

## **MARGARET R. BLANCHARD**

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Professor of Science Education and University Faculty Scholar  
Associate Department Head and Director of Graduate Programs, STEM Education  
Graduate Coordinator, Science Education  
Research Director, The Science House  
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STEM Careers Website:  
<https://sites.ced.ncsu.edu/stem-career-awareness/>  
Google Scholar: [goo.gl/wvKUDv](https://scholar.google.com/citations?user=wvKUDv)

### **EDUCATION**

Florida State University, Tallahassee, FL  
Doctor of Philosophy in Science Education, 2006  
Dissertation: *Assimilation or Transformation? An analysis of change in ten secondary science teachers following an inquiry-based research experience for teachers.*

Florida State University, Tallahassee, FL  
Master of Science in Science Education, 1999  
Thesis: *Analyzing a process of change in a college statistics classroom: A team learning approach.*

University of North Florida, Jacksonville, 1990  
Teacher Certification

Augustana College, Rock Island, IL  
Bachelor of Arts in Biological Science, 1984

### **PROFESSIONAL EMPLOYMENT**

Professor, 2018-Present  
Science Education, Department of Science, Technology, Engineering, & Mathematics (STEM) Education, North Carolina State University

Associate Professor, 2012-2018  
Science Education, Department of Science, Technology, Engineering, & Mathematics (STEM) Education, North Carolina State University

Research Director, 2012-Present  
The Science House, North Carolina State University

Assistant Professor, 2006-2012  
Science Education, Department of Science, Technology, Engineering, & Mathematics (STEM) Education, North Carolina State University

Project Director, 2005-2006  
USDOE grant, Florida State University, FL

Biological Science Teacher, 1991-1996  
St. Augustine High School, FL, Citrus High School, FL & Inverness Middle School, FL

## RESEARCH & SCHOLARSHIP

### Research Awards & Recognition

- University Faculty Scholar, NC State University, 2016-Present.
- College of Education Interview, 2016: “Increasing Student Achievement in Rural Schools through Technology” <https://ced.ncsu.edu/news/2016/09/15/increasing-student-achievement-in-rural-schools-through-technology/>
- Ed Week interview, 2015: “Deep or wide? Two takes on ed-tech professional development from AERA”, 2015 [http://blogs.edweek.org/edweek/DigitalEducation/2015/04/ed-tech\\_professional\\_development\\_aera.html](http://blogs.edweek.org/edweek/DigitalEducation/2015/04/ed-tech_professional_development_aera.html).
- NSTA Research Worth Reading, 2014: “Progress on implementing inquiry in North Carolina: Nearly 1,000 elementary, middle and high school science teachers weigh in.”, 2014.
- NARST Outstanding Paper Award Nominee, 2013: “The development of the STEM career interest surveys (STEM-CIS).”
- NC State University College of Education Annual Report Feature, 2013 “A seed in STEM.”
- University Faculty Scholar Nominee, Department of STEM Education, NC State, 2012.
- Science Education*, 2<sup>nd</sup> most downloaded manuscript in 2010 (1,170): “Is inquiry possible in light of accountability? A quantitative comparison of the relative effectiveness of guided inquiry and verification laboratory instruction.”
- CBE-Life Sciences Education Recommended Research in Science Teaching and Learning, 2010: “Is inquiry possible in light of accountability? A quantitative comparison of the relative effectiveness of guided inquiry and verification laboratory instruction.”
- NARST Outstanding Paper Award Nominee, 2006: “Who are the “they” in “they say...”? Finding fruitfulness of nature of science within an urban context.”
- Mayme Tyner Endowed Scholarship, 2005, College of Education, Florida State University.

## GRANTS

Total Funded: \$8.9 million

### Externally Funded Grants

Grant funds sought to fund professional development projects with schools, and research on these reform efforts.

- 2018-2021 **Blanchard, M. R.**, Gutierrez, K. S., Hoyle, K. S., & Williams, B. (2017). *Sustaining STEM career clubs in rural North Carolina*. (Funded). Burroughs Wellcome Fund, Student Science Enrichment Program. \$179,061/3 years. Project Director.
- 2019-2024 Yao, Y. (2019). *CAREER: Biochar Systems for Sustainable Applications in the Food-Energy-Water Nexus*. (Funded). CAREER grant from the Environmental Sustainability program National Science Foundation, \$519,562/5 years. Senior Personnel.
- 2018-2023 Park, S., Kim, S. W., Venditti, R., Yao, Y., and **Blanchard, M. R.** (2018). Interdisciplinary doctoral education production from renewable forest resources. (Funded). USDA, \$238,500/5 years. Co-Project Director.

- 2018-2023 Gonzalez, R., Handfield, R., Abt, B., Lucia, L. A., Jameel, H., and **Blanchard, M. R.** (2018). *Interdisciplinary doctoral education production from renewable forest resources*. (Funded). USDA, \$238,500/5 years. Co-Project Director.
- 2017-2021 Venditti, R. & **Blanchard, M. R.** (2016). *Preparing Diverse and Rural Students and Teachers to Meet the Challenges in the Bioenergy and Bioproducts Industry*. (Funded). USDA, \$2,750,000/4 years. Co-Principal Investigator.
- 2014-2018 **Blanchard, M. R.**, Painter, J., Gray, D., Alsbury, T. L., Denson, C., Williams, B., Ragan, S., & Johnson, J. *STEM career clubs: Enhancing the potential of underrepresented students in STEM careers through a strategic teaming model*. (Funded). National Science Foundation, \$1,199,625/4 years. Lead author, Co-Principal Investigator.
- 2016-2017 **Blanchard, M. R.**, & Gutierrez, K. S. (2016). *STEM career clubs: Enhancing the potential of underrepresented students in STEM careers through a strategic teaming model, Supplement Request for postdoctoral fellow*. (Funded). National Science Foundation, \$89,371/1 year. Lead author, Co-Principal Investigator.
- 2014-2017 Ragan, S., Painter, J., & **Blanchard, M. R.** *The modeling project: Enhancing biology and physical science instruction*. (Funded). Math & Science Partnership Grant, Department of Public Instruction, NC, \$1,468,518/3 years. Co-Principal Investigator.
- 2015 Rider, T., **Blanchard, M. R.**, & Cho, S. *Building energy toolkit program*. (Funded). Dominion K-12 Educational Partnership grant. Dominion Foundation, \$10,000/1 year. Co-Principal Investigator.
- 2010-2014 **Blanchard, M. R.** (2010). *STEM teams: Promoting science, technology, engineering, and mathematics (STEM) career interest, skills, and knowledge through strategic teaming*. (Funded). ITEST Strategies, National Science Foundation, \$1,199,963/4 years. Principal Investigator.
- 2010-2014 Williams, B. & **Blanchard, M. R.** (2010). *STEM teams: Student scholar camp. Promoting science, technology, engineering, and mathematics (STEM) career interest, skills, and knowledge*. (Funded). BelleJAR Foundation, \$100,000/4 years. Co-Principal Investigator.
- 2011-2012 **Blanchard, M. R.** & M. G. Jones. (2011). *The science scholars academy II: Developing 21<sup>st</sup> century teacher scholars*. (Funded). NC Quest initiative, U.S. Department of Education, \$149,994/18 mos. Principal Investigator.
- 2010-2011 Jones, M. G. & **Blanchard, M. R.** (2010). *The science scholars academy: Developing 21<sup>st</sup> century teacher scholars*. (Funded.) NC Quest initiative, U.S. Department of Education, \$281,394.00/18 mos. Co-Principal Investigator.
- 2009-2010 **Blanchard, M. R.**, & Grable, L. L. (2009). *SMART for teachers: Science and mathematics achievement through enriched technology for teachers, phase II*. (Funded). NC Quest initiative, U.S. Department of Education, \$148,965/18 mos. Principal Investigator.
- 2008-2009 **Blanchard, M. R.**, & Grable, L. L. (2008). *SMART for teachers: Science and mathematics achievement through enriched technology for teachers*. (Funded.) NC Quest initiative, U.S. Department of Education, \$296,965.00/18 mos. Principal Investigator.
- 2008-2011 Moore, K., Penick, J. & **Blanchard, M. R.** (2008). *Burroughs Wellcome Fund Scholars*. (Funded.) University of North Carolina General Administration, \$235,000/3 years. Co-Principal Investigator.

- 2005 **Blanchard, M. R.**, Southerland, S. A., & Granger, E. M. (2005). *Assessment of student learning in a laboratory setting: A quantitative study of inquiry-based versus traditional science teaching methods*. (Funded). Multi-University Reading, Mathematics, and Science Initiative, U.S. Department of Education. \$66,281/1 year. Grant Writer, Researcher, and Project Director.

#### Internally Funded Grants

- 2013 **Blanchard, M. R.**, Keene, K. A. & Gray, D. L. (2013). *The STEM career club: Enhancing the potential of underrepresented students in STEM careers through an after school club*. (Funded). University Extension Grant, North Carolina State University, \$10,000/1 year. Principal Investigator.
- 2011 **Blanchard, M. R.** (2011). *Flip for STEM careers*. (Funded). University Extension Grant, North Carolina State University, \$10,000/1 year. Principal Investigator.
- 2007 **Blanchard, M. R.** (2007). *Comparing the relative effectiveness of two follow-up methods in supporting and sustaining teacher professional development: Videoconferencing versus face-to-face technical support*. (Funded). Faculty Research Professional Development Grant, North Carolina State University, \$8,000/1 year. Principal Investigator.
- 2007 Grable, L. L., Wiebe, E., & **Blanchard, M. R.** (2007). *Middle grades in the 21<sup>st</sup> century: Science and mathematics*. (Funded). University Extension Grant, North Carolina State University, \$10,000/1 year. Co-Principal Investigator.

#### Externally Funded, Serve in Advisory/Evaluator Role

- 2017-2020 Walker, J., Burns, C., & Kennedy, A. *ChemCURES: Increased access to authentic research for undergraduate chemistry students through Course-based Undergraduate Research Experiences*. (Funded). IUSE, National Science Foundation, \$299,103/3 years. External Evaluator.
- 2016-2021 Augustyn, V. *SciBridge* (Funded). Faculty Early Career Development award Career Award, National Science Foundation, \$517,000. Faculty Mentor.
- 2015-2019 Hanline, M.F. & Whalon, K. *Preparation of special education education, early intervention, and related services leadership personnel*. (Funded). ASD-STEM Doctoral Leadership Grant, USDOE Office of Special Education Programs, \$800,000/4 years. National Expert, Science Education.
- 2015-2018 Kier, M. W., Khalil, D., Irving, M., & Harris, G. *E-Communities: Investigating How a Collaborative between Engineers and Teachers Influences Underserved Youth's Participation in Engineering Design. Innovative Technology Experiences for Students and Teachers* (Funded). ITEST, National Science Foundation, \$779,827/3 years. Advisory Board Member.
- 2015-2018 Tater, D., Sampson, V. D., & Rivale, S. *Integration of Environmental Chemistry and Computing to Advance Evidence-based Reasoning, Problem Solving, and Computational Thinking in Middle School Students*. (Funded). STEM+C program, National Science Foundation, \$1,400,000/4 years. External Evaluator.
- 2014-2016 Cheatham, T. J., Gardner, G. E., McNeil, L.F., *Promoting active learning strategies in biology (PALS)*. (Funded). DRK-12 grant, National Science Foundation, \$437,931/2.25 years. Research Consultant.

## PUBLICATIONS

**Summary:** 34 refereed journal articles, 6 book chapters, 17 conference proceedings, 9 articles in review/preparation, & 23 technical reports.

