Keunjae Kim

Instructional Systems Technology
Department of Learning Design and Adult Education
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EDUCATION

May 2025 (Expected Graduation)	Ph.D. Candidate, Instructional Systems Technology Major in Instructional Systems Technology, Department of Learning, Design, and Adult Education, Indiana University, Bloomington, IN Minor in Inquiry Methodology, Department of Counseling and Educational Psychology, Indiana University, Bloomington, IN
Feb 2019	M.A., Educational Technology Department of Education, Seoul National University, Seoul, South Korea
Feb 2012	B.Ed., Elementary Education Seoul National University of Education, Seoul, South Korea

PROFESSIONAL EXPERIENCE

2021-2025	**Research Assistant** *Instructional Systems Technology* *Department of Learning, Design, and Adult Education,* *Indiana University, Bloomington, IN*
2016-2019	**Research Assistant** *Educational Technology, Department of Education,* *Seoul National University, Seoul, South Korea*
2016-2017	**Research Assistant** *Educational Research Institute* *Seoul National University, Seoul, South Korea*
2012-2021	**Elementary School Teacher** *Seoul Cheongdam Elementary School, Seoul Obong Elementary School* *Seoul Metropolitan Office of Education, Seoul, South Korea*

PUBLICATIONS

Peer-reviewed Journal Articles

1. **Kim, K.**, & Kwon, K. (2025). Unveiling Teacher Identity Development: A Case Study of AI Curriculum Implementation in a Rural Middle School Computer Science Class. *Teaching and Teacher Education, 160,* 105032. https://doi.org/10.1016/j.tate.2025.105032
2. Kwon, K., Kim, H., **Kim, K.,** Seo, M., & Brush, T. (2025). Computational Thinking through Embodied Learning: A Comparison of Mixed-Reality and Unplugged Activities. *Journal of Research on Technology in Education*, 1–17. https://doi.org/10.1080/15391523.2025.2492604

3. Kwon, K., Lee, S. J., & **Kim, K.** (2025). A systematic review of gender differences in computational thinking. *Computers and Education: Open,* 100253. https://doi.org/10.1016/j.caeo.2025.100253
4. Kwon, K., **Kim, K.**, Zhou, C., & Jeon, M. (2025). Embodied Learning Experiences of Early Elementary Students in Computational Thinking Education. *Technology Knowledge and Learning.* https://doi.org/10.1007/s10758-025-09826-w
5. Kwon, K., Brush, T., **Kim, K.,** & Seo, M. (2025). Embodied learning for computational thinking in a mixed-reality context. *Journal of Educational Computing Research, 62*(8), 1939-1960. https://doi.org/10.1177/07356331241291173
6. **Kim, K.** & Kwon, K. (2024). Designing an inclusive AI curriculum for elementary students to address gender differences with collaborative and tangible approaches. *Journal of Educational Computing Research, 62*(7), 1837-1864. https://doi.org/10.1177/07356331241271059
7. **Kim, K**. & Kwon, K. (2024). A systematic review of the evaluation in K-12 artificial intelligence education from 2013 to 2022. *Interactive Learning Environments*, *33*(1), 103–131. https://doi.org/10.1080/10494820.2024.2335499
8. **Kim, K**., & Kwon, K. (2024). Tangible computing tools in AI education: Approach to improve elementary students' knowledge, perception, and behavioral intention towards AI. *Education and Information Technologies, 29,* 16125-16156. https://doi.org/10.1007/s10639-024-12497-2
9. **Kim, K.**, & Kwon, K. (2023). Exploring the AI competencies for elementary school teachers in South Korea. *Computers and Education: Artificial Intelligence, 4,* 100137. https://doi.org/10.1016/j.caeai.2023.100137
10. **Kim, K.**, Kwon, K., Ottenbreit-Leftwich, A., Bae, H., & Glazewski, K. (2023). Exploring middle school students' common naive conceptions of AI concepts, and the evolution of these ideas. *Education and Information Technologies, 28*(8), 9827-9845. https://doi.org/10.1007/s10639-023-11600-3
11. Kwon, K., Jeon, M., Zhou, C., **Kim, K.**, & Brush, T. (2022). Embodied learning for computational thinking in early primary education. *Journal of Research on Technology in Education, 56*(4), 410-430. https://doi.org/10.1080/15391523.2022.2158146
12. **Kim, K.,** & Han, H. (2021). A design and effect of online maker education using educational artificial intelligence tools in elementary school. *Journal of Digital Convergence, 19*(6). 61-71. https://doi.org/10.14400/JDC.2021.19.6.061
13. Han, H., **Kim, K.**, & Kwon, H. (2020). The analysis of elementary school teachers' perceptions using artificial intelligence in education. *Journal of Digital Convergence, 18*(7). 47-56. https://doi.org/10.14400/JDC.2020.18.7.047
14. **Kim, K.**, & Lim, C. (2019). A developmental study of an instructional model for maker education using a single-board computer (SBC) in elementary school. *Journal of Educational Technology, 35*(4), 687-729. http://dx.doi.org/10.17232/KSET.35.3.687
15. Lim, C., Park, T., Han, H., **Kim, K.**, Kwon, H., & Lee, J. (2019). An exploratory study on essential design elements for constructing a future school space. *Journal of Educational Technology, 35*(S), 589-619. http://dx.doi.org/10.17232/KSET.35.2.589
16. Han, H., **Kim, K.**, Kwon, H., & Lim, C. (2019). Development of a competence model for elementary school teachers' education using mobile technology and analysis on needs. *Journal of Korean Association for Educational Information and Media, 25*(4). 657-690. http://dx.doi.org/10.15833/KAFEIAM.25.4.657

