

SoonChun Lee

Assistant Professor
STEM Education
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ACADEMIC BACKGROUND

- Ph.D.** Aug 2012 Teaching and Learning, Science Education
The Ohio State University, Columbus, OH
Dissertation: *Teachers' Feedback to Foster Scientific Discourse in Connected Science Classrooms*
- M.A.** Jun 2011 Teaching and Learning, Science Education
The Ohio State University, Columbus, OH
- M.Ed.** Feb 2008 Science Education
Yonsei University, Seoul, Korea
Dissertation: *Development of E-learning Program and Online Courses in High School*
- B.S.** Feb 1994 Physics
Kyung-Hee University, Seoul, Korea

PROFESSIONAL BACKGROUND

College of Education, Wichita State University (2014 - present) Wichita, KS

Assistant Professor, STEM Education

Teaching STEM education courses in curriculum and instruction, program development in graduate and undergraduate STEM education, and pursuing a professional agenda of research and service in the field of STEM education supported by external funding.

National Center for Research on Rural Education, University of Nebraska (2012 - 2014) Lincoln, NE

Postdoctoral Research Fellow, STEM Education

Responsibilities included conceptualization and management of existing and follow-up research, application of methodological and data analytic approaches in addressing research questions, and supervising data collection/management/analysis and implementation efforts and establishing independent strands of research culminating in the solicitation of grant funds.

SoongSil Middle/High School (1994 - 2008)

Science Teacher (7 – 12 Grades)

Seoul, Korea

Taught Physical Science, Physics, and Advanced Physics.

GRANTS

Funded

1. *STEM Professional Partnership Program (SP3) for Urban Elementary Teachers (2015 – 2016)*
Jack, A., Lee, S. C., & Novacek, G., \$107,703 funded by Improving Teacher Quality (ITQ) program with oversight from Kansas Board of Regents. This project aims to increase student

success in science and decrease achievement gaps among youth from underrepresented populations in STEM fields through a systematic and in-depth approach to preparing and mentoring 3rd – 5th grade elementary teachers with integrated STEM pedagogical knowledge and skills.

2. *Use of Blended Hands-on and Interactive Simulation Practices to Improve Pre-Service Teachers' Conceptual Understanding in Science* (2014 – 2015)

Lee, S. C., \$4,449 funded by Wichita State University Research/Creative Projects Award (URCA). The study seeks to improve the pre-service science teachers' capability for designing and selecting appropriate interactive simulation (IS) and/or hands-on activities, in turn improving their instruction, and ultimately their students' STEM learning in K-12 schools.

3. *Coaching for Sustainability: Peer Coaching Science Inquiry in Rural Schools* (2013-2014)

Lee, S. C., Nugent, N. C., Kunz, M. G., & DeChenne, S. E., \$79,000 funded by Improving Teacher Quality (ITQ) program with oversight from Nebraska's Coordinating Commission for Postsecondary Education. This project expanded professional development for rural science teachers by providing skills needed to (a) translate traditional, "cookbook" science labs into guided science inquiry lessons in a 2013 three-day summer workshop and (b) engage in distance-based peer coaching to support implementation of those lessons.

4. *Development of E-Learning Program and Online Courses* (2004 – 2007)

Lee, S. C., \$80,000 funded by Seoul Metropolitan Office of Education, Korea.
(<https://www.soongsil.net/>)

5. *Development of High School Science Teaching and Learning Multimedia Resources* (1999, 2000, and 2004)

Lee, S. C., \$15,000 funded by Seoul Education Research & Information Institute.

Unfunded

1. *Shocker Noyce Scholarship Program: Increasing Quality STEM Teachers in Wichita, Kansas Phase I*

Lee, S. C., Bergman, D., Ferguson, J., and Novacek, G. (2018), Submitted to the National Science Foundation (NSF) Robert Noyce Scholarship program.

2. *Enhanced Teacher Preparation and STEM Education Using On-The-Spot Experiment and Simulation with Peer Assistants (SES-PA)*, **Lee, S. C.**, Hwang, G., and Mitchell-Koch, K. (2017), Submitted to the National Science Foundation (NSF) Improving Undergraduate STEM Education.