14 Publications with ISI Impact Factors (Avg. 1.704)

\*Denotes graduate student when research was generated

### Refereed Research Journal Articles

1. Wheeler, S. R.\* & **Blanchard, M. R.** (2019). Contextual Choices in Online Physics Problems: Promising Insights into Closing the Gender Gap. *Frontiers in Psychology*, 10, 594. doi: 10.3389/fpsyg.2019.00594 (ISI Impact Factor 2.089)
2. **Blanchard, M. R.** & Sampson, V. D. (2018). Fostering impactful research experiences for teachers (RETs). *Eurasia Journal of Mathematics, Science and Technology Education*, 14(1), 447-465. <http://www.ejmste.com/Fostering-Impactful-Research-Experiences-for-Teachers-RETs-,80352,0,2.html> (ISI Impact Factor 0.903)
3. Alsbury, T. L., **Blanchard, M. R.**, Gutierrez, K. S., Allred, C. M.\* & Tolin, A. D.\* (2018). District strategic teaming: Leadership for systemic and sustainable reform. *Research in Educational Administration & Leadership*, 3(2), 139-177. DOI: 10.30828/real/2018.2.2 (ISI Impact Factor 0.982)
4. Lee, H-C.\* & **Blanchard, M. R.** (2018). Why Teach with PBL? Motivational Factors Underlying Secondary Teachers' Use of Problem-Based Learning. *The Interdisciplinary Journal of Problem-Based Learning*. (SJR Impact Factor .44)
5. **Blanchard, M. R.**, LePrevost, C. E., Tolin, A. D.\*, & Gutierrez, K. S.\* (2016). Investigating technology-enhanced teacher professional development in rural, high poverty middle schools. *Educational Researcher*, 43(3), 207-220. (ISI Impact Factor 3.827)
6. LePrevost, C. E.\*, **Blanchard, M. R.**, & Cope, W. G. (2014). Personal goals and perceived barriers of farmworker pesticide trainers: Implications for workplace safety and health. *Journal of Agricultural Safety and Health*, 20(4), 267-282.
7. Albert, J. L.\*, **Blanchard, M. R.**, Kier, M. W.\*, Carrier, S. J., & Gardner, G. E.\* (2014). Supporting teachers' technology integration: A descriptive analysis of social and teaching presence in technical support sessions. *Journal of Technology and Teacher Education*. 22(2), 137-165.
8. Kier, M. W.\*, **Blanchard, M. R.**, Osborne, J. W., & Albert, J. L.\* (2014). The development of the STEM career interest survey (STEM-CIS). *Research in Science Education*, 44(3), 461-481. (ISI Impact Factor 0.806)
9. **Blanchard, M. R.**, Osborne, J. W., Wallwork, C. & Harris, B. S. (2013). Progress on implementing inquiry in North Carolina: Nearly 1,000 elementary, middle and high school science teachers weigh in. *Science Educator*, 22(1), 37-49.
10. LePrevost, C. E.\*, **Blanchard, M. R.**, & Cope, W. G. (2013). Beliefs of science educators who teach pesticide risk to farmworkers. *International Journal of Environmental and Science Education*, 8(4), 587-609. (SJR Impact Factor .21).
11. LePrevost, C.\*, Storm, J. F., **Blanchard, M. R.**, Asuaje, C. E., Cope, W. G. (2013). Engaging Latino farmworkers in the development of symbols to improve pesticide safety and health education and risk communication. *Journal of Immigrant and Minority Health*, 15(5), 975-981. (ISI Impact Factor 1.264)

12. Madden, L.\*, Jones, M., G., & **Blanchard, M.** (2013). Shared photonarratives in an online master's course: Reflection, context and community. *Contemporary Issues in Technology and Teacher Education*, 13(1). Retrieved from <http://www.citejournal.org/vol13/iss1/science/article1.cfm>
13. Sampson, V. D. & **Blanchard, M. R.** (2012). Science teachers and scientific argumentation: Trends in views and practice. *Journal of Research in Science Teaching*, 49(9), 1122-1148. (Impact Factor 2.552)
14. Jones, M. G., Robertson, L.\*, Gardner, G. E.\*, Dotger, S.\*, & **Blanchard, M. R.** (2012). Differential use of elementary science kits. *International Journal of Science Education*, 34(15), 2371-2391. (ISI Impact factor 1.340)
15. Southerland, S. A., Sowell, S., **Blanchard, M. R.**, & Granger, D. E. (2011). Exploring the construct of pedagogical discontentment: A tool to understand science teachers' openness to reform. *Research in Science Education*, 41(3), 299-317. (ISI Impact Factor 1.342)
16. LePrevost, C. E.\*, **Blanchard, M. R.**, & Cope, W. G. (2011). The pesticide risk beliefs inventory: A quantitative instrument for the assessment of beliefs about pesticide risks. *International Journal of Environmental Research and Public Health*, 8, 1923-1935. (ISI Impact Factor 1.605)
17. **Blanchard, M. R.**, Southerland, S. A., Osborne, J. W., Sampson, V. D., Annetta, L. A., & Granger, E. M. (2010). Is inquiry possible in light of accountability? A quantitative comparison of the relative effectiveness of guided inquiry and verification laboratory instruction. *Science Education*, 94(4), 577-616. (ISI Impact Factor 1.900)
18. Osborne, J. W., & **Blanchard, M. R.** (2010). Random responding from participants is a threat to the validity of social science research results. *Frontiers in Psychology*, 1(220), 1-7. <http://doi.org/10.3389/fpsyg.2010.00220> (ISI Impact Factor 2.560)
19. Addy, T. M.\* & **Blanchard, M. R.** (2010). The problem with reform from the bottom up: Instructional practises and teacher beliefs of graduate teaching assistants following a reform-minded university teacher certificate programme. *International Journal of Science Education*, 32(8), 1045-1071. (ISI Impact Factor 1.063)
20. Harris, J. B., Hofer, M. J., Schmidt, D. A., **Blanchard, M. R.**, Young, C. A., Grandgenett, N. F., & van Olphen, M. C. R. (2010). "Grounded" technology integration: Instructional planning using curriculum-based activity type taxonomies. *Journal of Technology and Teacher Education*, 18(4), 573-605.
21. **Blanchard, M. R.**, Southerland, S. A., & Granger, D. E. (2009). No silver bullet for inquiry: Making sense of teacher change following an inquiry-based research experience for teachers. *Science Education*, 93(2), 322-360. (ISI Impact Factor 1.625)
22. Davis, N. T. & **Blanchard, M. R.** (2004). Collaborative teams in a university statistics course: A case study of how differing value structures inhibit change. *School Science and Mathematics*, 104(6), 279-287.

#### Refereed Practitioner Journal Articles (12)

1. Hoyle, K. S.\*, Gutierrez, K. S., Harper, L. A.\*, Hollingsworth, B. D., & **Blanchard, M. R.** (2019). Jumping to conclusions: Developing biomathematical predictive models. *Science Scope* 42(8), 70-76.

2. Hoyle, K. S.\*, Harper, L. A.\*, Gutierrez, K. S., & **Blanchard, M. R.** (2018). Teachers' Toolkit: Communicate effectively with parents and family members through a STEM newsletter. *Science Scope*, (41)8, 82-85.
3. **Blanchard, M. R.**, Hoyle, K. S.\*, & Gutierrez, K. S. (2017). How to start a STEM club. *Science Scope*, 41(3), 88-94.
4. Gutierrez, K. S.\*, **Blanchard, M. R.**, & Hoyle, K. S.\* (2017). Weather vs. climate: Helping middle school students distinguish the differences during an after-school STEM career club. *Science Scope*, 41(3), 76-85.
5. **Blanchard, M.**, Stevens, V.,\* Kier, M.\*, & Albert, J.\* (2017). STEM career bingo. *Science Scope*, 41(1), 74-77.
6. Albert, J. L.\*, **Blanchard, M. R.**, Keene, K. A. & Kinton, J. H.\* (2014). The great iced tea debate. *Science Scope*, 37(8), 3-8.
7. Kier, M.W.\*, **Blanchard, M.R.**, & Albert, J. L.\* (2014). Connecting students to STEM careers. *Science Scope*, 37(6), 72-76.
8. **Blanchard, M.** & Albert, J.\* (2011). No matter the weather, we'll measure together. *Science Scope*, 34(9), 66-70.
9. Albert, J.\*, **Blanchard, M.**, Grable, L., & Reed, R. (2010). "It's ELEMENTary, my dear Watson:" A crime scene investigation with a technological twist. *Science Scope*, 34(4), 16-22.
10. Tugurian, L.\* & **Blanchard, M.** (2010). Lights, cameras, action! It's science Friday. *Science and Children*, 48(1), 43-45.
11. **Blanchard, M. R.**, Harris, J., & Hofer, M. (2010). "Grounded" technology integration using science learning activity types. *Learning & Leading With Technology*, 37(6), 32-34.
12. **Blanchard, M.**, Sharp, J.\*, & Grable, L. (2009). Rev your engines! Linking physical science and math with car labs. *The Science Teacher*, 76(2), 35-40.

#### **Book Chapters (6)**

1. **Blanchard, M. R.**, Gutierrez, K. S., Habig, B., Gupta, P., & Adams, J. (2019, Accepted). Informal STEM Education. In C. Johnson, M., Mohr-Schroeder, T. Moore, & L. English (Eds.), *Handbook of Research on STEM Education*. Routledge/Taylor & Francis.
2. Albert, J. L.\*, **Blanchard, M. R.**, & Wiebe, E. N. (2015). How high school students construct or create animations about water boiling. In K. Finson & J. Pederson (Eds.), *Application of Visual Data in K-16 Science Classrooms*. Information Age Publishing.
3. Toumey, C., Besley, J., **Blanchard, M.**, Brown, M., Cobb, M., Ecklund, E. H., Glass, M., Guterbock, T., Kelly, A. E., & Lewenstein, B. (2013). Rethinking public knowledge of science: The process of crafting the concept of science in the service of citizens & consumers. In S. Locke and L. Allibone (Eds.), *Knowledges and Publics: Beyond Deficit, Engagement & Transfer*. Newcastle upon Tyne: Cambridge Scholars Publishing, pp. 16-34.
4. Southerland, S. A., Rose, K. In , & **Blanchard, M. R.** (2009). One teacher's journey toward reformed teaching. In J. Gess-Newsome, J. A. Luft, & R. L. Bell (Eds.), *Reforming Secondary Science Instruction*. Arlington, VA: National Science Teachers Association.
5. Settlage, J. & **Blanchard, M. R.** (2007). Requisite teacher knowledge about inquiry and its classroom application. In E. Abrams, P. Silva, & S. A. Southerland (Eds.), *Inquiry in the classroom: Realities and opportunities*. Information Age Publishing.

6. **Blanchard, M. R.** (2007). Inquiry-based science can be done. Invited point-counter point in Settlege, J. & Southerland, S. A. *Teaching science to every child: Using culture as a starting point*. New York: Routledge.

#### Research Articles, In Review

1. Kier, M. W. & **Blanchard, M. R.** (2019). *Eliciting Middle School Students' Hopes and Potential through a Culturally Relevant STEM Career Intervention*. Manuscript in review.

#### Research Articles, In Preparation

1. Gutierrez, K. S.\* & **Blanchard M. R.** (2019). *Bringing climate science down to earth: The worldviews, climate change beliefs and content knowledge of rural, underrepresented middle school students in after-school STEM clubs*. Manuscript in revision.
2. Gutierrez, K. S.\* & **Blanchard M. R.** (2019). *How Do Rural, Southeastern US Families Communicate about Climate Change during a Home Intervention?* Manuscript in preparation.
3. Pigford, K.\*, Ferzli, M. & **Blanchard, M. R.** (2019). *Investigating Students' Intrinsic Motivation for Learning Biology Across Three Different Undergraduate Course Formats*. Manuscript in preparation.
4. **Blanchard, M. R.**, Kier, M. W., Rose, K., & Southerland, S. A. (2019). *"Hey, it's just not my thing": Exploring urban high school students' learning about the nature of science using an explicit, reflective instructional approach*. Manuscript in preparation.
5. Kier, M. W. & **Blanchard, M. R.** (2019). *Examining the effects of a STEM career video intervention on the interests of rural, minority middle school students*. Manuscript in preparation.
6. **Blanchard, M. R.**, McDonald, S. & Bedward, J. (2019). *Investigating how the intensity of the STEM program matters: A mixed methods study*. Manuscript in preparation.
7. Phillips, P. P.\*, **Blanchard, M. R.** (2019). *The impact of e-education on at risk high school students' science achievement experiences*. Manuscript in preparation.
8. Johnson, D. W.\*, **Blanchard, M. R.** (2019). *I am not a statistic: African American males who take advanced science courses*. Manuscript in preparation.

