VITA
Robert (Bud) M. Talbot III

Associate Professor of Science Education University of Colorado Denver
School of Education & Human Development

Campus Box 106; P.O. Box 173364
Denver, CO 80217-3364
robert.talbot@ucdenver.edu
ResearchGate profile

EDUCATION

Received	Degree	Institution	Subject
06/2011	Ph.D.	University of Colorado, Boulder	Curriculum & Instruction: Science Education
06/2000	M.S.	Indiana University, Bloomington	Science Education
06/1996	B.S.	Indiana University, Bloomington	Secondary Education Minor: Geological Sciences and Physics

TEACHING CERTIFICATIONS

2021 Certificate in Effective Instruction Association of College and University Educators. This certificate signifies my completion of a 25-module course in effective teaching practices requiring the implementation of evidence-based instructional approaches. The credential is co-issued by the American Council on Education and distinguishes faculty for their commitment to educational excellence and student success.

2009 Professional, Colorado, Secondary Science

2001 Professional, Texas, Secondary Earth/Space Science and Physics

1997 Professional, Indiana, Secondary Earth/Space Science and Physics

PROFESSIONAL EXPERIENCE

06/2018-Present Associate Professor (tenured) of Science Education School of Education and Human Development, University of Colorado Denver

08/2024-08/2025 Program Director, National Science Foundation Directorate for STEM Education, Division of Undergraduate Education

08/2011 – 06/2018 Assistant Professor of Science Education School of Education and Human Development, University of Colorado Denver

08/2010 – 07/2011 Senior Instructor of Science Education School of Education and Human Development, University of Colorado Denver

08/2005 – 05/2010 Graduate Instructor School of Education, University of Colorado Boulder

08/2007 – 05/2008 Liaison between School of Education and local elementary and secondary schools School of Education, University of Colorado Boulder

08/2004 – 05/2010 Graduate Research Assistant School of Education, University of Colorado Boulder

08/2001-04/2004 Physics and Engineering Teacher, Humanities Co-Teacher Science Department Chairperson, Elkins High School, Missouri City, TX

08/1997-04/2001 Earth science, Physics, and general science teacher, Clay City High School, Clay City, IN

PEER REVIEWED PUBLICATIONS

JOURNAL ARTICLES

2025 Teng, D., Garcia-Moreno, J., **Talbot**, R.M., DeBay, D. (2025) The Power of Data: Developing Critical Quantitative Literacy in Doctoral Students. Inquiry: Critical Thinking Across the Disciplines. Accepted, in press

2025 Donovan, C., Huvard, H., Rexwinkle, A., & **Talbot**, R.M. (2025). A Rasch analysis of the Self-determination, purpose, Identity, and Engagement in science (SPIRES) survey: Instrument validation and recommendations. International Journal of Education in Mathematics Science and Technology, 13(4), 992–1015. http://dx.doi.org/10.46328/ijemst.4903

2025 Buncher, J. B., Nissen, J. M., Van Dusen, B., & **Talbot**, R. M. (2025). Is the Force Concept Inventory biased across the intersections of gender and race? Physical Review Physics Education Research, 21(1). https://doi.org/10.1103/physrevphyseducres.21.010137

2024 Caldwell, D. E., **Talbot**, R.M., Purtell, A., & Moore, M. E. (2024). Assessing Interactions Between Students and Learning Assistants in In-Person vs. Online Environments. Journal of College Science Teaching, 53(4), 402–410.

2023 Taylor, J. A., Hanuscin, D., Lee, O., Lynch, S., Stuhlsatz, M. A. M., & **Talbot**, R. M. (2023). Sources and Consequences of Teacher Attrition in Large-Scale Intervention Impact Studies. Research in Education, 00345237231155835. https://doi.org/10.1177/00345237231155835

2021 Van Dusen, B., Nissen, J., **Talbot**, R. M., Huvard, H., & Shultz, M. (2021). A QuantCrit Investigation of Society's Educational Debts Due to Racism and Sexism in Chemistry Student Learning. Journal of Chemical Education. https://doi.org/10.1021/acs.jchemed.1c00352

2020 Huvard, H., **Talbot**, R. M., Mason, H., Thompson, A. N., Ferrara, M., & Wee, B. (2020). Science Identity and Metacognitive Development in Undergraduate Mentor Teachers. International Journal of STEM Education 7, (31). https://doi.org/10.1186/s40594-020-00231-6

2020 Purtell, A., **Talbot**, R.M., & Moore, M. (2020) Barriers to Learning Assistant Engagement: An Investigation into Student Encounters Learning Assistants Find Challenging and Developing Training to Navigate Those Challenges. Journal of College Science Teaching 49(6), 23-29.

2020 Thompson, A.N., **Talbot**, R.M., Doughty, L., Huvard, H., Le, P., Hartley, L., & Boyer, J. (2020) Development and application of the Action Taxonomy for Learning Assistants (ATLAs). International Journal of STEM Education. 7(1).

2018 **Talbot**, R. M., Wylie, R., Dutilly, E., & Nielsen, R. (2018). The Relationship between Format and Cognitive Depth of Science Teacher-Generated Questions. Research in the Schools, 25(1), 35–46.

2018 Ferrara, M., **Talbot**, R. M., Mason, H., Wee, B., Rorrer, R., Jacobson, M., & Gallagher, D. (2018). Enriching undergraduate experiences with outreach in school STEM clubs. Journal of College Science Teaching, 47(6), 74–82.

2018 Nissen, J. M., **Talbot**, R. M., Nasim Thompson, A., & Van Dusen, B. (2018). Comparison of normalized gain and Cohen's d for analyzing gains on concept inventories. Physical Review Physics Education Research, 14(1), 010115.

2017 **Talbot**, R. M. (2017). Scrutinizing a Survey-Based Measure of Science and Mathematics Teacher Knowledge: Relationship to Observations of Teaching Practice. Research in Science Education, 47(6), 1255.1274. doi: 10.1007/s11165-016-9544-8

2015 **Talbot**, R.M., Hartley, L., Marzetta, K. & Wee, B. (2015). Transforming undergraduate science education

with learning assistants: Student satisfaction in large enrollment courses. Journal of College Science Teaching, 44(5), 24-30.

2013 **Talbot**, R.M. (2013). Taking an item-level approach to measuring change with the Force and Motion Conceptual Evaluation: Application of item response theory. School Science and Mathematics, 113(7), 356-365.

2011 Ruiz-Primo, M.A., Briggs, D.C., Iverson, H.I., **Talbot**, R.M., & Shepard, L. (2011). Impact of undergraduate science course innovations on learning. Science, 331(6022), 1269- 1270.

