CARRIE W. LEE

325 Flanagan Building Phone: 252.328.9359
East Carolina University Email: leecarr16@ecu.edu
Greenville, NC 27858

EDUCATION

North Carolina State University
Doctor of Philosophy, Curriculum and Instruction-Educational Psychology, May 2016
Concentration: Mathematics Discourse and Teacher Beliefs
Dissertation: *Orchestrating Mathematical Discourse: Affordances and Hindrances for Elementary Novice Teachers*
Advisors: Temple Walkowiak, Ph.D. and John Nietfeld, Ph.D.

Master of Education, Curriculum and Instruction-Curriculum and Developmental Supervision, 2011
Master's Thesis Equivalency: *Characterization of instructional practices for prospective elementary teachers with varying levels of classroom management efficacy and mathematics teaching efficacy*
Advisor: Erin Thomas Horne, Ph.D.
State of North Carolina Professional Educator's License-Curriculum Instructional Specialist

Campbell University
Academically and Intellectually Gifted (AIG) Certification Program, 2010
Completed five graduate level courses focused on development of academically gifted learners, differentiation, and diverse settings
State of North Carolina Professional Educator's License-Academically Gifted

Duke University
Bachelor of Arts, Psychology, Licensure in Elementary Education, GPA 3.49, 2006
State of North Carolina Professional Educator's License-Elementary Education K-6

School for International Training, SIT
Study Aboard Program: Education and Social Change, South Africa, 2005

TEACHING AND RESEARCH INTERESTS

Teacher Development; Elementary Mathematics; Mathematics Discourse; Virtual Rehearsal Simulations

PROFESSIONAL EXPERIENCE

Associate Professor, East Carolina University, 2022-present
Elementary Mathematics Education
Department of Mathematics, Science, and Instructional Technology Education

- Teaching: MATE 6058: Number Systems and Operations: K-5 Mathematical Tasks
  MATE 6061: Algebraic Reasoning and Questioning
  MATE 3030: Geometry
  MATE 3330: Rational Number
  MATE 3060: 3-6 Mathematics and Methods Course
  MATE 3050/3051: K-2 Mathematics and Methods Course

- Service: University Scholarships and Financial Aid Committee, COE Curriculum Committee

Assistant Professor, East Carolina University, 2016-2022
Elementary Mathematics Education
Department of Mathematics, Science, and Instructional Technology Education

- Teaching: MATE 6058: Number Systems and Operations: K-5 Mathematical Tasks
  MATE 6061: Algebraic Reasoning and Questioning
  MATE 3060: 3-6 Mathematics and Methods Course
  MATE 3050/3051: K-2 Mathematics and Methods Course
- Service: COE Research Committee; COE Library Committee; MSITE Curriculum Committee; Lead mathematics contact and mathematics curriculum developer for ECU Community School

Lead Facilitator, Mathematics Professional Development, August 2015-May 2017
Montgomery County, North Carolina

Graduate Research Assistant, **North Carolina State University, 2012-July 2016**
Project ATOMS, Department of Teacher Education and Learning Sciences-Elementary Education
Five year, longitudinal, mixed method study
National Science Foundation; $3,110,998
Principal Investigator: Temple Walkowiak

- Supervised team in coding over 340 mathematics lessons using M-Scan observational protocol
- Conducted multi-level model analysis using SAS of observational data and teacher-level factors
- Managed four cases for a multi-case case study; four year time span; interviews and data coding
- Developed, collaboratively, mathematics instructional log (IPL-M) using Qualtrics software; conducted exploratory factor analyses and other tests to investigate and improve the log

Instructor, North Carolina State University, 2013-2016
Department of Teacher Education and Learning Sciences, North Carolina State University

- ELM 410: Children's Thinking and Multiplicative Reasoning, Spring 2016
- ELM 574: Methods for Teaching Mathematics in the Elementary Classroom for Initial License, Co-Instructor, Spring 2015
- ELM 410: Children's Thinking and Multiplicative Reasoning, Co-Instructor, Spring 2013

Elementary Teacher, 2008-2012
Powhatan Elementary, Clayton, NC

- Awarded Johnston County Teacher of the Year in 2012
- Taught fifth grade mathematics and science
- Lead mathematics teacher

