

# WOONHEE SUNG

Department of Education  
The University of Texas at Tyler  
Email: wsung@uttyler.edu  
Phone: 903.566.7175

## EDUCATIONAL HISTORY

- 2017 Ed.D.** Teachers College, Columbia University  
Department of Mathematics, Science and Technology  
Major: Instructional Technology and Media  
Dissertation: *The impact of embodiment and computational perspective-taking practice on children's mathematics and programming ability*
- 2016 M.S.** Teachers College, Columbia University  
Department of Human Development  
Major: Applied Statistics  
Thesis: *The impact of iPad-integrated activities on young children's mathematics and programming learning*
- 2011 M.A.** University of Texas at Austin  
Department of Curriculum and Instruction  
Major: Learning Technologies  
Thesis: *Categorizing learning management platforms by examining features and educational affordances*
- 2008 B.A.** Ewha Womans University, South Korea  
Major: Educational Technology  
Second Major: English Education  
Secondary school teaching certification for English

## PROFESSIONAL EXPERIENCES

- 2019-present Assistant Professor, Instructional Technology  
The University of Texas at Tyler
- 2017-2018 Lecturer, Columbia University School of Social Work
- 2013-2018 Research Assistant, Institute for Learning Technologies  
Teachers College, Columbia University
- 2009-2019 Research Assistant, FunWritr  
Language Learning & Technology Research and Design Group
- 2016-2017 Research Associate, COBRIX  
Teachers College, Columbia University

2014-2017	Lead Teaching Associate Columbia University School of Social Work
2013-2016	Teaching/Lab Assistant Teachers College, Columbia University
2011-2016	Research Assistant, Greenify Lab Teachers College, Columbia University
2009-2011	Research Assistant, Alien Rescue The University of Texas at Austin

## MEMBERSHIPS

2009-present	American Educational Research Association (AERA) Division C: Learning and Instruction Division E: Counseling & Human Development Division K: Teaching and Teacher Education SIGs: Learning Sciences Special Interest Group
2014-present	Korean-American Educational Researchers Association (KAERA)
2014-present	Society for Information Technology & Teacher Education (SITE) SIGs: Computational Thinking SIGs: Early Childhood Education SIGs: New Possibilities with Information Technologies SIGs: Teaching & Learning with Emerging Technologies
2014-2018	Games, Learning, Society (GLS)
2019-present	International Society for Technology in Education

## HONORS, AWARDS & FELLOWSHIPS

2017	International Scholarship, Teachers College, Columbia University
2017	Louis V Gerstner Junior Education Foundation Award, Teachers College, Columbia University
2017	Toepfer Family Fund Travel Award, Teachers College, Columbia University
2017	Communication, Media, and Learning Technologies Design (CMLTD) Program Travel Award, Teachers College, Columbia University
2017	Outstanding Poster Award, Society for Information Technology and Teacher Education Conference
2014-2017	Institute for Learning Technologies Research Stipend Award, Teachers College, Columbia University
2011-2014	Ben and Grace Wood Graduate Fellowship in Learning Technologies, Teachers College, Columbia University
2006	Academic Scholarship, Ewha Womans University, South Korea

## PROFESSIONAL QUALIFICATIONS

Quantitative and Qualitative Data Analysis Software (SPSS, EXCEL, MPLUS, Nvivo)

Action Script, and Java Programming

Adobe Packages and Video Editing Software (Final Cut Pro, Premiere, Captivate)

Learning Management Systems (Canvas, Blackboard, Moodle, Adobe Conference, Second Life)

## TEACHING

### College/University Level

2017-2018	Lecturer - Columbia University School of Social Work SOCWT6505-Introduction to Statistics
2017	Guest Speaker Seminar - Columbia University School of Social Work Institute on Pedagogy and Technology for Online Courses
2017	Lead Teaching Associate, Columbia University School of Social Work SOCWT6501 - Research Methods in Social Work
2014-2017	Lead Teaching Associate - Columbia University School of Social Work SOCWT6505 - Introduction to Statistics
2016	Guest Lecturer - Queens College, The City University of New York Elementary and Early Childhood STEM Education
2013-2016	Teaching/Lab Assistant - Teachers College, Columbia University HUDM 4120 - Basic Concepts in Statistics
2014-2016	Teaching/Lab Assistant - Teachers College, Columbia University HUDM 4122 - Probability and Statistical Inference
2015	Teaching Assistant - Teachers College, Columbia University HUDM 4050 - Introduction to Measurement

