J. Bryan Henderson, Ph.D.

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www.argumentationtoolkit.org
www.scientificargumentation.stanford.edu
www.scienceargumentsweebly.com

Biography

Dr. J. Bryan Henderson's research pursues two primary objectives: (1) given the substantial empirical evidence for the importance of our prior thinking in the construction of new thinking, learners need to be provided spaces where they feel safe to share their thinking at whatever stage their ideas might be in; and (2) how we exchange ideas can vary in sophistication, and hence, supports are necessary for students to articulate their thinking and the sharing of those ideas in an increasingly critical, evidence-based fashion.

Henderson is interested in the utilization of educational technology to facilitate critical, peer-to-peer science learning. His classroom-based research on critical speaking and listening intersects with his psychometric development of assessments that gauge how students learn science through evidence-based argumentation. As the director of the *Braincandy* project (www.braincandy.org), Henderson has developed a cloud-based technology that affords students the safety of participating in classroom activities anonymously, and then makes discrepancies in anonymous student thinking transparent to the entire classroom through visualization tools. In turn, these differences in thinking set the stage for authentic, peer-to-peer argumentation as students seek to overcome uncertainty in the pursuit of classroom consensus.

Dr. Henderson received his Ph. D. from Stanford University in Science Education. With six college degrees and a multidisciplinary research background, he has extensive experience teaching a multitude of courses in learning theories, statistics, and physics. He is currently an Associate Professor of Science Education at Arizona State University, where he is a recipient of the *ASU Centennial Professorship Award* for outstanding teaching, leadership, and service.

In 2018, Dr. Henderson was named a National Academy of Education/Spencer Postdoctoral Fellow. He has published in the Harvard Educational Review, as well as in prestigious science education journals including the International Journal of Science Education and the Journal of Research in Science Teaching, the latter of which he served as an Associate Editor. Dr. Henderson was elected to serve as Program Chair of the American Educational Research Association SIG for Science Teaching and Learning. He serves on the Editorial Board of Educational Researcher, which is one of the top-ranked journals in all of educational research. He also served as a Principal Investigator on a 3-million-dollar collaborative research grant between ASU and UC Berkeley, funded by the National Science Foundation.

Professional Experiences

Associate Professor of Science Education
2020-Present, Arizona State University – Tempe, AZ

Assistant Professor of Learning Sciences
2014-2020, Arizona State University – Tempe, AZ

Lecturer
2013-2014, Stanford University – Stanford, CA

Assessment Specialist
2013-2014, Lawrence Hall of Science – Berkeley, CA

Graduate Teaching Assistant
2009-2013, Stanford University – Stanford, CA

Graduate Research Assistant
2008-2013, Stanford University – Stanford, CA

Physics Instructor
2007-2008, Portland Community College – Portland, OR

Graduate Research Assistant
2005-2008, Portland State University – Portland, OR

Research Assistant
2003, Joint Institute for Very Long Baseline Interferometry in Europe (JIVE) – Dwingeloo, Netherlands

Research Assistant
2002, National Optical Astronomy Observatory (NOAO) – Tucson, AZ

Undergraduate Research Assistant
2001-2004, University of Washington – Seattle, WA

Senior Physics Tutor
2000-2005, University of Washington Instructional Center – Seattle, WA

Professional Degrees Earned

Ph.D., Science Education
2013, Stanford University – Stanford, CA

M.S., Physics
2008, Portland State University – Portland, OR

Graduate Certificate, Teaching Adult Learners
2008, Portland State University – Portland, OR

M.S., Education
2006, Portland State University – Portland, OR

B.S., Physics
2004, University of Washington – Seattle, WA

B.S., Astronomy
2004, University of Washington – Seattle, WA

B.A., Philosophy with a Minor in Applied Mathematics
2004, University of Washington – Seattle, WA

Full Books

1. Osborne, J., Donovan, B., **Henderson, J.B.**, MacPherson, A., & Wild, A. (2016). *Arguing from Evidence in Middle School Science: 24 Activities for Productive Talk and Deeper Learning.* Corwin Publishers.
    - Required reading for the American Museum of Natural History Master of Arts in Teaching Program (EDU 620)

Book Chapters

2. **Henderson, J.B.** & Aguilera, E. (2020). Utilizing technology to support scientific argumentation in active learning classrooms. In J. Mintzes & E. Walter (Eds.), *Active learning in college science: The case for evidence-based practice* (pp. 587-602). Berlin: Springer Nature.

3. **Henderson, J.B.** & Osborne, J. (2019). Using computer technology to support the teaching and learning of argumentation in chemistry. In S. Erduran (Ed.), *Argumentation in chemistry education: Research, policy, and practice* (pp. 79-105). Royal Society of Chemistry.

4. **Henderson, J.B.**, Langbeheim, E., & Chi, M.T.H. (2017). Addressing robust misconceptions through the ontological distinction between sequential and emergent processes. In B. Sherin, T. Amin, & O. Levrini (Eds.), *Converging perspectives on conceptual change: Mapping an emerging paradigm in the learning sciences* (pp. 26-33). New York, NY: Routledge.

5. Brown, B., **Henderson, J.B.**, & Kloser, M. (2012). Bridging cultures: The role of culturally-relevant pedagogy, discursive identity, and conceptual continuities in the promotion of scientific literacy. In C. Lewis & J. Moore (Eds.), *African american students in urban schools: Critical issues and solutions for achievement* (pp. 185-203). New York, NY: Peter Lang Publishers.

6. *Reed, E. & **Henderson, J.B.** (in review). The misplaced variable - The CLEAR cycle as human-centered AI design. In *Human-centered AI design for higher education sociotechnical learning ecosystems*.

Peer - Reviewed Articles

**Indicates doctoral students*

***Indicates postdoctoral scholars*

****Journal uses article numbers instead of page numbers*

Henderson, J.B. (in progress). Generative AI best practices for online physics education. *Manuscript in preparation.*

Henderson, J.B. (in progress). Key challenges in the development of next generation student evaluations of teaching. *Manuscript in preparation.*

Henderson, J.B. (in progress). *PAL*: A digital scaffold for dialogical argumentation. *Manuscript in preparation.*

Henderson, J.B. (in progress). Helping science students engage in more critical sensemaking of socioscientific issues portrayed in digital media. *Manuscript in preparation.*

Bass, S.M. & **Henderson, J.B.** (in progress). Data-informed instructional decision making with REAL CHEM courseware. *Manuscript in preparation.*

Zillmer, N. & **Henderson, J.B. (in progress). Measuring how science teachers' epistemologies evolve with use of an argumentation-rich curriculum. *Manuscript in preparation.*

Gross, C.M., Mead, C., **Henderson, J.B.**, & Anbar, A.D. (in review). Adaptive reasoning and the role of the affective domain in scientific reasoning. *Science Education.*

7. **Demirel Ucan, A. & **Henderson, J.B.** (2026). A critical religious education perspective on argumentation in science and religious education. *Science & Education.* doi:10.1007/s11191-026-00765-1

8. **Henderson, J. B.** & *Chambers, E. L. (2024). The past, present, and future of clickers: A review. *Education Sciences, 14*(12), 1345. doi:10.3390/educsci14121345

9. **Henderson, J. B.** & Lewis, A. (2022). Utilizing technology to *DiALoG* classroom speaking and listening. *NSTA Science Scope, 45*(3), 14-18.

10. Morales, C., Goss, M., *Holton, A., Greenwald, E., & **Henderson, J. B.** (2022). The content and the conversation. *NSTA Science Scope, 45*(3), 28-33.

11. **Henderson, J.B.,**Zillmer, N., *Holton, A., *Weiner, S., Greenwald, E., Goss, M., *Lopez, M. L., Morales, C., Pearson, P. D., & McNeill, K. (2021). How science teachers DiALoG their classrooms: Towards a practical and responsive formative assessment of oral classroom argumentation. *Journal of Science Education and Technology*, *30*, 803-815 doi:10.1007/s10956-021-09921-4

12. **Henderson, J.B.**, Marley, S., Wilcox, J. M., Nailor, N., *Sowl, S., & *Close, K. (2020). Challenges assessing the impact of project-based learning on critical thinking skills. *Journal of Assessment of Institutional Effectiveness, 10*(1), 33-60.

13. **Henderson, J.B.** (2020). Adapting a popular technique in college lecture halls to k-12 classrooms. *NSTA Science Scope, 43*(9), 6-9.