Elementary Teacher, 2006-2008
Hillandale Elementary, Durham, NC

- Taught fifth grade in a Title 1, diverse school setting
- Emphasis on integrated technology

Research Laboratory Assistant, Duke University, 2004-2006

Infant Cognition Laboratory
- Participant recruitment
- Facilitator of study on how infants notice changes in numeration

GRANTS AND AWARDS

2023 Servire Society Member, East Carolina University

Recognition of faculty, staff, and students who embody the university's motto, *Servire*, or "to serve." Demonstrated a commitment to service by volunteering 100 or more hours of time and talent in a calendar year

Interactive STEM Education Competence in Teaching (Project INTERSECT), 2017-Present
National Science Foundation ($599,939)
Co-Principal Investigator
- Explore how training with immersive classroom simulation activities affects mathematics and science teacher candidates' use of discourse as a means of instruction.
- Compare simulation activities to peer-to-peer role play

Project TALK, 2016-2019
East Carolina University Start-up Grant ($80,000)
Principal Investigator
- Analyze the development of elementary mathematics teacher candidates' use of talk moves and positioning of students within number talks.
- Examine teacher candidates' perceptions and changes to instruction specific to feedback received from instructor

Finalist for ECU Alumni Association Outstanding Teaching Awards and Robert L. Jones Teaching Award Fall 2019

Nominated and support by Dean of COE for university teaching awards.

STaR Fellow, Association of Mathematics Teacher Educators (AMTE), 2017-2018

Selected from new faculty in mathematics education to participate in professional development opportunity focused on service, teaching, and research (STaR).

Faculty Research Showcase, Faculty invited paper presentation, April 2017

Characterization of Mathematics Instructional Practices for Prospective Elementary Teachers with Varying Levels of Self-Efficacy in Classroom Management and Mathematics Teaching

Dissertation Support Grant, 2016
North Carolina State University
$1,000 grant for dissertation expenses

Teacher Education and Learning Sciences Graduate Student Travel Award, 2015
North Carolina State University
$800 grant for travel to conference presentation

Teacher of the Year, 2012
Johnston County

SCHOLARSHIP

Publications

Lee, T. D., **Lee, C. W**., Newton, M. H., Vos, P., Dickerson, D. L. L., Gallagher, J. L., & C, R. (2023). Rehearsal contexts (peer to peer vs. virtual rehearsal simulation): Elementary teacher candidates scientific discourse skills explored. *Journal of Science Teacher Education*.

Lee, C.W., Lee, T., Gallagher, J., Newton, M., Dickerson, D. (in process). Impacts of Virtual Simulation Rehearsals on Teacher Candidates use of Discourse in the Classroom. *Research in Mathematics Education.*

Lee, C.W., Lee, T., Dickerson, D., Castles, R., & Vos, P. (2021). Comparison of Peer-to-Peer and Virtual Simulation Rehearsals in Eliciting Student Thinking through Number Talks. *Contemporary Issues in Technology and Teacher Education*.

Lee, C. W. & Freas, H. Utilizing Teaching Simulations for Small Group Mathematics Discussions in the Void of Field Placement Opportunities. In Ferdig, R.E., Baumgartner, E., Hartshorne, R., Kaplan-Rakowski, R. & Mouza, C. (2020). *Teaching, technology, and teacher education during the COVID-19 pandemic: Stories from the field*. Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/p/216903/.

Schwartz, C., **Lee, C.W.,** & Gonzalez, M., & Belford, L. Using Virtual Simulations and Videoconferencing to Rehearse and Enact Number Talks in Online Settings. In Ferdig, R.E., Baumgartner, E., Hartshorne, R., Kaplan-Rakowski, R. & Mouza, C. (2020). *Teaching, technology, and teacher education during the COVID-19 pandemic: Stories from the field*. Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/p/216903/.