UNIVERSITY TEACHING

CI 402S Instructional Strategies, Assessment and Management: Elementary Science (Face-to-face)

Introduction to instructional strategies and processes, assessment decisions and classroom management strategies necessary for meeting science curriculum goals and objectives in the K–6 classroom. Students understand how effective science instruction, assessment and classroom management support student learning in the context of teaching science.

CI520 Physical Science for Elementary Classrooms (Face-to-face)

This course is intended only for elementary teachers seeking to better understand the critical connections of the laws of science to the inquiry approach used in elementary science instruction. Students discover how the world around them works from doing series of hands-on activities which allows them to apply the investigative nature of science to an elementary classroom setting.

CI 435S Secondary and Middle Level Science Methods (Face-to-face)

This course engages middle/secondary level candidates in reflective experience emerging from the student teaching experience, particularly issues surrounding management and motivation. Emphasizes mastery of content-specific concepts and skills related to classroom instruction, assessment, management, and differentiation for middle and secondary level students.

CI 764 Interdisciplinary STEM Education Entry (Online)

The course is comprised of a comprehensive overview of the theories of and instructional strategies for integrated STEM education. Hands-on and online activities will be provided to identify, develop, deliver, and evaluate interdisciplinary STEM activities with models of project-based learning. By the end of the course, students will have various opportunities to evaluate curricula that have been developed for integrated STEM education as well as the procedures for developing a new STEM curriculum.

CI 780S Technology in the Classroom: Science (Hybrid)

The course aims to improve students' knowledge and skill of technologies for science instruction and investigation in their classrooms. Pre-student teachers will explore software and online resources, pedagogical technology and content knowledge, and assessment techniques. The course will also strongly focus on the use of technology for communication and student assistance to meet the science and technology curriculum standards.

PUBLICATIONS

- Lee, S. C.**, Nugent, N. C., Kunz, M. G., DeChenne, S. E. & Houston, J. A. (2018). Case Study: Value-Added Benefit of Distance-Based Instructional Coaching on Science Teacher's Inquiry Instruction in Rural Schools. *Journal of Science Teacher Education*, 29(3), 179-199, DOI: 10.1080/1046560X.2018.1432226
- Lee, S. C.** and Irving, K. E. (2018). Development of Classroom Discourse Analysis Tool (CDAT) for Secondary School Science. *International Journal of STEM Education*, 5(1), DOI 10.1186/s40594-018-0100-0
- Nugent, G., Kunz, G., Houston, J., Wu, C., Patwardhan, I., **Lee, S.**, . . . Luo, L. (2018). The Effectiveness of a Summer Institute and Remotely Delivered Science Instructional Coaching in Middle and High School. *Journal of Science Teacher Education*, 1-25. doi:10.1080/1046560X.2018.1514193
- Lee, S. C.**, Irving, K. E., Pape, S. J., & Owens, D. T. (2015). Teachers' use of interactive technology to enhance students' metacognition: Awareness of student learning and feedback. *Journal of Computers in Mathematics and Science Teaching*, 34(2), 175-198.
- Pape, S. J., Irving, K. E., Bell, C. V., Shirley, M., L., Owens, D. T., Owens, S., Bostic, J. D., & **Lee, S. C.** (2011). Principles of effective pedagogy within the context of connected classroom technology: Implications for teacher knowledge. In R. N. Ronau, C. R. Rakes, & M. L. Niess (Eds). *Educational technology, teacher knowledge, and classroom impact: A research handbook on frameworks and approaches*, Hershey, PA: IGI Global.
- Krim J., Stone E., Schwartz R., Burgess W., Buxner, S., **Lee, S. C.**, Gerton J., Horvath L., . . . Rebar B. (under review). Models and Impacts of Science Research Experiences: A Review of the Literature of TREs, CUREs, and UREs. *Science Education*.
- Lee, S. C.**, Nugent, G, Kunz, G, Houston, J. (2014). Coaching for sustainability: Distance-based peer coaching science inquiry in rural schools. (R2Ed Working Paper No. 2014-11)

- Lee, S. C.,** DeChenne, S. E., Nugent, G., Kunz, G. M., & Houston, J. (2014). Case study: Impact of instructional coaching on science teachers' inquiry-based instruction in rural schools. (R2 Ed Working Paper No. 2014-13).
- Lee, S. C.,** Nugent, N. C., Kunz, M. G., & Houston, J. A. (under review). The Effects of a Short-term Follow-up PD on Secondary Science Teachers' and Students' Science Practices in Rural Schools. *Journal of Science Education and Technology*.
- Lee, S.C.,** Alagic, M., Byun, J., Liu, F. (under review). Preservice Elementary Teachers' Epistemological Beliefs and Its Relations to Views about Mathematics. *Research in Mathematics Education*.