### PK-12 Level

2013-2017	After-School STEM Instructor Teachers College Community School (P-6) Robotics, Lego Wedo, Programming (Scratch, Hopscotch, Ozmo coding, and physical manipulatives) with Science and Mathematics
2016	After-School Coding Instructor Margaret Douglas School (P-2) Programming (Scratch, Hopscotch) and Mathematics (July)

2016-2017	STEAM Camp Instructor HYPOTHEKIDS (K-6) Summer STEAM Camp, Coding with Science and Mathematics
2013-2014	Language Learning with LEGO Instructor New York City Korean School (K-7) Lego-based Korean Language Learning
2008	Practice English Teacher (10-12) Yeoido High School, South Korea English Education

## RESEARCH

2020-ongoing	Principal Investigator The University of Texas at Tyler Understanding online education in elementary education after the outbreak of COVID-19
2019-ongoing	Principal Investigator The University of Texas at Tyler Factors affecting successful online learning in higher education
2013-2018	Research Assistant Teachers College, Columbia University Institute for Learning Technologies: STEM education in K-6 After-School Programming And Robotics Class Curriculum Developer PI: Woonhee Sung
2009-2019	Research Assistant FunWritr FunWritr: Language Learning & Technology Research and Design Group PI: Justin Olmanson
2016-2017	Research Assistant COBRIX COBRIX: A Physical Computing Interface for Blind and Visually Impaired Students to Learn Programming PIs: Woonhee Sung, Junghyun Ahn and Janghee I
2011-2016	Research Assistant, Designer Teachers College, Columbia University EcoKoin (Greenify): Climate Change Education Games PI: Joey Lee
2009-2011	Researcher, Developer The University of Texas at Austin

Alien Rescue: Online Problem-Based 3D Immersive Learning  
Environment For Sixth-Grade Science  
PI: Min Liu

## CONSULTATIONS

2014-2017	Professional Development for Preservice Teachers Teachers College Community School
2015-2017	Professional Training for Teaching Assistants Columbia University School of Social Work
2012-2016	Computer Lab Consultant and Technology Specialist Computing and Information Service, Teachers College, Columbia University
2010	Instructional Designer, Wonkwang Digital University, South Korea

## RESEARCH: PUBLICATIONS

### Peer Reviewed Articles

1. **Sung, W.**, & Black, J. B. (2020). Factors to consider when designing effective learning: Infusing computational thinking in mathematics to support thinking-doing. *Journal of Research on Technology in Education*, 1-23.
2. Streim, N., Lowes, S., Herbert-Wasson, E., Colon-Leon, Yan, Vasudevan, L., Ahn, J-H., & **Sung, W.** (2019) "Developing Elementary Students' Problem Solving, Critical Thinking, Creativity, and Collaboration Through a University-school Partnership," Chapter in Reardon, R.M. & Leonard, J., eds., *Integrating Digital Technology in Education*. Charlotte, NC: Information Age Publishing.
3. **Sung, W.**, Ahn, J., & Black, J. B. (2017). Introducing computational thinking to young learners: Practicing computational perspectives through embodiment in mathematics education. *Technology, Knowledge and Learning*, 22(3), 443-463
4. **Sung, W.**, Ahn, J., Kai, S., & Black, J. B. (2017). Effective planning strategy in robotics education: An embodied approach. In P. Resta & S. Smith (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2017* (pp. 754-760). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE).
5. Ahn, J., **Sung, W.**, Lee, S. W., & I, J. H. (2017). COBRIX: A Physical Computing Interface for Blind and Visually Impaired Students to Learn Programming. *Paper presented at the Society for Information Technology & Teacher Education International Conference 2017*, Austin, TX, United States. <https://www.learntechlib.org/p/177876>
6. Ahn, J., Mao, Y., **Sung, W.**, & Black, J. B. (2017). Supporting debugging skills: Using embodied instructions in children's programming education. In P. Resta & S. Smith