14. **Henderson, J. B.** & Lewis, A. (2020). Integrating technology to support classroom argumentation. *NSTA Science Scope, 43*(8), 16-19.

15. **Henderson, J.B.** (2019). Beyond "active" learning: How the ICAP framework permits more acute examination of the popular peer instruction pedagogy. *Harvard Educational Review*, *89*(4), 611-634. doi: 10.17763/1943-5045-89.4.611

16. *Close, K., *Bowers, N., *Mehta, R., Mishra, P., & **Henderson, J. B.** (2018). Students as teachers: How science teachers can collaborate with their students using peer instruction. *iWonder*, *5*, 24-28.

17. **Henderson, J. B.**, McNeill, K. L., *González-Howard, M., *Close, K., & *Evans, M. (2018). Key challenges and future directions for educational research on scientific argumentation. *Journal of Research in Science Teaching*, *55*(1), 5-18. doi:10.1002/tea.21412

18. Osborne, J., **Henderson, J. B.**, MacPherson, A., Szu, E., Wild, A., & Yao, S. Y. (2016). The development and validation of a learning progression for argumentation in science. *Journal of Research in Science Teaching, 53*(6), 821-846. doi:10.1002/tea.21316

19. Brown, B., **Henderson, J. B.**, Gray, S., Sullivan, S., Donovan, B., Patterson, A., & Wagstaff, W. (2016). From description to explanation: An empirical exploration of the african-american pipeline project. *Journal of Research in Science Teaching, 53*(1), 146-177. doi:10.1002/tea.21249

20. Al Lily, A., & 98 Additional Authors Including **Henderson, J. B.** (2016). Academic domains as political battlegrounds: A global enquiry by 99 academics in the fields of education and technology. *Information Development*. doi:10.1177/0266666916646415.

21. **Henderson, J.B.**, MacPherson, A., Osborne, J., & Wild, A. (2015). Beyond construction: Five cases for the role and value of critique in the learning of science. *International Journal of Science Education, 37*(10), 1668-1697. doi:10.1080/09500693.2015.1043598

22. Pearson, P. D., Knight, A.M., Cannady, M.A., **Henderson, J.B.**, & McNeill, K.L. (2015). Assessment at the intersection of science and literacy. *Theory into Practice, 54*(3), 228-237. doi:10.1080/00405841.2015.1044372

23. Yao, S-Y., Wilson, M., **Henderson, J.B.**, & Osborne, J. (2015). Investigating the function of content and argumentation items in a science test: A multidimensional approach. *Journal of Applied Measurement, 16*(2), 171-192.

24. **Henderson, J.B.**, Osborne, J., MacPherson, A., & Szu, E. (2014). A new learning progression for student argumentation in scientific contexts. In C. P. Constantinou, N. Papadouris & A. Hadjigeorgiou (Eds.), *Science education research for evidence-based teaching and coherence in learning: E-Book Proceedings of the ESERA 2013 Conference, Part 7* (co-ed. M. Evagorou & K. Iordanou) (pp. 26-42). Nicosia, Cyprus: European Science Education Research Association. ISBN: 978-9963-700-77-6

25. Brown, B., Parsons, E., Miles, R., & **Henderson, J.B.** (2013) Exploring the alignment of black scientists with the american scientific community: Does race still matter? *Journal of Women and Minorities in Science and Engineering*, *19*(2), 95-120. doi:10.1615/JWomenMinorScienEng.2013005116

26. Brown, B., **Henderson, J.B.**, Gray, S., Donovan, B, & Sullivan, S. (2013). From access to success: Identity contingencies & african-american pathways to science. *Higher Education Studies, 3*, 1-13. doi:10.5539/hes.v3n1p1

27. **Henderson, J.B.**, Brown, M.J.I., Jannuzi, B.T., Dey, A., & NDWFS Team. (2002). FIRST radio galaxies in the NOAO deep wide-field survey. *Bulletin of the American Astronomical Society*, *34*, p. 1246.

28. Levan, A., Fruchter, A., Welch, D., Palma, C., **Henderson, J.B.**, Siegel, M., & Burud, I. (2002). GRB 021211: CTIO observations. *GCN GRB Observation Report*, #1758

Editor-Reviewed Articles

29. **Henderson, J. B.** & Aguilera, E. (2019). On the screen – beneath the screen – beyond the screen: A framework for considering how educational technology can support argumentation in your classroom. *NSTA Reports*, *31*(4), 3.

30. **Henderson, J. B.** (2019). NSTA Freebies: Braincandy.org. *NSTA Reports*, *31*(1), G-2.

Peer-Reviewed International Conference Presentations

**Indicates doctoral students*

***Indicates postdoctoral scholars*

31. **Henderson, J.B.**, (2024, June). *PAL: A utilization of educational technology to scaffold peer critique.* Poster submitted for presentation at the 4th Annual Meeting for the International Society of the Learning Sciences (ISLS), Buffalo, New York.

32. *Holton, A., **Henderson, J.B.**, Zillmer, N., Greenwald, E., Goss, M., & Morales, C. (2020, June). *Assessing teachers' oral scientific argumentation professional vision.* Paper accepted for presentation at the 14th International Conference for the Learning Sciences (ICLS), Nashville, Tennessee.

33. **Zillmer, N., *Holton, A, & **Henderson, J.B.** (2019, August). *Toward developing authentic measures of teacher epistemologies and student attitudes to argument.* Paper accepted for presentation at the 2019 Biennial Conference of the European Science Education Research Association (ESERA), Bologna, Italy.

34. **Henderson, J.B.**, *Holton, A, **Zillmer, N., & *Aguilera, E. (2018, October). *Oral and written assessments to distinguish construction/co-construction and critique.* Paper accepted for presentation at the European Association for Research on Learning and Instruction (EARLI) SIG 20 and 26 Conference, Jerusalem, Israel.

35. *Holton, A., **Henderson, J.B.**, Goss, M., & Greenwald, E. (2018, June). *Developing DiALoG: A digital formative assessment tool to support student and teacher learning of oral argumentation.* Paper accepted for presentation at the 13th International Conference for the Learning Sciences (ICLS), London, England.

36. *Close, K. & **Henderson, J.B.** (2017, June). *Braincandy: A cloud-based platform providing students authentic, engaging, and safe apaces to articulate and refine oral argumentation.* Workshop accepted for presentation at the 12th International Conference on Computer Supported Collaborative Learning (CSCL), Philadelphia, PA.

37. **Henderson, J.B.**, Osborne, J., MacPherson, A., & Szu, E. (2013, September). *A new learning progression for student argumentation in scientific contexts.* Paper accepted for presentation at the 2013 Biennial Conference of the European Science Education Research Association (ESERA), Nicosia, Cypress.

38. **Henderson, J.B.**, Osborne, J., MacPherson, A., & Szu, E. (2013, August). *Developing and testing a learning progression for argumentation in science.* Paper accepted for presentation at the 2013 Biennial Conference of the European Association for Research on Learning and Instruction (EARLI), Munich, Germany.

Peer-Reviewed National Conference Presentations

**Indicates doctoral students*

***Indicates postdoctoral scholars*

39. **Henderson, J.B.**, Bass, S.M., Hartman, J., Yaron, D., Blaser, M., Dwyer, R.P., Mead, C., Stein, A., & Larson, K. (2026, July). *Building a network improvement community through data-informed decision making by REAL CHEM instructors* Paper accepted for presentation at the 2026 Biennial Conference on Chemical Education (BCCE), Madison, WI.

40. Leblond, L., Simon, M., & **Henderson, J.B.** (2026, April). *Navigating online physics: Barriers, enablers, and integrity concerns among non-traditional adult learners*. Paper accepted for presentation at the 2026 Annual Meeting of the American Educational Research Association (AERA), Los Angeles, CA.

41. **Henderson, J.B.**, Bass, S.M., Dwyer, R.P., Larson, K., Mead, C., Stein, A., & Yaron, D. (2026, February). *REAL CHEM action research through the LearnLab summer school.* Paper accepted for presentation at the 2026 Learning Engineering Research Network Convening (LERN), Tempe, AZ. doi:10.59668/2551.25399

42. *Holton, A., **Henderson, J. B.**, Greenwald, E., Goss, M., & Morales, C. (2021, April). *What do you notice? Measuring teachers' argumentation professional vision*. Paper accepted for presentation at the 2021 Annual Meeting of the American Educational Research Association (AERA), Virtual Conference.