PRESENTED PAPERS

- Lee, S. C** (2018, March). *The Impact of a Short-Term Follow-up PD over a Prior PD on Secondary Science Teachers' Inquiry-Based Science Instruction in Rural Schools*. Paper presented at the 2018 International Conference of the National Association for Research in Science Teaching, Atlanta, GA.
- Lee, S. C.** (2018, Jan). *Interdisciplinary STEM Education Graduate Certificate Program*. Paper presented at the 2018 International Conference of the Association for Science Teacher Educators, Baltimore, MD.
- Lee, S. C.** (2018, Nov.). *AR & VR Technologies for STEM Education*. Paper presented at the 2018 Kansas Association of Teachers of Science (KATS) Region IV Mini Conference, Wichita, KS.
- Lee, S. C.** (2018, April). *Integrating Technologies into Inquiry-Based Science Instructions*. Paper presented at the KATS (Kansas Association of Teachers of Science) KAMP 2018, Junction City, KS.
- Keller, J., Rebar, B., Locke, S., Stone, E., Buxner, S., Schwartz, R., Krim, J. S., and **Lee, S.C.**, (2017, June). *CARET - Collaborative Around Research Experiences for Teachers*. Paper presented at the 2017 National Conference of the Network of STEM Education Centers (NSEC), New Orleans, Iowa.
- Lee, S. C** (2017, April). *Distance-Base Instructional Coaching for Elementary Teachers' Integrated STEM Teaching*. Paper presented at the 2017 International Conference of the National Association for Research in Science Teaching, San Antonio, Texas.
- Lee, S. C.** (2017, Jan). *Synergistic Physical Experiment and Interactive Simulation (SPEIS) Program to Improve Pre-Service Elementary Teachers' Self-Efficacy in Teaching Science*. Paper presented at the 2017 International Conference of the Association for Science Teacher Educators, Des Moines, Iowa.
- Lefever, S., Jack, A., **Lee, S. C.**, and Alagic, M. (2016, June). *The Wichita State University STEM Professional Partnership Program*. Presented at the 2016 National Conference of Science & Mathematics Teacher Imperative (SMTI), San Antonio, TX.
- Lee, S. C.**, Alagic, M., Bergman, D., Liu, F., Haines, B. and Novacek, G. (2016, June). *Interdisciplinary STEM Education Initiative at Wichita State University*. Presented at the 2016 National Conference of Science & Mathematics Teacher Imperative (SMTI), San Antonio, TX.