Manuscript Accepted with Revision

1. Bae, H., Glazewski, K., Kwon, K., Ottenbreit-Leftwich, A., & **Kim, K.** (Accepted with Revision). Promoting teacher empowerment and professional learning through co-design of artificial intelligence (AI) curriculum. *Instructional Science.*
2. Moon, J., Jung, Y., Bae, H., Lee, U., & **Kim, K.** (Accepted with Revision). Enhancing Asynchronous Online Learning in Higher Education through AI Chatbots: A Multi-Case Study. *Innovations in Education and Teaching International.*

Manuscript Under Review

1. Kwon, K. Kim H., **Kim, K.**, Yang, S., & Park, J. (Under review). Integrating Generative AI in English Classrooms: Impacts on Argumentative Writing and AI Literacy. *Reading and Writing.*
2. **Kim, K.**, & Kwon, K. (Under review). Exploring gender differences in middle school students' perceptions of AI integration in the classroom. *Technology Pedagogy and Education.*
3. Kwon, K., Johnson, V., & **Kim, K.** (Under review). Exploring Teachers' Experiences in AI Professional Development. *Teacher Development.*
4. **Kim, K.**, Kwon, K., Bae, H., Brown, M., Ottenbreit-Leftwich, A., & Glazewski, K. (Under review). Exploring the effects of a machine learning summer camp curriculum on middle school students. *Education and Information Technologies.*
5. **Kim, K.**, & Kwon, K. (Under review). From co-design to co-teaching: a comprehensive approach to an integrated AI curriculum in middle school STEM education. *Smart Learning Environments.*
6. **Kim, K.** & Kwon, K. (Under review). Expanding access to AI education for middle school students and bridging gender gaps with constructionism-social emotional learning approach. *International Journal of Artificial Intelligence in Education.*

Manuscript in Preparation

1. Kwon, K., Yang, S., Kale, U., **Kim, K.**, & Park, J. (In preparation). *Leveraging Generative AI for Career Unit Activities: Supporting High School Students in Curriculum Vitae Writing and Interview Practice.* [Manuscript in preparation].
2. **Kim, K.**, & Kwon, K. (In preparation). *Investigating Learning Outcomes and Key Influences in Tangible AI Education for Elementary Students.* [Manuscript in preparation].
3. **Kim, K.**, & Kwon, K. (In preparation). *Exploring Learning Moments and Barriers in an Embodied Computational Thinking Path-Finding Task Using Mixed Reality for Young Learners.* [Manuscript in preparation].
4. Kwon, K., **Kim, K.**, Park, J., & Kale, U. (In preparation). *From Movement to Meaning: The Impact of Embodied Cues on Computational Thinking Development in Elementary Students*

Referred Conference Proceedings

1. Johnson, V., Kwon, K. & **Kim, K.** (2025). Empowering Educators: Addressing Teacher Needs through Professional Development in Artificial Intelligence Education. In *Proceedings of SITE 2025* (pp. 2588-2598). Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/primary/p/225872/.
2. Kwon, K., **Kim, K.,** Seo, M., Kim, H. & Brush, T. (2024). Embodied Learning in a Mixed-Reality Environment: Examination of Student Embodiment. In Cherner, T. & Blankenship, R. J. (Eds). (2024*). Research Highlights in Technology and Teacher Education 2024, Vol 1*

(pp. 13-24). Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/primary/p/224713/