Gonzalez, M. & **Lee, C.W.** (2020) Eliciting to understand unfamiliar student strategies. *Centroid.*

Pair, J., Johnson. K., **Lee, C.W.**, & Sawyer, A. (2019) Enhancing Mathematics Learning in Content Courses for K-8 Teachers: Promoting Growth Mindset, Challenging Unproductive Beliefs, and Addressing Mathematics Anxiety. *Issues in the Undergraduate Mathematics Preparation of School Teachers, 5.* Retrieved from www.k-12prep.math.ttu.edu

Lee, C.W., Lee, T., Castles, R. Dickerson, D., Fales, H., & Wilson, C. (2018). Implementation of Immersive Classroom Simulation Activities in a Mathematics Methods Course and a Life and Environmental Science Course. *Journal of Interdisciplinary Teacher Leadership*. 2(1), 3-17.

Lee, C.W., Walkowiak, T.A., & Nietfeld, J. (2017) Characterization of mathematics instructional practices for prospective elementary teachers with varying levels of self-efficacy in classroom management and mathematics teaching. *Mathematics Education Research Journal*, 29(1), 45-72.

Faulkner, V., Cain, C., Walkowiak, T. A., & **Lee, C. W.** (2016). Equality matters: The critical implications of precisely defining equality. *Australian Primary Mathematics Classroom,* 21(4), 11-15.

Thomson, M.M., DiFrancesca, D., Carrier, S., **& Lee, C. W.** (2016). Teaching efficacy: Exploring relationships between mathematics and science self-efficacy beliefs, PCK and domain knowledge among preservice teachers from the United States. *Teacher Development*, 21(1), 1-20.

Lee, C.W., & Davis, H. (2015) Teacher Self Efficacy. In W. Scarlett (Ed.), *The sage encyclopedia of classroom management.* (pp. 26-31). Thousand Oaks, CA: SAGE Publications Inc.

Lee, C.W., & Davis, H. (2015) Locus of Control. In W. Scarlett (Ed.), *The sage encyclopedia of classroom management.* (pp. 60-64). Thousand Oaks, CA: SAGE Publications Inc.

DiFrancesco, D**., Lee C.W**., & McIntyre, E. (2014). Where is the "E' in STEM for young children? Engineering Design Education in an elementary teacher preparation program. *Issues in Teacher Education*, 23 (1), 49-64.

McIntyre, E., Walkowiak, T., Thomson, M., Carrier, M., **Lee, C.W.**, Greive , E**.,** Lowe, R., Maher, M., & DiFransesca, D. (2013). A STEM-focused elementary teacher preparation program: Candidate and alumni perceptions. *Teacher Education and Practice*, 26(3), 670-687.

Proceedings

Bondurant, L., Howell, H., Kwon, M., **Lee, C. W**., Lai, Y., & Sapkota, B. (2022). Final Report: Preservice Teacher Learning of Practice Through Simulated Teaching Experiences Before, During, and After COVID*. Proceedings of the Forty-Fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, *44*, 2125–2131.

Lee, C. W., Bondurant, L., Lai, Y., Howell, H., Sapkota, B., & Kwon, M. (2022). Conceptualizing Ethics, Authenticity, and Efficacy of Simulations in Teacher Education. *Proceedings of the Forty-Fourth Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*, *44*, 2132–2134.

Bondurant, L., Howell, H., Kwon, M., Lee, C. W., & Lai, Y. (2021). Preservice Teacher Learning of Practice through Simulated Teaching Experiences Before, During, and After Covid. *Proceedings of the Forty-Third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, (PME-NA), 43*, 1938–1940.

Castles, R., **Lee, C.,** Lee, T., Fales, H., Wilson, C., & Dickerson, D. (2019). Using an immersive classroom simulated environment for math and science discourse development in pre-service teachers. *Proceedings of the American Society for Engineering Education Annual Conference and Exposition*. Tampa, Florida. Retrieved from https://www.asee.org/public/conferences/140/papers/27071/view

Fales, H., Wilson, **C., Lee**, C., Lee, T., Castles, R., & Dickerson, D. (2019). Using immersive simulations to practice talk moves in elementary math and science education. *Proceedings of the 13th Annual International Technology, Education, and Development Conference* (6749-6753). Valencia, Spain.

Howell, H., Lai, Y. & **Lee, C.**, (2019) Simulations of practice for the education of mathematics teachers. In S. Otten, A. Candela, Z. De Araujo, C. Haines, & C. Munter (Eds.), *Proceedings of the 41st annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (1933-1939). St. Louis, MO: University of Missouri.