2008 Iverson, H.L., Lewis, M.A., & **Talbot**, R.M. (2008). Building a framework for determining authenticity of instructional tasks within teacher education programs. Teaching and Teacher Education, 24(2), 290-302.

2007 **Talbot**, R.M., & Briggs, D. (2007). Does theory drive the items or do items drive the theory? Measurement Interdisciplinary Research and Perspectives, 5(2-3), 205-208.

2001 **Talbot**, R.M., MaKinster, J.G., Moore, J., & Barab, S. (2001). The inquiry learning forum: Visiting classrooms and building community. Hoosier Science Teacher, 26(3), 83-89.

CONFERENCE PROCEEDINGS

2021 Buncher, J. B., Nissen, J. M., Van Dusen, B., **Talbot**, R. M., & Huvard, H. (2021). Bias on the Force Concept Inventory across the intersection of gender and race. 2021 Physics Education Research Conference Proceedings, 69–74. https://www.compadre.org/per/items/detail.cfm?ID=15727

2020 **Talbot**, R.M., & Huvard, H. (2020) LEVERAGING LEARNING ASSISTANTS TO SUPPORT THE RAPID TRANSITION TO TEACHING ONLINE. In Proceedings of The Australian Conference on Science and Mathematics Education, 2020. Open Journal Systems, University of Sydney, Online. https://openjournals.library.sydney.edu.au/index.php/IISME/index

2018 Doughty, L., Hartley, L., Le, P., Nyaema, M., Boyer, J., & **Talbot**, R. M. (2018). Investigating the relationship between active learning task characteristics and student success. In A. Traxler, Y. Cao, & S. Wolf (Eds.), Physics Education Research Conference 2018. Washington, DC.

2016 **Talbot**, R. M., Doughty, L., Nasim, A., Hartley, L., Le, P., Kramer, L., … Boyer, J. (July 20-21, 2016). Theoretically Framing a Complex Phenomenon: Student Success in Large Enrollment Active Learning Courses. In D. L. Jones, L. Ding, & A. Traxler (Eds.), 2016 PERC Proceedings (p. 4). Sacramento, CA.

2014 Paiva, F., Glenn, J., Mazidi, K., **Talbot**, R.M., Wylie, R., Chi, M.T.H., Dutilly, E., Helding, B., Lin, M., Trickett, S., and Nielsen, R.D. (2014). Comprehension SEEDING: Comprehension through self-explanation, enhanced discussion, and inquiry generation. Proceedings of the Twelfth International Conference on Intelligent Tutoring Systems. Honolulu, Hawaii. June 4-9, 2014.

2011 **Talbot**, R.M. (2011). Embedding content into an instrument designed to measure science and mathematics teachers' strategic knowledge: A challenge for validity. Proceedings of the International Conference on Mathematics, Science, and Technology Education. October 17-20, 2011.

MANUSCRIPTS IN PROGRESS

Submitted Rexwinkle, A., Rossi, M., & **Talbot**, R.M. (nd) A Research-Based Instruction Adoption Spectrum for Undergraduate STEM Faculty: Implications for Faculty Community. Under review

Under revision McDevitt, A., Hartley, L., **Talbot**, R.M., Doughty, L., Boyer, J., Kramer, L., & Kornreich-Leshem, H. (nd). Learning Assistant (LA) supported STEM courses exhibit more student-centered classroom structure compared to a North American sample. Reviewed and under revision

Under revision Ferrara, M., **Talbot**, R.M., Terry, M., & Jacobsen, M. (nd) Examining Undergraduate STEM Majors' Mathematical Beliefs and Self-Efficacy. Reviewed and under revision

In Preparation Gatliffe, K., **Talbot**, R.M., Hartley, L., Boyer, J., Kramer, L., Doughty, L., Chari, D.N., Le, P.T., Thompson, A.N., McDevitt, A., Nardi, C., Huvard, H., Janani, N., Austin, A. (nd). Positive Effect of Learning Assistant Support on Female Student Pass Rate in Core STEM Courses. In preparation

GRANTS FUNDED

External

2020 Teachers on the Public Lands Project. PI: Suzanne Arnold, co-PI: Robert **Talbot**. Bureau of Land Management/DOI, REC: $69,490, funded.

2019 Learning About STEM Evaluations and Research (LASER). PI: Ben Van Dusen, co-PI: Eleanor Close, co-PI: Robert **Talbot**, co-PI: Jayson Nissen. National Science Foundation (NSF) Hispanic Serving Institutions (HSI) program, REC: $2,050,450, funded.

2017 CU Denver Noyce Track 1 (NT-1). PI: Doris Kimbrough, Co-PI: Laurel Hartley, Co-PI: Mike Jacobsen, Co-PI: Heather Johnson, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Noyce program, REC: $1,198,648, funded.

2015 Beyond Active Learning: Learning Assistant Supported Pedagogies in Large Lecture Science Courses. PI: Robert **Talbot**, Co-PI: Laurel Hartley. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $1,078,848, funded.

2015 STEM Club Leadership for Undergraduate STEM Education, Recruiting and Success (STEM CLUSTERS). PI: Robert **Talbot** Co-PI: Michael Ferrara, Co-PI Michael Jacobson, Co-PI: Ronald Rorrer, Co-PI: Bryan Wee. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $249,876, funded.

2014 Evaluating the Validity and Instructional Sensitivity of Concept Inventories. Co-PI: Derek Briggs, Co-PI: Jenny Knight, Co-PI: Robert **Talbot**. W.M. Keck Foundation, Undergraduate Education Program. REC: $300,000, funded.

2011 Promoting Undergraduate Licensure in Science Education (PULSE). PI: Doris Kimbrough, Co-PI: Leo Bruederle, Co-PI: Laurel Hartley, Co-PI: Robert **Talbot**, Co-PI: Bryan Wee. National Science Foundation (NSF) Noyce Teacher Scholarships. REC: $1,199,996, funded.

2011 Comprehension through Self-Explanation, Enhanced Discussion, and INquiry Generation (Comprehension SEEDING). PI: Rodney Nielsen, Co-PI: Michelene Chi, Co-PI: Robert **Talbot**. Institute of Education Sciences (IES), collaborative with University of North Texas and Arizona State University. REC: $1,818,502, funded.

Internal

2022 Leveraging the Learning Assistant infrastructure to disseminate technologically rich educational environments across three campuses. PI Laurel Hartley, co-PI Robert **Talbot**, Valerie Otero, Laurie Langdon, Davidd Weiss, Cerian Gibbes. CU System CU Next award. $300,000 funded.