3. Bae, H., **Kim, K.**, Glazewski, K., Kwon, K., & Leftwich, A. (2024). Scaffolding to Build AI Competences: Transforming Student Presentations to Meaningful Learning Moments. In *Proceedings of the 18th International Conference of the Learning Sciences-ICLS 2024, pp. 2247-2248*. International Society of the Learning Sciences.
4. Kwon, K. & **Kim, K.** (2024). Exploring Middle School Teachers' Experience in Co-design and Co-teach an NLP-Generative AI focused curriculum in STEM classroom. In J. Cohen & G. Solano (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 2520-2522). Las Vegas, Nevada, United States: Association for the Advancement of Computing in Education (AACE). Retrieved April 13, 2024 from https://www.learntechlib.org/primary/p/224335/
5. Kwon, K., **Kim, K.**, Seo, M., Kim, H. & Brush, T. (2024). Embodied Learning in a Mixed-Reality Environment: Examination of Student Embodiment. In J. Cohen & G. Solano (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 1284-1291). Las Vegas, Nevada, United States: Association for the Advancement of Computing in Education (AACE). Retrieved April 13, 2024, from https://www.learntechlib.org/primary/p/224135/
6. Kwon, K., **Kim, K.**, Ottenbreit-Leftwich, A. T., Glazewski, K. D., Brown, M. L., Bae, H., & Closser, F. M. (2024). Exploring AIFORGOOD Summer Camp curriculum to foster middle school students' understanding of artificial intelligence. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education* (SIGCSE 2024) (Vol. 2, pp. 1-2). ACM. https://doi.org/10.1145/3626253.3635536
7. **Kim, K.**, Kwon, K., Bae, H., Ottenbreit-Leftwich, A. & Glazewski, K. (2023). Exploring the middle school students' common preconceptions of AI concepts: "AI is a cure-all solution!". In E. Langran (Ed.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 2124-2129). New Orleans, LA, United States: Association for the Advancement of Computing in Education (AACE). Retrieved April 7, 2023, from https://www.learntechlib.org/primary/p/222102/
8. Zhou, C., Kwon, K., Brush, T., **Kim, K.**, Muralidharan, A., & Kim, Y. (2022). Using Augmented Reality Technology to Support Young Students' Embodied Learning Experience in Computational Tasks. In L. Langran & D. Henriksen (Eds.), *Proceedings of SITE Interactive Conference* (pp. 346-349). Online: Association for the Advancement of Computing in Education (AACE). Retrieved December 21, 2022, from https://www.learntechlib.org/primary/p/221616/

Book Chapters

1. **Kim, K.,** & Bae, H. (2023). An Overview of the Concepts and Research Trends in Applications of Artificial Intelligence (AI) in Educational Contexts. In J. Moon, G. Choi, H. Bae, & J. Byun (Eds.), *Educational/Instructional Technology and Learning Sciences: Korean Open Access Guide*. Retrieved from https://doi.org/10.59668/431.13711

AWARDS & HONORS

2025 **Outstanding Research Paper Award**
SIG Design and Technology, American Educational Research Association (AERA)

Paper Recognized: **Kim, K.** & Kwon, K. (2024). Designing an inclusive AI curriculum for elementary students to address gender differences with collaborative and tangible approaches. Journal of Educational Computing Research.

2024 **Lee W. Cochran Interns, AECT Leadership Internship**
Association for Educational Communications & Technology (AECT)

2024 **Outstanding Journal Article Award**
Design and Development Division,
Association for Educational Communications & Technology (AECT)
Paper Recognized: **Kim, K.**, & Kwon, K. (2024). Tangible Computing Tools in AI Education: Approach to Improve Elementary Students' Knowledge, Perception, and Behavioral Intention towards AI. Education and Information Technologies.

2024 **Best Student Paper Award**
SIG Instructional Technology, American Educational Research Association (AERA)
Paper Recognized: **Kim, K.**, Bae, H., Brown, M., Kwon, K., Glazewski, K., & Ottenbreit-Leftwich, A. (2024). Exploring a Structured Summer Camp Curriculum to Foster Middle School Students' Understanding of Machine Learning.

2023 **Best Paper Award**
SIG SITE X Realities and Learning, Society for Information Technology and Teacher Education (SITE)
Paper Recognized: Kwon, K., **Kim, K.**, Seo, M., Kim, H., & Brush, T. (2024). Embodied Learning in a Mixed-Reality Environment: Examination of Student Embodiment

2023 **Emerging Scholar**
Center for Integrative Research in Computing and Learning Sciences (CIRCLS)

2023 **Emerging Learning Technology Graduate Student Award**
Division of Emerging Learning Technologies,
Association for Educational Communications & Technology (AECT)
Paper Recognized: **Kim, K.** (2023). Embracing Gender-Inclusive Approaches Integrating Microcontrollers and Machine Learning Education Tools for Concrete Learning of AI

2023 **Theory Competition Award Finalist**
Research & Theory Division, Association for Educational Communications & Technology (AECT)
Paper Recognized: **Kim, K.** & Kwon, K. (2023). Inclusive Artificial Intelligence (AI) + Framework: Empowering Instructional Design for an Inclusive AI Curriculum

2022 **Best Student Paper Award**
SIG Instructional Technology, American Educational Research Association (AERA)
Paper Recognized: **Kim, K.** & Kwon, K. (2021). Design the Curriculum of Online Maker Education Using Educational AI Tools in the COVID-19 Situation.

2018 **Best Poster Award**
Korean Society of Educational Technology (KSET)
Poster Recognized: **Kim, K.** & Kwon, H. (2018). Development of Maker-based Instructional Model and Mobile Supporting Tool Related to Real-Life.