- (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference 2017* (pp. 9-16). Chesapeake, VA: Association for the Advancement of Computing in Education (AACE).
7. **Sung, W.**, Ahn, J., Kai, S. M., Choi, A., & Black, J. B. (2016). Incorporating touch-based tablets into classroom activities: Fostering children's computational thinking through iPad-integrated instruction. In D. Mentor & IGI Global (Eds.), *Handbook of research on mobile learning in contemporary classrooms* (pp. 378–406). Hershey, PA: IGI Global.
  8. Lee, J. J., Ceyhan, P., Jordan–Cooley, W., & **Sung, W.** (2013). GREENIFY: A real-world action game for climate change education. *Simulation & Gaming, 44*(2–3), 349–365.
  9. **Sung, W.**, & Ahn, J. (2012). Design of computer assisted tools for bridging the gap between receptive vocabulary and expressive vocabulary for ESL learners. In Teachers College Educational Technology Conference (Ed.), *Proceedings of the Fourth Annual TCETC* (pp. 74–77). New York, NY: Teachers College, Columbia University.
  10. Olmanson, J., Huang, C.K., **Sung, W.**, & Chen, Y. H. (2012). Writing to learn: L2 writing as a gateway to effective implicit vocabulary learning and language acquisition via CALL. In J. Colpaert, A. Aerts, W. C. Wu, & Y. C. Chao (Eds.), *The medium matters: Proceedings of the 15 International Computer Assisted Language Learning Research Conference (CALL 2012)* (Vol. 1, pp. 510–514). Taichung, Taiwan: Providence University; University of Antwerp.
  11. Huang, C. K., Olmanson, J., **Sung, W.**, & Chen, Y. H. (2012). FunWritr: An open-ended language exploration playground based on a sextet of design parameters for CALL. In J. Colpaert, A. Aerts, W. C. Wu, & Y. C. Chao (Eds.), *The medium matters: Proceedings of the 15 International Computer Assisted Language Learning Research Conference (CALL 2012)* (Vol. 1, pp. 277–283). Taichung, Taiwan: Providence University; University of Antwerp.
  12. **Sung, W.** (2010). Analysis of underlying features allowing educational uses for collaborative learning in social networking sites, Cyworld. In J. Sanchez & K. Zhang (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2010* (pp. 1230–1235). Chesapeake, VA: AACE.
  13. Huang, C. K., Chen, Y. H., Olmanson, J., **Sung, W. H.**, & Kim, Y. S. (2010). On initiating, maintaining, and growing an affinity-based student-led research and design group. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 3747–3752). Chesapeake, VA: AACE.
  14. Olmanson, J., Kim, Y. S., **Sung, W. H.**, Huang, C. K., & Chen, Y. H. (2010). Technology in the creative and participatory literacy practices of a second-grade classroom. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 2115–2120). Chesapeake, VA: AACE.
  15. Liu, M., Horton, L., Kimmons, R., Anderson, M., Lee, J., Rosenblum, J., Toprac, P., Li, Y., & **Sung, W.** (2010). The design and development of a media-rich learning environment: A learners-as-designers model. In *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2010* (pp. 213–222). Chesapeake, VA: AACE.

## Manuscripts In Progress

1. Yang, J., **Sung, W.**, & Fagan, M., H. (2020, In preparation) Digital transformation in higher education: exploring educators' perspectives on online learning
2. **Sung, W.** (2020, In preparation) Developing Robotics-integrated lesson: Robotics Design Process to help students learn by designing
3. **Sung, W.**, Ahn, J., & Black, J. B. (2020, in preparation) Scaffold elementary student's robot coding and debugging activity through embodied planning strategy, *International Journal of Technology and Design Education*
4. **Sung, W.**, Ahn, J., & Black, J. B. (2020, revised and resubmit) The impact of unplugged debugging activities on children's computational thinking, *Journal of Technology, Knowledge and Learning*.