43. **Zillmer, N., *Holton, A., Henderson, J. B., Greenwald, E., Goss, M., & Morales, C. (2021, April). *A novel assessment of teacher epistemologies concerning argumentation and science*. Paper accepted for presentation at the 2021 Annual Meeting of the American Educational Research Association (AERA), Virtual Conference.

44. Greenwald, E., Goss, M., Morales, C., **Henderson, J. B.**, *Holton, A., & **Zillmer, N. (2021, April). *Supporting scientific argumentation in the classroom*. Paper submitted to the 2021 Annual Meeting of the National Science Teachers Association (NSTA), Chicago, IL. (Conference canceled)

45. Greenwald, E., Goss, M., Morales, C., **Henderson, J. B.**, *Holton, A., & **Zillmer, N. (2021, January). *Supporting scientific argumentation in the classroom*. Workshop accepted for presentation at the 2021 Annual Meeting of the Association for Science Teacher Education (ASTE), Salt Lake City, UT.

46. *Holton, A. & **Henderson, J. B.** (2020, November). *Braincandy: Sparking evidence-based argumentation*. Workshop accepted for presentation at the NSTA Engage: Fall20 Conference of the National Science Teaching Association (NSTA), Virtual Conference.

47. *Holton, A. & **Henderson, J. B.** (2020, December). *Braincandy: Sparking evidence-based argumentation*. Workshop accepted for presentation at the 2020 Area Conference of the National Science Teaching Association (NSTA), Phoenix, AZ. (Conference canceled)

48. *Holton, A. & **Henderson, J. B.** (2020, April). *Braincandy: Sparking evidence-based argumentation*. Workshop accepted for presentation at the 2020 National Meeting of the National Science Teachers Association (NSTA), Boston, MA. (Conference canceled)

49. *Holton, A., **Henderson, J. B.**, Greenwald, E., **Zillmer, N., Goss, M., Morales, C., *Lopez, M. L., & Pearson, P. D. (2020, March). *Assessing professional vision of oral scientific argumentation using video annotations*. Paper accepted for presentation at the 2020 Annual Meeting of the National Association for Research in Science Teaching (NARST), Portland, OR. (Conference canceled)

50. *Holton, A. & **Henderson, J. B.** (2019, November). *Braincandy: Sparking evidence-based argumentation*. Workshop accepted for presentation at the 2019 Annual Conference of the Arizona Science Teachers Association (AzSTA), Phoenix, AZ.

51. **Zillmer, N., **Henderson, J. B.**, Goss, M., Greenwald, E., *Holton, A., & *Lopez, M. L. (2019, March). *Toward developing an authentic measure of epistemology for secondary-level science instructors*. Paper accepted for presentation at the 2019 Annual Meeting of the National Association for Research in Science Teaching (NARST), Baltimore, MD.

52. Osborne, J., Donovan, B., **Henderson, J.B.**, MacPherson, A., *Rafanelli, S., & Wild, A. (2019, April). *Arguing from evidence in grades 6-12: Why and how*. Workshop accepted for presentation at the 2019 National Meeting of the National Science Teachers Association (NSTA), St. Louis, MO.

53. *Holton, A. & **Henderson, J. B.** (2019, April). *Braincandy: Supporting student talk and argumentation*. Workshop accepted for presentation at the 2019 National Meeting of the National Science Teachers Association (NSTA), St. Louis, MO.

54. *Jackson, J. C. & **Henderson, J. B.** (2018, July). *Graduate student led science clubs: Assessment of middle school student outcomes*. Paper accepted for presentation at the 2018 National Meeting of the Society for the Advancement of Biology Education Research (SABER), Minneapolis, MN.

55. **Henderson, J.B.**, *Close, K., *Sowl, S., Marley, S., Nailor, N., & Wilcox, J. M. (2018, April). *Challenges assessing the impact of project-based learning on critical thinking skills*. Paper accepted for presentation at the 2018 Annual Meeting of the American Educational Research Association (AERA), New York, NY.

56. **Henderson, J. B.**, **Zillmer, N., *Lopez, M. S., Greenwald, E., Goss, M., Pearson, P. D., *Close, K., *Holton, A., *Fenton, C., & McNeill, K. (2018, March). *How science teachers DiALoG their classrooms: Towards a practical and responsive formative assessment of oral classroom argumentation*. Paper accepted for presentation at the 2018 Annual Meeting of the National Association for Research in Science Teaching (NARST), Atlanta, GA.

57. **Henderson, J.B.**, Langbeheim, E., & Chi, M.T.H. (2017, April). *What makes a misconception robust to change?* Paper accepted for presentation at the 2017 Annual Meeting of the National Association for Research in Science Teaching (NARST), San Antonio, TX.

58. Bowers, N., Jordan, M., Langbeheim, E., Yaghmourian, D., Bruchok, C. **Henderson, J. B.**, Li, N., & Chi, M.T.H. (2017, April). *Identifying ontological difficulties in causal explanations of everyday science*. Paper accepted for presentation at the 2017 Annual Meeting of the National Association for Research in Science Teaching (NARST), San Antonio, TX.

59. **Henderson, J.B.** & Osborne, J. (2016, April). *Assessing scientific practices: Issues and challenges drawn from the example of argumentation*. Paper accepted for presentation at the 2016 Annual Meeting of the National Association for Research in Science Teaching (NARST), Baltimore, MD.

60. **Henderson, J.B.** (2015, October). *Adapting interactive technology to high school physics learners with a novel framework for differentiating classroom interventions*. Paper accepted for presentation at the Annual Meeting of the American Physical Society (APS) Four Corners Section, Tempe, AZ.

61. **Henderson, J.B.**, Osborne, J., MacPherson, A., & Wild, A. (2015, August). *The development of a learning progression for scientific argumentation*. Paper accepted for presentation at the 2nd International Argument-Based Inquiry (ABI) Conference, Spokane, WA.

62. **Henderson, J.B.**, *Fenton, C., McNeill, K., Pearson, D., & Barber, J. (2015, April). *DiALoG: A practical instrument designed for the assessment of verbal classroom argumentation in real time*. Paper accepted for presentation at the 2015 Annual Meeting of the National Association for Research in Science Teaching (NARST), Chicago, IL.

63. **Henderson, J.B.**, McNeill, K., Knight, A., Berland, L., Gotwals, A., Jiménez-Aleixandre, M. P., Osborne, J., Sampson, V., & Zembal-Saul, C., (2015, April). *Key challenges and future directions for research on scientific argumentation*. Pre-conference workshop accepted for presentation at the 2015 Annual Meeting of the National Association for Research in Science Teaching (NARST), Chicago, IL.

64. MacPherson, A., Osborne, J., Wild, A., & **Henderson, J.B.**, (2015, March). *Assessing middle school students' argumentation about physical behavior of matter.* Workshop accepted for presentation at the 2015 National Science Teachers Association (NSTA) National Conference on Science Education, Chicago, IL.

65. **Henderson, J.B.**, (2014, April). *Adapting interactive technology to younger science learners with a new framework for differentiating classroom interventions.* Paper accepted for presentation at the 2014 Annual Meeting of the American Educational Research Association (AERA), Philadelphia, PA.

66. **Henderson, J.B.**, (2014, March). *Adapting interactive technology to younger science learners with a new framework for differentiating classroom interventions.* Paper accepted for presentation at the 2014 Annual Meeting of the National Association for Research in Science Teaching (NARST), Pittsburgh, PA.

67. **Henderson, J.B.**, (2014, March). *Building learning progressions for scientific argumentation.* Chair of related paper set accepted for presentation at the 2014 Annual Meeting of the National Association for Research in Science Teaching (NARST), Pittsburgh, PA.

68. **Henderson, J.B.**, Osborne, J., MacPherson, A., Szu, E., Friend, M., Wild, A., (2014, March). *IRT analysis of items probing a unidimensional learning progression for argumentation of increasingly complex structure.* Paper accepted for presentation at the 2014 Annual Meeting of the National Association for Research in Science Teaching (NARST), Pittsburgh, PA.

69. Osborne, J., **Henderson, J.B.**, MacPherson, A., & Szu, E. (2013, September). *Building a learning progression for argumentation in science.* Paper accepted for presentation at the Fall 2013 Conference of the *Society for Research on Educational Effectiveness (SREE),* Washington, DC.