#### Conference Proceedings (17)

1. Gutierrez, K. S. & **Blanchard, M. R.** (2018). *Exploring At-Home Learning of Diverse Families: Factors Impacting Intended Climate Change Behaviors*. In Finlayson, O., McLoughlin, E., Erduran, S., & Childs, P. (Eds.), *Electronic Proceedings of the ESERA 2017 Conference. Research, Practice and Collaboration in Science Education Part 9* (co-ed. Zeyer, A., & Achiam, M.), (pp. 1204-1211). Dublin Ireland: Dublin City University. ISBN 978-1-873769-84-3
2. Gray, K. M., **Blanchard, M. R.**, Ragan, N. S. (2018). Modeling instruction and its influence on autonomy, competence, relatedness, and pck. In Finlayson, O., McLoughlin, E., Erduran, S., & Childs, P. (Eds.), *Electronic Proceedings of the ESERA 2017 Conference. Research, Practice and Collaboration in Science Education Part 9* (co-ed. Zeyer, A., & Achiam, M.), (pp. 2021-2028). Dublin Ireland: Dublin City University. ISBN 978-1-873769-84-3
3. **Blanchard, M. R.**, Gutierrez, K. S., Hoyle, K. S., Painter, J. L., & Ragan, N. S. (2018). *Rural, Underrepresented Students' Motivation, Achievement, and Perceptions in*



- Afterschool STEM Clubs.* In Finlayson, O., McLoughlin, E., Erduran, S., & Childs, P. (Eds.), *Electronic Proceedings of the ESERA 2017 Conference. Research, Practice and Collaboration in Science Education Part 2* (co-ed. Tytler, R., & Carvalho, G. S.), (pp. 264-272). Dublin Ireland: Dublin City University. ISBN 978-1-873769-84-3
4. Wheeler, S., and **Blanchard, M.** (2018). How does choice in context of physics problems influence student performance and attitude? In Finlayson, O., McLoughlin, E., Erduran, S., & Childs, P. (Eds.), *Electronic Proceedings of the ESERA 2017 Conference. Research, Practice and Collaboration in Science Education Part 9* (co-ed. Zeyer, A., & Achiam, M.), (pp. 295-303). Dublin Ireland: Dublin City University. ISBN 978-1-873769-84-3
  5. Hoyle, K. S. & **Blanchard, M. R.** (2018). Investigating teacher plcs in support of an after-school STEM club: A comparative case study. In Finlayson, O., McLoughlin, E., Erduran, S., & Childs, P. (Eds.), *Electronic Proceedings of the ESERA 2017 Conference. Research, Practice and Collaboration in Science Education Part 9* (co-ed. Zeyer, A., & Achiam, M.), (pp. 1278-1286). Dublin Ireland: Dublin City University. ISBN 978-1-873769-84-3
  6. Phillips, P. P., **Blanchard, M. R.** (2016). The impact of e-education on at risk high school students' science achievement and experiences. In I. Gibson et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2016*. Chesapeake, VA: AACE.
  7. **Blanchard, M. R.**, Bedward, J., & McDonald, S. (2016). "I get to feel like a college student:" Examining the relative impacts of 8th grade STEM interventions on a college campus, in middle school classrooms, and with a comparison school. In J. Lavonen, K. Juuti, J. Lampiselkä, A. Uitto & K. Hahl (Eds.), *Electronic Proceedings of the ESERA 2015 Conference. Science education research: Engaging learners for a sustainable future, Part 2/Strand 2* (co-ed. R. Tytler & A. Zeyer), (pp. 311-321). Helsinki, Finland: University of Helsinki. ISBN 978-951-51-15416  
[https://www.dropbox.com/s/Of1mgvnxqfaxdjh3/eBook2015\\_Part\\_2\\_links.pdf?dl=0](https://www.dropbox.com/s/Of1mgvnxqfaxdjh3/eBook2015_Part_2_links.pdf?dl=0)
  8. Albert, J. L.\*, Wiebe, E. N., & **Blanchard, M. R.** (2012). Do student-generated digital animations enhance student understanding of water boiling? A study comparing student learning in a sci vis course. *Proceedings of the Association for Science Teacher Education 2012*. Retrieved from <http://theaste.org/pubs/proceedings/2012proceedings.pl>
  9. Davis, H. A., **Blanchard, M. R.**, & Jones, M. G. (2012). Understanding the role of science teacher relationships in promoting adolescents' motivation to engage in science: Examining four class cases. *Proceedings of the Association for Science Teacher Education 2012*. Retrieved from <http://theaste.org/pubs/proceedings/2012proceedings.pl>
  10. Madden, L.\*, Jones, M. G., & **Blanchard, M. R.** (2012). Photonarratives in an online master's course: A viable way to enhance teacher reflection? *Proceedings of the Association for Science Teacher Education 2012*. Retrieved from <http://theaste.org/pubs/proceedings/2012proceedings.pl>
  11. **Blanchard, M. R.**, Grable, L. L. & Sharp, J.\* (2009). Scaffolding technology integration of middle school science and mathematics: Comparing the results of two models of teacher professional development. In I. Gibson et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2009* (pp. 4015-4019). Chesapeake, VA: AACE.

12. Hofer, M., Harris, J., **Blanchard, M.**, Grandgenett, N., Schmidt, D., van Olphen, M. & Young, C. (2009). Operationalizing TPACK for educators: The activity types approach to technology integration, part 2. In I. Gibson et al. (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2009* (pp. 4103-4106). Chesapeake, VA: AACE.
13. Addy, T. M.\* & **Blanchard, M. R.** (2009). Assessing the beliefs and practices of university teaching assistants in the life sciences following participation in a reform-based teacher certificate program. *Proceedings of the Association for Science Teacher Education 2009*. Retrieved from <http://theaste.org/pubs/proceedings/2009proceedings.pl>
14. **Blanchard, M. R.**, Sharp, J.\*, & Grable, L. L. (2009). Videoconferencing versus face-to-face: Comparing the satisfaction of rural, middle school teachers with two different follow-up methods to teacher professional development. *Proceedings of the Association for Science Teacher Education 2009*. Retrieved from <http://theaste.org/pubs/proceedings/2009proceedings.pl>.
15. **Blanchard, M. R.**, Granger, E. M., & Gilmer, P. J. (2007). University as reform agent: How inquiry conceptions underlying a non-traditional RET intersect with those of science teachers and other scientists. *Proceedings of the Association for Science Teacher Education 2007*. Retrieved from <http://theaste.org/pubs/proceedings/2007proceedings/index.htm>.
16. **Blanchard, M. R.**, & Davis, N. T. (2006). In search of the holy grail: Understanding inquiry in real classrooms through question analysis following a RET. *Proceedings of the Southeastern Association of Science Teacher Educators 2006*.
17. Davis, N. T. & **Blanchard, M. R.** (2004). How differing value structures impact learner-centered instruction in a college statistics course. *Proceedings of the International Association for Research in Science Teaching 2004*.

#### **Dissertation**

**Blanchard, Margaret R.** (2006). *Assimilation or transformation? An analysis of change in ten secondary science teachers following an inquiry-based research experience for teachers*. (Doctoral dissertation). Retrieved from [3664.http://diginole.lib.fsu.edu/etd/3664](http://diginole.lib.fsu.edu/etd/3664).

#### **Master's Thesis**

**Blanchard, Margaret R.** (1999). *Analyzing a process of change in a college statistics classroom: A team learning approach*. (Master's Thesis). LB1032.B53 1999.

### **PRESENTATIONS**

#### **Keynote Speaker**

- Invited Keynote Address for the Korean Association for Science Education (KASE), Dankook University, Jukjeong, South Korea, January, 2018. "A STEM Career Club Innovation in North Carolina, USA."
- Invited Keynote Address for the North Carolina Association for Research in Education (NCARE), Charlotte, NC, 2011. "Creating effective partnerships with school districts and teachers to enhance students' STEM learning and interest in STEM careers: Research into practice."

Invited Keynote Address at the NSF National Engineering Research Center meeting, Bethesda, MD, 2009. "Crafting effective partnerships with teachers to impact K12 STEM learning: What does the research tell us about RETs?"

### Invited Seminars and Presentations

- Invited Presentation at a STEAM Conference, Chosun University, Gwangju, South Korea, January, 2018.
- Invited Research Presentation at Appalachian State University, Boone, NC, January, 2018.
- Invited Research Seminar presented at University of North Carolina at Greensboro, Greensboro, NC, April, 2017.
- Invited Research Seminar presented at East Carolina University, Greenville, NC, March, 2016.
- Invited Research Seminar presented at the College of Education Research Colloquium Series at the University of Georgia, Athens, GA, February, 2016.
- Invited Research Seminar at Georgia State University, Department of Middle-Secondary Education and Instructional Technology in the College of Education in Atlanta, GA, February, 2014.
- Invited Research Seminar at Old Dominion University, Darden College of Education in Norfolk, VA, February, 2012.
- Invited Research Seminar at Georgia State University, Department of Middle-Secondary Education and Instructional Technology in the College of Education in Atlanta, GA, April, 2011.
- Invited Research Seminar at University of South Florida, Department of Secondary Science Education in Tampa, FL, January, 2010.
- Invited Research Presentation for NARST at the regional National Science Teacher Association meeting in Ft. Lauderdale, FL, November, 2009.
- Invited Research Presentation at the NSF Research Experiences for Teachers (RET) Network Meeting, National Science Teacher Association annual meeting, New Orleans, LA, March, 2009.

### Research Conference Paper Presentations, 2006-Present

Total: 117; Total with Students: 94

\*Denotes graduate student when research was generated

1. **Blanchard, M. R.**, Gutierrez, K. S., Hoyle, K. S.\*, Allred, C. M.\*, Painter, J. L., & Ragan, N. S. (2019, August, Accepted). *Factors Influencing Student Learning in Rural U.S. After-School STEM Clubs*. Paper to be presented at the international bi-annual meeting of the European Science Educators Research Association, Bologna, Italy.
2. McAlexander, S. L., McCance, K., **Blanchard, M. R.**, & Venditti, R. (August, 2019, Accepted). *A Novel Interdisciplinary Approach to Diversify Bioeconomy Participation: A Pilot Study*. Paper to be presented at the European Science Education Research Association (ESERA) Conference, Bologna, Italy.
3. Hoyle, K. S.\* & **Blanchard, M. R.** (2019, August, Accepted). *A Comparative Case Study Of Teacher-Coaches Who Lead After-School STEM Clubs At Two Rural, Low Wealth Middle Schools*. Paper to be presented at the international bi-annual meeting of the European Science Educators Research Association, Bologna, Italy.
4. Gutierrez, K. S. & **Blanchard, M. R.** (2019, August, Accepted). *Leading families to STEM with extra school learning*. Paper to be presented at the international bi-annual meeting of the European Science Educators Research Association, Bologna, Italy.

5. Sagues, W. J., McCance, K., McAlexander, S. L., **Blanchard, M. R.**, & Venditti, R. (August, 2019, Accepted). *An Interdisciplinary Educational Program to Promote Interest in the Circular Bioeconomy*. Paper to be presented at the ACS Annual Green Chemistry & Engineering Conference, Reston, VA.
6. **Blanchard, M. R.**, Gutierrez, K. S., Allred, C., & Hoyle, K. S. (January, 2019). *Exploring the potential of after-school STEM clubs with rural U.S. students*. Paper presented at the annual international meeting of the South African Association for Research in Mathematics, Science and Technology Education, Durban, South Africa.
7. **Blanchard, M. R.**, Nugent, M.L., Green, K. S., & Kier, M. W. (January, 2019). *What does a student career exploration sheet reveal about students' STEM career pathways?* Paper presented at the annual international meeting of the South African Association for Research in Mathematics, Science and Technology Education, Durban, South Africa.
8. Hoyle, K. S. & **Blanchard, M. R.** (January, 2019). *A comparative case study of teacher-coaches who lead after-school STEM clubs at two rural, low wealth middle schools*. Paper presented at the Association for Science Teacher Education, Savannah, GA.
9. Nugent, M. L., Ferzli, M. G., & **Blanchard, M. R.** (January, 2019). *URM Students' Perceptions of TH!NKing Through Active Learning in a Large-Lecture Classroom*. Paper presented at the annual Association of Science Teacher Education international conference, Savannah, GA.
10. **Blanchard, M. R.**, Gutierrez, K. S., Allred, C., & Hoyle, K. S. (April, 2019). *After-school STEM clubs: Exploring their potential to fill learning opportunity gaps*. Poster presented at the international meeting of the American Educational Research Association, Toronto, Canada.
11. Gutierrez, K. S. & **Blanchard, M. R.** (April, 2019). *"Not Just a Waste of Time": Families Exploring STEM Activities in their Homes*. Paper presented at the international meeting of the American Educational Research Association, Toronto, Canada.
12. McCance, K. R., McAlexander, S. L., **Blanchard, M. R.**, Venditti, R. (September, 2018). *The Collaborative, Interdisciplinary Development of Authentic Science Investigations that Promote Interest in Careers in the Bioeconomy*. Paper presented at the Mid-Atlantic Association for Science Teacher Education, Harrisonburg, VA.
13. Gutierrez, K. S., **Blanchard, M. R.**, & Hodge, B. K. (September, 2018). *"From Baker to Robotics Engineer": Middle School Students and their Families Exploring STEM Activities and Careers in their Homes*. Paper presented at the Mid-Atlantic Association for Science Teacher Education, Harrisonburg, VA.
14. **Blanchard, M. R.**, Gutierrez, K., Hoyle, K.\*, and Green, K.\* (May, 2018). *Thinking creatively about how to address low student achievement and STEM interest: an after-school STEM Career Club intervention*. Seminar presented at the Conference on Science, Technology, Engineering, and Mathematics Education, Sriwijaya University, Palembang, Indonesia.
15. **Blanchard, M. R.**, Gutierrez, K.\*, Hoyle, K.\*, and Green, K.\* (May, 2018). *Thinking creatively about how to address low student achievement and STEM interest: an after-school STEM Career Club intervention*. Seminar on Science, Technology, Engineering, and Mathematics Education, Universitas Pendidikan Ganesha, Singaraja, Indonesia.