2017 **Best Poster Award**
Korean Society of Educational Technology (KSET)
Poster Recognized: **Kim, K.** & Kwon, H. (2017). A Development of Competence Enhancement Education Program for Librarian According to Changing Role of Library During the Lifelong Learning Society.

GRANTS & FELLOWSHIPS

Grants

2024 2025 NAEd/Spencer Dissertation Fellowship ($27,500)
Exploring the Impact of Integrating STEM-AI Curriculum and Human–AI Collaboration Using Generative AI Tools in Middle School Settings (Not Funded)

2024 Educational Transformation Plan in the Artificial Intelligence Era ($35,970)
Contributed to writing a research grant proposal submitted to National Education Commission in South Korea. *PI: Dr. Sunyong Byun, Co-PIs: Drs. Seung-Joon Yoon, Sun Young Song, Baul, Chung, Cheongho Lee & Keunjae Kim* (Not Funded)

Fellowships

2024-2025 **Clarence Fogelstrom Fellowship/Kavita Gupta IST Scholarship** ($23,000)
Department of Learning, Design, and Adult Education, Indiana University

2024 **AERA SIG Instructional Technology Scholarship** ($200)
SIG Instructional Technology, American Educational Research Association (AERA)

2022-2025 **CRLT Travel Scholarship** ($2400)
Center for Research on Learning and Technology, Indiana University

2023 **CIRCLS '23 Convening Emerging Scholars Travel Fund** ($1500)
Center for Integrative Research in Computing and Learning Sciences

2023 **Jerrold E. Kemp Instructional Systems Technology Fellowship** ($1000)
Department of Instructional Systems Technology, Indiana University

2022-2023 **L.C. and Sharon Larson Award** ($400)
Department of Instructional Systems Technology, Indiana University

2023 **Graduate & Professional Student Government (GPSG) Research Award** ($1000)
Graduate and Professional Student Government, Indiana University

2017 **Academic Excellence Scholarship** ($2500)
School of Education, Seoul National University

2008 **Academic Excellence Scholarship** ($1150)
School of Education, Seoul National University of Education

CONFERENCE PRESENTATIONS

Papers Presented

1. Kwon, H., **Kim, K**., Jeong, K., & Lim, C. (2025, May 23-24). *Instructional Design with Generative AI: Exploring the Collaborative Design Process with ChatGPT.* 2025 Spring Conference of Korean Association for Educational Information and Media, Seoul, South Korea.
2. Kwon, K. Kim H., **Kim, K.**, Yang, S., & Park, J. (2025, May 19-23). *AI Education in English Class: Exploring Benefits, Challenges, and Ethical Implications of Using Generative AI for Argumentation.* EdMedia 2025, Barcelona, Spain.

3. **Kim, K.**, & Kwon, K. (2025, Apr 23-27). *Exploring Middle School Students' Perceptions of AI and Generative AI tools.* 2025 AERA Annual Meeting, Denver, CO, United States.
4. Vannesa, J., Kwon, K., & **Kim, K.** (2025, March 17-21). *Empowering Educators: Addressing Teacher Needs through Professional Development in Artificial Intelligence Education.* SITE 2025, Orlando, FL, United States.
5. Kwon, K. Vannesa, J., **& Kim, K.** (2024, Nov 11). *Enhancing AI Competency in K-12 Classrooms: Insights from a Teacher Development Program.* Purdue AI in P-12 Education Conference 2024, West Lafayette, IN, United States.
6. **Kim, K.**, & Kwon, K. (2024, Oct 19-23). *Unveiling Co-teaching Strategies and Impact of the NLP-Generative AI Curriculum on Middle School AI Literacy.* 2024 AECT International Convention, Kansas City, MO, United States.
7. Bae, H., **Kim, K.,** Kwon, K., Glazewski, K., & Leftwich, A. (2024, Oct 19-23). *"It's insulting": Providing Distributed and Contingent Scaffolding to Foster Ethics-Centered AI Literacy.* 2024 AECT International Convention, Kansas City, MO, United States.
8. Seo, M., Kwon, K., Brush, T., Kim, H., & **Kim, K.** (2024, Oct 19-23). *Integrating Augmented Reality and Collaborative Activities to Enhance Computational Thinking in K-12 Classrooms.* 2024 AECT International Convention, Kansas City, MO, United States.
9. Kwon, K., & **Kim, K.** (2024, Jul 11-12). *Embodied Computational Thinking in a Mixed-Reality Context.* The 24th International Conference on Education Research, Seoul, South Korea.
10. Bae, H., **Kim, K.**, Kwon, K., Glazewski, K., & Ottenbreit-Leftwich, A. (2024, June 10-14). *Scaffolding to Build AI Competences: Transforming Student Presentations to Meaningful Learning Moments.* International Society of Learning Science 2024 Annual Meeting, Buffalo, NY, United States.
11. **Kim, K.**, Bae, H., Brown, M., Kwon, K., Glazewski, K., & Ottenbreit-Leftwich, A. (2024, April 11-14). *Exploring a Structured Summer Camp Curriculum to Foster Middle School Students' Understanding of Machine Learning.* 2024 Conference of American Educational Research Association, Philadelphia, PA, United States.
12. Kwon, K., **Kim, K.**, Seo, M., Kim, H., & Brush, T. (2024, March 25-29). *Embodied Learning in a Mixed-Reality Environment: Examination of Student Embodiment.* SITE 2024 Conference, Las Vegas, NV, United States
13. Kwon, K., & **Kim, K.** (2024, March 25-29). *Exploring Middle School Teachers' Experience in Co-design and Co-teach an NLP-Generative AI focused curriculum in STEM classroom.* SITE 2024 Conference, Las Vegas, NV, United States
14. Kwon, K**., Kim, K.**, Ottenbreit-Leftwich, A., Glazewski, K., Bae, H., Brown, M., & Closser, F. (2024, March 20-23). *Exploring a Structured Summer Camp Curriculum to Foster Middle School Students' Understanding of Artificial Intelligence.* 2024 Technical Symposium on Computer Science Education (SIGCSE TS), Portland, OR, United States.
15. Kwon, K & **Kim, K.** (2023, February 24-26). *Empowering Teachers in AI Education through Participatory Co-design.* 2023 Midwest Annual Robert Noyce Teacher Scholarship Program, St. Louis, IL, United States
16. Zhou, C., Kwon, K., **Kim, K**., Brush, T., Muralidharan, A., Seo, M., Kim Y., & Hwang, J. (2023, October 15-19). *Embodied Programming Experience in Computational Thinking Development: Examination on Effectiveness of Augmented Reality and Bee-bots*. 2023 AECT Annual Meeting, Orlando, FL, United States.

