds by faculty and research centers, offering professional learning for graduate students and faculty, supervising and evaluating research centers, initiating new partnerships, creating and assessing new entrepreneurial projects, and managing the grants and contracts office. Serve on University Research Council to review and set university research policy. Current College portfolio includes 118 funded projects totaling over \$72M. College ranked #20 (#9 in the US) in [Best Global Universities for Education and Educational Research](#).

Strategic Planning Implementation Czar for College of Education. Facilitated implementation of strategic initiatives aimed at creation of more equitable educational opportunities and outcomes for learners across their lifespan. Participating in racial equity leadership training.

Selected achievements:

- Restructured research infrastructure for pre-award support of faculty research. Created planning documents, timelines, templates, model proposals, and red team review to facilitate faculty grant-writing productivity.
- Grew the College's portfolio of externally funded research projects. Increased grant expenditures by 97% over past three years to over \$18M annually.
- Prioritized equity-oriented research for College research seed funding.
- Created strategic planning process for thirteen College research centers and institutes.
- Conceptualized and led workshops to build faculty capacity to procure externally funded grants.
- Advised 100% of new faculty about their research programs and grant opportunities.
- Created process and managed expenditure of two new endowment research funds.

Senior Associate Dean for Research, Outreach, and Technology (2018–2020)

Associate Dean for Research, Outreach, and Technology (2010–2018)

College of Education, The Pennsylvania State University

Responsibilities:

Research: Led College research enterprise including supporting externally funded projects, defining policy for uses of research funds by faculty and research centers, offering professional learning for graduate students and faculty, supervising and evaluating research centers, creating and assessing new entrepreneurial projects, and managing the grants and contracts office.

Outreach: Managed College outreach portfolio including online and continuing education programs. Focused on developing new, high-quality, revenue-producing programs that connect to practice-oriented applications of research.

Technology: Led and managed College of Education information technology support team and

new technology initiatives including negotiating IT policy concerning security, supporting members of the college, managing enterprise software, and providing faculty development related to uses of technology for teaching. Refurbished and created new clinical and teaching laboratories to enhance student learning experience with technology.

Selected achievements:

- Developed systems for pre- and post-award grant administration. Reorganized staffing and processes to enhance efficiency and service.
- Advanced mission of the Center of Science and the Schools (CSATS) to build mutually beneficial and sustainable relationships between K-12 schools and Penn State researchers in science, engineering, and mathematics fields that enhance K-16 science and engineering education across the state. Doubled CSATS staff to support the 10–15 interdisciplinary, cross-university projects they engage in annually totaling over \$5 million.
- Worked with faculty and university leaders to spearhead the creation of two new research centers focused on educational equity: *Center for Education and Civil Rights* and *Center for Educational Disparities Research*.
- Increased the College's portfolio of online master's degrees, creating 5 new degree programs and revising two of the three existing programs. Worked closely with faculty, College, and university leadership on market analysis, faculty development, curriculum innovation, and student recruitment. This produced a significant increase in the College's online enrollment rising from under 300 students to over 1,100 in 10 years.
- Negotiated with the United States Army Sergeants Majors Academy to establish a Lifelong Learning and Adult Education program for cohorts of non-commissioned officers.
- Created an RFP process to promote innovative uses of technology in teaching to enhance students' educational experiences. Assembled and led a Committee that reviewed and awarded 3–4 grants annually.
- Procured internal funding for a complete redesign of our psychological clinic for counseling and psychological services to enhance training and research. Introduced digital video and audio technology and a building-specific intranet to improve the reliability and accessibility of recorded events in the clinic.
- Initiated the design and procurement of centralized systems for information technology. These included the purchase and installation of an online, ticket system to track and prioritize faculty and staff requests. This led to more efficient management of over 2000 requests per year.
- Organized new policies and processes for information technology including enterprise active directory (Windows and MacOS), least privileged access, encryption, and new software purchases.
- Founding member of Fund for Innovation Proof-of-Concept Committee. Designed and evaluated the processes to fund and support entrepreneurial activities within the College and University.

Department Head, Curriculum and Instruction (2007–2010)
College of Education, The Pennsylvania State University

Responsibilities:

Led over 60 faculty members dedicated to improving teaching, learning, and leadership in preschool through secondary level education. Managed the accreditation of 20 certification areas from prekindergarten through 12th grade. Graduated approximately 500 undergraduate and graduate student certified as teachers each year. Supervised faculty educating approximately 1000 undergraduate and over 200 graduate students. Engaged in faculty development through annual reviews and guidance for promotion and tenure. Conducted promotion and tenure evaluations. Managed \$4.5M annual budget.

Selected achievements:

- Improved faculty diversity including hiring the first two Black women in department, both of whom became full professors.
- Fostered partnerships with Xavier University of New Orleans and University of Puerto Rico—Mayaguez Campus to recruit underrepresented doctoral students.
- Reorganized Department decision making to make processes more transparent. This included resource allocation, assignment of graduate assistantships, space, and hiring processes.
- Restructured the department budget process to increase transparency and savings.
- Redesigned the field placement office to establish norms related to workload and expectations for supervisors.

Faculty Leader, Program of Education (2003–2004)
Department of Education, University of California, Santa Barbara

Responsibilities:

Administered operations across five disciplinary emphasis areas, monitored graduate admissions, advocated for graduate students across the program, oversaw appeals process for graduate student grievances.

Emphasis Leader, Teaching and Learning (1997–1999, 2002–2003)
Department of Education, University of California, Santa Barbara

Responsibilities:

Organized and managed faculty workload, course scheduling, graduate students assistantship assignments, and requests for faculty hires.

CAREER COMMITMENT TO DIVERSITY, EQUITY, INCLUSION, AND BELONGING

Inclusion Committee, Smithsonian Science Education Center’s (SSEC) (2022).
Smithsonian Institution.

Expert Reviewer, Freeman Hrabowski Scholars Program, Howard Hughes Medical Institute (2022). Program designed to provide mentorship to support diverse junior faculty.

Racial Equity Leadership Training (2021–2022). Year-long training designed to examine assumptions about leadership in education and develop strategies to instantiate antiracist practices in processes, practices, and policies throughout College of Education and beyond.

Strategic Planning Implementation Czar, College of Education, Pennsylvania State University (2021–present). Chosen to lead implementation of equity-oriented, social justice strategic plan.

Design-Based Research Curriculum Development (2021–present). Research and development of equity-oriented engineering and computational thinking curricula for youth in elementary and middle schools, funded by MathWorks and NSF.

University Faculty Way Paver Award, Council of College Multicultural Leadership, Pennsylvania State University (2018). Cited work demonstrating “an extraordinary commitment to diversity and the creation of an inclusive community, positively enhanced student life, the climate throughout the University and local communities.”

Fostered partnerships with Xavier University of New Orleans and University of Puerto Rico—Mayaguez Campus (2007–2010). Recruited underrepresented doctoral students to programs of study in Curriculum & Instruction Department.

Diversity and Community Enhancement Committee College of Education, Pennsylvania State University, (2005–2007; co-chair 2006–2007). Worked with faculty, students, and staff to create inclusive, supportive community attentive to issues of diversity in the university.

Participatory-Action Research, Elementary and Secondary Schools (1995–2002). Co-taught science across different grade levels in public schools with bilingual student classrooms in Southern California.

Blacks in the Sciences Task Force, Center for Black Studies, University of California Santa Barbara (1994–1995). Program designed to recruit and retain Black scholars in the sciences.

Graduate Assistant Instructor, Engineering Minority Programs, Cornell University (1990-1992). Taught Calculus to minority students in College of Engineering.

Peace Corps Volunteer Togo, West Africa (1986–1990). Taught physics and chemistry teacher to multilingual Togolese students in French; served as teacher educator and coordinator for science education in regional inspectorate.

Volunteer Alternative High School, Albany NY (1984–1985). Tutored underserved students grades 8–10 in mathematics and science.

LEADERSHIP EDUCATION

2023	Introverts as Leaders: Quiet Power as a Leadership Strength Harvard, Division of Continuing Education
2021–2022	Racial Equity Leadership Training Center for Transformation and Change
2010–present	Academic Leadership Forum Pennsylvania State University

HIGHLIGHTS OF UNIVERSITY LEADERSHIP

Committee on Revised Standards for Human Subjects Research, Pennsylvania State University (2020–present); Social Science Research Institute, Associate Dean’s Advisory Committee, Pennsylvania State University (2010–present); University Research Council, Pennsylvania State University (2010–present); Fund for Innovation, Proof of Concept Committee, Pennsylvania State University (2015–present); Academic Administrative Evaluation Committee, College of Agriculture, Pennsylvania State University (2020); President's Award for Excellence in Academic Integration Announcement, Pennsylvania State University (2019, Chair 2020); Search Committee, Associate Vice Provost for Planning and Institutional Research, Pennsylvania State University (2016); Search Committee, Vice-Provost, Planning and Assessment, Pennsylvania State University (2015); Digital Learning Academic Council, Pennsylvania State University (2015–2020); Academic Administrative Evaluation Committee, College of Nursing, Pennsylvania State University (2014); Administrative Council on Engagement, Pennsylvania State University (2013–2015); e-Education Council, Pennsylvania State University (2010–2015); Online Coordinating Council, Pennsylvania State University (2010–2014); Council on Engagement, Pennsylvania State University (2010–2013); Search Committee, Director of Academic Affairs for Graduate Programs for the Penn State World Campus (2011); Council of Faculty Issues and Awards, University of California Santa Barbara (vice chair, 2002–2004); Faculty Welfare & Academic Freedom Committee, University of California Santa Barbara (2002–2003, Chair, 2003–2004); Academic Freedom Committee, University of California Santa Barbara Representative, University of California, Systemwide (2002–2004); Pacific Rim Advisory Committee, University of California Santa Barbara (2001–2003); Committee on Academic Freedom, University of California Santa Barbara (2001–2002).