16. Hoyle, K. S.\* & **Blanchard, M. R.** (2018, April). *Investigating the skills, knowledge and values of teachers who lead after-school STEM clubs*. Paper presented at the American Educational Research Association, New York City, NY.
17. Gutierrez, K. S. & **Blanchard, M. R.** (2018, April). *Factors impacting intended climate change behaviors: Exploring the at-home learning environment of diverse families*. Poster session presented at the American Educational Research Association, New York City, NY.
18. Alsbury, T., **Blanchard, M. R.**, Gutierrez, K. S., & Tolin, A. D.\* (2018, April). *Districtwide Strategic Teaming and impacts on organizational capacity*. Paper presented at the American Educational Research Association, New York City, NY.
19. Wheeler, S. R.\* & Blanchard, M. R. (2018, March). *Using choice to uncover the role of gender stereotypes in high school physics assignments*. Paper presented at the National Association of Science Teacher Education, Baltimore, MD.
20. Gutierrez, K. S. & **Blanchard, M. R.** (2018, January). *Engaging families in STEM activities in their homes: A mixed-methods study*. Paper presented at the Association of Science Teacher Education, Baltimore, MD.
21. Hoyle, K. S.\* & **Blanchard, M. R.** (2018, January). *Investigating teacher PLCs in support of an after-school STEM club: A comparative case study*. Paper presented at the Association of Science Teacher Education, Baltimore, MD.
22. Nugent, M. L., Green, K. E., **Blanchard, M. R.**, Gutierrez, K. S., & Hoyle, K. S. (2017, September). *Using Seesaw in after-school STEM Career clubs: What we learned*. Short talk presented at the annual meeting of the Mid-Atlantic Association of Science Teacher Education, Prestonsburg, KY.
23. Wheeler, S. R.\* & **Blanchard, M. R.** (2017, July). *Gender and context choice: Influence on student performance and attitudes*. Paper presented at the annual meeting of the American Association of Physics Teachers, Cincinnati, OH.
24. Hoyle, K. S.\* & **Blanchard, M. R.** (2017, August). *Factors that enhance outcomes in four STEM after-school programs*. Paper presented at the international biannual meeting of the European Science Educators Research Association, Dublin, Ireland.
25. **Blanchard, M. R.**, Gutierrez, K. S.\*, Hoyle, K. S.\*, Painter, J. L., & Ragan, N. S. (2017, August). *Rural, underrepresented students' motivation, achievement, and perceptions in afterschool STEM clubs*. Paper presented at the international biannual meeting of the European Science Educators Research Association, Dublin, Ireland.
26. Gutierrez, K. S.\* & **Blanchard, M. R.** (2017, August). *Exploring at-home learning of diverse families: Factors impacting intended climate change behaviors*. Paper presented at the international biannual meeting of the European Science Educators Research Association, Dublin, Ireland.
27. Wheeler, S.\* & **Blanchard, M.R.** (2017, August). *How does a choice in context of physics problems influence student performance and attitudes?* Paper presented at the international biannual meeting of the European Science Educators Research Association, Dublin, Ireland.
28. Gray, K. M.\*, **Blanchard, M. R.**, & Ragan, S. R. (2017, August). *How autonomy, competence, and relatedness influence adoption of modeling instruction*. Paper presented at the international biannual meeting of the European Science Educators Research Association, Dublin, Ireland.
29. **Blanchard, M. R.**, Gutierrez, K. S.\*, Hoyle, K. S.\*, Harper, L. A., Painter, J. L.,

- & Ragan, N. S.\* (2017, April). *Exploring career interests, perceptions, and content knowledge of rural, underrepresented middle school STEM club members*. Paper presented at the American Educational Research Association, San Antonio, TX.
30. **Blanchard, M. R.**, Kier, M. W., Rose, K., & Southerland, S. A. (2017, April). *“Hey, it’s just not my thing:” Exploring nature of science learning with diverse, urban students*. Paper presented at a roundtable at the American Educational Research Association, San Antonio, TX.
31. Gutierrez, K. S.\* & **Blanchard, M. R.** (2017, April). *Factors related to intended climate change behaviors of rural middle school students and their families*. Paper presented at the National Association for Research in Science Teaching, San Antonio, TX.
32. **Blanchard, M. R.**, Gutierrez, K. S.\*, Hoyle, K. S.\*, Harper, L. A., Painter, J. L., & Ragan, N. S.\* (2017, April). *Exploring career interests, perceptions, and content knowledge of rural, underrepresented middle school STEM club members*. Paper presented at the National Association for Research in Science Teaching, San Antonio, TX.
33. Wheeler, S.\* & **Blanchard, M. R.** (2017, April). *Using choice to uncover the role of gender stereotypes in high school physics assignments*. Poster presented at the National Association for Science Teacher Education, San Antonio, TX.
34. Lao, H.-C.\* & **Blanchard, M. R.** (2017, April). *Investigating factors underlying secondary teachers' motivation to use problem-based learning*. Paper presented at the National Association for Research in Science Teaching, San Antonio, TX.
35. Gutierrez, K. S.\* & **Blanchard, M. R.** (2017, January). *Investigating rural, middle school students' beliefs and knowledge about climate change and their cultural worldviews during an after-school STEM Club Intervention*. Paper presented at the Association of Science Teacher Education, Des Moines, IA.
36. **Blanchard, M. R.**, Gutierrez, K. S.\*, Hoyle, K. S.\*, Harper, L. A., Painter, J. L., & Ragan, N. S.\* (2017, January). *Investigating the experiences of middle school students participating in four rural, after-school STEM career clubs*. Paper presented at the Association of Science Teacher Education, Des Moines, IA.
37. Gray, K. M.\*, **Blanchard, M. R.**, & Ragan, N. S.\* (2017, January). *Factors underlying science teacher implementation of modeling instruction*. Paper presented at the Association of Science Teacher Education, Des Moines, IA.
38. Wheeler, S.\* & **Blanchard, M. R.** (2017, January). *Using choice to uncover the role of gender stereotypes in high school physics assignments: Examining students' interest, beliefs, conceptual understandings and motivations*. Paper presented at the Association of Science Teacher Education, Des Moines, IA.
39. **Blanchard, M. R.**, Gutierrez, K. S.\*, Hoyle, K. S.\*, Painter, J. L., & Ragan, N. S.\* (2016, October). *Investigating the experiences of rural middle school students participating in after-school STEM career clubs*. Poster presented at the annual Bridging the Gap conference, Raleigh, NC.
40. **Blanchard, M. R.**, Gutierrez, K. S.\*, Hoyle, K. S.\*, Yoon, H.-G., Painter, J. L., & Ragan, N. S.\* (2016, October). *STEM career clubs: An interactive session on activities, initial findings, and next steps*. Research findings presented at the annual Bridging the Gap conference, Raleigh, NC.
41. **Blanchard, M. R.**, Gutierrez, K. S.\*, Hoyle, K. S.\*, Painter, J. L., & Ragan, N. S.\* (2016, September). *How do middle school students benefit from attending STEM career clubs?*

Paper presented at the Mid-Atlantic Association of Science Teacher Education, Gatlinburg, TN.

42. Gutierrez, K. S.\* & **Blanchard, M. R.** (2016, September). *Can climate change knowledge and beliefs be impacted through a short-term after-school intervention?* Paper presented at the Mid-Atlantic Association of Science Teacher Education, Gatlinburg, TN.
43. Gutierrez, K. S.\* & **Blanchard, M. R.** (2016, September). *Investigating a climate change intervention with students and families in rural North Carolina.* Paper presented at the Environmental Educators of North Carolina annual meeting, Black Mountain, NC.
44. **Blanchard, M. R.**, Gutierrez, K. S.\* , & Hoyle, K. S.\* (2016, April). *Engaging 200 middle school students in after-school STEM career clubs in rural North Carolina.* Poster presented at the Education Action Summit, Disrupting Poverty: Initiating Collective Impact in Education, Raleigh, NC.
45. Phillips, P. P.\* & **Blanchard, M. R.** (2016, March). *The impact of e-education on at risk high school students' science achievement and experiences.* Paper presented at the Society for Information Technology and Teacher Education, Savannah, GA.
46. **Blanchard, M. R.**, Gutierrez, K. S.\* , Harper, L. A.\* , Painter, J. L., & Ragan, N. S.\* (2016, January). *Piloting STEM career clubs at four rural, high poverty middle schools: What students tell us about their club experiences and their future plans.* Paper presented at the Association of Science Teacher Education, Reno, NV.
47. **Blanchard, M. R.**, Gutierrez, K. S.\* , Harper, L. A.\* , Painter, J. L., & Ragan, N. S. (2015, October). *Middle school STEM career club pilot: Student experiences and future plans.* Paper presented at the Mid-Atlantic Association of Science Teacher Education, Lake Lore, OH.
48. Bedward, J. C., **Blanchard, M. R.**, & McDonald, S. (2016, April). *Investigating how the intensity of the STEM program matters: A comparative study.* Paper presented at the National Association for Research in Science Teaching Conference, Baltimore, Maryland.
49. Phillips, P. P.\* & **Blanchard, M. R.** (2016, April). *The impact of e-education on at risk high school students' science achievement and experiences.* Paper presented at the National Association for Research in Science Teaching, Baltimore, Maryland.
50. Kier, M. W.\* & **Blanchard, M. R.** (2016, April). *Rural, high poverty middle school students' STEM career explorations and identification.* Paper presented at the National Association for Research in Science Teaching, Baltimore, Maryland.
51. **Blanchard, M. R.**, Bedward, J. C. & McDonald, S. (2015, September). *"I get to feel like a college student:" Examining the relative impacts of 8th grade STEM interventions on a college campus, in middle school classrooms, and with a comparison school.* Paper presented at the biannual international meeting of the European Science Education Research Association, Helsinki, Finland.
52. **Blanchard, M. R.**, LePrevost, C. E., Tolin, A. D.\* , Gutierrez, K. S.\* (2015, April). *Does adding technology matter? Results of a three-year study with 2300 underrepresented middle school students.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
53. Johnson, D. W.\* & **Blanchard, M. R.** (2015, April). *I am not a statistic: African American males who take advanced science courses.* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
54. Kier, M.W.\* & **Blanchard, M.R.** (2015, April). *Putting the "I" in STEM: How rural, high poverty middle school students incorporate who they are in their consideration of STEM*