17. Seo, M., **Kim, K.,** Kwon, K., Brush, T., Zhou, C., & Muralidharan, A. (2023, October 15-19). *Designing Pathfinding Tasks for young students in Augmented Reality for Embodied Computational Thinking*. 2023 AECT Annual Meeting, Orlando, FL, United States.
18. Bae, H., Zhou, C., Brown, M., **Kim, K.**, Kwon, K., Glazewski, K., Ottenbreit-Leftwich, A., & Closser, F. (2023, October 15-19). *Fostering AI literacy in Middle School through Prompting Questions: Does Every Robot Have AI?* 2023 AECT Annual Meeting, Orlando, FL, United States.
19. Kwon, K., Brush, T., Zhou, C., **Kim, K**., Seo, M., Muralidharan, A., Kim, Y., & Hwang, J. (2023, July 10-14). *Learning Computational Thinking through AR enhanced Embodied Learning Activities.* EdMedia + Innovate Learning 2023, Vienna, AT.
20. Bae, H., Kwon, K., Glazewski, K., Ottenbreit-Leftwich, A., Closser, F., Jeon, M., & **Kim, K.** (2023, April 13-16). *Investigating the Process and Strategies for Teacher Empowerment in Virtual Co-design Sessions*. 2023 AERA Annual Meeting, Chicago, IL, United States.
21. Jeon, M., Kwon, K., Ottenbreit-Leftwich, A., Glazewski, K., Closser, T., Bae, H., & **Kim, K.** (2023, March 15-18). *Middle Schoolers' AI Literacy on Conceptual Understanding and Dispositions Introduction*. SIGCSE TS 2023, Toronto, OT, Canada.
22. **Kim, K.**, Ottenbreit-Leftwich, A., Kwon, K., Glazewski, K., Closser, F., Bae, H., & Jeon, M. (2022, October 24-28). *Design Considerations of Synchronous Online AI Professional Development for Middle School Teachers*. 2022 AECT Convention, Las Vegas, NV, United States.
23. Jeon, M., Kwon, K., Ottenbreit-Leftwich, A., Glazewski, K., Closser, F., Bae, H., & **Kim, K.** (2022, October 24-28). *Developing a Student-centered AI Literacy Curriculum for Rural Middle School Students.* 2022 AECT Convention, Las Vegas, NV, United States.
24. Zhou, C., **Kim, K.**, Kwon, K., Brush, T., Abhijeet, M., Kim, Y., & Hwang, J. (2022, October 24-28). *Promoting Young Students' Embodied Interaction with Cutting-edge Technologies in Computational Tasks.* 2022 AECT Conference, Las Vegas, NV, United States.
25. **Kim, K**., Kwon, K. & Shin, S. (2022, October 20-21). *Exploring the AI competencies of Elementary School Teachers in South Korea.* 2022 International Conference of Educational Research, Seoul.
26. Zhou, C., Kwon, K., Brush, T., **Kim, K**., Muralidharan, A., & Kim, Y. (2022, October 20). *Using Augmented Reality Technology to Support Young Students' Embodied Learning Experience in Computational Tasks*. SITE Interactive Online 2022.
27. **Kim, K**., & Kwon, K. (2022, April 21-26). *Design the curriculum of online maker education using educational AI tools in the Covid-19 situation*. 2022 Conference of American Educational Research Association, San Diego, CA, United States.
28. **Kim, K**., Bae, H., Jeon, M., Closser, F., Kwon, K., Ottenbreit-Leftwich, A. T., & Glazewski, K. (2022, March 4). *Design considerations of synchronous online AI professional development for middle school teachers*. IST 2022 conference, Bloomington, IN, United States.
29. Zhou, C., **Kim, K**., Jeon, M., Kwon, K., & Brush, T. (2022, Mar 4). *Developing Computational Thinking with Programming Robots through Collaborative Embodied Learning in Elementary School Classrooms*. IST 2022 conference, Bloomington, IN, United States.