70. Osborne, J., **Henderson, J.B.**, MacPherson, A., & Szu, E. (2013, April). *Building a learning progression for argumentation in science education.* Paper accepted for presentation at the 2013 Annual Meeting of the American Educational Research Association (AERA), San Francisco, CA.

71. **Henderson, J.B.**, Osborne, J., MacPherson, A., & Szu, E. (2013, April). *Validating and assessing a new progress map for student argumentation in science.* Paper accepted for presentation at the 2013 Annual Meeting of the American Educational Research Association (AERA), San Francisco, CA.

72. **Henderson, J.B.**, Osborne, J., MacPherson, A., & Szu, E. (2013, April). *Developing assessments for a learning progression in argumentation: Lessons learned.* Paper accepted for presentation at the 2013 Annual Meeting of the National Association for Research in Science Teaching (NARST), Rio Grande, Puerto Rico.

73. **Henderson, J.B.** & Canning, B. (2013, February). *Braincandy: Utilizing technology and peer learning to improve science learning.* Paper accepted for presentation at the 2013 International Teacher-Scientist Partnership Conference (ITSPC), Boston, MA.

74. **Henderson, J.B.**, Osborne, J., Szu, E., & MacPherson, A. (2012, April). *Assessing scientific argumentation by middle school pupils and testing a learning progression for argumentation.* Paper accepted for presentation at the 2012 Annual Meeting of the American Educational Research Association (AERA), Vancouver, British Columbia.

75. Brown, B., Parsons, E., Miles, R. & **Henderson, J.B.** (2010, May). *Alone on the mountain top: Scientists' reflections on race, education, and access to science careers.* Paper accepted for presentation at the 2010 Annual Meeting of the American Educational Research Association (AERA), Denver, CO.

76. Brown, B., Kloser, M., & **Henderson, J.B.** (2010, May). *Building bridges toward cognition: Cultural continuity and the language-identity dilemma.* Paper accepted for presentation at the 2010 Annual Meeting of the American Educational Research Association (AERA), Denver, CO.

77. **Henderson, J.B.**, Brown, B., & Gray, S. (2010, March). *From access to success: comparing black students' and black scientists' college going experiences.* Paper accepted for presentation at the 2010 Annual Meeting of the National Association for Research in Science Teaching (NARST), Philadelphia, PA.

78. **Henderson, J.B.**, Brown, B., & Gray, S. (2009, April). *Isn't that just good teaching?: Disaggregate instruction and the language-identity dilemma.* Paper accepted for presentation at the 2009 Annual Meeting of the National Association for Research in Science Teaching (NARST), Garden Grove, CA.

79. Allen, J., Smith, C., & **Henderson, J.B.** (2006, December). *Academic advising at concordia and psu: Implications for retention.* Paper accepted for presentation at the 2006 Annual Meeting of the Northwest Association of Student Affairs Professionals (NASAP), Seaside, OR.

Invited Presentations

80. **Henderson, J.B.**, Bass, S.M., Dwyer, R.P., Larson, K., Mead, C., Stein, A., & Yaron, D. (2026, May). *REAL CHEM action research*. Presentation at the 2026 Gates Foundation Learnvia Pilot Partners Convening, Chicago, IL.

81. **Henderson, J.B.**, Bass, S.M., Dwyer, R.P., Larson, K., Mead, C., Stein, A., & Yaron, D. (2026, February). *REAL CHEM action research through the LearnLab summer school.* Presentation at the 2026 Gates Foundation Digitally Enabled Teaching and Learning Research and Development Convening, San Diego, CA.

82. **Henderson, J.B.** (2025, September). *Generative AI in online physics courses: Suggested best practices.* Talk given at the 2025 Fall Meeting for the Arizona Section of the American Association of Physics Teachers (AAPT), Tempe, AZ.

83. Bass, S.M., Carpenter, T.S., & **Henderson, J.B.** (2025, September). *Impact of semester timing on Student outcomes in the first course of a general chemistry sequence.* Provost's Teaching and Learning Symposium, University of Maryland, Baltimore County (UMBC), Baltimore, MD.

84. **Henderson, J.B.** (2025, July). *IRT data visualization with item characteristic curves and wright maps*. Talk given at the LearnLab Summer School, Carnegie Mellon University, Pittsburgh, PA.

85. **Henderson, J.B.** (2024, February). *Beyond "active learning": How different forms of student-centered instruction support different levels of understanding.* Keynote given at the Student Success and Retention Conference (SSRC), Portland, OR.

86. **Henderson, J.B.** (2023, October). *Beyond "active learning" in the physics classroom: How different forms of student-centered instruction can yield different levels of understanding.* Colloquium given for the Department of Physics, Arizona State University, Tempe, AZ.

87. **Henderson, J.B.** (2018, October). *Oral and written assessments to distinguish construction/co-construction and critique.* Talk given at the STEM Education Seminar Series, Weizmann Institute of Science, Rehovot, Israel.

88. **Henderson, J.B.** (2016, February). *Maximizing the use of technology in active learning classrooms.* Talk given at the Faculty Spotlight Seminar Series, Mary Lou Fulton Teachers College, Arizona State University, Tempe, AZ.

89. **Henderson, J.B.** (2016, January). *Braincandy: A synergy between research and teaching.* Nominated by the Dean to have my work represent the Mary Lou Fulton Teachers College at the ASU Learning Innovation Showcase, Institute for the Science of Teaching and Learning (ISTL), Arizona State University, Tempe, AZ.

90. **Henderson, J.B.** (2015, October). *Maximizing the use of technology in active learning classrooms.* Talk given at the Evidence-Based Teaching in STEM seminar series, School of Life Sciences, Arizona State University, Tempe, AZ.

Funded External Grants ($3,136,000.00)

2024
Axim Innovation Award **($10,000 over two years)**
Role: **ASU Faculty Representative for UIA**
Agency: Axim Collaborative
Study: University Innovation Alliance (UIA) - Scaling Academic Innovation to Address STEM Equity Gaps

2018
NAEd/Spencer Postdoctoral Fellowship Program **($70,000 over two years)**
Role: **Principal Investigator**
Agency: National Academy of Education and the Spencer Foundation
Study: Development of the Science Dialogue Heuristic: A Framework for Supporting Oral Argumentation

2016
Discovery Research PreK-12 (DRK-12) **($3,000,000[1] over four years; REC[2] 90%)**
Role: **Principal Investigator**
Agency: National Science Foundation (NSF)
Study: Supporting Teacher Practice to Facilitate and Assess Oral Scientific Argumentation: Embedding a Real-Time Assessment of Speaking and Listening into an Argumentation-Rich Curriculum

2012
Impact Grant **($20,000 over one year)**
Role: **Principal Investigator**
Agency: Verizon Foundation
Study: Utilizing Braincandy to Boost Student Achievement in STEM: A Synthesis of Educational Technology and Empirical Research to Overcome Science Misconceptions through Social Interactive Learning

2012
Workforce Development Grant **($13,000 over one year)**
Role: **Principal Investigator**
Agency: San Mateo County
Study: Braincandy and iiSME: Developing Preconception-Driven Formative Assessments for Use with a Novel Educational Technology

2011
Workforce Development Grant **($13,000 over one year)**
Role: **Principal Investigator**
Agency: San Mateo County
Study: Braincandy and iiSME: Developing Preconception-Driven Formative Assessments for Use with a Novel Educational Technology

2011
Empowerment Grant **($10,000 over one year)**
Role: **Principal Investigator**
Agency: Motorola Mobility Foundation
Study: Braincandy Website Curriculum Development

Unfunded External Grants

2025
Department of Navy (DoN) **($800,000 over three years)**
Role: **Principal Investigator**
Agency: Department of Navy (DoN) STEM Education and Workforce Program
Study: STEM Professional Learning

[1] $3,000,000 is the result of a collaborative proposal between ASU (NSF Award ID: 1621496; PI: J. Bryan Henderson) and UC Berkeley (NSF AWARD ID: 1621441; PI: Eric Greenwald)

[2] REC = ASU Personal Recognition/Credit

2025
Discovery Research PreK-12 (DRK-12) **($533,099 over four years)**
Role: **Co-Principal Investigator**
Agency: National Science Foundation (NSF)
Study: Supporting Data Literacy and Online Sensemaking of the Socioscientific Issue of Climate Change

2025
Science and Technology Centers (STC) **(Preliminary Proposal)**
Role: **Co-Principal Investigator**
Agency: National Science Foundation (NSF)
Study: Quantum Materials on Demand (QMOD)