Fales, H., Wilson, C., Lee, C., Lee, T., Castles, R., Dickerson, D., (2018). Interactive STEM Education Competence in Teaching (Project INTERSECT)--Year 1 Implementation and Preliminary Data. In A. Fulchini & M.C. Hynes (Eds.), *Proceedings of the TeachLivE National Conference* (85-93). Orlando, FL: University of Central Florida. Retrieved from .http://teachlive.org/2018-conference/

Lee, C.W., Lee, T., Castles, R., Dickerson, D., Fales, H., Wilson, C. (2018). Rehearsals of Ambitious Teaching in Immersive Classroom Simulation Activities. In T.E. Hodges, G. J. Roy, & A. M. Tyminski, (Eds.), *Proceedings of the 40th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 763-766). Greenville, SC: University of South Carolina & Clemson University.

Lee, C.W., & Walkowiak, T.A. (2016). Barriers for Mathematical Discourse. In Wood, M.B., Turner, E.E., Civil, M., & Eli, J.A. (Eds.) *Proceedings of the 38th Annual Meeting of the North American Chapter of the Psychology for Mathematics Education* (pp. 1244-1251), Tucson, AZ: The University of Arizona.

Thomson, M. M., Walkowiak, T. A., & **Lee, C.W.** (2016). A mixed-methods investigation of teacher developmental trajectories: Results from a STEM-focused program. In Wahid, L.A. (Ed.) I*nternational Conference on Language, Education, and Innovation*, Interdisciplinary Circle of Sciences, Arts, & Innovation, 121-135. [Refereed]

Lee, C. W., & Walkowiak, T. A. (2015). Novice elementary teachers' instructional practices: Opportunities for problem solving and discourse. In Bartell, T.G., Bieda, K.N., Putnam, R.T., Bradfield, K., & Dominguez, H. (Eds.) *Proceedings of the 37th Annual Meeting of the North American Chapter of the Psychology for Mathematics Education* (pp. 1054-1061). East Lansing, MI: Michigan State University.

Walkowiak, T. A., **Lee, C. W.,** & Whitehead, A. N. (2015). The development of mathematics instructional visions: An examination of elementary preservice teachers. In Bartell, T.G., Bieda, K.N., Putnam, R.T., Bradfield, K., & Dominguez, H. (Eds.) *Proceedings of the 37th Annual Meeting of the North American Chapter of the Psychology for Mathematics Education* (968-971). East Lansing, MI: Michigan State University.

Walkowiak, T. A. & **Lee, C. W.** (2013). The development of mathematical knowledge in a STEM-focused elementary teacher preparation program. In M. V. Martinez and A. C. Superfine (Eds.) *Proceedings of the 35th Annual Meeting of the North American Chapter of the Psychology for Mathematics Education* (pp. 897-900). Chicago, IL: University of Illinois at Chicago.

Other Papers

Walkowiak, T. A. & **Lee, C. W.** (2013). The Instructional Practice Log in Mathematics (IPL-M). Unpublished measure, North Carolina State University, Raleigh, NC.

PRESENTATIONS

Lee, C. W., Bondurant, L., Lai, Y., Howell, H., Sapkota, B., & Kwon, M. (2022, November). *Conceptualizing Ethics, Authenticity, and Efficacy of Simulations in Teacher Education*. In Forty-fourth annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. Nashville, TN

Lee, T. D., **Lee, C. W.,** Newton, M. H., Vos, P., Gallagher, J. L., & Dickerson, D. L. (2021). *Rehearsal contexts (peer to peer vs. virtual rehearsal simulation): Elementary pre-service teachers' scientific discourse skills explored*. In American Educational Research Association Annual Virtual Conference.

Ghousseini, H., **Lee, C.,** Lai., Y., Howell, H., Shaughnessy, M., & Bondurant, L. (2021, April 6-12). In B. Sapkota. (Chair). *Opportunities and challenges associated with approximations of practice in teacher education programs*. Symposium to be facilitated at the Annual Meeting of the American Educational Research Association (AERA), Virtual Meeting

Bondurant, L., Howell, H., Kwon, M**., Lee, C. W**., & Lai, Y. (2021). *Preservice Teacher Learning of Practice through Simulated Teaching Experiences Before, During, and After Covid*. At the Forty-Third Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, (PME-NA), Virtual.