AWARDS

2021	Distinguished Contributions to Science Education through Research Award (DCRA), National Association for Research in Science Teaching (NARST)
2021	Career Achievement, College of Education, Pennsylvania State University
2020	Member, National Academy of Education
2018	Dr. John J. Gumperz Memorial Award for Distinguished Lifetime Scholarship, Language and Social Processes Special Interest Group, American Educational Research Association (AERA)
2018	University Faculty Way Paver Award, Council of College Multicultural Leadership (CCML), Pennsylvania State University
2018	Distinguished Professor, College of Education, Pennsylvania State University
2015	Outstanding Researcher, College of Education, Pennsylvania State University
2014	Fellow of the American Educational Research Association (AERA)
2007	Outstanding Reviewer for <i>Educational Researcher</i>
1998–2000	National Academy of Education Postdoctoral Fellow
1999	Early Career Research Award, National Association for Research in Science

Teaching (NARST)

- 1995 & 1996 University of California Regents' Junior Faculty Fellowship
- 1995 Marvin and Ruth Glock Research Award for Outstanding Ph.D. Dissertation, Department of Education, Cornell University
- 1986 Recipient of the Presidential Award for Undergraduate Research, "Matching possibilities of the Schwarzschild and de Sitter metrics."
State University of New York at Albany

PROFESSIONAL ACTIVITIES

- 2022–present External Reviewer, *National Academy of Education/Spencer Foundation*, Postdoctoral Fellowship Program
- 2022–present Expert Reviewer, *Freeman Hrabowski Scholars Program*, Howard Hughes Medical Institute.
- 2022–present Inclusion Board Ad Hoc Committee, Smithsonian Science Education Center's (SSEC), *Smithsonian Institution*
- 2017–present National Advisory Board, Smithsonian Science Education Center (SSEC), *Smithsonian Institution*
- 2022 Selection Committee. Management Company, *National Association for Research in Science Teaching*.
- 2022 Chair, Search Committee, Editor, *Science Education* journal.
- 2017–2020 Chair, Ad Hoc Advisory Group on Higher Education, Smithsonian Science Education Center's (SSEC), *Smithsonian Institution*
- 2016–present External Reviewer, *National Academy of Education/Spencer Foundation*, Dissertation Fellowship Program
- 2013–present Editorial Board Member, *EURASIA Journal of Mathematics, Science, and Technology Education*
- 2011–present Editorial Board Member, *Science Education*
- 2009–present Advisory Board, *International Journal of Instruction*
- 2014–2020 Executive Board Member, *NARST – A Worldwide Organization for Improving Science Teaching and Learning through Research*
- 2015–2020 Inaugural Secretary-Treasurer, *NARST – A Worldwide Organization for Improving Science Teaching and Learning through Research*
- 2017–2019 Co-Chair, Website Committee, *NARST – A Worldwide Organization for Improving Science Teaching and Learning through Research*
- 2017–2019 Associate Editor, *Science & Education*
- 2016,7,9 Mentor, Language and Social Processes Special Interest Group, *American Education Research Association*
- 2015 Chair, Search Committee, Editor *Science Education* journal

- 2013–2016 Advisory Board, *Science and Education*, Journal of the International History, Philosophy, and Science Teaching Group.
- 2006–2011 Editor in Chief, *Science Education*
- 2007–2010 Editorial Advisory Board, *Educational Researcher*
- 2007–2010 Co-Editor, *Review of Research in Education* (RRE), volumes 32 and 34
- 2005–2008 External Reviewer, *Knowles Science Teaching Foundation Young Scholars Fellowship* competition
- 2005–2006 Member, Early Career Research Award Committee, *National Association for Research in Science Teaching*
- 2005–2006 Advisory Editorial Board Member, *Review of Research in Education*, volume 30
- 2002–2006 Section Co-Editor, Learning, *Science Education*
- 2004–2005 Co-Chair, Outstanding Paper Award Committee, *National Association for Research in Science Teaching*
- 2003–2004 Division D Co-Chair, Section D.3 Qualitative Research Methods, *American Educational Research Association*
- 1999–2001 Associate Editor, *Journal of Research in Science Teaching*
- 1997–1999 Member, Editorial Board, *Journal of Research in Science Teaching*
- 1995–2002 Member, Board of Reviewers, *Science Education*
- 1997–2000 Member, Outstanding Paper Awards Committee, *National Association for Research in Science Teaching*
- 1995 Member, Journal of Research in Science Teaching Awards Committee, *National Association for Research in Science Teaching*
- Occasional
Reviewer: *National Science Foundation, USA; Israel Science Foundation; REWIRE: Reinforcing Women in Research* (University of Vienna)
- Occasional
Reviewer: *American Educational Research Journal; American Journal of Education; Cognition and Instruction; Educational Researcher; Journal of Classroom Interaction; Journal of Curriculum Studies; International Journal of Science Education; International Journal of STEM Education; Journal of the Learning Sciences; Journal of Research in Science Teaching; Learning, Culture, and Social Interaction; Linguistics & Education; Public Understanding of Science; Review of Educational Research; Science and Education; Science Education; School Science and Mathematics; Eurasia Journal of Mathematics, Science and Technology Education*

RESEARCH INTERESTS

Science education, engineering education, classroom discourse, equity in science and engineering education, philosophy and sociology of science

RESEARCHER IDENTIFIERS

ORCID: <http://orcid.org/0000-0002-5027-593X>
 ResearcherID: <http://www.researcherid.com/rid/D-1029-2013>
 GoogleScholar: https://scholar.google.com/citations?hl=en&user=thMISA_gAAAAJ
 Research Gate https://www.researchgate.net/profile/Gregory_Kelly3

PUBLICATIONS

- Kelly, G. J. (2023). Qualitative research as culture and practice. In N. G. Lederman, D. Zeidler, & J. S. Lederman, J. S. (Eds.), *Handbook of research on science education, volume 3*. (pp. 60–86). Mahwah, NJ: Lawrence Erlbaum Associates.
<https://doi.org/10.4324/9780367855758-4>
- Kelly, G. J., Brown, B., & Jiménez-Aleixandre, M. P. (2023). Discourse practices in science learning. In N. G. Lederman, D. Zeidler, & J. S. Lederman, J. S. (Eds.), *Handbook of research on science education, volume 3*. (pp. 413–446). Mahwah, NJ: Lawrence Erlbaum Associates. <https://doi.org/10.4324/9780367855758-18>
- Cunningham, C. M., & Kelly, G. J. (2022). A Model for Equity-Oriented PreK-12 Engineering. *Journal of Pre-College Engineering Education Research (J-PEER)*, 12(2), Article 3.
<https://doi.org/10.7771/2157-9288.1375>
- Kelly, G.J. (2022). Social epistemology as practically and interactionally accomplished. In K. Hazma, B. Jakobson, & I. Lundegard (Eds.), *Nature, teaching of nature, and the nature of teaching: A Festschrift for Per-Olof Wickman* (pp. 52–61). Stockholm University.
- Kelly, G.J. (2021). Theory, methods, and expressive potential of discourse studies in science education. *Research in Science Education*, 51, 225–233. <https://doi.org/10.1007/s11165-020-09984-0>
- Licona, P., Kelly, G. J. (2021). Translanguaging in Middle School Science: Written Arguments About Issues of Biodiversity. In Jakobsson, A., Nygård Larsson, P., Karlsson, A. (Eds.) *Translanguaging in Science Education. Sociocultural Explorations of Science Education*, (pp. 173–201). Springer. https://doi.org/10.1007/978-3-030-82973-5_9
- Johnson, M., Kelly, G. J., & Cunningham, C. M. (2021). Failure and improvement in elementary engineering. *Journal of Research in STEM Education*, 7, 69–92.
<https://doi.org/10.51355/jstem.2021.101>
- Cunningham, C. M., Kelly, G. J., & Meyer, N. (2021). Affordances of engineering with English learners. *Science Education*, 105, 255–280. DOI: 10.1002/sce.21606
- Mohan, A. K. & Kelly, G. J. (2020). Nature of science and nature of scientists: Implications for university education in the natural sciences. *Science & Education*, 29, 1097–1116.
<https://doi.org/10.1007/s11191-020-00158-y>; <https://rdcu.be/b7i7Y>
- Licona, P., & Kelly, G. J. (2020). Translanguaging in a middle school science classroom: Constructing scientific arguments in English and Spanish. *Cultural Studies of Science Education* 15, 485–510. <https://doi.org/10.1007/s11422-019-09946-7>

- Green, J. L., Baker, W. D., Chian, M., Vanderhoof, C., Hooper, L., Kelly, G. J., Skukauskaite, A., & Kalainoff, M. (2020). Studying the over-time construction of knowledge in education settings: A microethnographic-discourse analysis approach. *Review of Research in Education*, 44, 161–194. <http://doi.org/10.3102/0091732X20903121>
- Cunningham, C. M., Lachapelle, C. P., Brennan, R. T., Kelly, G. J., San Antonio Tunis, C., & Gentry, C. A. (2020). The impact of engineering curriculum design principles on elementary students' engineering and science learning. *Journal of Research in Science Teaching*, 57, 423–453. <https://doi.org/10.1002/tea.21601>
- Cunningham, C. M., & Kelly, G. J. (2020). Collective reasoning in elementary engineering education. In E. Manalo (Ed.) *Deeper learning, dialogic learning, and critical thinking* (pp. 339–355). New York, NY: Routledge.
- Kelly, G. J. (2019). Critical dialogues for emerging research agendas in science education. In V. Prain and B. Hand (Eds.), *Theorizing the future of science education research* (pp. 191–196). Cham, Switzerland: Springer. DOI: 10.1007/978-3-030-24013-4
- Pierson, A. E., Clark, D. B., & Kelly, G. J. (2019). Learning progressions and science practices: Tensions in prioritizing content, epistemic practices, and social dimensions of learning. *Science & Education*, 28, 833–841. <https://doi.org/10.1007/s11191-019-00070-0>
- Cunningham, C. M., & Kelly, G. J., & Meyer, N. (2019, June). Affordances of Engineering for Elementary-aged English Learners (Fundamental, Diversity). Paper presented at 2019 American Society of Engineering Education Annual Conference & Exposition, Tampa, Florida. <https://peer.asee.org/32048>
- Deng, Y., Kelly, G. J., & Deng, S. (2019). The influences of integrating reading, peer evaluation, and discussion on undergraduate students' scientific writing. *International Journal of Science Education*, 41, 1408–1433. <https://doi.org/10.1080/09500693.2019.1610811>
- Kelly, G. J., & Cunningham, C. M., & (2019). Epistemic tools in engineering design for K-12 education. *Science Education*, 103, 1080–1111. <https://doi.org/10.1002/sce.21513>
- Kelly, G. J., & Green, J. L. (Eds.). (2019). *Theory and methods for sociocultural research in science and engineering education*. New York, NY: Routledge. <https://www.taylorfrancis.com/books/oa-edit/10.4324/9781351139922/theory-methods-sociocultural-research-science-engineering-education-gregory-kelly-judith-green?refId=6eadcff7-3fee-460f-a4a9-cd852dcb0de1&context=ubx>
- Kelly, G. J., & Green, J. L. (2019). Framing issues of theory and methods for the study of science and engineering education. In G. J. Kelly & J. L. Green (Eds.), *Theory and methods for sociocultural research in science and engineering education* (pp. 1–28). New York, NY: Routledge.
- Green, J. L. & Kelly, G. J. (2019). How we look at discourse: Definitions of sociolinguistic units. In G. J. Kelly & J. L. Green (Eds.), *Theory and methods for sociocultural research in science and engineering education* (pp. 264–270). New York, NY: Routledge.
- Deng, Y., Kelly, G. J., Xiao, L. (2019). The development of Chinese undergraduate students' competence of scientific writing in the context of advanced organic chemistry experiment course. *Chemistry Education Research and Practice*, 20, 270–287. DOI:

10.1039/C8RP00171E

- Kelly, G. J. (2018). Developing epistemic aims and supports for engaging students in scientific practices. *Science & Education*, 27, 245–246. DOI: 10.1007/s11191-018-9974-y. <http://rdcu.be/N5hu>
- Hufnagel, E., Kelly, G. J., & Henderson, J. A. (2018). How the environment is positioned in the Next Generation Science Standards: A critical discourse analysis. *Environmental Education Research*, 24, 731–753. <http://dx.doi.org/10.1080/13504622.2017.1334876>
- Kelly, G. J., & Licona, P. (2018). Epistemic practices and science education. In M. Matthews (Ed.), *History, philosophy and science teaching: New research perspectives* (pp. 139–165). Springer: Dordrecht. DOI: 10.1007/978-3-319-62616-1_5. https://link.springer.com/chapter/10.1007/978-3-319-62616-1_5
- Hufnagel, E., & Kelly, G. J. (2018). Examining emotional expressions in discourse: Methodological considerations. *Cultural Studies of Science Education*, 13, 905–924. DOI: 10.1007/s11422-017-9806-4
- Hertel, J. D., Cunningham, C. M., & Kelly, G. J. (2017). The roles of engineering notebooks in shaping elementary engineering student discourse and practice. *International Journal of Science Education*, 39, 1194–1217. <http://dx.doi.org/10.1080/09500693.2017.1317864>
- Kelly, G. J., Cunningham, C. M., & Ricketts, A. (2017). Engaging in identity work through engineering practices in elementary classrooms. *Linguistics & Education*, 39, 48–59. <https://doi.org/10.1016/j.linged.2017.05.003>
- Cunningham, C. M., & Kelly, G. J. (2017). Epistemic practices of engineering for education. *Science Education*, 101, 486–505. <https://doi.org/10.1002/sce.21271>
- Sezen-Barrie, A., & Kelly, G. J. (2017). From the teacher’s eyes: A case study of teachers’ use of informal formative assessments (IFAs) and understanding the challenges of effective implementation. *International Journal of Science Education*, 39, 181–212. <http://dx.doi.org/10.1080/09500693.2016.1274921>
- Cunningham, C. M., & Kelly, G. J. (2017). Framing engineering practices in elementary school classrooms. *International Journal of Engineering Education*, 33(1B), 295–307.
- Kelly, G. J. (2016). Learning science: Discourse practices. In S. Wortham, & D. Kim, & S. May, (Eds.) *Encyclopedia of language and education, Vol. 3: Discourse and education* (pp. 1–15). New York: Springer. DOI 10.1007/978-94-007-6165-0_107-3
- Kelly, G. J. (2016). Inquiry learning and teaching in science education. In M.A. Peters (Ed.), *Encyclopedia of educational philosophy and theory*. Singapore: Springer. doi: 10.1007/978-981-287-532-7_36-1. https://link.springer.com/content/pdf/10.1007%2F978-981-287-532-7_36-1.pdf
- Kelly, G. J. (2016). Methodological considerations for the study of epistemic cognition in practice. In J. A. Greene, W.A. Sandoval, & I. Braten (Eds.) *Handbook of epistemic cognition* (pp. 393–408). New York: Routledge.
- Kelly, G. J. (2015). Sociology of science and science education. In R. Gunstone (Ed.) *Encyclopedia of science education* (pp. 996–998). Dordrecht: Springer. doi: [10.1007/978-](https://doi.org/10.1007/978-)

[94-007-2150-0 285](#)

http://link.springer.com/referenceworkentry/10.1007%2F978-94-007-2150-0_285

- Kelly, G. J. (2015). Discourse in science learning. In R. Gunstone (Ed.), *Encyclopedia of science education* (pp. 332–335). Dordrecht: Springer. doi: 10.1007/978-94-007-6165-0_107-3. https://link.springer.com/referenceworkentry/10.1007/978-94-007-6165-0_107-3
- Kelly, G. J. (2014). Inquiry teaching and learning: Philosophical considerations. In M. Matthews (Ed.), *International handbook of research in history, philosophy and science teaching*, (pp. 1363–1380). Springer: Dordrecht. doi: 10.1007/978-94-007-7654-8_42 https://link.springer.com/chapter/10.1007%2F978-94-007-7654-8_42
- Kelly, G. J. (2014). Discourse practices in science learning and teaching. In N. G. Lederman & S. K. Abell (Eds.), *Handbook of research on science education, volume 2* (pp. 321–336). Mahwah, NJ: Lawrence Erlbaum Associates.
- Kelly, G. J. (2014). The social bases of disciplinary knowledge and practice in productive disciplinary engagement. *International Journal of Education Research*, 64, 211–214. doi.org/10.1016/j.ijer.2013.07.008
- Kelly, G. J. (2014). Analysing classroom activities: Theoretical and methodological considerations. In C. Bruguière, A. Tiberghien, & P. Clément (Eds.) *Topics and trends in current science education: 9th ESERA conference selected contributions* (pp. 353–368). Dordrecht: Springer.
- Venturini, P., Tiberghien, A., von Aufschnaiter, C., Kelly, G. J., Mortimer, E. (2014). Analysis of teaching and learning practices in physics and chemistry education: Theoretical and methodological issues. In C. Bruguière, A. Tiberghien, & P. Clément (Eds.), *Topics and trends in current science education: 9th ESERA conference selected contributions* (pp. 469–485). Dordrecht: Springer.
- Sezen-Barrie, A., Tran, M.-D. T, McDonald, S., & Kelly, G. J. (2014). A cultural historical activity theory perspective to understand preservice science teachers' reflections on and tensions during micro-teaching experience. *Cultural Studies of Science Education*, 9, 675–697. doi.org/10.1007/s11422-013-9503-x
- Kelly, G. J. (2014). [Review of the book *Conceptual profiles: A theory of teaching and learning scientific concepts*, E. F. Mortimer & C. N. El-Hani (Eds.)]. *Science & Education*, 23, 1957–1960.
- Vieira, R.D. & Kelly, G. J., (2014). Multi-level discourse analysis in a physics teaching methods course from the psychological perspective of activity theory. *International Journal of Science Education*, 36, 2694–2718.
- Kang, E. J. S., Bianchini, J. A., & Kelly, G. J. (2013). Crossing the border from science student to science teachers: Preservice teachers' views and experiences learning to teach inquiry. *Journal of Science Teacher Education*, 24, 427–447.
- Kerlin, S. C., Carlsen, W. S., Kelly, G. J., & Goehring, E. (2013). Global learning communities: A comparison of online domestic and international science class partnerships. *Journal of Science Education and Technology*, 22, 475–487.
- Vieira, R.D., Kelly, G. J., & Nascimento, S. S. (2012). An activity theory-base analytic

- framework for the study of discourse in science classrooms. *Ensaio: Pesquisa em Educação em Ciências*, 14(2), 13–46.
- Kelly, G. J. (2012). Developing critical conversations about identity research in science education. In M. Varelas (Ed.), *Identity construction and science education research: Learning, teaching, and being in multiple contexts* (pp.185–192). Dordrecht: Springer.
- Kelly, G. J. (2012). Expanding discourse repertoires with hybridity. *Cultural Studies in Science Education*, 7, 535–539.
- McDonald, S., & Kelly, G. J. (2012). Beyond argumentation: Sense making discourse in the science classroom. In M. S. Khine (Ed.), *Perspectives on scientific argumentation: Theory, practice and research* (pp. 265–281). Dordrecht: Springer.
- Kelly, G. J., McDonald, S., & Wickman, P. O. (2012). Science learning and epistemology. In K. Tobin, B. Fraser, & C. McRobbie, (Eds.), *Second international handbook of science education* (pp. 281–291). Dordrecht: Springer.
- Kelly, G. J. (2011). Scientific literacy, discourse, and epistemic practices. In C. Linder, L. Östman, D. A. Roberts, P. Wickman, G. Erikson, & A. McKinnon (Eds.), *Exploring the landscape of scientific literacy* (pp. 61–73). New York, NY: Routledge.
- Kerlin, S., McDonald, S., & Kelly, G. J. (2010). Complexity of secondary scientific data sources and students' argumentative discourse. *International Journal of Science Education*, 32, 1207–1225.
- Kelly, G. J. & Sezen, A. (2010). Activity, discourse, & meaning: Some directions for science education. In Roth, W.-M. (Ed.) *Re/Structuring science education, ReUniting sociological and psychological perspectives* (pp. 39–52). Springer: Dordrecht.
- Gomes, M. F. C., Mortimer, E. F., & Kelly, G. J. (2010). Contrasting stories of inclusion/exclusion in the chemistry classroom. *International Journal of Science Education*, 32, 1207–1225.
- Luke, A., Green, J., & Kelly, G. J., (2010). What counts as evidence and equity? *Review of Research in Education*, 34, vii–xvi.
- Kelly, G. J., Bazerman, C., Skukauskaite, A., & Prothero, W. (2010). Rhetorical features of student science writing in introductory university oceanography. In C. Bazerman, R. Krut, K. Lunsford, S. McLeod, S. Null, P. Rogers, & A. Stansell (Eds.) *Traditions of writing research* (pp. 265–282). New York: Routledge.
- Kerlin, S., McDonald, S., & Kelly, G. J. (2008). Mapping a science inquiry unit. *Journal of Classroom Interaction*, 43(2), 4–13. <http://www.jstor.org/stable/23869673>
- Kelly, G. J. (2008). Publishing in science education. *Science Education*, 92, 969–972.
- Prothero, W., & Kelly, G. J. (2008). Earth data, science writing, and peer review in a large general education oceanography class. *Journal of Geoscience Education*, 56 (1), 61–72.
- Kelly, G. J., Luke, A., & Green, J. (2008). What counts as knowledge in educational settings: Disciplinary knowledge, assessment, and curriculum. *Review of Research in Education*, 32, vii–x.
- Kelly, G. J. (2008). Inquiry, activity, and epistemic practice. In R. Duschl & R. Grandy (Eds.)