- careers*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
55. **Blanchard, M. R.**, Bedward, J. C. & McDonald, S. (2015, April). *“I get to feel like a college student”*: The differential impacts of two STEM interventions. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
56. **Blanchard, M. R.**, LePrevost, C. E., Tolin, D.\* , & Gutierrez, K. S.\* (2015, April). *Technology implementation, affect, and assessment scores: A three-year study with 2300 underrepresented middle school students*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Chicago, IL.
57. Johnson, D. W.\* & **Blanchard, M. R.** (2015, April). *I’m Black, I’m male and I’m intelligent: African American males who take advanced science courses*. Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
58. Kier, M.W.\* & **Blanchard, M.R.** (2015, January). *Can I see myself in this STEM career? How middle school students talk about their motivation and values when making career choices*. Paper presented at the annual meeting of the Association for Science Teacher Education, Portland, Oregon.
59. Albert, J. L.\* , **Blanchard, M. R.**, & Wiebe, E. (2015, January). *How high school students construct or create animations about water boiling*. Part of a session called *Application of Visual Data in K-16 Science Classrooms* to present book chapters in a shared session. Chapter presented at the annual meeting of the Association for Science Teacher Education, Portland, Oregon.
60. **Blanchard, M. R.**, LePrevost, C. E., Tolin, D.\* , & Gutierrez, K. S.\* (2014, September). *What’s tech got to do with it? Achievement results of 2300 high poverty students following three years of technology-infused teacher pd*. Paper presented at the annual meeting of the Mid-Atlantic Association for Science Teacher Education, Blowing Rock, NC.
61. Johnson, D. W.\* & **Blanchard, M. R.** (2014, September). *What factors influence African American males’ enrollment in advanced science courses?* Paper presented at the annual meeting of the Mid-Atlantic Association for Science Teacher Education, Blowing Rock, NC.
62. Phillips, P. P.\* & **Blanchard, M. R.** (2014, September). *How does the use of online science education programs benefit at-risk students?* Paper presented at the annual meeting of the Mid-Atlantic Association for Science Teacher Education, Blowing Rock, NC.
63. **Blanchard, M. R.**, LePrevost, C. E., Tolin, A. D.\* & Gutierrez, K. S.\* (2015, January). *How does a three-year technology-infused teacher professional development program impact the science and mathematics achievement scores of 2300 students in two rural, high poverty middle schools?* Paper presented at the annual meeting of the Association for Science Teacher Education, Portland, OR.
64. **Blanchard, M. R.**, Kier, M. W.\* , & Southerland, S. A. (2014, January). *Exploring social-cognitive factors that may influence students’ understandings of how science works: A case study of four urban high school students*. Paper presented at the annual meeting of the Association for Science Teacher Education, San Antonio, TX.
65. Johnson, D. W.\* & **Blanchard, M. R.** (2014, January). *Understanding factors underlying science course selection by African American students at an inner city high school: An exploratory study*. Paper presented at the annual meeting of the Association for Science Teacher Education, San Antonio, TX.
66. Kier, M. W.\* & **Blanchard, M. R.** (2014, January). *Examining the effects of a STEM career video intervention on the interests of rural, minority middle school students*. Paper



- presented at the annual meeting of the Association for Science Teacher Education, San Antonio, TX.
67. Albert, J. L.\* , **Blanchard, M. R.**, Kier, M. W.\* , Carrier, S. J., & Gardner, G. E.\* (2014, January). *Social and teaching presence in technical support sessions: A descriptive analysis*. Paper presented at the annual meeting of the Association for Science Teacher Education, San Antonio, TX.
  68. **Blanchard, M. R.**, Kier, M. W.\* , & Southerland, S. A. (2013, September). *Four diverse students in an urban high school biology class: What did they know and learn about the nature of science over a year of explicit, reflective instruction?* Paper presented at the annual meeting of the Mid-Atlantic Association for Science Teacher Education, Daniels, WV.
  69. Kier, M. W.\* & **Blanchard, M. R.** (2013, September). *Negotiating a possible STEM (science, technology, engineering, and mathematics) professional self in a rural, high poverty figured world*. Paper presented at the annual meeting of the Mid-Atlantic Association for Science Teacher Education, Daniels, WV.
  70. Johnson, D. W.\* & **Blanchard, M. R.** (2013, September). *Exploring factors underlying science course selection by African American students at an inner city high school*. Paper presented at the annual meeting of the Mid-Atlantic Association for Science Teacher Education, Daniels, WV.
  71. Phillips, P. P.\* & **Blanchard, M. R.** (2013, September). *How does the use of on-line education programs benefit at-risk high school students*. Paper presented at the annual meeting of the Mid-Atlantic Association for Science Teacher Education, Daniels, WV.
  72. **Blanchard, M. R.**, Kier, M. W.\* , Osborne, J. W., & Albert, J. L.\* (2013, September). *The development of the STEM career interest survey (STEM-CIS)*. Paper presented at the international biannual meeting of the European Science Education Research Association, Nicosia, Cyprus.
  73. Alsbury, T. L., **Blanchard, M. R.**, Overstreet, N. A., & Albert, J. L.\* (2013, April). *Using a districtwide strategic teaming model to assist innovation and reform in impoverished districts: Innovation leaders academy*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
  74. Albert, J. L.\* , **Blanchard, M. R.**, & Wiebe, E. N. (2013, April). *Using student-generated animations to assess student understanding of the particulate nature of matter*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
  75. Kier, M. W.\* , **Blanchard, M. R.**, Osborne, J. W., & Albert, J. L.\* (2013, April). *The development of the STEM career interest surveys (STEM-CIS)*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Rio Grande, Puerto Rico.
  76. Kier, M. W.\* , **Blanchard, M. R.**, Osborne, J.W., & Albert, J. L.\* (2013, January). *The development of the STEM career interest survey (STEM-CIS)*. Paper presented at the annual meeting of the Association for Science Teacher Education, Charleston, SC.
  77. **Blanchard, M. R.**, Alsbury, T. L., Albert, J. L.\* , Adams, M. J. & Kier, M. W.\* (2012, September). *Preliminary results of using a strategic teaming model for systemic district reform*. Paper presented at the annual meeting of the Mid-Atlantic Association for Teacher Education, Pembroke, VA.

78. Albert, J. L.\* & **Blanchard, M. R.** (2012, September). *Student-generated digital animations as a form of assessment*. Paper presented at the annual meeting of the Mid-Atlantic Association for Teacher Education, Pembroke, VA.
79. Kier, M. W.\* & **Blanchard, M. R.** (2012, September). *What are the STEM career interests of rural minority middle school students? Initial findings*. Paper presented at the annual meeting of the Mid-Atlantic Association for Teacher Education, Pembroke, VA.
80. Alsbury, T. L., Overstreet, N. A., **Blanchard, M. R.**, Osborne, J. W., Williams, B., Albert, J. L.\*, Kier, M. W.\* & Reed, R. (2012, November). *Innovation leaders' academy: Sustaining innovation in high need districts*. Paper presented at the annual convention of the University Council for Educational Administration, Denver, CO.
81. **Blanchard, M. R.**, Osborne, J. W., & Albert, J. L.\* (2012, March). *Is it possible to explicitly stimulate pedagogical discontentment in science teachers through a graduate course?* Paper presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.
82. Albert, J. L.\*, **Blanchard, M. R.**, & Wiebe, E. N. (2012, March). *Exploring student-created animations to understand student learning progressions of water boiling*. Poster presented at the annual meeting of the National Association for Research in Science Teaching, Indianapolis, IN.
83. Kier, M. W.\*, **Blanchard, M. R.**, Osborne, J. W., & Albert, J. L.\* (2012, February). *The STEM career interest survey (STEM-CIS)*. Paper presented at the annual regional meeting of the Eastern Educational Research Association, Hilton Head Island, SC.
84. **Blanchard, M. R.**, Osborne, J. W., Albert, J. L.\*, & Kinton, J. H.\* (2012, February). *Is it possible to explicitly stimulate pedagogical discontentment in science teachers through a graduate course?* Paper presented at the annual regional meeting of the Eastern Educational Research Association, Hilton Head Island, SC.
85. Davis, H. A., **Blanchard, M. R.**, & Jones, M.G. (2012, January). *Understanding the role of science teacher relationships in promoting adolescents' motivation to engage in science: Examining four class cases*. Paper presented at the annual meeting of the Association for Science Teacher Education, Clearwater, FL.
86. Madden, L. O.\*, Jones, M. G., & **Blanchard, M. R.** (2012, January). *Photonarratives in an online master's course: A viable way to enhance teacher reflection?* Paper presented at the annual meeting of the Association for Science Teacher Education, Clearwater, FL.
87. Albert, J. L.\*, Wiebe, E. N., & **Blanchard, M. R.** (2012, January). *Do student-generated digital animations enhance student understanding of water boiling? A study comparing student learning in a sci vis course*. Paper presented at the annual meeting of the Association of Science Teacher Educators, Clearwater, Florida.
88. Alsbury, T. L., Overstreet, N. A., **Blanchard, M. R.**, Osborne, J. W., Williams, B., Albert, J. L.\*, Kier, M. W. \*, & Reed, R. (2012, April). *Innovation leaders' academy: Districtwide strategic teaming that improves the implementation and sustainability of innovative reform programs in high need districts*. Paper presented at the annual meeting of the American Educational Research Association, Vancouver, British Columbia, Canada.
89. Kier, M. W.\*, **Blanchard, M. R.**, Osborne, J. W., & Cobb, M. D. (2011, October). *Development of the STEM career video survey*. Paper presented at the annual meeting of the Mid-Atlantic Association of Science Teacher Educators, Olive Hill, Kentucky.
90. **Blanchard, M. R.**, Albert, J. L.\*, & Osborne, J. W. (2011, September). *Exploring the relationship of pedagogical discontentment to teachers' changes in practices*. Paper

- presented at the international biannual meeting of the European Science Education Research Association, Lyon, France.
91. Wallwork, C., Harris, B. S., **Blanchard, M. R.**, Osborne, J. W., Stevens, V. C.\* & Kinton, J. H.\* (2011, November). *The state of inquiry in North Carolina*. Paper presented at the annual meeting of the North Carolina Science Teachers Association, Greensboro, NC.
  92. **Blanchard, M. R.**, & Sampson, V. D. (2011, April). *Take 10 teachers, add 2 scientists, stir in the national reform goals, and let marinate for 6 weeks – is this a good recipe for an effective RET program?* Paper presented as part of a symposium entitled “Implications of Research on K-12 Student and Teacher, and Undergraduate Apprenticeships for Science Teaching and Learning” at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.
  93. **Blanchard, M. R.**, Osborne, J. W., & Albert, J. L.\* (2011, March). *Results of a two-year study: Exploring the relationship of teachers’ pedagogical discontentment to changes in practices for 28 rural science and mathematics teachers*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Orlando, FL.
  94. **Blanchard, M. R.**, Osborne, J. W., & Albert, J. L.\* (2011, April). *Are there benefits to pedagogical discontentment? A two-year study exploring its link to rural science & mathematics teachers’ changes in practices*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
  95. LePrevost, C. E.\*, Storm, J. F., **Blanchard, M. R.**, Asuaje, C. R., Harris, K. G., & Cope, W. G. (2010, January). *Development of visual and interactive materials for educating Latino farmworkers about pesticide risks*. Poster session presented at the Agricultural Safety and Health Council of America-National Institute for Occupational Safety and Health Joint Conference, Dallas, TX.
  96. **Blanchard, M. R.**, Osborne, J. W., & Albert, J. L.\* (2010, March). *Investigating the role of pedagogical discontentment in teachers’ changes in practice: An exploration of 23 rural science and mathematics teachers following technology-infused teacher professional development*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.
  97. LePrevost, C. E.\*, **Blanchard, M. R.**, Storm, J. F., Asuaje, C. R., & Cope, W. G. (2010, March). *The importance of visual materials for educating Latino farmworkers about pesticide risks*. Poster presented at the annual meeting of the National Association for Research in Science Teaching, Philadelphia, PA.
  98. LePrevost, C. E.\*, Storm, J. F., **Blanchard, M. R.**, Asuaje, C. R., Harris, K. G., & Cope, W. G. (2010, June). *The pesticides and farmworker health toolkit: A crop-specific, interactive educational package*. Poster session presented at the annual meeting of the National Institute for Farm Safety, Wilmington, NC.
  99. **Blanchard, M. R.**, Southerland, S. A., Osborne, J. W., & Sampson, V. D. (2009, September). *A comparative study of the effectiveness of inquiry vs. deductive laboratory instruction in middle and high school science classrooms*. Paper presented at the international biannual meeting of the European Science Education Research Association, Istanbul, Turkey.
  100. Osborne, J. W., & **Blanchard, M. R.** (2009, May). *The importance of detecting random responding in research participants*. Paper presented at the annual meeting of the American Psychological Society, San Francisco, CA.
  101. **Blanchard, M. R.** (2009, April). *Question analysis as a tool to understand changes in*