- Lee, S. C.** (2015, September). *Synergistic Physical Experiment & Interactive Simulation - Apprenticeship (SPEIS-A) Program for Undergraduate STEM Course*. Presented at the 2015 biannual conference of the European Science Education Research Association, Helsinki, Finland.
- Lee, S. C., Nugent, G., Kunz, G., and Houston, J.** (2015, April). *Coaching for Sustainability: Distance-Based Peer Coaching Science Inquiry*. Paper presented at the 2015 International Conference of the National Association for Research in Science Teaching, Chicago, IL.
- Lee, S. C., Nugent, G., Kunz, G., and Houston, J.** (2015, Jan). *The Value-Added Benefit of Distance-Based Instructional Coaching on Science Teachers' Inquiry Instruction and Student Achievement*. Paper presented at the 2015 International Conference of the Association for Science Teacher Educators, Portland, OR.
- Lee, S. C., Nugent, G., Kunz, G., and Houston, J.** (2014, October). *Distance-Based Peer Coaching for Inquiry Science Instruction in Rural Schools*. Paper presented at the 2014 Southwest Regional Meeting of the Association for Science Teachers Education, Emporia, KS.
- Lee, S. C., Nugent, G., Kunz, G., and Houston, J.** (2014, June). *PD for Sustainability: Distance-Based Peer Coaching Science Inquiry in Rural Schools*. Paper presented at the 2014 National Conference of Science & Mathematics Teacher Imperative (SMTI), Milwaukee, WI.
- Lee, S. C., Nugent, G., Kunz, G., and Houston, J.** (2014, Mar). *Case Study: Impact of Instructional Coaching on Science Teacher's Inquiry-Based Instruction in Rural Schools*. Paper presented at the 2014 International Conference of the National Association for Research in Science Teaching, Pittsburgh, PA.
- Lee, S. C., Nugent, G., Kunz, G.** (2014, Jan). *Coaching for Sustainability: Distance-Based Peer Coaching Science Inquiry in Rural Schools*. Paper presented at the 2014 International Conference of the Association for Science Teacher Educators, San Antonio, TX.
- Lee, S. C.** (2013, April). *Science Classroom Discourse Analysis on Teacher Feedback and Questioning with Reasoning Components*. Presented at the 2013 Annual International Conference of American Educational Research Association, San Francisco, CA.
- Lee, S. C., Irving, K. E.** (2013, Jan). *How CCT Affects Science Classroom Discourse: CDAT Analysis Focusing on Teacher Feedback and Scientific Reasoning*. Paper presented at the 2013 International Conference of the Association for Science Teacher Educators, Charleston, SC.
- Lee, S. C., Irving, K. E.** (2013, Jan). *Development of Science Classroom Discourse Analytical Tool (CDAT)*. Paper presented at the 2013 International Conference of the Association for Science Teacher Educators, Charleston, SC.
- Lee, S. C., Irving, K. E.** (2012, Mar). *Analytical framework to assess scientific discourse in connected science classrooms*. Paper presented at the 2012 International Conference of the National Association for Research in Science Teaching, Indianapolis, IN.
- Pape, S. J., Irving, K. E., Bell, C. V., Shirley, M., L., Owens, D. T., Owens, S., Bostic, J. D., & Lee, S. C.** (2011). *Principles of effective pedagogy within the context of connected classroom technology: Implications for teacher knowledge*. Paper presented at the 2012 American Educational Research Association Conference, Vancouver. British Columbia, Canada.

- Lee, S. C.,** Irving, K. E. (2012, Jan). *Teachers' feedback to foster scientific discourse in connected science classrooms*. Paper presented at the 2012 International Conference of the Association for Science Teacher Educators, Clearwater Beach, FL.
- Lee, S. C.,** Irving, K. E. (2011, Sep). *Development an analytical tool for scientific discourse focusing on teacher feedback*. Paper presented at the Mid-Atlantic Association for Science Teacher Educators regional conference, Olive Hill, KY.
- Lee, S. C.,** Irving, K. E., Owens, D. T., Pape, S. J., & Shirley, M. L. (2011, April). *Modeling of student perceptions of learning in connected science classrooms: How to facilitate learner-centered environments*. Paper presented at the 2011 International Conference of the National Association for Research in Science Teaching, Orlando, FL.
- Lee, S. C.,** Irving, K. E., Owens, D. T., & Pape, S. J. (2011, January). *Student perception of learning in connected science classrooms*. Paper presented at the International Conference of the Association for Science Teacher Educators, Minneapolis, MN.