- Teaching scientific inquiry: Recommendations for research and implementation* (pp. 99-117; 288–291). Rotterdam: Sense Publishers.
- Kelly, G. J. (2008). Learning science: Discursive practices. In A.-M. de Mejia & M. Martin-Jones (Eds.) *Encyclopedia of language and education, Vol. 3: Discourse and education* (pp. 329–340). New York: Springer.
- Kelly, G. J., Regev, J., & Prothero, W. A. (2008). Analysis of lines of reasoning in written argumentation. In S. Erduran & M.P. Jimenez-Aleixandre (Eds.), *Argumentation in science education: Recent developments and future directions* (pp. 137–154). New York: Springer.
- Kelly, G. J. (2007). Scientific literacy, discourse, and knowledge. In C. Linder, L. Östman and P. Wickman (Eds.) *Promoting scientific literacy: Science education research in transaction, proceedings of the Linnaeus tercentenary symposium* (pp. 47–55). Uppsala, Sweden: Geotryckeriet. Available at <http://www.fysik.uu.se/didaktik/lsl/Web%20Proceedings.pdf>
- McDonald, S., & Kelly, G. J. (2007). Understanding the construction of a science storyline in a chemistry classroom. *Pedagogies*, 2(3), 165–177.
- Brown, B. A., & Kelly, G. J. (2007). When clarity and style meet substance: Language, identity, and the appropriation of science discourse. In W.-M. Roth & K. Tobin (Eds.) *Science, learning, and identity: Sociocultural and cultural-historical perspectives*, (pp. 283–299). Rotterdam: Sense Publishers.
- Reveles, J. M., Kelly, G. J., & Durán, R. P. (2007). A sociocultural perspective on mediated activity in third grade science. *Cultural Studies in Science Education*, 1, 467–495.
- Kelly, G. J. (2007). Discourse in science classrooms. In S. K. Abell, & N. G. Lederman (Eds.), *Handbook of research on science education* (pp. 443–469). Mahwah, NJ: Lawrence Erlbaum Associates.
- Cunningham, C. M., Knight, M. T., Carlsen, W. S., & Kelly, G. (2007). Integrating engineering in middle and high school classrooms. *International Journal of Engineering Education*, 23 (1), 3–8.
- Kelly, G. J. (2006, February 27). [Review of the book *Science education for everyday life: Evidence-based practice*, by G. S. Aikenhead]. *Teachers College Record*, <http://www.tcrecord.org> ID Number: 12336
- Kelly, G. J. (2006) Epistemology and educational research. In J. Green, G. Camilli, & P. Elmore, (Eds.), *Handbook of complementary methods in education research* (pp. 33–55). Mahwah, NJ: Lawrence Erlbaum Associates.
- Kelly, G. J. (2006). [Review of the book *Writing and learning in the science classroom*, by C. S. Wallace, B. B. Hand, & V. Prain], *International Journal of Science Education*, 28, 697–700.
- Lemke, J., Kelly, G. J., & Roth, W.-M. (2006). Forum: Toward a phenomenology of interviews. *Cultural Studies of Science Education* 1, 83–106.
- Kelly, G. J. (2005). [Review of the book *Meaning making in secondary science classrooms*, by E. F. Mortimer & P. H. Scott], *Science Education*, 89, 875–877.

- Brown, B. A., Reveles, J. M., & Kelly, G. J. (2005). Scientific literacy and discursive identity: A theoretical framework for understanding science learning. *Science Education*, 89, 779–802.
- Schweizer, D. M., & Kelly, G. J. (2005). An investigation of student engagement in a global warming debate. *Journal of Geoscience Education*, 53 (1), 75–84.
- Kelly, G. J. (2005). Discourse, description, and science education. In R. Yerrick & W.-M. Roth (Eds.), *Establishing scientific classroom discourse communities: Multiple voices of research on teaching and learning* (pp. 79–108). Mahwah, NJ: Lawrence Erlbaum Associates.
- Reveles, J. M., Cordova, R., & Kelly, G. J. (2004). Science literacy and academic identity formulation. *Journal for Research in Science Teaching*, 41, 1111–1144.
- Takao, A. Y., & Kelly, G. J. (2003). Assessment of evidence in university students' scientific writing. *Science & Education*, 12, 341–363.
- Bianchini, J. A., & Kelly, G. J. (2003). Challenges of standards-based reform: The example of California's science content standards and textbook adoption process. *Science Education*, 87, 378–389.
- Kelly, G. J., & Brown, C. M. (2003). Communicative demands of learning science through technological design: Third grade students' construction of solar energy devices. *Linguistics & Education*, 13(4), 483–532.
- Kelly, G. J., & Bazerman, C. (2003). How students argue scientific claims: A rhetorical-semantic analysis. *Applied Linguistics*, 24(1), 28–55.
- Kelly, G. J., Bazerman, C., Skukauskaite, A., & Prothero, W. (2002). Rhetorical features of student science writing in introductory university oceanography. Proceedings of the *Ontological, Epistemological, Linguistic and Pedagogical Considerations of Language and Science Literacy: Empowering Research and Informing Instruction* conference, Dunsmuir Lodge, University of Victoria, September 12–15, 2002.
- Kelly, G. J., & Takao, A. Y. (2002). Epistemic levels in argument: An analysis of university oceanography students' use of evidence in writing. *Science Education*, 86, 314–342.
- Takao, A. Y., Prothero, W., & Kelly, G. J. (2002). Applying argumentation analysis to assess the quality of university oceanography students' scientific writing. *Journal of Geoscience Education*, 50(1), 40–48.
- Kelly, G. J., & Breton, T. (2001). Framing science as disciplinary inquiry in bilingual classrooms. *Electronic Journal of Literacy through Science*, 1(1). <http://sweeneyhall.sjsu.edu/ejlts/archives/bilingualism/index.html>
- Kelly, G. J., Crawford, T., & Green, J. (2001). Common tasks and uncommon knowledge: Dissenting voices in the discursive construction of physics across small laboratory groups. *Linguistics & Education*, 12(2), 135–174.
- Kelly, G. J., & Anderson, C. W. (2000). Learning with understanding. *Journal of Research in Science Teaching*, 37, 757–759.
- Kelly, G. J., Chen, C., & Prothero, W. (2000). The epistemological framing of a discipline:

- Writing science in university oceanography. *Journal of Research in Science Teaching*, 37, 691–718.
- Kelly, G. J., Brown, C., & Crawford, T. (2000). Experiments, contingencies, and curriculum: Providing opportunities for learning through improvisation in science teaching. *Science Education*, 84, 624–657.
- Crawford, T., Kelly, G. J., & Brown, C. (2000). Ways of knowing beyond facts and laws of science: An ethnographic investigation of student engagement in scientific practices. *Journal of Research in Science Teaching*, 37, 237–258.
- Kelly, G. J., & Chen, C. (1999). The sound of music: Constructing science as sociocultural practices through oral and written discourse. *Journal of Research in Science Teaching*, 36, 883–915.
- Putney, L., Green, J., Dixon, C., & Kelly, G. (1999). Evolution of qualitative research methodology: Looking beyond defense to possibilities. *Reading Research Quarterly*, 34, 368–377. Reprinted (2001) as Putney, L. G., Green, J. L., Dixon, C. N., & Kelly, G. J. (2001). Evolution of qualitative research methodology: Looking beyond defense to possibilities. In M. R. Jalongo, G. J. Gerlach, & W. Yan (Eds.), *Annual editions: Research methods* (1st ed., pp. 30–39). Guilford, CT: McGraw-Hill/Dushkin.
- Kelly, G. J., Chen, C., & Crawford, T. (1998). Methodological considerations for studying science-in-the-making in educational settings. *Research in Science Education*, 28(1), 23–49. Special Issue on Science and Technology Studies and Science Education, W.-M. Roth (Guest Ed.).
- Kelly, G. J., Druker, S., & Chen, C. (1998). Students' reasoning about electricity: Combining performance assessments with argumentation analysis. *International Journal of Science Education*, 20, 849–871.
- Kelly, G. J., & Green, J. (1998). The social nature of knowing: Toward a sociocultural perspective on conceptual change and knowledge construction. In B. Guzzetti & C. Hynd (Eds.), *Perspectives on conceptual change: Multiple ways to understand knowing and learning in a complex world* (pp. 145–181). Mahwah, NJ: Lawrence Erlbaum Associates.
- Kelly, G. J., & Crawford, T. (1997). An ethnographic investigation of the discourse processes of school science. *Science Education*, 81(5), 533–559.
- Crawford, T., Chen, C., & Kelly, G. J. (1997). Creating authentic opportunities for presenting science: The influence of audience on student talk. *Journal of Classroom Interaction*, 32(2), 1–13.
- Kelly, G. J., & Green, J. (1997). What counts as science in high school and college classrooms? Examining how teachers' knowledge and classroom discourse influence opportunities for learning science. *Journal of Classroom Interaction*, 32(2), i–iii.
- Kelly, G. J. (1997). Research traditions in comparative context: A philosophical challenge to radical constructivism. *Science Education*, 81(3), 355–375.
- Green, J., Kelly, G. J., Castanheira, M. L., Esch, J., Frank, C., Hodel, M., Putney, L., & Rodarte, M. (1996). Conceptualizing a basis for understanding: What differences do differences make? *Educational Psychologist*, 31(3/4), 227–234.