2022 Using Low-Cost Air Quality Sensors to Help the Community Respond to the Marshall Fire. PI Robert **Talbot**, co-PI Ben Crawford co-PI Dan Connors. CU Denver Office of Research Services, Creative Research Collaboration program REC: $3,200, funded.

2020 Developing a collaborative program for research and education using low-cost air quality sensors and the Internet of Things (IoT). PI: Ben Crawford, co-PI Robert **Talbot**, co-PI Dan Connors. CU Denver Office of Research Services, Creative Research Collaboration program REC: $3,000, funded.

2013 Ph.D. Research Assistantship Grant. University of Colorado Denver, School of Education and Human Development. REC: Funding to support a full-time RA (20 hours per week for 32 weeks, including tuition) for 2013-2014.

2012 The Effect of a Learning Assistant Program on Undergraduate Science Teaching and Learning and Science Teacher Recruitment. PI: Robert **Talbot**, Co-PI: Laurel Hartley, Co- PI: Bryan Wee. University of Colorado Denver Faculty Development Grant. REC: $9,670, funded.

2011 Developing a Learning Assistant Program to Promote Learning in Large Introductory Science Courses. PI: Laurel Hartley, Co-PI: Robert **Talbot**, Co-PI: Bryan Wee. University of Colorado Denver College of Liberal Arts and Sciences Advancing Curricula and Teaching (ACT) program. REC: $3,500, funded.

2008 Evaluation of St Vrain Valley School District MESA Program. PI: Valerie Otero, Co-PI: Robert **Talbot**. University of Colorado Boulder, Continuing Education Outreach Grant. REC: $4,979, funded.

GRANTS UNFUNDED

External

2022 Inclusion of Underrepresented Students in Employment: Career Readiness for Diversifying STEM (IUSE-CaRDS). PI: Robert **Talbot**, co-PI Laurel Hartley, co-PI Angela Ziebell. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $599,917, declined

2020 Optimizing Science Student Employability post-COVID-19 (OSSEC). PI: Robert **Talbot**, co-PI Angela Ziebell, co-PI Amany Gouda-Vossos. Spencer Foundation, COVID specific call (June 2020). REC: $50,000, declined.

2018 Adaptive Microbiology: Inclusive Curriculum Reform (A.M.I.C.R.O). PI: Robert **Talbot**, co-PI Laurel Hartley. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $299,267, declined (in 2019).

2018 Collaborative Research: Colorado "Beyond Articulation" Collaborative (CO-BAC). PI: Laurel Hartley, co-PI: Robert **Talbot**. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $2,999,797, declined (in 2019).

2018 Learning about Inclusivity and Community (LInC). PI: Ben Van Dusen, co-PI: Jayson Nissen, co-PI: Eleanor Close, co-PI: Robert **Talbot**. National Science Foundation (NSF) Improving Undergraduate STEM Education- Hispanic Serving Institutions (IUSE-HSI). REC: $1,270,932, declined.

2018 Supporting STEM Faculty Pedagogical Decisions Through Classroom Simulations. PI Laurel Hartley, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Cyberlearning & Future Learning Technologies. REC: $401,330, declined.

2017 Impacts of STEM Peer Support and Outreach Programs on Undergraduate Mentor-Teachers (STEM Peers). PI: Mike Ferrara, Co-PI: Lynda Duran, Co-PI: Laurel Hartley, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $599,999, declined.

2017 Simulating Complex Classroom Environments using Agent Based Modeling. PI Laurel Hartley, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Core R&D Programs. REC: $287,618, declined.

2017 STEM Teacher Education in Leadership and Reform (STELAR). PI: Doris Kimbrough, co-PI: Robert **Talbot**, co-PI: Laurel Hartley, co-PI: Heather Johnson, co-PI: Mike Jacobson. National Science Foundation (NSF) Noyce Program, REC: $1,492,322, declined.

2016 CU Denver Noyce Track 3 (NT-3). PI: Doris Kimbrough, Co-PI: Laurel Hartley, Co-PI: Mike Jacobsen, Co-PI: Heather Johnson, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Noyce program, REC: $1,499,997, declined.

2016 WiSTEM Teams: Building Resilience through Community at the University of Colorado Denver PI: Laurel Hartley, Co-PI: Annika Mosier, Co-PI: Robert **Talbot**, Co-PI: Liliya Vugmeyster, Co-PI: Doris Kimbrough. National Science Foundation (NSF) S-STEM. REC: $999,110, declined.

2016 Collaborative Research: Promoting Faculty and Institutional Change by Engaging with the Learning Assistant Model PI: Laurel Hartley, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $849,186, declined.

2015 Promoting Faculty Change and Student Success through the Adoption of the Learning Assistant Model PI: Laurel Hartley, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $299,568, declined.

2015 Peers Enhancing Education and Retention in STEM (PEER-STEM). PI: Michael Ferrara, Co-PI: Ellen

Gethner, Co-PI: Laurel Hartley, Co-PI: Ronald Rorrer, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $1,712,279, declined.

2014 Promoting Faculty Development and Student Success through the Adoption of the Learning Assistant Model. PI: Laurel Hartley, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $249,975, declined.

2014 Studying Undergraduate STEM Transformation And Institutional Networking (SUSTAIN). PI: Robert **Talbot**, Co-PI: Laurel Hartley. Collaborative Research Proposal with the University of Colorado Boulder, North Dakota State University, Rutgers, George Mason University, Boston University, California State University Long Beach, and Seattle Pacific University. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $19,338, declined.

2014 Peers Enhancing Education and Retention in STEM (PEER-STEM). PI: Michael Ferrara, Co-PI: Ellen Gethner, Co-PI: Laurel Hartley, Co-PI: Ronald Rorrer, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Improving Undergraduate STEM Education (IUSE). REC: $2,238,071, declined.

2013 Collaborative Research: Learning Progression Based Tools to Support Ecological Systems Thinking. PI: Laurel Hartley, Co-PI: Charles Anderson, Co-PI: Jennifer Doherty, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Discovery Research K-12 (DRK-12). REC: $2,056,670, declined.

2013 RISE (Retention through Integrative STEM Education). PI: Doris Kimbrough, Co-PI: Dan Connors, Co-PI: Michael Ferrara, Co-PI: Robin Shandas, Co-PI: Robert **Talbot**, Co-PI: Geeta Verma. Howard Hughes Medical Institute (HHMI). REC: $2,500,000, declined.