30. Closser, F., Kwon, K., Ottenbreit-Leftwich, A. T., Glazewski, K., Acharya, R., Dalkilic, M., Bae, H., Jeon, M., & **Kim, K**. (2022, Jan 13). *AI Goes Rural*. 2022 Indiana STEM Education Conference, West Lafayette, IN, United States.
31. **Kim, K**., & Han, H. (2021, Jun 19). *Designing Online Maker Activities Using Educational AI Tools in COVID-19 Situation*. Conference of Korean Society of Educational Technology. Seoul, South Korea
32. **Kim, K**., & Lim, C. (2019, Nov 2). *A Developmental Study of an Instructional Model for Maker Education using Single-Board Computer (SBC).* Conference of Korean Society of Educational Technology. Seoul, South Korea
33. Lim, C., Han, H., Jung, D., Yunus, E., Hong, J., **Kim, K**., & Kwon, K. (2018, May 26). *Exploring an e-learning Platform Prototype for Supporting Learning Design. International Conference of Educational Technology*. Seoul, South Korea
34. **Kim, K**., & Kwon, H. (2018, May 26-27). *Development of Maker-based Instructional Model and Mobile Supporting Tool related to real-life*. International Conference of Educational Technology. Seoul, South Korea
35. **Kim, K**., & Kwon, H. (2018, June 22-24). *Development of Maker-based Instructional Model and Mobile Supporting Tool related to real-life in Elementary school.* Conference of Korean Education Research Association. Seoul, South Korea
36. Lim, C., Kwon, H., **Kim, K**. (2018, Oct 14-16). *An Empirical Study on Rapid Prototyping to Instructional Systems Design for Development of Public Institution Education Program*. 2018 International Conference of Educational Research. Seoul, South Korea
37. Lim, C., Kwon, H., **Kim, K**., & Han, H. (2018, June 6-8). *Application of Rapid Prototype to ISD methodology for education program development of public institutions: Based on the case of library librarian competency development education program*. Conference of Korean Educational Research. Seoul, South Korea
38. **Kim, K**., & Kwon, H. (2017, May 26-28). *Development of Competence Enhancement Education Program for librarian according to changing role of library.* Conference of Korean Society of Educational Technology. Seoul, South Korea
39. Lim, C., Kwon, H., **Kim, K**., & Han, H. (2017, Nov 24-25). *Application of Rapid Prototype to ISD methodology for Education Program Development of Public Institutions: Based on the Case of Librarian Competency Development Education Program*. Joint conference of Human Resources Development. Seoul, South Korea
40. Lim, C., **Kim, K**., Kwon, H., Cho, B., & Han, H. (2017, Oct 26-28). *Educational Application Practice Improving Computational Thinking with Coding Education*. Joint Conference of Korean Society of Educational Technology, Association for Educational Information and Media. Seoul, South Korea
41. Lim, C., Kwon, H., **Kim, K.,** Lee, S., Zhou, Y., & Han, H. (2017, Oct 14-16). *A Development of Competence Enhancement Education Program for Librarian According to Changing Role of Library During the Lifelong Learning Society.* International Conference on Education Research. Seoul, South Korea

RESEARCH EXPERIENCE

Research Assistant

Aug 2021- May 2025 **AI Goes Rural: Middle School Artificial Intelligence Education**
Indiana University, Bloomington, IN

PI: Dr. Kyungbin Kwon, Co-PIs: Drs. Anne Ottenbreit-Leftwich, Krista Glazewski, Raj Acharya & Dalkilic Mehmet

- Project commissioned by Department of Defense STEM (DoDSTEM), National Defense Education Program (NDEP) ($1,399,000)
- Co-designed AI curriculum with K-12 teachers for middle school students in rural communities to learn about AI concepts
- Developed the lesson plans, assessment tools, and learning materials for middle school student

Aug 2021- May 2025 **Supporting Early Learning of Computational Thinking Using Mixed Reality Technology**

Indiana University, Bloomington, IN

PI: Dr. Kyungbin Kwon, Co-PIs: Drs. Thomas Brush, Yanghee Kim, Sungcheol Lee, & Jaejin Hwang

- Project commissioned by NSF, Innovative Technology Experiences for Students and Teachers (ITEST) ($724,956)
- Developed an innovative Mixed Reality (MR) learning environment combining visual displays and robot with programmable movement for young children to enhance computational thinking
- Developed the learning scenarios for MR system, lesson plans, assessment tools and learning materials