INVITED PRESENTATIONS

- Lee, S. C.** (2018, April). *Integrating Technologies into Inquiry-Based Science Instruction* at the 2018 Kansas Association of Teachers of Science (KATS) Kamp, Junction City, KS.
- Lee, S. C.** (2018, Jan., Aug., and Oct.). *Emerging Technologies for STEM Education (AR, VR, and STEM apps)* at the USD 259 Wichita Public Schools In-service PD for Science Teachers, Wichita, KS.
- Lee, S. C.** (2017, December). *Integration of Technology in the Science Classroom (AR & VR)* at the 2017 Kansas Association of Teachers of Science (KATS) Region IV Mini Conference, Wichita, KS.
- Lee, S. C.** (2017, August). *Emerging Technologies for STEM Education (AR, VR, and STEM apps)* at the USD 259 Wichita Public Schools In-service PD for Science Teachers, Wichita, KS.
- Lee, S. C.** and Novacek, G. (2017, November), *STEM Professional Development Opportunities at Wichita State University*. Presented to the K – 12 teachers at the 2016 Kansas Project Lead The Way conference, Wichita, KS.
- Lee, S. C.** and Novacek, G. (2016, December). *iSTEM: Integrating PLTW and STEM Activities Into Other Subject Areas*. Presented to the K – 12 teachers at the 2016 Kansas Project Lead The Way conference, Wichita, KS.
- Lee, S. C.** (2016, July). *Augmented Reality in K – 12 STEM Education*. Presented to the K – 12 teachers at the 2016 Podstock conference, Wichita, KS.
- Lee, S. C.** (2015, June). Introduction of integrated STEM lesson and demonstration (June 16) & NGSS & Inquiry instructional model by grade level. Presented to 3 – 5 grade teachers at the STEM Professional Partnership Program (SP3) for Urban Elementary Teachers summer workshop.
- Lee, S. C.** (2015, March). *Interdisciplinary STEM Education I: The role of Language Arts in STEM*. A presentation to the curriculum coordinators from Wichita Public Schools (USD 259) at the Learning Lunch, Wichita, KS.

- Lee, S. C.** (2015, April). *Interdisciplinary STEM Education II: The role of Social Studies in STEM*. A presentation to the curriculum coordinators from Wichita Public Schools (USD 259) at the Learning Lunch, Wichita, KS.
- Lee, S. C.** (2013, June). *How to flip a cookbook lesson into a guided inquiry lesson*. A presentation to the teachers from Nebraska Rural Schools at University of Nebraska-Lincoln, Lincoln, NE.
- Lee, S. C.** (2013, June). *Special Topic: Asking questions that encourage inquiry-based learning*. A presentation to the teachers from Nebraska Rural Schools at University of Nebraska-Lincoln, Lincoln, NE.
- Lee, S. C.** (2013, June). *Special Topic: Scaffolding strategy in guided inquiry instruction*. A presentation to the teachers from Nebraska Rural Schools at University of Nebraska-Lincoln, Lincoln, NE.
- Lee, S. C.** (2012, March). *Teachers' Feedback to Foster Scientific Discourse in Connected Science Classrooms*. A presentation to the faculty at The Ohio State University, Columbus, OH.

SELECT AWARDS & HONORS

- Lee, S. C.** (2015, May) University Research Award: A trip to National Science Foundation (NSF) - Meetings with program directors and officers, May 17 - 18, 2015
- Lee, S. C.** (2014, Dec) University Research/Creative Projects Award (URCA) Awarded by Wichita State University's Office of Research and Technology Transfer.
- Lee, S. C.** (2007, Mar) Superior Teacher Award, Seoul Metropolitan Office of Education, Korea.
- Lee, S. C.** (1999, 2000, & 2004) First Place Award, Development of multimedia science learning materials for high school science, Seoul Metropolitan Office of Education, Korea.
- Lee, S. C.** (2001, May) Superior Teacher Award, Ministry of Education & Human Resources Development of Korea.

SERVICE AND AFFILIATIONS

Journal Article Reviewer

- Journal of Educational Computing Research (JECR), 2017 - present
- Journal of STEM Education (JSTEM), 2017 - present
- Journal of Research in Innovative Teaching & Learning (JRITL), 2018 - present

Conference Proposal Reviewer

- Annual Meeting of the Association for the Education of Teachers of Science, 2012 - present
- Annual Meeting of the International Conference of the National Association for Research in Science Teaching, 2014 - present
- Society for Information Technology and Teacher Education International Conference, 2011.

Professional Affiliations

- Kansas Association of Teachers of Science (KATS): A board member representing higher education of region IV – Wichita.

- NSEC Research Action Cluster for the Collaborative Around Research Experiences for Teachers (CARET, since 2015).
- American Educational Research Association (AERA, since 2012)
- National Association for Research in Science Teaching (NARST, since 2010)
- American Science Teacher Education (ASTE, since 2009)
- OSU Science, Technology, Engineering, and Mathematics Educators and Researchers (STEMERS, 2008 -2012)
- Discipline-Based Education Research Group (DBER, 2012 - 2014), University of Nebraska-Lincoln