2012 STEM Professional Development: Comparison and Research Analysis of Teachers in Colorado. PI: Doris Kimbrough, Co-PI: Michael Ferrara, Co-PI: Robert **Talbot**. National Science Foundation (NSF) Discovery Research K-12 (DRK-12). REC $2,835,965, declined.

2011 The Innovation Hyperlab - Linking Technologies and Age Groups through Research and Innovation. PI: Randall Tagg, Co-PI: Ronald Rorrer, Co-PI: Robert **Talbot**. National Science Foundation (NSF) ITEST. REC: $1,171,292, declined.

GRANTS IN REVIEW

OTHER INDICATORS OF SCHOLARLY AND CREATIVE ACTIVITY

DOCTORAL DISSERTATION

2011 **Talbot, R.M**. (2011). Validity issues in the evaluation of a measure of science and mathematics teacher knowledge. Unpublished doctoral dissertation, University of Colorado Boulder, Boulder, CO

PEER REVIEWED PRESENTATIONS AT MEETINGS/CONFERENCES

2025 Rexwinkle, A., **Talbot**, R.M., & Rosi, M. (2025). Research-Based Instruction Adoption Spectrum in Postsecondary STEM Courses. Paper presented at the American Educational Research Association annual meeting. https://doi.org/10.3102/2195643

2025 Teng, D.T., Garcia-Moreno, J., **Talbot**, R.M., & DeBay, D. (2025). The “Power of Data”: Developing Critical Quantitative Literacy in Doctoral Students. Paper presented at the American Educational Research Association annual meeting.

2022 **Talbot**, R.M., Quick, D., Otero, V., Langdon, L., & Williams, L. (2022, March). The Learning Assistant Alliance: Supporting Evidence Based Transformation for Student Success. Poster presented at Integrating Psychology and STEM Education Research to Promote Innovative Teaching, St. Louis, MO.

2022 Huvard, H., **Talbot**, R.M., & Donovan, C. (April 2022). Measuring Student Success as a Latent Construct with a Partial Credit Rasch Model. Paper accepted for presentation at the annual meeting of the American Educational Research Association, Virtual/San Diego.

2022 Huvard, H., Donovan, C., & **Talbot**, R.M. (April 2022). Validation of the Self-determination, Purpose, Identity, and Engagement in Science (SPIRES) Survey using Rasch Modeling. Paper accepted for poster presentation at the annual meeting of the American Educational Research Association, Virtual/San Diego.

2020 **Talbot**, R.M., & Huvard, H. (2020 September). Leveraging Learning Assistants in the rapid Transition to Teaching Online. Paper presented at the Australian Conference on Science and Mathematics Education.

2020 **Talbot**, R.M., Hartley, L, Huvard, H., & McDevitt, A. (2020, June). The Learning Assistant Model: Supporting Faculty Teaching Transformation and Student Success. Paper presented at the Australian Science Education Research Conference.

2019 **Talbot**, R.M., Thompson, A.N., Boyer, J., & Hartley, L. (2019, October). Development of The Survey of Actions for Learning Assistants (SALAs). Paper presented at the Learning Assistant Research Symposium.

2019 **Talbot**, R.M., Lo, S., Chai, A., Le, J., Lee, A., Grunspan, D., Sato, B., Bruun, J., McDevitt, A., Le, P., & Hartley, L (2029, April). Network Science Approaches to Science Education Research Problems. Administrative symposium at the National Association for Research in Science Teaching Annual International Meeting.

2019 Thompson, A.N., & **Talbot**, R.M. (2019, April). The noticing behaviors and professional visions of LAs during classroom interactions. Poster presented at the National Association for Research in Science Teaching Annual International Meeting.

2018 Moore, M. E., A. J. Purtell, & **Talbot**, R.M. (2018, November). Preparing LAs for Challenging Interactions. Poster presented at the 2018 International LA conference. University of Colorado, Boulder, CO. DOI: 10.13140/RG.2.2.36642.89288

2018 Doughty, L., Hartley, L., Le, P., Nyaema, M., Boyer, J., & **Talbot**, R.M. (2018, August). Investigating the Relationship between Active Learning Task Characteristics and Student Success. Poster presented at Physics Education Research Conference.

2018 Hartley, L., **Talbot**, R.M., Boyer. J., Doughty, L., Le, P., Huvard, H., Thompson, A.N., Grassie, Chelsey., McDevitt, A., Kramer, L., & Nyaema, M. (2018, July). Using Activity Theory to Examine Active Learning in Learning Assistant Supported STEM Courses. Paper presented at Society for the Advancement of Biology Education Research (SABER) 8th Annual Meeting.

2018 Ferrara, M., Mason, H., Wee, B., **Talbot**, R. M., & Jacobsen, M. (2018, March). The Impact of K-12 Outreach Experiences on Undergraduate STEM Majors' Scientific Literacy and STEM Communication Skills. Paper presented at the National Association of Research in Science Teaching Annual Conference, Atlanta, GA

2018 Thompson, A.N, Doughty, L., **Talbot**, R. M., Hartley, L., & Le, P (2018, March). Learning Assistants' Actions in Undergraduate Science Courses: Point-of-View Video Analysis. Poster presented at the National Association of Research in Science Teaching Annual Conference, Atlanta, GA

2018 Le, P, **Talbot**, R. M., Hartley, L., Doughty, L., Thompson, A.N, & McDevitt, A.L. (2018, March). Network Differences in Underrepresented Students in Learning Assistant Supported Undergraduate Science Classrooms. Poster presented at the National Association of Research in Science Teaching Annual Conference, Atlanta, GA

2018 Nissen, J.M., **Talbot**, R. M., Thompson, A.N, & Van Dusen, Ben (2018, March). A Comparison of Hake's G and Cohen's D for Analyzing Student Learning. Paper presented at the National Association of Research in Science Teaching Annual Conference, Atlanta, GA

2018 Le, P, **Talbot**, R. M., McDevitt, A.L., Hartley, L., Thompson, A.N, & Doughty, L., (2018, March). The Classroom Community: How Student Interaction Relates to Outcomes. Paper presented at the National Association of Research in Science Teaching Annual Conference, Atlanta, GA

2018 Hartley, L., Doughty, L., Le, P, Thompson, A.N, & **Talbot**, R. M. (2018, March). The Classroom Community: What Students, Faculty and Learning Assistants are doing in the Active Learning Class. Paper presented at the National Association of Research in Science Teaching Annual Conference, Atlanta, GA

2018 Thompson, A.N, Doughty, L., **Talbot**, R. M., Le, P , & Hartley, L., (2018, March). Learning Assistants' Actions: An Analysis of their Interactions with Students. Paper presented at the National Association of Research in Science Teaching Annual Conference, Atlanta, GA

2018 Doughty, L., **Talbot**, R. M., Hartley, L., Le, P , & Thompson, A.N (2018, March). Characterizing Mediating Artifacts: Authenticity of Active Learning Tasks. Paper presented at the National Association of Research in Science Teaching Annual Conference, Atlanta, GA

2017 Doughty, L., **Talbot**, R. M., Hartley, L., Thompson, A.N & Le, P. (2017, August). Characterizing Active Learning Tasks in University Science Classrooms. Paper presented at European Science Education Research Association Conference.