- Green, J., Dixon, C., & Kelly, G. J. (1996). Constructing texts as opportunities for learning: Analysis of text construction practices across grade levels and disciplines. *Proceedings of the International Conference of Reform Issues on Teacher Education* (pp. 457–509). Taipei, Taiwan: Minister of Education.
- Kelly, G. J., & Crawford, T. (1996). Students' interaction with computer representations: Analysis of discourse in laboratory groups. *Journal of Research in Science Teaching*, 33(7), 693–707.
- Kelly, G. J., & Crawford, T. (1995). Computer representations in students' conversations: Analysis of discourse in small laboratory groups. In J. L. Schnase & E. L. Cunniss (Eds.), *Proceedings of the First International Conference on Computer Support for Cooperative Learning* (pp. 204–208). Mahwah, NJ: Lawrence Erlbaum Associates.
- Carlsen, W. S., Kelly, G. J., & Cunningham, C. M. (1994). Teaching ChemCom: Can we use the text without being used by the text? In G. Aikenhead & J. Solomon (Eds.), *STS Education: International perspectives on reform* (pp. 84–96). New York, NY: Teachers College Press.
- Kelly, G. J., Carlsen, W. S., & Cunningham, C. M. (1993). Science education in sociocultural context: Perspectives from the sociology of science. *Science Education*, 77, 207–220.

INVITED PRESENTATIONS AND WORKSHOPS

- Kelly, G. J. (2021, June). *Engaging students in epistemic practices of engineering*. Keynote address to the International Science Education Conference (ISEC), Singapore (Virtual).
- Kelly, G. J. (2021, April). *Addressing urgent research questions in science education: Demystifying science and engineering education*. Invited session for recipients of the Distinguished Contributions to Science Education through Research Award (DCRA), NARST. Virtual.
- Kelly, G. J. (2020). *Epistemic Practices in Science and Engineering Education*. Keynote address for Encontro de Ensino de Ciências por Investigação [Research in Science Teaching Conference] (Brazil), October 14, 2020.
- Kelly, G. J. (2020). *Research Approaches for Examining Epistemic Cognition, Practices, and Tools in Science and Engineering Education*, Inquiry-Based Biology Education Research Group (Brazil), University of São Paulo (USP), June 19, 2020.
- Kelly, G. J. (2020). *Epistemic practices in science and engineering education*. Keynote presentation, Korean Association for Science Education (KASE). Scheduled for February 7, postponed due to coronavirus; delivered at Ewha Woman's University, Seoul, Korea February 4, 2020.
- Kelly, G. J. (2020). *Research methods for studying epistemic dimensions of science and engineering education*. Invited talk at Seoul National University Joint Symposium February 5, 2020.
- Kelly, G. J. (2019). *Using epistemic practices to engage all learners in science and engineering*. Invited talk at SMU Caruth Institute for Engineering Education, November 22, 2019.
- Kelly, G. J. (2019). *Methodological considerations for researching epistemic practices in*

- science and engineering education*. Invited talk at Universidade de Santiago de Compostela, Santiago de Compostela, Spain, September 12, 2019.
- Kelly, G. J. (2019). *Epistemic practices in science and engineering education*. Invited talk at Stockholm University, Stockholm, Sweden, May 23, 2019.
- Kelly, G. J. (2019). *Interdisciplinary (STEM) learning and research in the 21st Century: A conversation among scholars*. Presenter and lead panelist. Community Based Literacies & The Department of Education, Gevirtz Graduate School of Education, University of California, Santa Barbara.
- Kelly, G. J. (2018). *Epistemic and scientific practices*. MOOPIL. Aggie STEM series, Texas A&M. https://www.youtube.com/watch?v=-GPbHvb_YM
- Kelly, G. J. (2018, April). *Engaging students in epistemic practices of engineering*. Presented at the Big Bang konferencen, Odense, Denmark.
- Kelly, G. J. (2017, April). Publications Advisory Committee Sponsored Symposium, *How to get published in science education journals*. Served as representative associate editor for Science & Education. Presented at the annual meeting of the 2017 NARST annual conference, San Antonio.
- Kelly, G. J. (2017, April). *Early career faculty forum*. Served as Senior Scholar. Session led by Whitworth, B., Oates, K., & Fleming, M. Presented at the annual meeting of the 2017 NARST annual conference, San Antonio.
- Kelly, G. J. (2016, February). *Fostering scientific literacy through the development of epistemic practices*. Invited talk at the 56th Annual Program of the Boston Colloquium for Philosophy of Science. Boston University, Boston, MA.
- Kelly, G. J. (2016, January). *What are the future directions for research?* Keynote address at the AERA-UCSB STEM and Special Education conference “Advancing Individual Differences Research on STEM Learning Opportunities.” Santa Barbara, CA.
- Kelly, G. J. (2015, February). *Research directions in K-12 science and engineering education*. Museum of Science, Boston. Boston, MA.
- Kelly, G. J. (2013, April). *JRST in Retrospect: An influential article in my career*. Invited Symposium, Publications Advisory Committee Sponsored Session – Reflections from Contemporary Researchers. Presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Kelly, G. J. (2013, April). *NARST equity and ethics pre-conference workshop*. Invited speaker. Annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Kelly, G. J. (2012, December). *Philosophy of science and science education reform*. Invited speaker at Boston University Interdisciplinary conference on Teaching Science through History and Philosophy of Science, Boston University, Boston, MA.
- Kelly, G. J. (2012, June). *Language(s), literacy(ies) and learning(s) in academic context*. Keynote panel at the Discourse Analysis in Education Conference, Columbus, OH.
- Kelly, G. J. (2012, March). *Studies of science education discourse: Methodological*

- considerations*, invited speaker at Georgia State University, Atlanta GA.
- Kelly, G. J. (2011, September). *Analysing classroom activities: Theoretical and methodological considerations*. Invited plenary session at the bi-annual conference of the European Science Education Research Association. Lyon, France.
- Kelly, G. J. (2011, April). *Science literacy in the 21st century*, invited panelist at the Ohio Academy of Science annual meeting at Otterbein University. Westerville, OH.
- Kelly, G. J. (2010, November). *Trends in science education*. Museum of Science, Boston. Boston, MA.
- Kelly, G. J. (2008, October). *Studying scientific practices in education*. Stockholm University, Stockholm, Sweden.
- Kelly, G. J. (2008, October). *Discourse studies in science education*. Mittuniversitetet University (mid-Sweden University), Härnösand, Sweden.
- Kelly, G. J. (2008, April). *Activity, discourse, & meaning: Some directions for science education*. Keynote address at The Second Springer Forum on Science Education, Graduate Center of the City University of New York.
- Kelly, G. J. (2007, May). *Scientific literacy, discourse, and knowledge*. Invited talk at the Promoting Scientific Literacy: Science Education Research in Transaction; The LSL Meeting in Uppsala Symposium for the Linnaeus Tercentenary 2007.
- Kelly, G. J. (2007, March). *Classroom discourse: Research issues and directions*. Colloquium presented at the College of Education, Michigan State University.
- Kelly, G. J. (2005, February). *Inquiry, activity, and epistemic practice*. Paper presented at the Inquiry Conference on Developing a Consensus Research Agenda, sponsored by the National Science Foundation. Rutgers University.
- Kelly, G. J. (2005, April). *Teaching epistemology and educational research*. Presidential Invited Session, "Meet the Authors." Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.
- Kelly, G. J. (2004, February). *Communicating ideas in third grade science*. Colloquium presented at the Graduate School of Education, University of Pennsylvania.
- Kelly, G. J. (2004, February). *Communicating ideas in third grade science*. Colloquium presented at the College of Education, Pennsylvania State University.
- Kelly, G. J. (January 2004). *Using earth data to support the development of scientific literacy*. Invited session at GLOBE in the City conference, Rancho Bernardo, San Diego CA, January 18, 2004.
- Kelly, G. J. & Prothero, W. (December 2003). *Teaching general education students how to write scientific arguments using real earth data*. Invited session, Annual meeting of the American Geophysical Union, San Francisco, CA, December 8–12, 2003.
- Kelly G. J. (2003, March). *Writing evidence in university oceanography*. Colloquium presented at the Department of Education, Cornell University.
- Prothero, W., Dodson, H., & Kelly, G. J. (2002). *Using writing and argumentation in inquiry*. Workshop at the Digital Library for Earth Science Education Annual Meeting, Cornell

University, Ithaca, NY, June 29–July 2.

Kelly, G. J. (1997). *Portraying science to students: Reconsidering our goals and classroom practices*. Presented at California State University, Long Beach. “Promoting Women in Science” program, sponsored by the Association of American Colleges and Universities.

Kelly, G. J. (1997). *Studying students’ science: Using discourse analysis, ethnographic methods, and a sociolinguistic perspective to investigate students’ learning, knowledge, experiences, and beliefs in classrooms*. Presented at the Institute on Science and the Environment for Teachers, Cornell University.

Kelly, G. J. (1997). *Improving our marks in science*. Presented for the University of California, Santa Barbara General Affiliates, Public Education in a Changing Society Series.

PAPERS DELIVERED AT PROFESSIONAL MEETINGS

Cunningham, C. M., Kelly, G. J., & Mohan, A. K. (2023, June). *Socially Engaged Engineering: A Conceptual Framework for K-8 Education* (Fundamental, Diversity). Paper presented at 2023 ASEE Annual Conference & Exposition, Baltimore, MD. Awarded 2022 Diversity, Equity, and Inclusion Best Paper, Pre-College Engineering Education Division. <https://peer.asee.org/44237>.

Cunningham, C. M., Shah, D. N., Mohan, A. K. & Kelly, G. J. (2023, June). *K-8 Computational Thinking through Engineering* (Fundamental). Paper presented at 2023 ASEE Annual Conference & Exposition, Baltimore, MD.

Cunningham, C. M., & Kelly, G. J. (2022, June). *Curriculum Design Principles for Equity in Engineering* (Fundamental, Diversity). Paper presented at 2022 ASEE Annual Conference & Exposition, Minneapolis, Minnesota. Awarded 2022 Diversity, Equity, and Inclusion Best Paper Honorable Mention, Pre-College Engineering Education Division. <https://peer.asee.org/40576>.

Cunningham, C. M., & Kelly, G. J. (2022, June). *Youth Engineering Solutions (YES) Out of School: Engineering Opportunities in Out-of-School Programs for English Learners*. Poster presented at 2022 ASEE Annual Conference & Exposition, Minneapolis, Minnesota.

Mohan, A. K. & Kelly, G. J., (2022). *Learning in trajectories of participation: Nature of Science and Temporality in the Nature of Scientists* (Virtual). Paper presented at the annual meeting of the NARST. Vancouver, CA.