## RESEARCH: PRESENTATIONS

1. **Sung, W.**, Ahn, H., & Ahram, C. (2020, April) *Introducing robotics planning strategies to scaffold students to think not just finish*. Paper presented at Society for Information Technology and Teacher Education International Conference 2020, Chesapeake, VA
2. Ahn, H., **Sung, W.**, & Black, J. B. (2018) *Using Embodied Instruction and Programming Language Formats in Young Children's Debugging Activities*. Paper session at the annual conference of the American Educational Research Association
3. **Sung, W.**, Ahn, J., & Black, J. B. (2017, April). *The design of unplugged activities promoting computational thinking and mathematics learning in early-childhood education*. Paper session at the annual conference of the American Educational Research Association, Washington, DC.
4. Ahn, J., Mao, Y., **Sung, W.**, & Black, J. B. (2017, April). *The impact of embodied approaches on debugging practice in children's programming education*. Paper session at the annual conference of the American Educational Research Association, Washington, DC.
5. Ahn, J., **Sung, W.**, & I, J. H. (2017, April). *COBRIX: A physical computing interface for visually impaired/blind students to learn programming*. Poster session at Society for Information Technology and Teacher Education International Conference 2017, Chesapeake, VA **[Outstanding Poster Award Received]**
6. **Sung, W.**, Ahn, J., Kai, S. M., & Black, J. B. (2016, April). *The effects of embodied planning in children's robotics education*. Paper presented at the annual conference of the American Educational Research Association, Washington, DC.
7. Choi, A., **Sung, W.**, Ahn, J., Kern, R., & Lee, J. J. (2014, June). *Greenify: A mobile platform to motivate sustainability via game mechanics and self-determination*. Poster presented at the Games, Learning and Society (GLS) Conference, Madison, WI.
8. **Sung, W.**, Olmanson, J., & Huang, C. K. (2013, April). *Understanding creative and participatory literacy practices: A design ethnography*. Poster presented at the annual conference of the American Educational Research Association, San Francisco, CA.

9. Olmanson, J., Huang, C. K., Scordino, R., **Sung, W.**, & Lee, J. (2013, April). *Explicit and congruent: A case study of factors guiding the design of an online environment*. Paper presented at the annual conference of the American Educational Research Association, San Francisco, CA.
10. Lee, J. J., Ceyhan, P., Jordan-Cooley, W., & **Sung, W.** (2012). *Greenify: Real-world missions for climate change education*. Games, Learning and Society (GLS) Conference, Madison, WI.
11. Olmanson, J., & **Sung, W.** (2012, February). *Beyond critical design ethnography: Inquiring for understanding and digital possibility*. Paper presented at the annual Ethnography in Education Research Forum, Philadelphia, PA.
12. Olmanson, J., Huang, C. K., & **Sung, W.** (2011, April). *Innovational Affinities: Designing, developing, and implementing FunWritr, an intelligent mashup for language and literacy play*. Paper presented at the annual conference of the American Educational Research Association, New Orleans, LA.

## SERVICE

2020-ongoing	Research Committee, College of Education and Psychology, University of Texas at Tyler
2020 June	Reviewer, National Science Foundation, CSforAll program
2019-ongoing	Reviewer, <i>Disruptive and Emerging Technology Trends Across Education and the Workplace</i> , IGI Global
2017-ongoing	Reviewer, <i>Journal of Computer and Education</i>
2016- ongoing	Reviewer, <i>The Society for Information Technology and Teacher Education</i>
2016- ongoing	Reviewer, <i>Journal of Technology, Knowledge and Learning</i> , American Educational Research Association
2014- ongoing	Reviewer, <i>American Educational Research Association</i>

## RESEARCH: GRANTS

**Title:** Computational Thinking integrated in Mathematics for P-6

**Funding Agency:** Google RISE Awards, Google for Education

**Role:** Principal Investigator

**Proposed Date:** 2/19/2016

**Description:** The purpose was to promote and support Science, Technology, Engineering, Mathematics (STEM) and Computer Science (CS) education initiatives.

**Amount:** \$25,000 (not funded)

**Title:** Computer Science and Math for Underrepresented Group

**Funding Agency:** NYC Google Community Grant

**Role:** Principal Investigator

**Proposed Date:** 1/31/2016



**Description:** The purpose was to propose program that addresses the computer science education in low income populations.

**Amount:** \$25,000 (not funded)

**Title:** Provost's Grant for Professional Development

**Funding Agency:** Office of Student Affairs, Teachers College, Columbia University

**Role:** Principal Investigator

**Proposed Date:** 2/17/2017

**Description:** The purpose was to offer funding opportunities for eligible Teachers College Master's and Doctoral students who are presenting at an academic conference.

**Amount:** \$500 (not funded)

**Title:** 125<sup>th</sup> Anniversary Scholarship

**Funding Agency:** Teachers College, Columbia University

**Role:** Principal Investigator

**Proposed Date:** 3/13/2014

**Description:** The purpose was to support masters and doctoral students to pursue their academic goals.

**Amount:** \$10,000 (not funded)

## **PROFESSIONAL CERTIFICATIONS**

2008 National Technical Qualification Certificate "Information Processing Engineer" Seoul, South Korea

2008 Secondary School Teaching Certification for English, South Korea

2008 Secondary School Teaching Certification for Educational Philosophy, South Korea