2017 **Talbot**, R.M., Le, P., McDevitt, A., Nasim, A, Doughty, L., Hartley, L. (2017, July). Relationships Between Social Networks and Student Outcomes in Learning Assistant Supported Courses. Paper presented at the American Association of Physics Teachers annual meeting.

2017 Nyaema, M., Rodriguez, I., Diaz. O., Kornreich-Leshem, H., Kramer, L., Grassie, C., McDevitt, M., Boyer, J., Thompson, A.N, Le, P., Doughty, L., Hartley, L., & **Talbot**, R.M. (2017, July). Investigating the Effects of Learning Assistant-Supported Active Learning Environment: What LAs do in the Classroom. Poster presented at Physics Education Research Conference, Cincinnati, Ohio.

2017 Doughty, L., **Talbot**, R. M., Hartley, L., Thompson, A.N & Le, P. (2017, July). Characterizing Active Learning Tasks in University Science Classrooms. Poster presented at Physics Education Research Conference.

2017 Avena, J.S., Grassie, C.L., Knight, J., **Talbot**, R. M., & Briggs, D.C.(2017, July). Measuring student learning in genetics: A comparison of performance on the Genetics Concept Assessment and instructor-generated exam items. Poster presented at Society for the Advancement of Biology Education Research (SABER) 7th Annual Meeting.

2017 Doughty, L., Hartley, L., Thompson, A.N, Le, P. & **Talbot**, R. M. (2017, July). Characterizing Active Learning Tasks in Undergraduate Science Classrooms. Poster presented at Society for the Advancement of Biology Education Research (SABER) 7th Annual Meeting.

2017 Le P., **Talbot** R.M., Boyer J., McDevitt A., Hartley L.M., Thompson A.N., Doughty L. Does more interactive engagement lead to increased student success? Network differences in LA and non-LA supported courses. Society for the Advancement of Biology Education Research (SABER) 7th Annual Meeting, Minneapolis, MN, July 21-23, 2017.

2017 Thompson, A.N., Doughty, L., Hartley, L., Le, P., & **Talbot**, R. M. (2017, July). Understanding the Roles that Learning Assistants undertake in undergraduate Science Courses. Poster presented at Society for the Advancement of Biology Education Research (SABER) 7th Annual Meeting.

2017 Doughty, L., Farlow, B., Boyer, J., Hartley, L., Kornreich-Leshem, H., Kramer, L., Thompson, A.N, Le, P., Nyaema, M. & **Talbot**, R.M. (2017, July). Understanding Active Learning and Learning Assistant Support in Undergraduate Science Classrooms. Poster presented at Transforming Research in Undergraduate STEM Education Conference.

2017 Mason, M., **Talbot**, R.M., Ferrara, M., Wee, B., Jacobson, M. & Rorrer, M. (2017, April). Understanding How Participation in Middle/High SchoolSTEM Clubs Shapes Undergraduate Students' STEM Identities. Paper presented at the National Association of Research in Science Teaching Annual Conference.

2017 Wee, B., Ferrara, M., Jacobson, M., Mason, M., Rorrer, M. & **Talbot**, R.M. (2017, April). The Impact of Organizing Middle and High School STEM Clubs on Undergraduate STEM Majors. Poster presented at the National Association of Research in Science Teaching Annual Conference.

2016 **Talbot**, R. M., Doughty, L., Nasim, A., Hartley, L., Le, P., Kramer, L., Kornreich-Leshem, H. & Boyer, J. (2016, July). Data, Variables, and Evidence: Specifying Theoretically Sound Predictive Models. Physics Education Research Conference.

2016 Doughty, L., **Talbot**, R. M., Nasim, A., Hartley, L., Le, P., Kramer, L., Kornreich-Leshem, H. & Boyer, J. (2016, July). Developing An Observation Protocol To Investigate Factors That Influence Student Success. Physics Education Research Conference.

2016 Doughty, L., **Talbot**, R. M., Hartley, L., Nasim, A., Le, P., Kramer, L., Kornreich-Leshem, H. & Boyer, J. (2016, July). Active Learning and Learning Assistant Support Predictors of Student Success. Poster presented at Physics Education Research Conference.

2016 Le P., **Talbot** R.M., Hartley L., Nasim A., Doughty L. (2016, July). The Influence of Student Diversity on Social Network Formation. Poster presented at Society for the Advancement of Biology Education Research (SABER) 6th Annual Meeting.

2016 Hartley L., **Talbot** R.M., Boyer J, Doughty L, Le P., Nasim A, Korneich-Leshem H. (2016, July). Characterizing the Activities of Learning Assistants in Large Enrollment Science Courses. Poster presented at Society for the Advancement of Biology Education Research (SABER) 6th Annual Meeting.

2016 **Talbot**, R.M., Hartley, L., Kramer, L., Kornreich-Leshem, H., Boyer, J., Doughty, L. (2016, April). Specifying a Hierarchical Linear Model and Interpretive Framework to Investigate the Effects of Learning Assistant Support on Student Outcomes. Poster presented at Envisioning the Future of Undergraduate STEM Education: Research and Practice meeting.

2015 Le PT, **Talbot** R.M., Hartley L., Nasim A. (2015, July). Class and Student-Level Social Networks in a Learning Assistant Supported Biology Course and their Relationship to Student Outcomes. Society for the Advancement of Biology Education Research (SABER) 5th Annual Meeting.

2015 **Talbot**, R.M., Hartley, L. (2015, June). The Learning Assistant Model: Supporting Student Success through Course Transformation. Presentation at the Science and Mathematics Teacher Imperative 2015 National Conference.

2015 **Talbot**, R.M., Hartley, L., Liddick, L., & Wee, B. (2015, April). Characterizing Student Interaction in a Learning Assistant Supported Biology Course: The Classroom as a Social Network. Paper presented at the National Association of Research in Science Teaching Annual Conference.