2024
PhysTEC Network Cohort I **($131,031 over two years)**
Role: **Principal Investigator**
Agency: PhysTEC
Study: The Arizona PhysTEC Consortium (APC)

2024
PECA **($35,000,000 over five years)**
Role: **Co-Principal Investigator**
Agency: USAID
Study: Primary Education in Crisis Activity in Ethiopia (PECA)

2023
Spencer Large Grants on Education Program **($375,000 over five years)**
Role: **Principal Investigator**
Agency: Spencer Foundation
Study: Promoting Argumentative Critique to Support Making *Scientific Sense* of Socioscientific Issues Portrayed Through Social Media and the Internet

2022
Spencer Large Grants on Education Program **($375,000 over five years)**
Role: **Principal Investigator**
Agency: Spencer Foundation
Study: Promoting Argumentative Critique to Support Making *Scientific Sense* of Socioscientific Issues Portrayed Through Social Media and the Internet

2021
Spencer Large Grants on Education Program **($375,000 over five years)**
Role: **Principal Investigator**
Agency: Spencer Foundation
Study: Promoting Argumentative Critique to Support Making *Scientific Sense* of Socioscientific Issues Portrayed Through Social Media and the Internet

2020
NSF Faculty Early Career Development Program (CAREER) **($700,000 over five years)**
Role: **Principal Investigator**
Agency: National Science Foundation (NSF)
Study: CAREER: Promoting Argumentative Critique to Support Making *Scientific Sense* of Socioscientific Issues Portrayed Through Social Media and the Internet

2019
NSF Faculty Early Career Development Program (CAREER) **($700,000 over five years)**
Role: **Principal Investigator**
Agency: National Science Foundation (NSF)
Study: CAREER: A Synergy of Technologies Promoting Critique to Support Students Making Scientific Sense in Classroom and Digital Environments

2018
Discovery Research PreK-12 (DRK-12) **($1,000,000 over four years)**
Proposed Role: **Co-Principal Investigator**
Agency: National Science Foundation (NSF)
Study: Infusing Data Literacy into Educator Preparation

2016
Technology in Education Challenge **(crowdfunding baseline of $8,500 per year)**
Proposed Role: **Principal Investigator**
Agency: Experiment.com
Study: Braincandy: Providing Students Authentic, Engaging, and SAFE Spaces to Articulate and Refine their Thinking with Others

2015
Promoting Research and Innovation in Methodologies for Evaluation (PRIME) **($250,000 over two years)**
Proposed Role: **Principal Investigator**
Agency: National Science Foundation (NSF)
Study: DiALoG: Developing a Practical Instrument for Instructors to Assess Verbal Classroom Argumentation in Real Time

2015
Improving Undergraduate STEM Education (IUSE: EHR) **($600,000 over three years)**
Proposed Role: **Co-Principal Investigator**
Agency: National Science Foundation (NSF)
Study: Implementing Active Learning in College Classrooms: A Theory- and Evidence-based Approach

2012
Discovery Research PreK-12 (DRK-12) **($500,000 over four years)**
Proposed Role: **Co-Principal Investigator**
Agency: National Science Foundation (NSF)
Study: Ednovo and NorCal EdTech: Facilitating Social Learning in STEM Classrooms through Misconception-driven Formative Assessment

2011
Partnering for Excellence: Innovations in STEM Education **($20,000 over one year)**
Proposed Role: **Principal Investigator**
Agency: Ashoka Changemakers
Study: Braincandy: FREE and EASY Cloud Technology Enables Teachers to Put Students in Charge of Their Own Learning

Funded Internal Grants ($51,156.00)

2025
Internal Research Grant **($125 over one year)**
Funded Role: **Principal Investigator**
Agency: MLFC Research Support Mini-Grant Program
Study: Socioscientific Issues (SSI) Sensemaking with Braincandy

2024
Internal Research Grant **($14,167 over one year)**
Funded Role: **Principal Investigator**
Agency: Mary Lou Fulton Teachers College – Office of Scholarship and Innovation
Study: Improving the MLFTC Teaching Evaluation Process

2022
Internal Learning Community Grant **($1,000 over one year)**
Funded Role: **Principal Investigator**
Agency: Mary Lou Fulton Teachers College – Office of Scholarship and Innovation
Study: InSciEdOut: The Arizona State University Science Education Group

2021
Internal Learning Community Grant **($1,000 over one year)**
Funded Role: **Principal Investigator**
Agency: Mary Lou Fulton Teachers College – Office of Scholarship and Innovation
Study: InSciEdOut: The Arizona State University Science Education Group

2020
Internal Learning Community Grant **($1,000 over one year)**
Funded Role: **Principal Investigator**
Agency: Mary Lou Fulton Teachers College – Office of Scholarship and Innovation
Study: InSciEdOut: The Arizona State University Science Education Group

2019
Internal Learning Community Grant **($1,000 over one year)**
Funded Role: **Principal Investigator**
Agency: Mary Lou Fulton Teachers College – Office of Scholarship and Innovation
Study: InSciEdOut: The Arizona State University Science Education Group

2018
Internal Learning Community Grant **($1,000 over one year)**
Funded Role: **Principal Investigator**
Agency: Mary Lou Fulton Teachers College – Office of Scholarship and Innovation
Study: InSciEdOut: The Arizona State University Science Education Group

2017
Internal Research Grant **($12,364 over one year)**
Funded Role: **Principal Investigator**
Agency: Mary Lou Fulton Teachers College – Office of Scholarship and Innovation
Study: Braincandy: Providing Students Authentic, Engaging, and SAFE Spaces to Articulate and Refine their Thinking with Others

2017
Internal Learning Community Grant **($1,000 over one year)**
Funded Role: **Principal Investigator**
Agency: Mary Lou Fulton Teachers College – Office of Scholarship and Innovation
Study: InSciEdOut: The Arizona State University Science Education Group

2014
Internal Research Grant **($10,000 over one year)**
Funded Role: **Principal Investigator**
Agency: Arizona State University – Mary Lou Fulton Teachers College
Study: DiALoG: A Practical Instrument Designed for the Assessment of Verbal Classroom Argumentation in Real Time

2013
Internal Dissertation Support Grant **($8,500 over one year)**
Funded Role: **Principal Investigator**
Agency: Stanford University – Graduate School of Education
Study: Technology-Mediated Peer Learning: Exploring an Emerging Trend in Science Education with a New Framework for Differentiating Classroom Interventions

Unfunded Internal Grants

2019
Internal Research Grant **($8,424.58 over one year)**
Proposed Role: **Principal Investigator**
Agency: Arizona State University – Mary Lou Fulton Teachers College
Study: Helping Science Students Become More Critical Consumers of Digital Media

2017
Internal Research Grant **($8,000 over one year)**
Proposed Role: **Principal Investigator**
Agency: Arizona State University Institute for Social Science Research (ISSR) Seed Grant
Study: Braincandy: Providing Students Authentic, Engaging, and SAFE Spaces to Articulate and Refine their Thinking with Others

Teaching

****Named by the graduate and undergraduate student bodies of Arizona State University as recipient of the ASU Centennial Professorship Award for outstanding teaching – see Honors & Awards section below.****

2024-Present
Master of Natural Sciences (MNS) Program, Arizona State University
Description: Director. Seeking to help grow and promote this degree program at Arizona State University designed for in-service science teachers seeking to enhance their careers through interdisciplinary graduate training in physics, physical science, physics education, or related sciences.

2024-2025
STEM Professional Learning Program, Arizona State University
Description: Director. Seeking to help create modular, self-paced STEM professional learning content that can be taken in a variety of combinations based on the diverse professional learning needs of enrollees.

2018, 2019, & 2024
AMTA Leadership Training Workshop, Mary Lou Fulton Teachers College, Arizona State University
Description: Helped organize the American Modeling Teachers Association (AMTA) leadership training workshop, which trains instructors to lead Modeling Instruction professional development courses for science teachers.

2023-Present
Leader-Scholar Community (LSC) Instructor-Chair, Mary Lou Fulton Teachers College, Arizona State University
Description: Serving as the chair of dissertation committees for each member of a cohort of Ed.D. students. In addition to individual meetings we meet as a group every two weeks to provide support and feedback.

2016-Present
Learning Sciences MA Program, Arizona State University
Description: Teach and assist in program development for a 2-year graduate degree program at Arizona State University offering students a Master of Arts in Learning Sciences.