Aug 2021- Dec 2023 **Embodied Learning for Computational Thinking in Early Primary Students**

Indiana University, Bloomington, IN

PI: Dr. Kyungbin Kwon

- Project commissioned by School of Education, Indiana University ($9,500)
- Developed an embodied learning module for promoting computational thinking for early primary students (1st, 2nd graders)

Dec 2018 - Mar 2019 **Development of E-book for Enhancing Job Competency**

Seoul National University, Seoul South Korea

PI: Dr. Cheolil Lim

- Project commissioned by Hyundai Motors Group
- Developed e-book prototypes for enhancement of employees' job competencies (including need analysis, performance analysis, and expert validation)

Nov 2018 - Dec 2018 **Development of Education Operating Model and Manual for Typhoon, Earthquake, Aviation**

Seoul National University, Seoul South Korea

PI: Dr. Cheolil Lim

- Project commissioned by Korea Meteorological Administration
- Developed education operating model, and manual for forecasters and engineers (including need analysis, performance analysis, and expert validation)

Feb 2018 - Dec 2018 **Development of Essential Design Elements for Constructing a Future School Space**

Seoul National University, Seoul South Korea

PI: Dr. Cheolil Lim

- Project commissioned by Ministry Office of Education
- Developed essential design elements, and models for future school space (including a review of the current structure of schools, need analysis)

Apr 2017 - Feb 2018 **Measurement of Education Customer Satisfaction and Development of Feedback System (Institutional Research)**
Seoul National University, Seoul South Korea
PI: Dr. Cheolil Lim

- Project commissioned by Seoul National University Office of Planning and Coordination
- Developed survey items for freshmen students and created an online survey; analyzed the data (including Importance-Performance Analysis)

Aug 2017 - Dec 2017 **Development of Real-time Online Education Program for Enhancement of Science and Technology Researchers' Interdisciplinary Competency**
Seoul National University, Seoul South Korea
PI: Dr. Cheolil Lim

- Project commissioned by the Korean Institute of Human Resources Development in Science & Technology
- Developed a blended, project-based learning program (including a review of the current training program, need analysis, performance analysis, and expert validation)

Mar 2016 - Jul 2016 **Development of Collective Training Program for Enhancement of Librarians' Job Competencies**
Seoul National University, Seoul South Korea
PI: Dr. Cheolil Lim

- Project commissioned by National Library of Korea
- Developed a collaborative blended, project-based training program (including a review of the current training program, need analysis, performance analysis, and expert validation)

TEACHIING EXPERIENCE

Teaching Assistant

Fall 2022 Undergraduate*, Indiana University, Bloomington, IN*
R521 Instructional Design & Development

- Designed tasks for collaborative argumentation, facilitated online discussions and provided feedback
- Assisted in student assignment evaluation

Guest Lecturer and Invited Talks

Sep 2024 AI for Learning: From Tangible Tools to Immersive Experiences*, AECT-Division of Emerging Learning Technologies (DELT) Emerging Technologies Showcase Share & Connect (ETSS&C)*

- Presented a tangible and collaborative approach with physical computing tools to teaching and learning about AI in K-12 STEM contexts
- Engaged participants in an interactive Q&A session

Fall 2023 Graduate*, Seoul National University, Seoul, South Korea*
701.688 Instructional Systems Design Seminar

- Taught graduate students with topic of an Overview of the Concepts and Research Trends in Applications of Artificial Intelligence (AI) in Educational Contexts
- Constructed collaborative exercises to facilitate the understanding of core concepts, moderated group discussions, and had an interactive Q&A session

Fall 2023 Graduate*, Indiana University, Bloomington, IN*
R561 Issue and trend of Evaluation in K-12 AI education

- Taught graduate students with topic of emphasis on the design and development example of the evaluation tools in research context
- Designed collaborative tasks for grasping core ideas, facilitated discussions and provided feedback

Spring 2023 Graduate*, Dongguk University, Seoul, South Korea*
LDE6013-01 Design thinking and system thinking

- Taught graduate students with topic of design thinking-based AI education in K-12
- Created interactive assignments to help students grasp fundamental concepts, moderated discussions, and gave constructive feedback

Fall 2022 Graduate*, Seoul National University, Seoul, South Korea*
701.652A Survey of Instructional Systems Design

- Taught graduate students with topic of issue and trend of educational technology and introduction of graduate school systems in the U.S.
- Constructed collaborative exercises to facilitate the understanding of core concepts, moderated group discussions, and offered constructive assessments

Spring 2021 Graduate*, Korean National University of Transportation, Cheongju, South Korea*
49019 Educational Technology Research and Issues

- Taught graduate students with topic of issue and trend of educational technology in K-12 education for graduate students & AI education and maker education in K-12 education
- Organized group assignments aimed at promoting the comprehension of fundamental concepts, facilitated conversations, and supplied informative evaluations

Spring 2021 Graduate*, Ewha Women's University, Seoul, South Korea*
G12702 Exploring Educational Technology

- Taught undergraduate students with topic of how to use knowledge and skills from Educational Technology in K-12 contexts?