2014 **Talbot**, R.M., Hartley, L., Liddick, L. (2014, September). Characterizing Student Engagement in a Learning Assistant Supported Biology Course: The Classroom as a Social Network. Poster presented at Integrating Cognitive Science with Innovative Teaching in STEM Disciplines, St. Louis, MO.

2014 **Talbot**, R.M. (2014, August). Learning about Teaching #Throughglass. Presentation at the Colorado Learning and Teaching with Technology Conference, Boulder, CO.

2014 Wylie, R., **Talbot**, R.M., Dutily, E., Chi, M.T.H., Trickett, S., Helding, B., & Nielsen, R. (2014, June). Comprehension SEEDING: Providing real-time formative assessment to enhance classroom discussion. Poster presented at the International Conference of the Learning Sciences, Boulder, CO.

2014 Wylie, R., Helding, B., **Talbot**, R.M., Chi, M.T.H., Trickett, S., & Nielsen, R. (2014, June). Using Log Data to Predict Response Behaviors in Classroom Discussions. Paper presented at the 12th International Conference on Intelligent Tutoring Systems, Honolulu, HI.

2014 Paiva, F., Glenn, J., Mazidi, K., **Talbot**, R.M., Wylie, R., Chi, M.T.H., Dutilly, E., Helding, B., Lin, M., Trickett, S. & Nielsen, R. (2014, June). Comprehension SEEDING: Comprehension through Self Explanation, Enhanced Discussion, and Inquiry Generation. Paper presented at the 12th International Conference on Intelligent Tutoring Systems, Honolulu, HI.

2013 **Talbot**, R.M., Hartley, L., & Wee, B. (2013, November). Defining and Measuring Student Engagement in Undergraduate Science Courses. Paper presentation at School Science and Mathematics Association Annual Convention, San Antonio, TX.

2013 **Talbot**, R.M., Wylie, R., Barnett, S., Nielsen, R., & Chi, M.T.H (2013, November). Deploying tablets in middle schools for research and development: Struggles and successes. Paper presentation at School Science and Mathematics Association Annual Convention, San Antonio, TX.

2013 Paul, D., & **Talbot**, R.M. (2013, August). Chromebooks in the classroom. Presentation at the Colorado Learning and Teaching with Technology Conference, Boulder, CO.

2013 Wylie, R., Chi, M.T.H., **Talbot**, R.M., & Nielsen, R. (2013, April). Comprehension SEEDING: Using technology to enhance self-explanation, classroom discussion, and question generation. In R. Wylie & E. Walker (chairs), Beyond problem solving: Applying lessons from intelligent tutoring to new contexts, domains, and platforms. Round table conducted at the American Education Research Association

Annual Meeting. San Francisco, CA.

2013 Marzetta, K., & **Talbot**, R.M. (2013, January). The learning assistant program at the University of Colorado Denver: Pipeline to science teaching licensure and knowledge development. Paper presented at the Hawaii International Conference on Education, Honolulu, HI.

2012 **Talbot**, R.M. (2012, October). Construct based measurement in science education research. Presentation at the University of Colorado Denver STEM Education Symposium, Denver, CO.

2012 **Talbot**, R.M., Helding, B., Chi, M.T.H., Nielsen, R., Wylie, R. (2012, October). Defining a construct for assessing deep learning in middle school physical science. Poster presented at iSTEM Symposium on STEM Education, Boulder, CO.

2012 **Talbot**, R.M. (2012, April). Scrutinizing a measure of science and mathematics teacher knowledge: Implications for claims of validity. Paper presented at the American Educational Research Association Annual Meeting, Vancouver, BC.

2011 **Talbot**, R.M. (2011, November). Measuring STEM teachers' strategic knowledge with a scenario-based instrument. Paper presented at the School Science and Mathematics Association Annual Convention, Colorado Springs, CO.

2010 **Talbot**, R. M., Lewis, M. A., & Iverson, H. I. (2010, May). A framework for assessing the authenticity of instructional tasks in teacher education: Implications for instructors, program Administrators, and Researchers. Paper presented at the American Educational Research Association Annual Meeting, Denver, CO.

2010 Iverson, H. I., Briggs, D. C., Ruiz-Primo, M. A., **Talbot**, R. M., & Shepard, L. A. (2010, April). A closer look at undergraduate physics course innovations: A meta-analysis of their impact on student learning. Paper presented at the American Educational Research Association Annual Meeting, Denver, CO.

2009 Iverson, H. I., Briggs, D. C., Ruiz-Primo, M. A., **Talbot**, R. M., & Shepard, L. A. (2009, July). Undergraduate physics course innovations and their impact on student learning. Paper presented at the Physics Education Research Conference, Ann Arbor, MI.

2009 **Talbot**, R. M., & Otero, V. K. (2009, July). Measuring teacher quality with the FASCI instrument: A multi-university study. Paper presented at the American Association of Physics Teachers annual conference, Ann Arbor, MI.

2009 **Talbot**, R. M., Otero, V. K., & Briggs, D. C. (2009, July). Measuring science teacher knowledge: Domain-general or domain-specific? Poster presented at the annual Physics Education Research Conference, Ann Arbor, MI.

2009 **Talbot**, R. M., Otero, V. K., & Briggs, D. C. (2009, April). Measuring physics teacher knowledge: Is it domain-specific? Paper presented at the April Meeting of the American Physical Society, Denver, CO.

2009 **Talbot**, R. M., Briggs, D. C., & Otero, V. K. (2009, April). Can science teachers' strategic knowledge be conceptualized as a learning progression? Symposium presentation at the annual meeting of the American Educational Research Association Annual Meeting, San Diego, CA.

2009 **Talbot**, R. M., Otero, V. K., Finkelstein, N. D., Gray, K. G., Webb, D. C., & Moin, L. J. (2009, April). A Longitudinal Study on Pedagogical Content Knowledge: Synthesizing Research on Content, Pedagogy, and Practice. Symposium presentation at the Annual Conference of the National Association of Research of Research in Science Teaching, Garden Grove, CA.

2008 **Talbot**, R. M., & Briggs, D. (2008, March). Measuring the pedagogical sophistication of science teachers using the flexible application of student-centered instruction (FASCI) instrument. Paper presented at the American Educational Research Association Annual Meeting, New York, NY.

2008 Lewis, M. A., **Talbot**, R. M., & Iverson, H. L. (2008, March). An evaluation of the instructional task authenticity within a teacher education program. Paper presented at the American Educational Research Association Annual Meeting, New York, NY.