- inquiry-based science teaching: Strengths and weaknesses*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Anaheim, CA.
102. Addy, T. M.\*, & **Blanchard, M. R.** (2009, April). *Reform in undergraduate science laboratories: Beliefs and practices of graduate teaching assistants following participation in a teacher certificate program*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Anaheim, CA.
103. **Blanchard, M. R.**, Grable, L. L., & Sharp, J.\* (2009, March). *Scaffolding technology integration of middle school science and mathematics: Comparing the results of two models of teacher professional development*. Paper presented at the annual meeting of the Society for International Technology and Education, Charleston, SC.
104. **Blanchard, M. R.**, Sharp, J.\*, and Grable, L. L. (2009, January). *Videoconferencing versus face-to-face: Comparing the satisfaction of rural, middle school teachers with two different follow-up methods to teacher professional development*. Paper presented at the annual meeting of the Association for Science Teacher Education, Hartford, CT.
105. Addy, T. M.\*, & **Blanchard, M. R.** (2009, January). *Assessing the beliefs and practices of university teaching assistants in the life sciences following participation in a reform-based teacher certificate program*. Paper presented at the annual meeting of the Association for Science Teacher Education, Hartford, CT.
106. **Blanchard, M. R.** & Sharp, J.\* (2008, October). *Comparing two methods of technical support for teachers: Videoconferencing versus face-to-face*. Paper presented at the annual national meeting of the School Science and Mathematics Association, Durham, NC.
107. **Blanchard, M. R.**, Annetta, L. A., & Southerland, S. A. (2008, April). *Investigating the effectiveness of inquiry-based versus traditional science teaching methods in middle and high school laboratory settings*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, Baltimore, MD.
108. **Blanchard, M. R.**, Annetta, L. A., & Southerland, S. A. (2008, March). *Student learning in a laboratory setting: Comparing the effectiveness of inquiry-based versus deductive science teaching methods*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
109. **Blanchard, M. R.** (2008, January). *'Optimal' inquiry: Four case studies*. Paper presented at the annual meeting of the Association for Science Teacher Education, St. Louis, MO.
110. **Blanchard, M. R.**, Sharp, J. \*, & Grable, L. L. (2008, September). *Is videoconferencing a feasible option for teacher technical support? A mixed-methods pilot study with 29 rural, middle school science and mathematics teachers*. Paper presented at the annual meeting of the Mid-Atlantic Association for Science Teacher Educators, Lake Lure, NC.
111. **Blanchard, M. R.**, & Southerland, S. A. (2007, April). *No silver bullet: Making sense of teacher change following an inquiry-based research experience for teachers*. Paper presented at the annual meeting of the National Association for Research in Science Teaching, New Orleans, LA.
112. **Blanchard, M. R.**, Granger, D. E., & Gilmer, P. J. (2007, January). *University as reform agent: How inquiry conceptions underlying a non-traditional RET intersect with those of science teachers and other scientists*. Paper presented at the annual meeting of the Association for Science Teacher Education, Clearwater Beach, FL.
113. Settlege, J. & **Blanchard, M. R.** (2007, January). *Requisite teacher knowledge about inquiry and its classroom application*. Paper presented at the annual meeting of the Association for Science Teacher Education, Clearwater Beach, FL.

114. **Blanchard, M. R.**, & Davis, N. T. (2006, April). *Question analysis as a way to understand inquiry enactment: What do numbers tell us?* Paper presented at the international meeting of the American Educational Research Association, San Francisco, CA.
115. Sowell, S., Southerland, S. A., & **Blanchard, M. R.** (2006, April). *Who are the "They" in "They say..."? Finding fruitfulness of nature of science within an urban context.* Paper presented at the annual meeting of the National Association for Research in Science Teaching, San Francisco, CA.
116. **Blanchard, M. R.**, & Southerland, S. A. (2006, January). *No silver bullet for inquiry: The interactions of RET's and teachers' conceptions of teaching & learning.* Paper presented at the annual meeting of the Association for Science Teacher Education, Portland, OR.
117. **Blanchard, M. R.**, & Davis, N. T. (2006, October). *In search of the holy grail: Understanding inquiry in real classrooms through question analysis following a RET.* Paper presented at the annual meeting of the Southeastern Association of Science Teacher Educators, Macon, GA.

### Conference Presentations, In Review

#### Conference Practitioner Presentations/Workshops 2006-Present

Total: 20; Total with Students: 15

1. McAlexander, S.\*, Starkey, H., McCance, K.\*, **Blanchard, M. R.**, & Venditti, R. (October, 2018). *Generating Excitement for careers in the bioeconomy: A four-year partnership with rural high schools, community colleges, universities, and industry.* Presentation at the Bridging the Gap 2018: Uniting North Carolina STEM Education, Raleigh, North Carolina.
2. **Blanchard, M.R.**, Gutierrez, K. S.\*, Hoyle, K. S.\*, Painter, J. L., & Ragan, N. S.\* (2016, October). *Just breathe.* Workshop presented at the annual meeting of the North Carolina Science Teacher Association, Greensboro, NC.
3. **Blanchard, M.R.**, Gutierrez, K. S.\*, Painter, J. L., Ragan, N. S.\*, & Hoyle, K. S.\* (2015, November). *How to launch an after school STEM career club.* Workshop presented at the annual meeting of the North Carolina Science Teacher Association, Winston-Salem, NC.
4. **Blanchard, M. R.**, Spain, R., Cannaday, W., & Alsbury, T. (2013, October). *The role of leaders in a systemic, rural reform model: Steps taken and what seems promising.* Poster presented at the Bridging the Gap Conference, Raleigh, NC.
5. **Blanchard, M. R.**, Aguas, L., Aguilar, C.\*, Brittenham, N., & Ruffin, W. (2013, November). *The dating game: STEM career edition.* Workshop presented at the annual regional meeting of the National Science Teacher Association, Charlotte, NC.
6. Albert, J. L.\*, Reed, R., **Blanchard, M. R.**, Ruffin, W, & Aguilar, C.\* (2012, November). *Take virtual field trips and explore science labs!* Workshop presented at the annual meeting of the North Carolina Science Teachers Association, Winston-Salem, NC.
7. **Blanchard, M. R.**, Kinton, J. H.\*, Emig, B. R., Stevens, V. C.\*, Childers, G.\*, Albert, J. L.\*, & Kier, M. W.\* (2012, April). *Flip for STEM Careers.* Presentation at the annual meeting of the National Science Teacher Association, Indianapolis, IN.
8. **Blanchard, M. R.** & Albert, J. L.\* (2012, February). *The STEM career interest survey.* Presentation at the annual ITEEST Summit, Washington, D.C.

9. Kier, M. W.\*, **Blanchard, M. R.**, Albert, J. L.\*, & Stevens, V. C.\* (2011, November). *Itouch a STEM career*. Presentation at the annual meeting of the North Carolina Science Teachers Association, Greensboro, NC.
10. Albert, J. L.\* & **Blanchard, M. R.** (2010, March). *Connecting the dots: Using Elluminate and video-conferencing to stay connected to rural teachers*. Presentation at the annual meeting of the National Science Teacher Association, Philadelphia, PA.
11. **Blanchard, M. R.**, Albert, J.\*, & Wagstaff, I.\* (2010, November). *No matter the weather, we'll measure together*. Workshop presented at the annual meeting of the North Carolina Science Teachers Association, Greensboro, NC.
12. LePrevost, C. E.\*, Storm, J. F., **Blanchard, M. R.**, Asuaje, C. R, Harris, K. G., & Cope, W. G. (2009, August). *Development of visual and interactive materials for educating Latino farmworkers about pesticide risks*. Poster session presented at the biennial conference of the North American Pesticide Applicator Certification & Safety Education Workshop, Charleston, SC.
13. **Blanchard, M. R.** (2009, March). *Two educational studies following the marine ecology for teachers program, a RET funded at a major university in the southeastern United States*. Poster session presented at the annual national conference of the National Science Teacher Association, New Orleans, LA.
14. Sharp, J.\*, & **Blanchard, M. R.** (2009, March). *Rev your engines: A low budget, high-tech middle school automotive lab*. Session presented at the annual national meeting of the National Science Teacher Association Meeting, New Orleans, LA.
15. Jones, M. G., Falvo, M., **Blanchard, M. R.** & Taylor, A.\* (2009, November). *Extreme science: Scales from nano to galactic*. Session presented at the annual regional meeting of the National Science Teacher Association Meeting, Ft. Lauderdale, FL.
16. **Blanchard, M. R.**, Harris, J., & Hofer, M. (2009, March). *Operationalizing tpack for educators: The activity types approach to technology integration*. Symposium presentation at the Society for Information Technology and Teacher Education (SITE) annual conference, Charleston, SC.
17. **Blanchard, M. R.**, Grable, L. L., Sharp, J.\*, Blake, C., & Moore, C. (2008, October). *Success stories: How we used probeware to explore real-life problems*. Session presented at the annual regional meeting of the National Science Teacher Association Meeting, Charlotte, NC.
18. Grable, L. L., **Blanchard, M. R.**, & Reed, R. (2008, October). *Transforming middle school mathematics/science outreach for the 21<sup>st</sup> century*. Session presented at the annual meeting of the Outreach Scholarship Conference, University Park, PA.
19. Grable, L. L. & **Blanchard, M. R.** (2008, January). *Future ready science for middle school: Create a data-rich environment*. Presentation at the annual meeting of the American Association of Physics Teachers, Baltimore, MD.
20. **Blanchard, M. R.** & Sharp, J. L.\* (2007, November). *Was the school fire a crime or an accident? You figure it out!* Workshop presented at the annual meeting of the North Carolina Science Teachers Association, Greensboro, NC.

### Curriculum Projects 2006-Present

**Blanchard, M. R.**, Gutierrez, K.S.\*, Hoyle, K.S.\*, Harper, L., Albert, J. L.\*, Kier, M. W.\*, Kinton, J. H.\*, Stevens, V. L.\*, & Pigford, K.\* (2010-Present). STEM Careers Wiki, NC State

University. <http://stemcareerawareness.wikispaces.com>.

The STEM Career Awareness Wiki was developed as a free resource for schools involved in the original STEM Teams NSF grant project, as a way to disseminate materials. It was such a useful resource that it now is being used for the STEM Career Clubs NSF grant, and all practitioner articles locate materials on the site. It is a resource which has links to online STEM career videos to primarily feature women and people of color in those careers, and we have developed accompanying fact sheets, scripts, and all sorts of STEM career activities as a part of the wiki. To date, the site has had more than 100,000 unique visitors to the site to access the resources.

**Blanchard, M. R.**, Albert, J. L.\*, & Grable, L. L. (2006-2014). 21CTL and SMART for Teachers Materials, NC State University, The Friday Institute.

These materials were developed for these two projects and were available on the Friday Institute website over about eight years, with all of the mathematics, science and technology-enhanced lessons that we used in the project. When Friday Institute updated their website, they took down links for inactive projects.

**Blanchard, M. R.**, Harris, J., & Hofer, M. (2011, February). *Science Learning Activity Types*. Retrieved from College of William and Mary, School of Education, Learning Activity Types Wiki: <http://activitytypes.wmwikis.net/file/view/ScienceLearningATs-Feb2011.pdf>

I was recruited by Judi Harris and Mark Hofer to co-write Science Activity Types to help teachers link instructional technologies to their teaching that took advantage of the affordances of the technologies, and followed the natural process of teacher planning. We published two articles in the *Journal of Technology and Teacher Education* that related to this work, and have these resources freely available to teachers.