Kelly, G. J. (2022). *Panelist: Symposium-Preparing Pre-College Students to Solve Emerging Interdisciplinary Problems: Integrating Life Science and Engineering in Classrooms Learning science through engineering design*. Paper presented at the annual meeting of the NARST. Vancouver, CA.

Cunningham, C. M., & Kelly, G. J., & Meyer, N. (2019, June). *Affordances of Engineering for Elementary-aged English Learners* (Fundamental, Diversity). Paper presented at 2019 ASEE Annual Conference & Exposition, Tampa, Florida. <https://peer.asee.org/32048>

Kelly, G. J., Cunningham, C. M., Vanderhoof, C., & Licona, P.R. (2017). *Learning science through engineering design*. Paper presented at the annual meeting of the NARST. San

Antonio, TX.

- Hertel, J. D., Cunningham, C. M., Kelly, G. J., & Lachapelle, C. P. (2016, June). *The roles of engineering notebooks in shaping elementary engineering student discourse and practice*. Paper presented at the annual meeting of the American Society of Engineering Education. New Orleans, LA. <https://peer.asee.org/27014>
- Cunningham, C. M. & Kelly, G. J. (2016, April). *Epistemic practices of engineering*. Paper presented at the annual meeting of the NARST. Baltimore, MD.
- Kelly, G. J. & Carlsen, W. S. (2016, April). *Learning epistemic practices and values of science through inquiry*. Presentation at Symposium – Nature of Science in the Next Generation Science Standards at the annual meeting of the NARST. Baltimore, MD.
- Kelly, G. J., Cunningham, C. M. & Ricketts, A. R. (2016, April). *Emergence of an engineering identity in elementary students*. Paper presented at the annual meeting of the American Educational Research Association. Washington DC.
- Hufnagel, B. & Kelly, G. J. (2015, April). *Images of the environment communicated in the Next Generation Science Standards*. Paper presented at the annual meeting of the American Education Research Association Chicago, IL.
- Kelly, G. J. (2015, April). *Symposium - The past, present and possible future of HPS-informed science education research, Strand 13: History, Philosophy, and Sociology of Science*. Paper presented at the annual meeting of the NARST. Chicago, IL.
- Cunningham, C. M. & Kelly, G. J. (2015, April). *Framing engineering practices in elementary school classrooms*. Paper presented at the annual meeting of the NARST. Chicago, IL.
- Hertel, J. D., Cunningham, C. M. & Kelly, G. J. (2015, April). *Engineering practices through notebooking*. Paper presented at the annual meeting of the NARST. Chicago, IL.
- McDyre, A., Zembal-Saul, C., & Kelly, G. J. (2015, April). *Exploring kindergarten girls' identities-in-practice through discourse*. Paper presented at the annual meeting of the NARST. Chicago, IL.
- Licon, P. & Kelly, G. J. (2015, April). *Arguing from evidence in an English/Spanish dual language middle school science classroom*. Paper presented at the annual meeting of the NARST. Chicago, IL.
- Kelly, G. J. (2013, June). *Inquiry teaching and learning: Philosophical considerations*. Paper presented at the 12th Biennial International History, Philosophy, and Sociology of Science and Science Teaching Conference. Pittsburgh, PA
- Kelly, G. J. (2013, April). *Inquiry teaching and learning: Philosophical considerations*. Symposium - A Critical Review of HPS Scholarship. Presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
- Hufnagel, B., Carlsen, W.S., & Kelly, G. J. (2012, March). *Environmental science education in K-12 school programs: Recent research*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.
- Sezen, A., & Kelly, G. J. (2012, March). *An ethnographic case study on teacher's involvement in developing models of informal formative assessments (IFA) and understanding the*

- challenges to effective implementations*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.
- Tanis, O. A., Sezen, A., McDonald, S. P., & Kelly, G. J. (2011, April). *Using third generation of cultural-historical activity theory (CHAT) as a data analysis framework to explain novice teachers' learning to teach science*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.
- Sezen, A., & Kelly, G. J. (2010, March). *Middle school science teachers' reflections on video cases about their use of informal formative assessments (IFA)*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.
- Batista, A. A., Kelly, G. J., Silva de Oliveira, J. R., & Queiroz, S. L. (2009, August/September). *Argumentation model as a tool for analyzing the quality of undergraduate chemistry students' scientific writing*. European Science Education Research Association Istanbul, Turkey.
- Queiroz, S. L., Kelly, G. J., Velloso, A., & Motheo, A. (2009, September). *Modelo de argumentacao na analise da qualidade de apresentacoes orais de alunos de quimica sobre o tema "corrosao."* Congreso Internacional sobre Investigación en Didactica de las Ciencias. Barcelona, Spain.
- Sezen, A., Tran, M.-D. T, McDonald, S., & Kelly, G. J. (2009, April). *Preservice science teachers' reflections upon their micro-teaching experience: An activity theory perspective*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Garden Grove, CA.
- Bianchini, J. A., Kang, E. J. S. & Kelly, G. J. (2009, April). *Crossing the border from student to teacher: Preservice teachers' efforts to learn to teach inquiry*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Diefendorf, E. & Kelly, G. J. (2008, April). *Argumentation for the future*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Kerlin, S., McDonald, S., & Kelly, G. J. (2008, April). *Student argumentative discourse in a seismology inquiry unit*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
- Bianchini, J. A., Kang, E. J. S. & Kelly, G. J. (2007, April). *Investigating toxic risk and sharing results on-line: What do preservice science teachers know about science, inquiry, and literate practices?* Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- McDonald, S. P., & Kelly, G. J. (2007, April). *Building the science storyline using the mole concept*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Diefendorf, E. & Kelly, G. J. (2006, October). *Analysis and evaluation of students' written scientific arguments*. Paper presented at the annual meeting of Geological Society of America, Vol. 38, No. 7, Philadelphia, PA.

- Prothero, W., & Kelly, G. J. (2006, December). *Learning science process through data exploration and writing*. Paper presented at the American Geophysical Union, San Francisco, CA.
- Prothero, W., & Kelly, G. J. (2006, December). *Learning science process through data exploration and writing*. Paper presented at the American Geophysical Union, San Francisco, CA.
- Kelly, G. J. & Prothero, W. (2006, April). *Computer-based tools for developing scientific argumentation in university student writing*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Kelly, G. J. (2006, April). *Learning to write scientific arguments within a disciplinary framework*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Kelly, G. J. (2006, April). *Discussant: Multiple angles of vision to children's conceptual models of nature: Theoretical and empirical considerations*. Annual meeting of the American Educational Research Association, San Francisco, CA.
- Brenner, M. E., Bianchini, J., Goto, K., Cavazos, L., & Kelly, G. J. (2006, April). *Promoting equity through professional development in science and mathematics: Teacher research and conceptual change*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Bianchini, J., Brenner, M. E., Johnston, C., Courtright, A. & Kelly, G. J. (2006, April). *The teaching for equity in mathematics and science education professional development project: An examination of strategies to promote critical discussion about equity*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.
- Prothero, W. & Kelly, G. J. (2005, October). *Using calibrated peer review in a large general education oceanography class*. Poster presented at the annual meeting of the American Geophysical Union, ED13A-1139, San Francisco, CA.
- Prothero, W. & Kelly, G. J. (2005, October). *Using calibrated peer review in a large general education oceanography class*. Paper presented at the annual meeting of Geological Society of America, Vol. 37, No. 7, Salt Lake City, UT.
- Brenner, M. E., Bianchini, J. A., Cavazos, L. M., Johnston, C. M., Courtright, A., & Kelly, G. J. (2005, April). *Professional development strategies for promoting discourse about equity in mathematics and science teachers*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, Canada.
- Bianchini, J. A., Brenner, M. E., Courtright, A., Johnston, C. M., Robertson, L., Cavazos, L. M., & Kelly, G. J. (2005, April). *Working toward equity through professional development: Changes in science and mathematics teachers' conceptions and self-reported practices*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Dallas TX.
- Kelly, G. J., Regev, J., & Prothero, W. (2005, April). *Assessing lines of evidence with argumentation analysis*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Dallas TX.

- Kelly, G. J. (2004, April). *Epistemology and educational research* as part of the Presidential Invited Session on Complementary Methods for Research in Education. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Kelly, G. J. (2004, April). *Toward an empirical program of epistemology in science education*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Kelly, G. J. (2004, April). *Epistemological dimensions of scientific literacy*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, CA.
- Brown, B. A., Reveles, J. M., & Kelly, G. J. (2004, April). *Scientific literacy and discursive identity: A theoretical framework for understanding science education*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Vancouver, CA.
- Reveles, J., Cordova, R. & Kelly, G. J. (2003, March). *Science literacy and academic identity formulation*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.
- Kelly, G. J., (2003, January). *Displaying knowledge in 3rd grade science*. Paper presented at the Fourteenth Annual Winter Conference on Discourse, Text & Cognition, Jackson Hole, WY.
- Kelly, G. J., Bazerman, C., Skukauskaite, A., & Prothero, W. (2002, September). *Rhetorical features of student science writing in introductory university oceanography*. Paper presented at Ontological, Epistemological, Linguistic and Pedagogical Considerations of Language and Science Literacy: Empowering Research and Informing Instruction conference, Dunsmuir Lodge, University of Victoria, September 12-15, 2002.
- Kelly, G. J. & Duschl, R. A. (2002, April). *Toward a research agenda for epistemological studies in science education*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Reveles, J., Tuyay, S., & Kelly, G. J. (2002, April). *Constructing access to science in bilingual elementary classrooms*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
- Kelly, G. J. (2001, August). *Knowledge and discourse issues in science education settings*. Paper presented at the annual meeting of the International Applied Linguistics Association.
- Kelly, G. J. (2001, April). *Descriptive studies of science and education: Relativism, representation, and reflexivity*. Paper presented at the annual meeting of the American Education Research Association Seattle, WA.
- Kelly, G. J. & Bazerman, C. (2001, April). *How students argue scientific claims: A rhetorical-semantic analysis*. Paper presented at the annual meeting of the American Education Research Association Seattle, WA.
- Breton, T. D., Reveles, J., Kelly, G. J. (2001, April). *Multiple ways of accessing science: Teaching and learning about the rainforest in bilingual elementary classrooms*. Paper