2008 Iverson, H. L., Lewis, M. A., & **Talbot**, R. M. (2008, March). A framework for instructional task authenticity. Paper presented at the American Educational Research Association, New York, NY.

2007 **Talbot**, R.M., Iverson, H.L., & Lewis, M.A (2007, October). Instructional tasks as central to linking curriculum, instruction, and assessment. Symposium presentation at the Northern Rocky Mountain Educational Research Association Annual Conference, Jackson, WY.

2007 Briggs, D.C., Geil, K., Harlow, D., & **Talbot**, R.M. (2007, April). Measuring the pedagogical sophistication of math and science teachers using scenario-based items. Paper presented at the American Educational Research Association Annual Meeting, Chicago, IL.

2007 **Talbot**, R.M., Schneider, J., Briggs, D.C., & Pollock, S.J. (2007, April). Measuring change with the force and motion conceptual evaluation: An item-level approach using item response theory. Paper presented as a Distinguished Paper at the American Educational Research Association Annual Meeting, Chicago, IL.

2006 Schneider, J., **Talbot**, R.M., Briggs, D.C., & Pollock, S.J. (2006, October). Using the CLASS to identify and characterize students with negative attitudes towards physics. Paper presented at the Northern Rocky Mountain Educational Research Association Annual Conference, Sun Valley, ID.

2006 **Talbot**, R.M., Schneider, J., Briggs, D.C., & Pollock, S.J. (2006, October). Measuring change with the force and motion conceptual evaluation: An item-level approach using item response theory. Paper presented at the Northern Rocky Mountain Educational Research Association Annual Conference, Sun Valley, ID.

2006 Creighton, L., **Talbot**, R.M., & Anderson, R.D. (2006, April). Doctoral students' experiences in an interdisciplinary optical science program: Constructing a community of practice. Poster presented at the American Educational Research Association Annual Meeting, San Francisco, CA.

1999 Keating, T.M., & **Talbot**, R.M. (1999, April). Where's the science? The growth and representation of science content in secondary school world wide web pages. Paper presented at the National Association for Research in Science Teaching, Boston, MA.

1998 Keating, T.M., & **Talbot**, R.M. (1998, February). Science content on Indiana secondary school world wide web pages. Paper presented at the Hoosier Association of Science Teachers Annual Meeting, Indianapolis, IN.

1997 Keating, T.M., & **Talbot**, R.M. (1997, November). A report on the current status of science content in secondary school world wide web pages. Paper presented at the School Science and Mathematics Association Annual Meeting, Milwaukee, WI.

NON-PEER REVIEWED PRESENTATIONS AT MEETINGS/CONFERENCES

INVITED PRESENTATIONS

2022 **Talbot**, R.M. (2022, November) Active Learning and Student Engagement in Large Lecture Science Classes: lessons learned and findings from a decade of research and teaching. Invited talk for The Center for Excellence in Teaching and Learning and the NEAG School of Education, University of Connecticut.

2022 **Talbot**, R.M. (2022, September) The Learning Assistant Model: Supporting Faculty Teaching Transformation and Student Success in Undergraduate STEM courses. Invited talk for the STEM Education Center, University of Arkansas Little Rock.

2020 **Talbot**, R.M. (2020, June) The Learning Assistant Model: Supporting Faculty Teaching Transformation and Student Success. Invited talk at Latrobe University School of Molecular Sciences Seminar.

2020 **Talbot**, R.M. (2020, March). The Learning Assistant Model: Supporting Faculty Teaching Transformation and Student Success. Invited talk at Monash STEM Education Research Group.

2011 **Talbot**, R.M. (2011, October). Embedding content into an instrument designed to measure novice science and mathematics teachers' strategic knowledge: A challenge for validity. Invited plenary session at the International Conference on Mathematics, Science, and Technology Education

NON-INVITED PRESENTATIONS

2014 **Talbot**, R.M., and Hartley, L. (2014, October). Characterizing student engagement in a learning assistant

supported biology course: the classroom as a social network. International Learning Assistant Alliance, 6th Annual Workshop, Boulder, CO.

2014 Hartley, L. and **Talbot**, R.M. (2014, October). Learning Assistants contribute to student success in large lecture courses. International Learning Assistant Alliance, 6th Annual Workshop, Boulder, CO.

SEMINARS/WORKSHOPS PRESENTED

2019 **Talbot**, R.M., Nissen, J., Taylor, J, Potvin, G., & McDevitt, A. (2019). Using RStudio to Create Visualizations for Communicating about Data. Pre-conference workshop presented at the 2019 NARST Annual International Conference.

2018 Buncher, J., McPadden, D., Nissen, J.M., Potvin, G., & **Talbot**, R.M. (2018). An Introduction to Data Science for Emerging Quantitative Researchers with R-Studio. Workshop at the Physics Education Research Conference, Washington, D.C.

2013-2019 Otero, V.K., Langdon, L., Boyer, J., Emenike, M., Franklin, S., Gray, K., Hartley, L., Jariwala, M., Kramer, L., Nelson, M., Quick, D., Spilios, K., **Talbot**, R.M. (2013-2019). Team Leaders for the International Learning Assistant Workshop, Boulder, CO.

2008 **Talbot**, R. M., Briggs, D., & Otero, V. (2008). A new instrument for measuring the pedagogical knowledge of physics teachers. Workshop given at the Physics Teacher Education Coalition Conference, Austin, TX.

PROFESSIONAL ORGANIZATIONS

- 2004-present: American Educational Research Association (AERA)
  - SIG: Science Teaching and Learning
  - SIG: Rasch Measurement
  - Division J Postsecondary Education
- 2007-present: American Physical Society (APS)
- 2007-present: American Association of Physics Teachers (AAPT)
- 2005-present: National Association for Research in Science Teaching (NARST)
- 1997-2016: National Science Teachers Association (NSTA)
- 2011-2016: School Science and Mathematics Association (SSMA)

COURSES TAUGHT

Course and Number Level Department Institution

Assessment in Science Education, SECE/ELED 5800 Graduate School of Education and Human Development University of Colorado Denver

Elementary Science Methods, UEDU 4004/5004 Undergraduate/Graduate Teaching Licensure School of Education and Human Development University of Colorado Denver

Elementary Science Methods and Theory, EDUC 5215 Undergraduate/Graduate Teaching Licensure School of Education University of Colorado Boulder