2014-Present
Graduate Certificate in Scientific Teaching in Higher Education, Arizona State University
Description: Director. Helped initiate and co-direct a certificate program at Arizona State University supporting graduate students in science disciplines that seek to teach high-quality postsecondary science courses upon their graduation.

Courses Taught @ Arizona State University [Lead Instructor]

General Physics [ONLINE] (PHY 121): Fall 2026; Fall 2025

General Physics [ONLINE] (PHY 111): Fall 2026; Fall 2025; Spring 2025

Leadership for Organizational Change (TEL 704): Summer 2026; Summer 2025

General Physics [ONLINE] (PHY 112): Spring 2025

Educational Psychology [ONLINE] (EDP 310): Spring 2024; Fall 2023; Spring 2023; Fall 2022

Dissertation (TEL 799): Spring 2027; Spring 2025

Leader Scholar Community (TEL 792): Spring 2027; Fall 2026; Spring 2026; Fall 2025; Spring 2025; Fall 2024; Spring 2024; Fall 2023

Independent Research (TEL 792): Fall 2025; Fall 2024; Spring 2024; Fall 2023

Reading and Conference (DCI 790): Fall 2023; Spring 2019

Educational Psychology (EDP 310): Fall 2022

General Physics (PHY 111): Spring 2025; Summer 2023

General Physics (PHY 112): Spring 2025; Summer 2023; Summer 2022

General Physics Laboratory (PHY 113): Summer 2025; Summer 2024; Summer 2023

General Physics Laboratory (PHY 114): Summer 2025; Summer 2024; Summer 2023; Summer 2022

Introduction to Quantitative Research Design and Methods (DCI 691): Fall 2021

Dissertation (DCI 799): Spring 2021

Learning Theories and Instructional Strategies [ONLINE] (EDP 540): Summer 2021

Academic Writing (DCI 791): Spring 2021

Theoretical Views of Learning in the Learning Sciences (LSE 540): Fall 2020

Science Education Research Seminar (BIO 791): Spring 2022; Fall 2021; Spring 2021; Fall 2020; Spring 2020; Fall 2019; Spring 2019; Fall 2018; Spring 2018; Fall 2017; Spring 2017; Fall 2016

Transdisciplinary Seminar I (DCI 791): Fall 2021; Fall 2019; Fall 2018

Analysis-of-Variance (ANOVA) Methods (EDP 554): Spring 2018; Fall 2016; Fall 2015; Fall 2014

History of the Learning Sciences (LSE 571): Fall 2017; Fall 2016; Spring 2016

Theoretical Views of Learning (EDP 540): Spring 2016; Spring 2015

Multiple Regression and Correlation Methods (EDP 552): Fall 2015

Courses Taught @ Stanford University [Lead Instructor]

Introduction to Data Analysis and Interpretation (EDUC 200A): Fall 2013

Statistical Software Methods (EDUC 401A): Fall 2013

Courses Taught @ Stanford University [Teaching Assistant]

Introduction to Data Analysis and Interpretation (EDUC 200A): Fall 2012; Winter 2012; Fall 2011; Winter 2011; Fall 2010; Winter 2010

Courses Taught @ Portland Community College [Lead Instructor]

General Physics (PHYS 203): Spring 2008

Courses Taught @ Portland Community College [Co-Instructor]

General Physics (PHYS 202): Winter 2008

General Physics (PHYS 201): Fall 2007

Students Advised & Mentored

2025-2027 – EdD Dissertation Committee Chair
Student: Erica Reed

2025-2027 – EdD Dissertation Committee Chair
Student: Bobbi Doherty

2025-2027 – EdD Dissertation Committee Chair
Student: Mina Jafarpoor

2025-2027 – EdD Dissertation Committee Chair
Student: Quinn Mitchell

2025-2027 – EdD Dissertation Committee Chair
Student: Nakita Saxon

2026-Present – Master of Natural Sciences Thesis Committee Member
Student: Patricia Bordonaro

2026-Present – Master of Natural Sciences Thesis Committee Member
Student: Hassan Khan

2026-Present – Master of Natural Sciences Thesis Committee Member
Student: Elise Weber

2026-Present – Master of Natural Sciences Thesis Committee Member
Student: Rebecca Devall

2026-Present – Master of Natural Sciences Thesis Committee Member
Student: Sharleen Nunez

2025-Present – Undergraduate Research Mentor
Student: Cara Marie Manlandro

2025-Present – Undergraduate Research Mentor
Student: Justin Belli

2025-Present – Barrett Honors College Undergraduate Fellows Faculty Mentor
Student: Autumn Boley

2024-Present – PhD Dissertation Committee Member
Student: Mitchell Sweet

2024-Present – PhD Dissertation Committee Member
Student: Catherine Tremblay

2024-Present – Barrett Honors College Undergraduate Fellows Faculty Mentor
Student: Shreya Seddabattula

2025-2026 – Barrett Honors College Honors Thesis Committee Member
Student: Bella Tuffias-Mora
- Graduated Spring 2026

2025-2026 – Barrett Honors College Undergraduate Fellows Faculty Mentor
Student: Adam To

2024-2025 – Barrett Honors College Undergraduate Fellows Faculty Mentor
Student: Robert Fryer

2023-2025 – EdD Dissertation Committee Chair

Student: Valerie Ramos
- Graduated Spring 2025

2023-2025 – EdD Dissertation Committee Chair
Student: Sam Brubaker
- Graduated Spring 2025

2023-2025 – EdD Dissertation Committee Chair
Student: Kimara Ellefson
- Graduated Spring 2025

2023-2025 – EdD Dissertation Committee Chair
Student: Sandra LaFleur
- Graduated Spring 2025

2022-2023 – EdD Dissertation Committee Member
Student: Megan McKenzie Bettis
- Now a Lecturer/Supervisor at the University of California, Davis

2021 – Master's Thesis Committee Member
Student: Erin McCoy Chriyaa

2021 – Fulbright Distinguished Awards in Teaching Program for International Students
Students: Ramesh Badoni (India) and Brahim Air Hsain (Morocco)

2017-2021 – Primary PhD Research Supervisor and Dissertation Chair
Student: April Holton
- Graduated Spring 2021
- Now a Clinical Assistant Professor at Arizona State University

2018-2020 – 4+1(combined BS+MS degrees) Mentor and Thesis Chair
Student: Elijah Chambers
- Now a science teacher at Phoenix Union High School

2019 – Master's Thesis Committee Member
Student: Liza Sanders
- Now a Clinical Assistant Professor at Arizona State University

2018 – Secondary PhD Research Supervisor
Student: Earl Aguilera
- Now an Assistant Professor at Fresno State University
- Awarded second place for presenting our work at the Institute for Social Science Research (ISSR) Graduate Poster Contest. Submission: Analyzing the Quality of Interactions in a Technology-Enhanced STEM Education Classroom. Arizona State University, Spring 2018

2016 – PhD Dissertation Committee Member
Student: Joshua Adams

2015 – Secondary PhD Research Supervisor
Student: Mat Evans

Professional Service

2022-present
National Science Foundation Ad Hoc Grant Reviewer
Description: Ad hoc grant reviewer for proposals submitted to the National Science Foundation (NSF) Division on Research on Learning in Formal and Informal Settlings (DRL).

2020-present
Editorial Board Member for *Educational Researcher (ER)*
Description: ER is among the highest impact journals in all of educational research. With a SCImago Journal Rank (SJR) of 3.621, ER places 4th out of 1222 educational research journals in terms of scholarly impact.

2020-present
Swiss National Science Foundation Grant Reviewer
Description: Review panel member for proposals submitted to the Swiss National Science Foundation (SNSF) in Switzerland.

2019-present
Associate Editor for the *Journal of Research in Science Teaching (JRST)*
Description: JRST continues to be not only the #1 performing journal in the field of science education, but among the to- performing of all education and educational research journals. In 2016, JRST ranked 4th and 9th out of 235 indexed education and educational research journals in terms of total citations (5,337) and impact factor (3.179), respectively.

2019-present
Chair (2021-22), Program Chair (2020-21), & Program Co-Chair (2019-20) of AERA Science Teaching and Learning SIG
Description: Elected by member base of over 25,000 educators to serve as the Program Co-Chair of the American Educational Research Association (AERA) Science Teaching and Learning Special Interest Group (SIG). The Program Co-Chair serves for one year before becoming the Program Chair for a year, and then the SIG Chair for one year. The Program Chair & Co-Chair are responsible for the review and acceptance of proposals and also responsible to organize accepted proposals into appropriate sessions and appoint chairs and discussants to those sessions. The Chair is responsible for the general administration of the SIG, and running the Business Meeting.