### Unpublished Technical Reports

1. **Blanchard, M. R.**, Painter, J. L., & Gray, D. (2018). ITEST: Final Project Outcomes Report. *STEM career clubs: Enhancing the potential of underrepresented students in STEM careers through a strategic teaming model*. National Science Foundation, Arlington, VA
2. Gutierrez, K. S., Hoyle, K. S.\*, Painter, J. L., Gray, D., Williams, B., Alsbury, T. L., Johnson, J., & **Blanchard, M.R.** (2017). ITEST: Annual Project Outcomes Report. *STEM career clubs: Enhancing the potential of underrepresented students in STEM careers through a strategic teaming model*. National Science Foundation, Arlington, VA.
3. Painter, J. L., **Blanchard, M. R.**, Gutierrez, K. S.\*, Hoyle, K. S.\*, Alsbury, T. L., & Gray, D., Williams, B., & Johnson, J. (2016). ITEST: Annual Project Outcomes Report. *STEM career Clubs: Enhancing the potential of underrepresented students in STEM careers through a strategic teaming model*. National Science Foundation, Arlington, VA.
4. Painter, J. L., **Blanchard, M. R.**, Gutierrez, K. S.\*, Alsbury, T. L., & Gray, D. (2015). ITEST: Annual Project Outcomes Report. *STEM career clubs: Enhancing the potential of underrepresented students in STEM careers through a strategic teaming model*. National Science Foundation, Arlington, VA.
5. Rider, T. R. & **Blanchard, M.R.** (2015). Dominion Final Report. *Building energy toolkit program*. The Dominion Foundation.
6. **Blanchard, M. R.** (2014). ITEST: Final Report. *STEM teams*. National Science Foundation, Arlington, VA.

7. **Blanchard, M. R.** (2014). University Extension, Engagement, and Economic Development Seed Grant: Final Report. *STEM career clubs*. North Carolina State University, Raleigh, NC.
8. **Blanchard, M. R.**, Albert, J. L.\*, Williams, B., & Alsbury, T. L. (2013). ITEST Annual Project Outcomes Report. *STEM teams: Promoting science, technology, engineering, and mathematics (STEM) career interest, skills, and knowledge through strategic teaming*, National Science Foundation, Arlington, VA.
9. **Blanchard, M. R.** & Albert, J. L.\* (2012). NC QUEST Cycle IX Final Report. *Science scholars II: Developing 21<sup>st</sup> century teacher scholars*. Quality Educators through Staff Development and Training across North Carolina, UNC Center for Leadership School Development, Chapel Hill, NC.
10. **Blanchard, M. R.** (2012). University Extension, Engagement, and Economic Development Seed Grant: Final Report. *Flip for STEM careers*. North Carolina State University, Raleigh, NC.
11. **Blanchard, M. R.**, Albert, J. L.\*, Alsbury, T. L., & Williams, B. (2012). ITEST Annual Project Outcomes Report. *STEM teams: Promoting science, technology, engineering, and mathematics (STEM) career interest, skills, and knowledge through strategic teaming*. National Science Foundation, Arlington, VA.
12. **Blanchard, M. R.** & Albert, J. L.\* (2012). NC QUEST Cycle IX Progress Report, *Science scholars II: Developing 21<sup>st</sup> century teacher scholars*. Quality Educators through Staff Development and Training across North Carolina, UNC Center for Leadership School Development, Chapel Hill, NC.
13. **Blanchard, M. R.**, Albert, J. L.\*, Williams, B., Alsbury, T. L. & Osborne, J. W. (2011). ITEST Annual Project Outcomes Report: Innovative Technology Experiences for Students and Teachers. *STEM teams: Promoting science, technology, engineering, and mathematics (STEM) career interest, skills, and knowledge through strategic teaming*, National Science Foundation, Arlington, VA.
14. Jones, M. G. & **Blanchard, M. R.** (2011). NC QUEST Cycle VIII Final Report. *Science scholars: Developing 21<sup>st</sup> century teacher scholars*. Quality Educators through Staff Development and Training across North Carolina, UNC Center for Leadership School Development, Chapel Hill, NC.
15. Jones, M. G. & **Blanchard, M. R.** (2010, January). NC QUEST Cycle VIII Progress Report. *Science scholars: Developing 21<sup>st</sup> century teacher scholars*. Quality Educators through Staff Development and Training across North Carolina, UNC Center for Leadership School Development, Chapel Hill, NC.
16. Toumey, C., Besley, J., **Blanchard, M.**, Brown, M., Cobb, M., Ecklund, E. H., Glass, M., Guterbock, T., Kelly, A. E., & Lewenstein, B. (2010). *Science in the service of citizens & consumers: The NSF workshop on public knowledge of science*. Recommendations for the National Science Board, Arlington, VA.
17. **Blanchard, M. R.** & Reed, R. (2010). NC QUEST Cycle VII Final Report. *SMART for teachers: Science and mathematics achievement through enriched technology for teachers, phase II*. Quality Educators through Staff Development and Training across North Carolina, UNC Center for Leadership School Development, Chapel Hill, NC.
18. **Blanchard, M. R.** & Reed, R. (2010, January). NC QUEST Cycle VII Progress Report. *SMART for teachers: Science and mathematics achievement through enriched technology for teachers, phase II*. Quality Educators through Staff Development and Training across North Carolina, UNC Center for Leadership School Development, Chapel Hill, NC.



19. **Blanchard, M. R.** & Reed, R. (2009). NC QUEST Cycle VI Final Report, *SMART for teachers: Science and mathematics achievement through enriched technology for teachers*. Quality Educators through Staff Development and Training across North Carolina, UNC Center for Leadership School Development, Chapel Hill, NC.
20. **Blanchard, M. R.** & Reed, R. (2009, January). NC QUEST Cycle VI Progress Report, *SMART for teachers: Science and mathematics achievement through enriched technology for teachers*. Quality Educators through Staff Development and Training across North Carolina, UNC Center for Leadership School Development, Chapel Hill, NC.
- 21-24. **Blanchard, M. R.**, Southerland, S. A., Awad, B. R., & Granger, E. M. (2007). Final Report, *Assessment of student learning in a laboratory setting: A quantitative study of inquiry-based versus traditional science teaching methods*. Multi-University Reading, Mathematics, and Science Initiative, Learning Systems Institute, FSU. Quarterly Progress Reports: December, 2005; March, 2006; June, 2006.

### **Professional Memberships for Research**

National Association for Research in Science Teaching (NARST) 1999 – Present.  
 American Educational Research Association (AERA) 2006 – Present.  
 European Science Education Research Association (ESERA) 2009 – Present.  
 Association for Science Teacher Education (ASTE) 2007 – Present.  
 Mid-Atlantic Association for Science Teacher Education (MAASTE) 2008 – Present.

## **TEACHING**

### **Teaching Recognition**

Thank a Teacher Award, NC State University, 2012, 2013, 2014, 2016, 2018.  
 Invited contributor to article about the College of Education <https://ced.ncsu.edu/news/stem-ed-leaders/>

Nominations:

Nominee, Outstanding Mentor, ASTE, 2018  
 Nominee, Outstanding Graduate Faculty Mentor, NC State University, 2016.  
 Nominee, Outstanding Teacher Award, NC State University, 2016, 2018.

### **30 Student Awards/Recognition**

2019 Katherine McCance, Graduate Student Association Travel Award, NC State University  
 2018 Michelle Nugent, CED Doctoral Dissertation Support Grant  
 2017 Sam Wheeler, Featured on NCSU College of Education Website, <https://ced.ncsu.edu/news/2017/12/13/sam-wheeler-17-phd-going-the-extra-mile/>  
 2017 Sam Wheeler, American Association for Physics Teachers (AAPT) Special Projects and Philanthropy Travel Award  
 2017 Michelle Nugent, Graduate Student Teaching Award, NC State University.  
 2017 Sam Wheeler, National Association for Research in Science Teaching (NARST) Teacher Scholarship.  
 2016 Kylie Swanson Hoyle, 2016 Mid-Atlantic Association for Science Teacher Education Outstanding Graduate Student Presentation Award.  
 2016 Kristie Gutierrez, Travel Award, Environmental Educators of North Carolina Annual Conference.

- 2016 Shana McAlexander, Graduate Student Teaching Award, NC State University.  
 2016 Pamela Phillips, NARST Teacher Scholarship.  
 2016 Kylie Swanson Hoyle, Penick Fellowship.  
 2015 Kristie Gutierrez, Graduate Student Teaching Award, NC State University.  
 2014 Bruce Boller, Teacher of the Year, Bertie Early College High School and Bertie County.  
 2014 Cicelia Aguilar, Teacher of the Year, Warren County Middle School.  
 2014 Cicelia Aguilar, Kenan Fellow, NC State University.  
 2014 Mollie Richardson, Kenan Fellow, NC State University.  
 2014 Pamela Phillips, Outstanding Science Teacher Award Sigma Xi, NCSU Chapter.  
 2014 Kayla Norville, Kenan Fellow, NC State University.  
 2014 Bruce Boller, 2014 Outstanding 9-16 Educator in Science, Mathematics, and Technology Education, N.C. Science, Mathematics, and Technology Education Center, NC.  
 2013 Diane W. Johnson, 2013 Mid-Atlantic Association for Science Teacher Education Outstanding Graduate Student Presentation Award.  
 2013 Meredith Kier, NC State University Graduate Student Research Symposium Presenter.  
 2012 Sam Wheeler, Einstein Fellow.  
 2012 Meredith Kier, Agnes and Garfield Stiff Graduate Student Research Award.  
 2012 Meredith Kier, College of Education Dissertation Support Award.  
 2011 Meredith Kier, Penick Fellowship.  
 2011 Matthew Gromlich, Undergraduate Research Award.  
 2011 Meredith Kier, Sandra K. Abell Institute for Doctoral Students Participant.  
 2010 Jennifer Albert, College of Education Dissertation Support Award.  
 2009 Tracie Addy, Agnes and Garfield Stiff Graduate Student Research Award.  
 2008 Jennifer Albert, Penick Fellowship.

### **Professional Positions of Ph.D. Graduates**

- Kristie S. Gutierrez, Assistant Professor of Science Education, Old Dominion University, Norfolk, VA.  
 Kylie S. Hoyle, Assistant Professor of Inclusive Elementary Education, University of Colorado at Colorado Springs, Colorado Springs, CO.  
 Huei-Chen Lee, K-12 Science Education & Outreach Coordinator, National Institute of Environmental Health Sciences, Research Triangle Park, NC.  
 Catherine E. LePrevost, Teaching Associate Professor of Applied Ecology, NC State University, Raleigh, NC.  
 Meredith W. Kier, Associate Professor of Education, William and Mary, Williamsburg, VA; Assistant Professor of Science Education, Howard University, Washington D.C. (2013-2015).  
 Jennifer L. Albert, Assistant Professor & STEM Center Director, The Citadel, Charleston, SC.  
 Kathleen M. Gray, Associate Director for Outreach and Public Service, Clinical Assistant Professor UNC Institute for the Environment, Chapel Hill, NC.  
 Diane W. Johnson, Instructional Facilitator, Durham County Schools.  
 Pamela P. Phillips, Science Teacher and Adjunct Professor, Johnston County Schools and Johnston Community College.

### **Courses Taught at NC State**

**Undergraduate:** EMS 203 Introduction to Teaching Science; EMS 375 Methods of Teaching

Science I; EMS 476 Student Teaching in Science (student teacher supervision); EMS 495 Senior Seminar in Science Education.

**Master's:** EMS 501 Readings I in Science Education; EMS 521 Advanced Methods I in Science Education, synchronous/online; EMS 531 Research Methods in Science Education, synchronous/online; EMS 573 Tech Tools for Science Teaching, synchronous/online; EMS 575 Foundations in Science Education, face-to-face & synchronous/online.

**Doctoral:** EMS 730 Trends and Issues in Science Education; EMS 732 Theoretical and Critical Perspectives of Science Education; EMS 775 Foundations in Science Education; EMS 802 Seminar in Mathematics Education; EMS 803 Seminar in Science Education; EMS 832 Research Applications in Science Education; EMS 851 Research Internship in Science Education, 10 doctoral students mentored; ED 730 Introduction to Qualitative Research Methods; ED 731 Advanced Qualitative Research and Data Analysis in Education.