Inquiry Science Pedagogy and Practice, SCED 4401/5401 Undergraduate/Graduate Teaching Licensure School of Education and Human Development University of Colorado Denver

Methods of Survey Research, RSEM 7050 Doctoral School of Education and Human Development University of Colorado Denver

Introduction to Research Methods, RSEM 5120 Graduate School of Education and Human Development University of Colorado Denver

Introduction to Measurement, RSEM 5300, RSEM 5110 Graduate School of Education and Human Development University of Colorado Denver

Introduction to Science Teaching and Learning, SCED 4050/5050 Course to support Learning Assistants School of Education and Human Development University of Colorado Denver

Math-Science Connections, ELED 5416 Graduate School of Education and Human Development University of Colorado Denver

Practicum in Research Methods, RSEM 5910 Graduate School of Education and Human Development University of Colorado Denver

Principles and Methods in Secondary Education, EDUC 4122 Undergraduate/Graduate Teaching Licensure School of Education University of Colorado Boulder

Science and Mathematics Curriculum Studies, ELED/SECE 6110/7110 Graduate School of Education and Human Development University of Colorado Denver

Step 1 (EDUC 2020) and 2 (EDUC 2030) Introduction to Science Teaching Undergraduate CU Teach Program, College of Arts and Science and School of Education University of Colorado Boulder

SERVICE

Membership Date(s) Project Institution/Organization

Chairperson 2022-August 2024 Learning Assistant (LA) Alliance Leadership Council Learning Assistant Alliance

Chairperson August 2022-August 2024 Faculty Assembly Learning, Education, Teaching, Technology, and Scholarship (LETTS) committee University of Colorado Denver

Member August 2022-August 2024 Faculty Assembly University of Colorado Denver

Member 2020-August 2024 Review, Tenure, and Promotion Committee University of Colorado Denver, School of Education and Human Development

Co-Director 2012-present Learning Assistant (LA) Program University of Colorado Denver, School of Education and Human Development and College of Liberal Arts and Sciences

Program leader August 2017-August 2019 STEM Education program area University of Colorado Denver, School of Education and Human Development

Member August 2016-July 2017 Teacher Education Leadership Team University of Colorado Denver, School of Education and Human Development

Chairperson April 2015-August 2020 NARST Methods Research Interest Group National Association of Research in Science Teaching

Group member December 2014-2016 Provost's HLC Reaccreditation Quality Initiative working group University of Colorado Denver

Group member Fall 2018-2020 Provost's Instructional Quality Outcomes committee University of Colorado Denver

Panel Member 2014, 2015, 2016 NSF grant review panels (multiple) National Science Foundation

Manuscript Reviewer 2013-2016 School Science and Mathematics Journal School Science and Mathematics Association

Member 2013 - 2015 Leadership and Finance Committee University of Colorado Denver, School of Education and Human Development

Proposal Reviewer 2012-2014 American Educational Research Association annual meeting American Educational Research Association

Proposal Reviewer 2015-2017 National Association for Research in Science Teaching Annual Meeting National Association for Research in Science Teaching

Member 2012-2013 Chancellor's "Home Run" Committee University of Colorado Denver

Member 2014-2018 Chancellor's Distinguished Lecture Selection Committee University of Colorado Denver

Member 2016 Chancellor's Scholars Development Group University of Colorado Denver

Member 2012-2013 By-Laws committee University of Colorado Denver, School of Education and Human Development

Member 2012-2014 Learning Technologies Faculty Search Committee University of Colorado

Denver, School of Education and Human Development

Member 2010-2015 Math Science Learning and Education (MSLE) signature area group University of Colorado Denver, College of Liberal Arts and Sciences

Member 2010-present Doctoral Affiliate Program Area University of Colorado Denver, School of Education and Human Development

Member 2010-present Mathematics & Science Program Area University of Colorado Denver, School of Education and Human Development

Member 2010-present Teacher Education Program Area University of Colorado Denver, School of Education and Human Development

Manuscript Reviewer 2010-present Teaching and Teacher Education JournalTeaching and Teacher Education

Manuscript Reviewer 2010-present Journal of Research in Science Teaching National Association of Research in Science Teaching

Manuscript Reviewer 2015-present Physical Review Special Topics American Physical Society

Manuscript Reviewer 2017 American Journal of Physics American Physical Society

Manuscript Reviewer 2017-present Contemporary Issues in Technology and Teacher Education Society for Information Technology and Teacher Education

Proceedings submission reviewer 2016 Physics Education Research Conference American Association of Physics Teachers

Manuscript Reviewer 2016 PLOS-ONE PLOS

Manuscript Reviewer 2018 Journal of Geoscience Education National Association of Geoscience Teachers

OTHER PROFESSIONAL ACTIVITIES

2020: Sabbatical appointment (visiting faculty) at Monash University, Chemistry Department (Chemistry and Science Education Research group), Melbourne Australia.

2011-2015: Physics curriculum advisor*,* Aurora Public Schools Physics First initiative*,* Aurora Public Schools, Aurora, CO

2012: Session chair and discussant, American Educational Research Association annual meeting, American Educational Research Association

TRAINING COURSES

April 2015: *Participant*. Power Analyses using Optimal Design, National Association of Research in Science Teaching

April 2007: *Participant.* Assessment Design: How to make inferences about learning: hands-on experience with the PADI design system, American Educational Research Association

PhD STUDENTS

Dr. Amreen Thompson, PhD (defended and graduated)

Dr. Chelsey Grassie, PhD (defended and graduated)

Dr. Hannah Huvard, PhD (defended and graduated)

Dr. Hillary Nieman, PhD (defended)

DOCTORAL DISSERTATION COMMITTEE MEMBER

2025 Patrick Couglin, in progress, committee member, University of Colorado Denver

2019 Paul Le, graduated PhD, committee member, University of Colorado Denver

2014 Katrina Marzetta, graduated PhD, committee member, University of Colorado Denver

2012 Ellen Shamas-Brandt, graduated PhD, committee member, University of Colorado Denver

DOCTORAL DISSERTATION EXTERNAL ASSESSOR

2013 A.V. Mudau, graduated, "An Evaluation of the Teaching of Projectile Motion in Grade 12 Classrooms." External Assessor, Tshwane University of Technology, Pretoria, South Africa

AWARDS/HONORS

2019-2020 Research Award, University of Colorado Denver School of Education and Human Development

2006 Distinguished Paper Award, Northern Rocky Mountain Educational Research Association

2002-2003 Teacher of the Year, Elkins High School

2000 Armstrong Teacher Educator Award and Fellowship, Indiana University