- presented at the annual meeting of the American Education Research Association Seattle, WA.
- Hilton-Brown, B. A. & Kelly, G. J. (2001, March). *Discourse studies of science education: A review of the literature*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, St. Louis, MO.
- Schweizer, D. & Kelly, G. J. (2001, March). *An investigation of student engagement in a global warming debate*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, St. Louis, MO.
- Takao, A. Y. & Kelly, G. J. (2001, March). *Assessment of differences in university oceanography students' scientific writing*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, St. Louis, MO.
- Kelly, G. J. & Prothero, W. (2000, December). *Examining students' use of geoscience knowledge in writing: An evaluation of university oceanography*. Presented in invited session at Fall 2000 American Geophysical Union conference, San Francisco, CA.
- Kelly, G. J. & Prothero, W. (2000, November). *Geoscience education research in university oceanography: Using technology to promote students' writing of scientific arguments*. Paper presented at the annual meeting of the Geological Society of America, Reno, NV.
- Prothero, W., Esch, J. E., & Kelly, G. J. & (2000, November). *Learning from large datasets in a large general education oceanography course*. Paper presented at the annual meeting of the Geological Society of America, Reno, NV.
- Kelly, G. J. & Takao, A. (2000, April). *Epistemic levels in argument: An analysis of university oceanography students' use of evidence in writing*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans LA.
- Kelly, G. J. & Brown, C. (2000, April). *Communicative demands of learning science through technological design: Third grade students' construction of solar energy devices*. Paper presented at the annual meeting of the American Education Research Association, New Orleans LA.
- Kelly, G. J. & Breton, T. (2000, April). *Framing science as disciplinary inquiry in bilingual classrooms*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans LA.
- Ball, J. & Kelly, G. J. (2000, March). *Use of evidence and theory: Interactional relationships in cooperative and traditional chemistry lab structures*. Paper presented at the meeting of the American Chemical Society, San Francisco, CA.
- Kelly, G. J. & Prothero, W. (1999, October). *Teaching uses of evidence with geological data sets: A case for the use of education technology to support scientific writing*. Paper presented at the annual meeting of the Geological Society of America, Denver, CO.
- Kelly, G. J. (1999, October). *The interactionally accomplished nature of science as disciplinary knowledge in school settings*. Interim report for the National Academy of Education for 1998-2000 Postdoctoral Fellowship presented at the National Academy of Education annual meeting, Pittsburgh, PA.
- Kelly, G. J. (1999, April). *Disciplinary knowledge as interactional accomplishments in school*

- settings: Methodological considerations*. Invited presentation for the Language and Social Processes Special Interest Group at the annual meeting of the American Educational Research Association, Montreal, CA.
- Kelly, G. J., Crawford, T., & Brown, C. (1999, April). *Experiments, contingencies, and curriculum: Providing opportunities for learning through improvisation in science teaching*. Paper presented at the annual meeting of the American Educational Research Association, Montreal, CA.
- Kelly, G. J., & Chen, C., & Prothero, W. (1999, March). *A naturalistic study of epistemology: Oceanography constructed through oral and written discourse*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Boston, MA.
- Crawford, T., Kelly, G. J., & Brown, C. (1999, March). *Ways of knowing beyond facts and laws of science: An ethnographic investigation of student engagement in scientific practices*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Boston MA.
- Kelly, G. J., & Chen, C. (1998, April). *The sound of music: Experiment, discourse, and writing of science as sociocultural practices*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Kelly, G. J., Cunningham, C. M. & Carlsen, W. S. (1998, April). *Addressing the descriptive/normative tension in science studies*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Diego, CA.
- Kelly, G. J., Chen, C. & Crawford, T. (1997, March). *Using ethnographic analysis to study school science in the making*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Oak Brook, IL.
- Druker, S., Chen, C. & Kelly, G. J. (1997, March). *Introducing content to the Toulmin model of argumentation via error analysis*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Oak Brook, IL.
- Green, J., Dixon, C., & Kelly, G. J. (1996, December). *Constructing texts as opportunities for learning: Analysis of text construction practices across grade levels and disciplines*. International conference of reform issues on teacher education, Taipei, Taiwan.
- Kelly, G. J., & Crawford, T. (1996, March). *Looking for science in the everyday life of a classroom: An analysis of the discursive processes of school science experimentation*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Symposium on the Sociology of Science, St. Louis, MI.
- Kelly, G. J., Green, J., & Crawford, T. (1996, April). *Common task and uncommon knowledge: Discourse analysis of the negotiation of science content across physics laboratory groups*. Paper presented at the annual meeting of the American Educational Research Association, New York, New York.
- Kelly, G. J., Druker, S. & Chen, C. (1996, April). *Students' reasoning about electricity: Combining performance assessments with argumentation analysis*. Paper presented at the annual meeting of the American Educational Research Association, New York, New York.

- Kelly, G. J. & Crawford, T. (1995, October). *Computer representations in students' conversations: Analysis of discourse in small laboratory groups*. Paper presented at the Computer Support for Cooperative Learning '95 conference, Bloomington, IN.
- Kelly, G. J. (1995, April). *Conceptual change theory and constructivism: Congruence and divergence for science education research*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Kelly, G. J. (1995, April). *Students' reflections on MBL instruction: Interests, frustrations, and the role of gender*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco CA. Posted in the Proceedings of the NARST 1995 Annual Meeting Technology Paper Set.
- Kelly, G. J. (1994, April). *Interaction of student conceptual ecologies with the learning of physics in a microcomputer-based laboratory*. Paper presented for the annual meeting of the American Educational Research Association, New Orleans, LA.
- Kelly, G. J. (1994, March). *Assessing physics students' epistemological commitments through analysis of arguments*. Poster presented for the annual meeting of the National Association for Research in Science Teaching, Anaheim, CA.
- Kelly, G. J. (1993, April). *Conceptual change in a microcomputer-based physics laboratory*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Atlanta, GA.
- Carlsen, W. S., Kelly, G. J., & Cunningham, C. M. (1992, March). *ChemCom in sociocultural context: Interdisciplinary analysis of a science-technology-society curriculum*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Boston, MA.

PROFESSIONAL AFFILIATIONS

American Educational Research Association
Amnesty International
International History, Philosophy, and Science Teaching Group
International Society of the Learning Sciences
National Association for the Advancement of Colored People
National Association for Research in Science Teaching
Sigma Pi Sigma – National Physics Honor Society
Union of Concerned Scientists

GRANTS AND FUNDED PROJECTS

- 2021–2025 “Youth Engineering Solutions: Middle-Schoolers Solve Engineering Problems Using Computational Thinking (YES MS)” Co-PI with C. Cunningham (PI) and Stacy Gardner (co-PI, Department of C&I, PSU).
Mathworks Corporation, \$4,400,000.
- 2021–2024 “Youth Engineering Solutions: Engineering Opportunities in Out-of-School Programs for English Learners. Co-PI with C. Cunningham (PI, Penn State) & Peter Licon (c-PI, Elizabethtown College)

- National Science Foundation – Broadening Participation in Engineering (NSF# 2054341), \$697,965.
- 2003–2006 “Collaborative Research: Moving Data Based Inquiry to the Internet”
Co-PI with W. Prothero (Dept. of Geosciences, UCSB)
National Science Foundation – Division of Undergraduate Education (NSF# 0231414), \$427,432.
- 2002–2005 Center for Equity in Mathematics and Science Education, Gevirtz Graduate School of Education. Founding member and faculty researcher, Co-Director (2003–2004), \$400,000.
- 2001–2002 “Creating Learning Opportunities with Local Geology”
Co-PI with T. Atwater (Dept. of Geosciences, UCSB) & M. Vail (Principal, Cleveland Elementary School, Santa Barbara), \$30,000.
- 2000–2002 “Network Oceanography, Moving Hands On Pedagogy to the Internet.”
Co-PI with W. Prothero (Dept. of Geosciences, UCSB)
National Science Foundation – Division of Undergraduate Education (NSF# 9952491), \$100,934.
- 1998–2000 “Discourse and Epistemology in Science Education.”
National Academy of Education Postdoctoral Fellowship.
Spencer Foundation \$45,000.
- 1998–2001 “Learning Scientific Practice in Virtual Environments.”
Co-PI with W. Prothero (Dept. of Geosciences, UCSB) & R. Mayer (Dept. of Psychology, UCSB); National Science Foundation, Division of Earth Sciences (NSF # 9809579), \$74,776.
- 1996–1997 “Exploring What Counts as Science: An Analysis of the Discursive Practices in a Physics Classroom.”
Spencer Foundation, \$11,000.
- 1995–1996 “Implementing the Science Framework in Conceptual Physics through the Use of Educational Technologies and a Thematic Curriculum Approach.”
UC Urban Community-School Collaborative, Office of the President, University of California. \$9,511.

EXTERNAL REVIEWER, TENURE, PROMOTION, APPOINTMENT

Barnard College – Columbia University
Boston College, Peter S. Lynch School of Education
Boston University, Wheelock College of Education & Human Development
Brock University, Faculty of Education
Florida State University, College of Education
Kent State University, College of Education
Michigan State University, Department of Teacher Education
National Institute of Education, Singapore
North Carolina State University, Department of STEM Education
Queens College, The City University of New York

Rutgers University, Graduate School of Education
Stanford University, Graduate School of Education
Temple University, College of Education
Texas A&M University
University at Albany, State University of New York
University of Bristol, Graduate School of Education
University at Buffalo, Department of Learning and Instruction
University of California Los Angeles Graduate School of Education and Information
University of California Santa Barbara, Graduate School of Education
University of California, Department of Education, Santa Cruz
University of Delaware, College of Human Services, Education, and Public Policy
University of Florida, School of Teaching and Learning
University of Georgia, College of Education
University of Hong Kong
University of Illinois, Chicago College of Education
University of Missouri-Columbia, Learning, Teaching, & Curriculum
University of Missouri-St. Louis, Division of Teaching and Learning
University of Nevada, Las Vegas, Department of Educational Psychology
University of North Carolina, Chapel Hill, School of Education
University of North Carolina, Greensboro, School of Education
University of Rochester, Warner School of Education
University of Stirling
University of Texas at El Paso
University of Washington, Department of Curriculum & Instruction
University of Washington Tacoma
Vanderbilt University, Department of Teaching and Learning
Virginia Polytechnic Institute and State University, Department of Teaching & Learning
Washington University in St. Louis, Department of Education in Arts & Science

UNIVERSITY TEACHING AND ADVISING EXPERIENCE

COURSES TAUGHT

Epistemology and Education
Seminar in Curriculum: Science
Contemporary and Historical Perspectives on Science Education
Science Education in Sociocultural Context
Advanced Seminar in Science Education
Geoscience Education
Introduction to Qualitative Methods
Elementary Science Teaching Procedures
Secondary Science Teaching Methods
History, Philosophy, & Sociology of Science and Science Teaching

ADVISEES

Current number of Graduate Advisees:
2 as Advisor/Chair

1 as Graduate Committee Member

Served as Chair for 8 M.A. degrees

Served as Chair for 8 M.Ed degrees

Served as Chair for 19 Ph.D. degrees:

Dave Jelinek (1997), Emeritus Professor, California State University Sacramento

Teresa Crawford (1999), Emeritus Professor, California State University, Fullerton

Steven Druker (1999), Adjunct Professor, Santa Monica College

Catherine Chen (2000), Previously, Research Scientist, LessonLab

Candice Brown (2000), Teacher Educator, San Francisco Exploratorium

Diane Schweizer (Clayton), (2002, Dept. of Geography, Co-Chair with Gautier, Geography).