2019-present
National Science Foundation Grant Review Panel Member
Description: Review panel member for proposals submitted to the National Science Foundation (NSF) Division on Research on Learning in Formal and Informal Settlings (DRL).

2017-present
Ad hoc proposal reviewer for annual international conference meetings of the *National Association for Research in Science Teaching (NARST).*

2013-present
Ad hoc manuscript reviewer for various peer-reviewed journals including: *Journal of Research in Science Teaching (JRST); Review of Educational Research (RER), Journal of the Learning Sciences (JLS); Science Education (SciEd); International Journal of Science Education (IJSE); Educational Assessment (EA); Journal of Engineering Education (JEE); Cultural Studies of Science Education (CSSE); Teaching and Teacher Education (TATE); Democracy and Education (D&E); Contemporary Educational Psychology (CEP); Journal for STEM Education Research (JSER)*

2018-2019
Editorial Board Member for the *Journal of Research in Science Teaching (JRST)*
Description: JRST continues to be not only the #1 performing journal in the field of science education, but among the top-performing of all education and educational research journals. In 2016, JRST ranked 4th and 9th out of 235 indexed education and educational research journals in terms of total citations (5,337) and impact factor (3.179), respectively.

2017
Peer reviewer for the edited book: R. Roscoe, S. Craig, & I. Douglas (Eds.), *End-User Considerations in Educational Technology Design.* IGI Global.

2015
Lead organizer – National Association of Research in Science Teaching (NARST) Pre-Conference Workshop
Description: Lead organizer of an international collaboration of researchers hosting a half-day workshop aimed at identifying key challenges and charting future directions for educational researchers of learning science through evidence-based argumentation.

Community Service

2021-Present
Study.com
Description: Volunteer advice to college students seeking teaching careers by serving as an *Expert Contributor* on Study.com, which is a site dedicated to helping students take informed next steps in their career planning. My contributions can be found here: **https://study.com/resources/inclusive-special-education-classroom#bryan-henderson**

2017-Present
STEMteachersPHX
Description: Part of a professional network of teachers conducting regular workshops in the Phoenix metropolitan area to disseminate educational best practices to K-20 STEM teachers throughout the state of Arizona.

2015-Present
Co-developer – The Argumentation Toolkit Website
Description: The Argumentation Toolkit website provides a collection of multimedia resources designed to help teachers understand and teach scientific argumentation. This includes classroom video of these resources in action. More information can be found at: **www.argumentationtoolkit.org**

2015-Present
Co-developer – Assessments of Argumentation in Science Website
Description: The Assessments of Argumentation in Science website provides science educators with a battery of assessments that test different levels of complexity of argumentation in science. The assessments are based on more than four years of close collaboration with a multitude of science teachers and iterative refinement through administration of these assessments to over one thousand students of middle school age. More information can be found at: **www.scientificargumentation.stanford.edu**

2014-Present
Co-developer – Scientific Argument Website
Description: The Scientific Argument website provides scientific argument assessments and corresponding resources across reading, writing, and talking that can be used by teachers, curriculum developers, and educational researchers. More information can be found at: **www.scienceарguments.weebly.com**

2011-Present
Co-founder – Braincandy.org
Description: Most educational assessments focus largely on the correct answers students give. **Braincandy.org** believes it is just as important to understand preconceptions behind incorrect answers, so that teachers are made aware of ideas students possess prior to formal instruction. Hence, we recruit experienced teachers to write *Braincandy*, which are preconception-based formative assessment questions focused on STEM content in grades 6-12. We disseminate research-based best practices as to how Braincandy can be used in conjunction with interactive technology to facilitate social learning.

University Service

2024-2025
University Innovation Alliance (UIA) – Scaling Academic Innovation to Address STEM Equity Gaps, Arizona State University
Description: The University Innovation Alliance (UIA) received a Scaling Academic Innovation award from Axim to address equity gaps. I was one of two ASU (ASU is a UIA school) faculty members receiving $10k from the grant to meet with faculty and administrators from UIA member campuses to share challenges and opportunities in key courses, discuss what they are learning about what does and doesn't work to improve course outcomes, and identity next steps in the redesign of 1-2 courses per campus.

2023-Present
Knowledge Enterprise Review Panel, Arizona State University
Description: ASU Knowledge Enterprise often has grants with limitations on how many applications may go in from ASU. This necessitates a university-wide standing panel to review proposals and recommend which applications ASU puts forward.

2023-2025
Digitally-Enhanced Teaching and Learning (DETL), Arizona State University
Description: Standing committee focused on how digital technologies can enhance learning at ASU. Established by the ASU University Senate. Consists of one elected tenured/tenure-eligible member from each college at ASU.

2015-2022
ASU InSciEdOut Meetings, Arizona State University
Description: Lead Organizer. The purpose of these regular meetings is to bring together ASU faculty and students interested in science education for critical feedback on current projects and brainstorming for future collaborations.

2015-2019
Residency Appeal Committee, Arizona State University
Description: Committee conducts hearings considering student appeals for in-state residency tuition classification.

College Service

2025-Present
College of Liberal Arts and Sciences (CLAS) AI Academy, Arizona State University
Description: Nominated to be the Physics Department faculty representative for the CLAS AI Academy, which provides resources and support for implementing AI-related initiatives.

2025-Present
Leadership and Innovation EdD Admissions Committee, Mary Lou Fulton College for Teaching and Learning and Innovation, Arizona State University.
Description: Review EdD applications for potential as local leaders and scholarly practitioners.

2025-Present
Physics Online Programs Committee, Department of Physics, Arizona State University
Description: Help monitor Department of Physics online course offerings and enrollments. The goals of the committee include optimizing the allocation of instructional resources/space, reducing student DEW rates, and the refinement/creation of courses based on student demand and input.

2024-Present
Physics General Studies Committee, Department of Physics, Arizona State University
Description: Help monitor Department of Physics course offerings and enrollments. The goals of the committee include optimizing the allocation of instructional resources/space, reducing student DEW rates, and the refinement/creation of courses based on student demand and input.

2025
Physics Instructional Resource Team (PIRT) Search Committee, Department of Physics, Arizona State University
Description: PIRT Academic Professional search committee member.

2024-2025
STEM Professional Learning, Mary Lou Fulton College for Learning and Innovation, Arizona State University
Description: Lead the development of professional learning opportunities for both early career and experienced STEM educators. The program consists of 1-credit, self-paced courses preparing professional educators for specific roles or education workforce needs. Specializations are designed to intentionally deepen content and pedagogical expertise to deliver effective personalized learning to all students and promote successful learning outcomes. These specializations provide a possible on-ramp to ASU graduate degree programs.

2024-Present
Teaching Evaluation Subcommittee, Mary Lou Fulton Teachers College, Arizona State University
Description: Leading the refinement of teaching evaluation procedures for the college, including updates to student evaluations of teaching, peer teaching evaluations by fellow faculty members, and protocols for how this updated teaching evaluation data gets interpreted for promotion and tenure decisions.

2023-Present
College Governance and Policy Committee (GPC), Mary Lou Fulton Teachers College, Arizona State University
Description: Current committee objectives include: (1) work with the college Personnel Evaluation Committee (PEC) on potentially revising MLFTC's annual review procedures, primarily given the workload required annually of PEC members; (2) revisit MLFTC's student course and instructor evaluation forms, policies, and procedures (with a subcommittee likely); and (3) work on systematizing MLFTC's peer observation forms, policies, and processes (with a subcommittee also likely).

2023
Master of Natural Science (MNS) Degree Program Task Force, Arizona State University
Description: The purpose of this group is to best position the MSN program to support lifelong learning for in-service teachers of high school physics, chemistry, physical science, and math. This includes consideration of ways to adapt and extend the program to a broader base of teachers.

2022-2023
Educational Leadership College Search Committee, Mary Lou Fulton Teachers College, Arizona State University
Description: Voted by faculty colleagues to serve on search committee for a tenure-track faculty hire in the area of educational leadership.

2021-2022
Mary Lou Fulton Teachers College (MLFTC) Curriculum Review Committee (CRC)
Description: Tasked with evaluating syllabi and proposals for revisions to MLFTC programs and courses.