**Doctoral Committees Chaired or Co-Chaired (Total:14 – Current, 2)**

- Shana McAlexander, STEM Education (Ph.D., expected Summer 2020)
- Megan Polzin, STEM Education (Ph.D.)
- Stephanie Teeter, STEM Education (Ph.D., expected Spring 2022; Co-Chair, K.C. Busch, STEM Education)

**Ph.D. Graduates (11 Total)**

1. Kimberly Pigford, STEM Education (Spring 2018) (Co-Chair, Miriam Ferzli, Biological Sciences)  
Dissertation Title: *Motivation Mediated Student Performance in Undergraduate Biology Active Learning Environments.*
2. Kathleen Gray, STEM Education (Spring 2018) (Co-Chair, Catherine E. LePrevost, Applied Ecology)  
Dissertation Title: *Characterizing Environmental Health Literacy Related to Fish Consumption Advisories: Knowledge and Beliefs of Informal Educators in a Southeastern State*
3. Kylie Swanson Hoyle, Ph.D., STEM Education (Fall 2017)  
Dissertation Title: *Investigating the Interactions, Beliefs, and Practices of Teacher-Coach Teams in a STEM After-School Setting.*
4. Samuel Wheeler, Ph.D., STEM Education (Fall 2017)  
Dissertation Title: *Using Choice to Uncover the Role of Gender Stereotypes in High School Physics Assignments: Examining students' interests, beliefs, conceptual understanding and motivations.*
5. Huei-Chen Lao, Ph.D. STEM Education (Fall 2016)  
Dissertation Title: *Development of a Survey to Examine the Factors that Motivate Secondary Education Teachers' Use of Problem-based Learning (PBL).*
6. Kristie Gutierrez, Ph.D., STEM Education (Summer 2016)  
Dissertation Title: *Investigating the Climate Change Beliefs, Knowledge, Behaviors, and Cultural Worldviews of Rural Middle School Students and their Families during an Out-of-School Intervention: A Mixed-Methods Study.*
7. Pamela Phillips, Ph.D., STEM Education (Summer 2015)  
Dissertation title: *The Impact of e-Education on At Risk High School Students' Science Achievement and Experiences during Summer School Credit Recovery Courses.*

8. Diane Johnson, Ph.D., STEM Education (Fall 2014)  
Dissertation Title: *"I'm Not a Statistic": Identities of African American Males in Advanced Science Courses.*
9. Meredith Weaver Kier, Ph.D., STEM Education (Spring 2013)  
Dissertation Title: *Examining the Effects of a STEM Career Video Intervention on the Interests and STEM Professional Identities of Rural, Minority Middle School Students.*
10. Jennifer Albert, Ph.D., STEM Education (Spring 2012) (Co-Chair, Eric N. Wiebe, STEM Education)  
Dissertation Title: *Using Student-Generated Animations about Water Boiling to Impact Student Understanding of the Particulate Nature of Matter.*
11. Catherine LePrevost, Ph.D., STEM Education (Spring 2011) (Co-Chair, W. Greg Cope, Applied Ecology).  
Dissertation Title: *An examination of farmworker pesticide educators in a southeastern state: Informal science educators and risk communication.*

#### **Doctoral Committee Member – 27 Total; 12 Current**

TELS – 4 (Current: Dell Tolin, Whitney McCoy; Rachael Debnam-O'Dea); STEM Education – 18 (Current: Brandy Bowling, Stephanie Grady, Dorothy Holley, Sarah Luginbuhl, Whitney Richardson, Kayla Norville, Matt Reynolds, Taylor Harrison); Katie Smith (ELPHD); Sociology – 1; Physics – 3; MEAS – 2; UNC Chapel Hill – 2 (Current: Dalila Dragnic-Cindric)

#### **Masters Committee chair – 42 Total; M.Ed. Committee Member: 2; 7 Current**

Current M.Ed. Advisees: 7 (Current: Michael Roche, Gary Wright, Lauren Harper, Ashita Harris, Liana Blue, Stephanie Hutto, Rachelle Moffitt)

M.Ed. Graduates: 32

M.S. Committee Member Graduates: 1

M.Ed. Committee Member Graduates: 2 (Non-Option B)

MAT Students: Advised 15 students/year until 2013

#### **Undergraduate Students – 40 Total**

Advised 10-12 students/year 2006-2012

#### **Professional Memberships for Teaching**

National Science Teacher Association (NSTA) 2008 - Present

North Carolina Science Teachers Association (NCSTA) 2007 - Present

North Carolina Science Leadership Association (NCSLA) 2011 - 2018

### **EXTENSION, ENGAGEMENT & SERVICE**

#### **Extension and Outreach Awards & Recognition**

NSF STEM Teams Project Outreach featured in: Vogt, K. A., Remold, J., Singleton, C., Parker, C. E. (2016). *Promising Approaches to Broadening Youth Participation in STEM*  
<http://stelar.edc.org/sites/stelar.edc.org/files/Promising%20Approaches%20to%20Broadening%20Youth%20Participation%20in%20STEM.pdf>

Alumni Association Outstanding Extension and Outreach Award, NC State University, 2013.

Outstanding Extension and Engagement Award, College of Education, NC State University, 2013.

Inductee, Academy of Outstanding Faculty in Extension and Engagement, NC State University, 2013.

### **International Service**

Hosted a visiting scholar, Dr. Hye-Gyoung Yoon, from South Korea, 2016-2017.

Reviewer for the *International Journal of Science Education*, 2007-Present.

Invited Grant Reviewer, Qatar Research Foundation, 2011, 2014; 2017; 2018; Israel Science Foundation (ISF), 2010; Estonian Science Foundation (ETF), postdoctoral project proposal, 2009.

Reviewer for the *International Journal of Environmental and Science Education*, 2014-Present.

Invited Reviewer for a wide range of international journals, including the *Journal of Science and Mathematics Education*, 2012; *British Journal of Education, Society & Behavioural Science*, 2013.

Invited expert reviewer for survey items, Çanakkale Onsekiz Mart University, Turkey, 2013.

### **National Service**

NSF Reviewer, Division of Research on Learning, 2014, 2015, 2017

External Reviewer for Promotion to Associate Professor (Indiana University), 2018.

External Reviewer for Promotion and Tenure (Louisiana State University), 2017.

External Reviewer for Promotion and Tenure (University of Georgia), 2017.

External Reviewer for Promotion and Tenure (Kent State University), 2017.

Election Committee, Elected Member, Association for Science Teacher Education (ASTE), 2016-2019.

Co-Editor, Teacher Education Section of *Science Education*, 2016-Present.

Mentor, NSF Career Grant, for an Assistant Professor of Materials Science & Engineering, NC State University, 2016-2021.

National Science Education Expert, Funded OSEP grant, FSU, Tallahassee, FL, 2015-2019.

Editorial Board, Journal of STEM Education, 2015-Present.

Reviewer, 2016 Cultural Studies of Science Education (CSSE) Best Paper Award.

External Reviewer for Promotion to Professor (Indiana University), 2015.

Chair, NARST Outstanding Doctoral Research Award Committee, 2013-2014.

Conference Chair, Mid-Atlantic Association for Science Teacher Education, 2014.

Invited Reviewer NSTA Press (Book manuscripts), 2010, 2013-2016, 2018.

External Reviewer for Promotion to Associate Professor (Merrimack College), 2015.

Co-Chair, NARST Outstanding Doctoral Research Award Committee, 2012-2013.

ASTE Awards Committee Member, 2013-2016.

Presidential Selection Committee member, Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST), National Science Foundation, 2011, 2013.

Invited Reviewer for *Educational Researcher*, 2014-2018; *Journal of Research in Science Teaching*, 2018; *Journal of Science and Technology*, 2017, 2018; *Polar Record*, 2018; *Science and Education*, 2017, 2018; *Journal of Early Adolescence*, 2017; *Equity and Excellence in Education*, 2016; *Public Administration Review*, 2010; *Journal of Engineering Education*, 2011; *Journal of STEM Education: Innovations and Research*, 2011, 2016; *Science*, 2012; *Journal of Science Education and Technology*, 2013-2017; *Journal of Environmental and Science Education*, 2013-2014; *Journal of Women and Minorities in Science and Engineering*, 2006.

NARST Outstanding Dissertation Research Award Committee Member, 2011-2012.  
 NARST Outstanding Paper Award Committee Member, 2009-2011.  
 Invited workshop participant, National Science Foundation, Arlington, VA, 2010.  
 Invited science education content expert, William & Mary, 2009-2010.  
 Reviewer for *Science Education*, 2007-Present.  
 Strand reviewer for the annual meeting for the Association of Science Teacher Education, National Association for Research in Science Teaching, 2004-Present.

### **State Service**

2013-2019 Board Member, North Carolina Science, Mathematics, and Technology Education Center.  
 2013-2017 University/Pre-service Committee Member of the NC Science Leadership Association.

### **University Service**

Panelist, Building Future Faculty Program (BFF), 2017  
 Advisory Committee to the University on the Center for the Integration of Research, Teaching and Learning (CITRL) Network, 2015-2017  
 University Grievance Panel member, 2010-2012.  
 Invited meeting participant by Chancellor Woodson and Interim Provost Arden to enhance dialogue among faculty and administrators and discuss important academic issues, 2010.  
 Faculty Partner, Office of Faculty Development, NC State, 2010-2012.

### **College Service**

College Faculty Awards Committee Member, 2017-2020.  
 Committee member and Team Leader for STEM Education Department for University “Think and Do the Extraordinary” Campaign, 2017-2019.  
 Chair of the Faculty, College of Education, 2015-2017.  
 Chair, College Research Committee, 2015-2016.  
 College Research Committee Member, 2014-2017.  
 College MAT Council Member, 2012-2014.  
 College Courses and Curricula Committee member, 2006-2010.  
 College American Education Week Committee member, 2006-2010.  
 Director, Burroughs Wellcome Fund Scholarship Program, 2007-2010.  
 College M.A.T. Committee member, 2006-2008.  
 Invited Presentations/Workshops/Booths for colleagues’ courses & events (30).

### **Departmental Service**

2018-Present Associate Department Chair & Director of Graduate Programs, STEM Education  
 2013-Present Graduate Program Coordinator, Science Education.  
 2006-Present STEM Education Scholarship Committee Member & Chair, 2008-Present.  
 2017-Present Mentor, New Faculty Member, KC Busch  
 2016-2017 Content Development for new Science Education MEd website  
 2013 Search Committee Member for STEM Department Chair.  
 2012 Spring Search Committee Member for Science Education & Technology Education Positions.

2008-2009 Interim Coordinator M.A.T. for Science Education.

### Service to Schools

**Summary:** 6 major professional development projects with \$8.9 million grant funds bringing PD to approximately 465 teachers and 120 leaders (approximately 103 workshops), 200 parents, & 538 students, distributing funds for stipends, buses, college visits, intensive STEM program at NCSU, summer camps, materials, instructional technologies, program staffing, with over 40,000 students indirectly benefitting from projects through teachers.

- 2017-2021** *Preparing Students and Teachers for Bioenergy and Bioproducts Industries:* 18 Rural high school teachers and 18 diverse community college/undergraduate students will be recruited for online courses & summer, 18 paid summer-long internships, 3-5 online college courses in bioenergy and bioproducts, and hands-on science lessons with approximately 1800 high school students in classrooms.
- 2018-21** **STEM Career Club: Burroughs Wellcome Fund Continuation Project:** Warren, Vance, Rocky Mount and Conway Middle Schools, NC. Each Year: Club Meetings for 390 students (48 meetings/year); Parent meetings for 200 parents (2 times/year).
- 2014-18** *STEM Career Club:* Warren, Vance, Rocky Mount and Conway Middle Schools, NC. Each Year: Teacher professional development for 24 teachers (4 days/year); Club Meetings for 390 students (48 meetings/year); Leadership professional development for 40 leaders (3 times/year); Parent meetings for 200 parents (4 times/year); At Home Intervention: 40 families; Pilot Year: PD for 8 teachers and 40 students at Warren Middle School.
- 2014** *Energy in the Classroom* teacher professional development held for 6 science teachers and 2 curriculum coaches from Nash-Rocky Mount school district, Nash Central Middle School, NC.
- 2010-2014** *STEM Teams Project:* Warren, Weldon City, Bertie and Conway Middle Schools, NC. Each Year: Teacher professional development for 50 teachers (10 days/year); Leadership professional development for 40 leaders (3 times/year).
- 2010-2012** *Science Scholars Academy:* Teachers from 8 northeastern NC districts in up to 4 master's courses in science education.
- 2008-2010** *SMART for Teachers:* Bertie & Chowan Middle school teachers (30) in ongoing intensive technology-enhanced professional development (5 days and 8 online sessions/year).
- 2007** *21<sup>st</sup> Century Technology Learning Workshops.* Three day workshop, 30 teachers, Roanoke Rapids, NC; Two day workshop, 30 teachers, the Friday Institute, NCSU, Raleigh, NC.
- 2006-Present** Numerous science nights, STEM career workshops, science and engineering fair judging, lessons presented, and Science Olympiad volunteering at school events in Greensboro, Raleigh, Durham and NC State.