Manager, Global Climate Change Education, NASA, Washington, DC

Bryan Brown (2002), Professor, Graduate School of Education, Stanford University

Susan Dixon Renoe (2003), Assistant Vice Chancellor for Research, Extension &

Engagement, University of Missouri

John Reveles (2005), Professor, California State University, Northridge

Annmarie Ward (2007, Co-Chair with C. Zembal-Saul). Director Emeritus, Center for

Science and the Schools, Pennsylvania State University

Stephanie Preston (2009, Co-Chair with C. Zembal-Saul), Associate Dean for Graduate

Educational Equity, Pennsylvania State University

Asli Sezen (2011), Associate Professor, University of Maine

Beth Hufnagel (2014), Associate Professor, University of Maine

Alicia McDyre (2014, Co-Chair with C. Zembal-Saul), Assistant Professor, Pennsylvania State University

Peter Licon, (2015), Associate Professor, Elizabethtown College, Elizabethtown, PA

Amy Ricketts (2017, Co-Chair with James Nolan). Assistant Professor, California State University, Long Beach

Leah Bug, (2018), Assistant Director, The Engineering Place, North Carolina State University

Carmen Vanderhoof (2019), Assistant Professor, Pennsylvania State University

LeeAnna Hooper (2021), Third grade teacher, Corl Street Elementary School, State College, PA

SPONSOR FOR VISITING SCHOLARS AND POSTDOCTORAL FELLOWS

Adjane de Silva, Brazil, 2007

Salete Linhares Queiroz, Brazil, 2008–09

Rodrigo Drumond Vieira, Brazil, 2009–10

Juan Barros, 2009, Columbia, 2009

Seung-Ho Maeng (co-sponsor with Richard Duschl), Korea, 2010–11

Jisun Park, Korea, 2015–16

Lucia Sasseron, Assistant Professor, University of São Paulo, Brazil, 2015–16

Yang Deng, Institute of Chemistry Education, Central China Normal University, 2017–18

Maria Vitoria Constantino, Universidade Estadual Paulista “Julio de Mesquita Filho.” Brazil, 2018-2019.

PROFESSIONAL SERVICE, ADMINISTRATIVE EXPERIENCE, & CONSULTING

SERVICE

- 2022 Member, Selection Committee, Creative Agency for the Penn State College of Education.
- 2022 Chair, Search Committee, Director of Operations, College of Education, Pennsylvania State University
- 2021 Strategic Planning Implementation Czar, College of Education, Pennsylvania State University
- 2020-2 Member, Committee on Revised Standards for Human Subjects Research, Pennsylvania State University
- 2020 Member, Academic Administrative Evaluation Committee, College of Agriculture, Pennsylvania State University
- 2020 Member, Request for Proposals (RFP) Committee, Conflict of Interest software, Pennsylvania State University
- 2020 Chair, President's Award for Excellence in Academic Integration Announcement, Pennsylvania State University
- 2019 Committee member, President's Award for Excellence in Academic Integration Announcement, Pennsylvania State University
- 2016 Phi Delta Kappa, Andrew V. Kozak Memorial Fellowship selection committee
- 2016 Search Committee, Associate Vice Provost for Planning and Institutional Research, Pennsylvania State University
- 2015 Search Committee, Vice-Provost, Planning and Assessment, Pennsylvania State University
- 2015–present Funds for Innovation, Proof of Concept Committee, Pennsylvania State University
- 2015–2020 Digital Learning Academic Council, Pennsylvania State University; Co-chair, Ad Hoc Committee, Third-Party Content and Open Education Resources (2018)
- 2014 Member, Academic Administrative Evaluation Committee, College of Nursing, Pennsylvania State University
- 2013–2015 Administrative Council on Engagement, Pennsylvania State University
- 2010–present Member, Pennsylvania School Study Council (PSSC) Executive Board, College of Education, Pennsylvania State University
- 2010–present Chair, College Research Advisory Committee (RAC), College of Education, Pennsylvania State University
- 2010–present Co-chair, College of Education Outreach Advisory Board, College of Education, Pennsylvania State University

2010–present	Social Science Research Institute, Associate Dean’s Advisory Committee, Pennsylvania State University
2010–present	University Research Council Advisory Group, Pennsylvania State University
2007– present	Dean’s Advisory Committee, College of Education, Pennsylvania State University
2012–2013	Continuing Education@UP Task Force, Pennsylvania State University
2010–2015	e-Education Council, Pennsylvania State University
2010–2014	Online Coordinating Council, Pennsylvania State University
2010–2013	Council on Engagement, Pennsylvania State University
2011	Search Committee, Assessment and Certification Coordinator, College of Education, Pennsylvania State University
2011	Search Committee, Director of Academic Affairs for Graduate Programs for the Penn State World Campus
2007	Distinguished Professor Selection Committee, College of Education, Pennsylvania State University
2007–2008	Co-Chair, Search Committee, Waterbury Endowed Chair
2005–2006	Advisory Committee, Office of Education Field Research (OEFR), College of Education, Pennsylvania State University
2005–2007	Diversity and Community Enhancement Committee, College of Education, Pennsylvania State University
2005–2007	Promotion and Tenure Committee, Department of Curriculum & Instruction, Pennsylvania State University
2005	Faculty Research Task Force, College of Education, Pennsylvania State University
2004–present	Faculty Advisory Board, Center for Science and the Schools, Pennsylvania State University
2003–2004	Search Committee, Mathematics Education Department of Education, UCSB
2003–2004	Chair, Faculty Welfare & Academic Freedom Committee, UCSB
2002–2004	UCSB Representative, Academic Freedom Committee (University of California, Systemwide)
2002–2004	Chair, Distinguished Teaching Awards Committee, UCSB
2002–2004	Council of Faculty Issues and Awards (vice chair), UCSB
1996–1998	Executive Committee, Department of Education, UCSB
1999–2001	
2002–2004	

- 2002–2003 Member, Faculty Welfare & Academic Freedom Committee, UCSB
- 2001–2003 Masters of Education Appeals Committee, Teacher Education Program, Gevirtz Graduate School of Education
- 2001–2002 Unit 18 Ad Hoc Committee for Teacher Education Program, Gevirtz Graduate School of Education
- 2002–2003 Search Committee, Education Policy and Politics, Department of Education, UCSB
- 2001–2004 Member, Gevirtz Research Center Executive Committee, Gevirtz Graduate School of Education, UCSB
- 2002 CPS3 Architect Selection Committee (Parking Structure in Lot 22) UCSB
- 2001–2003 Pacific Rim Advisory Committee, UCSB
- 2001–2002 Committee on Academic Freedom, UCSB
- 2000–2002 Personnel Review Committee Department of Education
- 2001 Search Committee, Permanent Director of the UCSB National Reserve System
- 1998–2000 Graduate Student Affairs Committee, Graduate School of Education, UCSB
- 1996–1997 Member, South Coast Science Project Advisory Committee.
- 1995–1997 Representative to Academic Senate, Faculty Legislature Area II, UCSB
- 1995–1997 Member, Personnel Review Committee, Department of Education, UCSB
- 1995–1997 Member, Executive Committee, Graduate School of Education, UCSB
- 1995–1997 Faculty Representative, Student Life Committee, Graduate School of Education, UCSB
- 1995–1997 Faculty sponsor, Science, Technology, & Culture Studies, Focused Research Group, funded through the Interdisciplinary Humanities Center, UCSB
- 1994–1996 Member, UCSB Awards Committee
- 1994–1995 Information Technologies Committee (Ad Hoc committee) Graduate School of Education, UCSB
- 1994–1995 Member, Blacks in the Sciences Task Force, Center for Black Studies, UCSB
- 1994–1995 Member, Graduate Affairs Committee, Graduate School of Education, UCSB

EVALUATION/CONSULTING

- 2020 External reviewer, University of Texas, Austin, STEM Program.
- 2019 External reviewer, Department of Mathematics and Science Education (MND), Stockholm University.
- 2017–2020 Geological models for Exploration of Dynamic Earth (GEODE) Advisory Board, Concord Consortium.
- 2016–2019 External Advisory Committee, Scientists Engaged in Educational Research (SEER), University of Georgia.
- 2014–2018 Advisory Board, Integrating Quality Talk Professional Development to Enhance Professional Vision and Leadership for STEM Teachers in High-Need Schools (NSF, K. Murphy, PI).
- 2008–2011 Advisory Board NSF Career (H. Carlone)
- 2008–2011 Advisory Board, *Towards the Next Generation of Research on STEM Learning*, (PIs: J. Falk, L. Dierking, & L. Enochs)
- 2008 Argumentation and Evaluation Routine (PIs: J. Ellis, J. Balgren)
- 2004 Chair, District Facilities Advisory Committee, Goleta Union School District
- 2002–2007 Project Evaluator, “Pre-College Engineering for Teachers” (NSF), Tufts University
- 2002 Consultant, Research Methodology for Science Education; Third International Math and Science Study (TIMSS) Science Video study, LessonLab, Santa Monica, CA
- 1999–2003 Project Evaluator, “From Information to Knowledge and Wisdom: Technology and Tomorrow’s Teachers in Santa Barbara.” Preparing Tomorrow’s Teachers to Use Technology (Dept. of Education) at University of California Santa Barbara
- 1999 Member Science Instructional Materials Advisory Panel (IMAP) California Department of Education
- 1996–1997 Member, South Coast Science Project Advisory Committee