2017-2022
Teachers College Doctoral Council (TCDC), Mary Lou Fulton Teachers College, Arizona State University
Description: Serve as a faculty mentor for a council of PhD students in the Mary Lou Fulton Teachers College. As TCDC seeks to provide mentoring and resources for PhD students aspiring professoriate careers in academia, my contributions have included interviews for the TCDC podcast series, presenting at a workshop focused on how students can develop a data collection and analysis plan specifically for the dissertation process, and sitting on a town hall panel providing advice for giving job talks when on the market for a faculty position.

2019-2021
Teaching Transformation Committee, Mary Lou Fulton Teachers College, Arizona State University
Description: Tasked with developing a toolkit containing activities, criteria, and artifacts that have the primary purpose of supporting faculty in the aspirational goal of transforming and evaluating one's own teaching practice.

2017-2021
Doctoral Course Rotation Committee, Mary Lou Fulton Teachers College, Arizona State University
Description: Voting member. Appointed by college Division Director to a special committee with the charge of developing a two-year doctoral course rotation plan for elective courses for both of the Mary Lou Fulton Teachers College PhD programs. These courses are based on innovative practices, reflect theory, use multiple research paradigms (quantitative, qualitative, mixed, single subject), and rely on interdisciplinary perspectives.

2016-2017
Office of Scholarship (OofS) Advisory Board, Mary Lou Fulton Teachers College, Arizona State University
Description: Invited by the Dean as an active conductor and contributor of scholarship at the Mary Lou Fulton Teachers College. The primary mission of this advisory board is to help promote and support excellence in all forms of scholarship across both Divisions 1 and 2 of the college.

2016-2017
Research Community for Educational Scholarship and Support (ReCESS), Mary Lou Fulton Teachers College, Arizona State University
Description: Helped found this support community for graduate students and serve as a primary faculty advisor. The purpose of ReCESS is for PhD students in the Mary Lou Fulton Teachers College to have an opportunity to meet regularly with their peers, and in doing so receive feedback, support, and professional development on scholarly skills vital for success in academia.

2015-2018
Learning, Literacies, & Technologies (LLT) Ph.D. Program Committee, Mary Lou Fulton Teachers College, Arizona State University
Description: Voting member. The committee oversees course offerings, degree requirements, and dissertation guidelines for the students in the LLT Ph.D. program.

2017-2018
Math/Computer Science College Search Committee, Mary Lou Fulton Teachers College, Arizona State University
Description: Appointed by college Dean to serve on search committee for a tenure-track faculty hire in the area of mathematics/computer science education.

2016
ASU-DCU Joint Doctoral Conference, Mary Lou Fulton Teachers College, Arizona State University
Description: Appointed by Division Director as one of two faculty members to lead a delegation of ASU doctoral students in a joint doctoral research conference held in Dublin. Ireland with Dublin City University/St. Patrick's College. Objective of the conference was to begin talks to set up an international collaboration between ASU and DCU that includes exchange among doctoral students studying educational issues in their respective countries.

Media/Press

2020 *Brain Candy: A Treat for Active Learning* [Learning Futures Podcast: Episode 10]
https://podcasts.apple.com/us/podcast/dr-bryan-henderson-brain-candy-a-treat-for-active-learning/id1540165859?i=1000503764601

2020 *Discovery vs. Exploration: Learning Science with Evidence-Based Argumentation* [Lab Out loud Podcast: Episode 221]
https://laboutloud.com/2020/02/episode-221-bryan-henderson/

2020 *Giving our Next Generation of Science Educators A Chance to Kick Around their Ideas*

https://education.asu.edu/news/insciedout-bryan-henderson

2020 *National Academy of Education Fellow Notables*
https://naeducation.org/fellows-notables-fall-2020/

2020 *DiALoG: Embedding a Real-Time Assessment of Speaking and Listening into an Argumentation-Rich Curriculum* [Community for Advancing Discovery Research in Education (CADRE) Spotlight]
http://cadrek12.org/teacher-content-knowledge#supporting

2019 *National Academy of Education Fellow Notables*
https://naeducation.org/fellows-notables-fall-2019/

2019 *ASU Professor Develops Software Platform that Enhances the Learning Experience*
https://www.statepress.com/article/2019/10/spbiztech-anonymous-software-platform-changes-classroom-learning-experience

2019 *Design the Real "Box to Dream In" for High-Powered Learning*
https://howtodesignthefuture.asu.edu/design-real-%E2%80%98box-dream-%E2%80%99-high-powered-learning

2018 *National Academy of Education Fellow Notables*
https://naeducation.org/fellows-notables-december-2018/

2018 *2018 NAEd/Spencer Postdoctoral Fellows*
https://naeducation.org/2018-naed-spencer-postdoctoral-fellows

2018 *How Can Argumentation Help Resolve Contentious Issues?*
https://education.asu.edu/news/how-can-argumentation-help-resolve-contentious-issues

2018 *What Are You Thinking About?*
https://www.youtube.com/watch?v=L3Ohn7Vqhcs&index=3&list=PLcUczu4w21olwoK0nomG5FYUtxl5-2zpK

2017 *Designing Technology for the Sake of Argument*
https://education.asu.edu/news/designing-technology-sake-argument

2017 *ASU's Teachers College Nationally Recognized for its Innovative Technology Use*
http://www.statepress.com/article/2017/03/spscience-asu-teachers-college-is-nationally-recognized

Honors & Awards

2023 *Professor of Impact Award* – The award recognizes outstanding teaching for my course on educational psychology (EDP 310).

2018 *National Academy of Education (NAEd)/Spencer Postdoctoral Fellowship* – The fellowship award of $70,000 is intended to assist with the fellow's salary replacement and research expenses for the fellowship period. Thirty fellows were selected from a competitive

pool of 201 applications from scholars of education. The fellowships are administered by the National Academy of Education, an honorary educational society, and they are funded by a grant to the Academy from the Spencer Foundation. The fellowship program has nearly eight hundred alumni who include many of the strongest education researchers in the field today.

2016 *Arizona State University Centennial Professorship Award* – The award recognizes outstanding leadership and instruction in and outside of the classroom. Award includes a cash prize of $5,000 to the professor and an additional monetary incentive of $5,000 to be used for the benefit of the students in classroom instruction and teaching innovation.

2014 *National Association for Research in Science Teaching (NARST) 2015 Outstanding Doctoral Dissertation Award* – Named one of three finalists.

2009 *I. James and Viola Lewis Quillen Fellowship* – Assists in both tuition and research stipends at Stanford University.

2008 *Paul DeHart Hurd Fellowship* – Assists in both tuition and research stipends at Stanford University.

2007 *Oregon Sports Lottery Scholarship* – Merit-based scholarship selected from pool of Portland State University graduate students who are nominated by their respective departments.

2005 *PSU Graduate Assistantship* – Awarded only assistantship position offered for the Postsecondary, Adult, and Continuing Education (PACE) Program at Portland State University in Portland, Oregon. Award covers full cost of tuition in addition to monthly stipends. Three-time recipient.

2005 *University of Washington Instructional Center Outstanding Tutor Award* – Honored at the Instructional Center's annual awards banquet as the most outstanding tutor in physics and engineering.

2003 *Mary Gates Research Training Grant* – Full tuition grant awarded by the University of Washington Mary Gates Foundation for excellence in undergraduate research. Sponsored galaxy research under Dr. Julianne Dalcanton.

2003 *Baer Prize for Undergraduate Excellence in Astronomy* – Honored as most outstanding astronomy undergraduate at University of Washington.

2001 *NASA Space Grant* – Summer research grant awarded by the University of Washington NASA Space Grant Consortium. Sponsored work at a training telescope in central Washington State where observations of Type IA supernovae candidates were performed for the Stubbs Research Group.

2001 *Mary Gates Research Training Grant* – Full tuition grant awarded by the University of Washington Mary Gates Foundation for excellence in undergraduate research. Sponsored work on the SuperMACHO project with Dr. Christopher Stubbs.

2001 *University of Washington Instructional Center Outstanding Tutor Award* – Honored at the Instructional Center's annual awards banquet as the most outstanding tutor in physics and engineering.

1997 *University of Washington Undergraduate Scholar Award* – Tuition stipend awarded for outstanding secondary school scholarship.

1997 *Ridgefield High School Valedictorian* – 4.0 cumulative GPA. Graduated first in class.