Lee, C. (2021). *Comparison of Virtual Rehearsal Simulations and Peer-to-Peer Rehearsals in Eliciting Student Thinking through Number Talks*. Paper presented as the Annual Meeting of the Association of Mathematics Teacher Educators Annual Meeting. Las Vegas, NV.

Lee, C.W., Lee, T., Castles, R., Dickerson, D., Vos, P. (accepted for April, 2020) *Rehearsals: Peers or Avatars? Comparison of Elementary Teacher Candidates' Elicitation of Student Thinking*. Paper to be presented at the Annual Meeting of the American Educational Research Association (AERA), San Francisco, CA.

Howell, H., Lai, Y**, Lee, C.W.** (2019, November). *Simulations of Practice for the Education of Mathematics Teachers*. Working Group to be facilitated at the 41st Annual Meeting of the North American Chapter of the Psychology for Mathematics Education (PME-NA), St. Louis, MO.

Castles, R., **Lee, C.W.**, Lee, T., Dickerson, D., Wilson, C., and Fales, H. (2019, May). *Project INTERSECT-Preparing Teachers to Prepare Future STEM Professionals*. Presentation at the 7th Annual International TeachLivE Conference: Digital Approximations of Practice, Orlando, Florida

Lee, C.W., Lee, T., Castles, R., Dickerson, D., Wilson, C., Fales, H. (2019, May). *Discussion Patterns in Rehearsals of Number Talks in Digital Approximations of Practice.* Presentation at the 7th Annual International TeachLivE Conference: Digital Approximations of Practice, Orlando, FL. http://teachlive.org/2018-conference/

Lee, T., **Lee, C.W.**, Castles, R., Dickerson, D., Wilson, C., Fales, H. (2019, May). *Implementation of Immersive Classroom Simulations with Math and Science Pre-Service Teachers: Themes from*

Debrief Sessions and Reflections. Presentation Presentation at the 7th Annual International TeachLivE Conference: Digital Approximations of Practice, Orlando, FL. http://teachlive.org/2018-conference/

Fales, H., Wilson, **C., Lee**, C., Lee, T., Castles, R., & Dickerson, D. (2019, March). *Using immersive simulations to practice talk moves in elementary math and science education*. Annual Meeting of the International Academy of Technology, Education, and Development Conference. Valencia, Spain.

Lee, C.W., Lee, T., Castles, R., Dickerson, D., Wilson, C., Fales, H. (2019, February). *The Impact of Rehearsals in Immersive Classroom Simulation Activities (ICSAs) with Elementary Preservice Teachers.* Presentation at Annual Conference of the Association of Mathematics Teacher Educators (AMTE), Orlando, FL.

Wilson, C., Fales, H., Lee, T., **Lee, C.W.**, Castles, R., & Dickerson, D., (2019, February). *Analyzing the Reaction of Pre-Service Teachers using Simulation to Practice Teaching Math or Science*. Presentation at Simulations in Teacher Education Conference. Louisville, KY.

Lee, T., **Lee, C.W.**, Castles, R., Dickerson, D., Fales, H., & Wilson, C. (2019, January). *Mathematics and Science Discourse within an Immersive Classroom Simulation.* Presented at the Clute International Conference on Education. Lahaina, Hawaii.

Lee, C.W. (2018, November). *Rehearsals of Ambitious Teaching in Immersive Classroom Simulation Activities.* Presentation at the International Group for the Psychology of Mathematics Education Annual Conference, Greenville, SC.

Middleton, K., **Lee, C.W.,** Belford, L., & Schwartz, K. (2018, February). *The impact of Developing a Vision for Mathematics Teaching with Elementary Preservice Teachers*. Presentation at the Association of Mathematics Teacher Educators Annual Conference, Houston, TX.

Lee, C.W., & Walkowiak, T.A. (2017, February). *Novice elementary teachers' orchestration of mathematical discourse.* Presentation given at the Association of Mathematics Teacher Educators Annual Conference, Orlando, FL.

Lee, C.W., & Walkowiak, T.A. (2016, November). *Barriers for Mathematical Discourse.* Paper presented at the Psychology of Mathematics Education-North American Chapter (PMENA) Conference, Tuscon, AZ.

Lee, C.W., & Walkowiak, T.A. (2015, November). *Novice elementary teachers' instructional practices: Opportunities for problem solving and discourse.* Paper presented at the Psychology of Mathematics Education-North American Chapter (PMENA) Conference, East-Lansing, MI.

Walkowiak, T.A., **Lee, C.W.**, Whitehead, A. **(**2015, November) The development of mathematics instructional visions: An examination of elementary preservice teachers. Paper presented at the Psychology of Mathematics Education-North American Chapter (PMENA) Conference, East-Lansing, MI.

Lee, C.W., Walkowiak, T., & Nietfeld, J. L. (2015, April). *Impact of classroom management efficacy and mathematics teaching efficacy on instructional practices for prospective elementary teachers.* Paper presented at the annual American Educational Research Association Conference, Chicago, IL.

Greive, E., **Lee, C.W.**, & Walkowiak, T.A. (2015, April). *The validation of mathematics and science instructional logs.* Paper presented at the National Council on Measurement in Education (NCME), Chicago, IL.

Walkowiak, T.A., **Lee, C.W**., & Whitehead, A. (2015, April). *The development of preservice teachers' visions of mathematics.* Session presented at the annual National Council of Teachers of Mathematics Research Conference, Boston, MA.

Nietfeld, J. L., DiFrancesca, D., Bennett, E. J., **Lee, C.W.** (2015). *The impact of rewards on children's creativity and engagement in drawing*. Paper presented at Creativity and Visual Literacy conference, Lisbon, Portugal.

Zulli, R. & **Lee, C.W.** (2014, October). *Mixing our methods: Practical guidance and best practices for accomplishing evaluation goals.* Session presentation at the annual American Evaluation Association Conference, Denver, CO.

Thomson, M., DiFrancesco D., Carrier, S., & **Lee, C.W.** (2014, April). *Exploring changes in mathematics and science teaching efficacy beliefs among elementary preservice teachers enrolled in a STEM focused preparation program: Cross-case study analysis.* Session presented at the annual American Educational Research Association Conference, Philadelphia, PA.

Lee, C.W., Walkowiak, T., Grieve, E. (2014, April). *Measuring daily practices with an instructional log.* Presentation at the National Council of Teachers of Mathematics Research Conference, New Orleans, LA.

Walkowiak, T., & **Lee, C.W.** (2013, November) *The Development of mathematical knowledge in a STEM-focused elementary teacher preparation.* Program Presentation at The Psychology of Mathematics Education-North American Chapter (PMENA) Conference, Chicago, IL.

PROFESSIONAL SERVICE

Lead Mathematics Representative for ECU Community School Curriculum Team, 2016-present
Curriculum development, professional development, and evaluation
COE Research Committee, 2019-present
Committee Chair 2020-2021
Awards Committee, 2018-present
Association of Mathematics Teacher Educators (AMTE)
Awards Committee, 2018-present
North Carolina Council of Teachers of Mathematics (NCCTM)
Journal Reviewer, 2017-present
SAGE Open Access
International Journal of Science and Mathematics Education
Mathematics Teacher Educators (MTE)

Conference Proposal Reviewer, 2016-current
Association of Mathematics Teacher Educators (AMTE)
Psychology of Mathematics Education – North American Chapter (PME – NA)
American Educational Research Association, Division K (AERA)
COE Library Committee, 2017-2019
Lead of President-Elect Nomination Committee, 2017
AMTE-NC
Peer Observer, 2016-current
MSITE Department
Curriculum Committee, Secretary, 2016-2019
MSITE Department

PROFESSIONAL ORGANIZATIONS

North Carolina Council of Teachers of Mathematics (NCCTM)
Association of Mathematics Teacher Educators (AMTE)
North Carolina Chapter of Association of Mathematics Teacher Educators (AMTE-NC)
Psychology of Mathematics Education – North American Chapter (PME – NA)
American Educational Research Association, Division K (AERA)