- Devised cooperative tasks to aid in the comprehension of essential principles, guided group conversations, and provided evaluative feedback

Fall 2019 Undergraduate*, Dongguk University, Seoul, South Korea*
RC106-02 Educational Methods and Educational Technology

- Taught undergraduate students with topic of CS education and Maker Education in K-12 context
- Designed cooperative projects to aid students in comprehending central ideas, guided discussions, and gave instructive feedback

Teacher Trainer

Feb 2025 Artificial Intelligence Across Indiana in K-12: Teaching and Learning about AI with Tangible Approaches, *Infosys, Indianapolis, IN*

- Designed collaborative hands-on activities to promote teachers' understanding of AI and machine learning
- Led professional development for in-service elementary and middle school teachers with topic of teaching AI with tangible approaches
- Led the hands-on activities on how to create AI-based tools within school subjects, guided discussions on designing AI activities and provided feedback

Apr 2024 Teaching AI with Tangible Tools: Professional Development for Educators, *Indiana University, Bloomington, IN*

- Designed collaborative hands-on activities to promote teachers' understanding of generative AI and machine learning
- Led professional development for in-service elementary and middle school teachers with topic of teaching AI with tangible tools and generative AI
- Led the hands-on activities on how to integrate generative AI and AI with school subjects, guided discussions on designing AI activities and provided feedback

Apr 2024 Designing Effective Learning Experiences Through AI-Based Instructional Design: Focusing on AI Courseware and AI-Based Tools, *Seoul Metropolitan Office of Education, Seoul EDU X, Seoul, South Korea*

- Designed interactive hands-on activities to promote teachers' understanding of AI courseware and AI-based tools
- Led professional development for in-service elementary school teachers with topic of designing effective learning experiences with AI-based instructional design
- Led the hands-on activities on how utilize AI courseware and AI-based tools in school curricula

Dec 2023 Middle School AI Explorers: Professional Development for Educators, *Indiana University, Bloomington, IN*

- Designed collaborative hands-on activities to promote teachers' understanding of machine learning and AI

- Led professional development for in-service elementary and middle school teachers with topic of
- Led the hands-on activities on how to integrate AI with school subjects, guided discussions on designing AI activities and provided feedback

Feb 2021 Blended Learning in K-12 Maker Education,
Center for Innovation of Future Education at Seoul National University, Seoul, South Korea

- Led professional development for in-service teachers with topic of blended maker education in K-12 Education
- Designed cooperative projects to aid students in comprehending central ideas, guided discussions, and gave instructive feedback

Nov 2020 - Dec 2020 Distance Education Classes using Interactive Online Platforms,
Ministry of Education, Korean Foundation for Advancement of Science & Creativity Training, Seoul, South Korea

- Led professional development for in-service teachers with topic of strengthen in-service teachers' ability for distance education classes using an interactive online platform
- Designed collaborative projects to aid students in comprehending central ideas, guided discussions, and gave instructive feedback

Nov 2020 Integrating AI Curriculum in K-12 Classroom,
Daegu Future Education Institute, Daegu, South Korea

- Led professional development for in-service teachers with topic of how to implement AI curriculum in K-12 context?
- Organized group assignments aimed at promoting the comprehension of fundamental concepts, facilitated conversations, and supplied informative evaluations

May 2019 - Oct 2019 Basic Programming and CS Education,
Center for Innovation of Future education at Seoul National University, Seoul, South Korea

- Led professional development for pre-service teachers with topic of basic programming and CS education
- Created interactive assignments to help students grasp fundamental concepts, moderated discussions, and gave constructive feedback

Nov 2019 Integrating CS and Maker Education in Elementary School Contexts,
Seoul Metropolitan Office of Education, Sejong City Office of Education, Sejong, South Korea

- Led professional development for in-service teachers with topic of how to implement CS and maker education in elementary school contexts
- Designed collaborative tasks for grasping core ideas, facilitated discussions, and provided feedback

Elementary School Teacher

Mar 2012 - Feb 2021 *Seoul Cheongdam Elementary School, Seoul, South Korea*

- Taught elementary school subjects (40 min for each class; a total of 20 classes per week) covering various topics in Korean, Social studies, Math, Science, Technology, Physical Education, Arts, and STEM

- Created and implemented project-based modules for interdisciplinary learning
- Led a professional development community for teachers and mentored newly appointed teachers

Feb 2021 - Aug 2021 *Seoul Obong Elementary School, Seoul, South Korea*

- Taught elementary school subjects (40 min for each class, a total of 20 classes per week) covering various topics in English and STEM
- Created and implemented project-based modules for interdisciplinary learning
- Led a professional development community for teachers and mentored newly appointed teachers

LEADERSHIP & SERVICE

Professional Services

Journal reviews

2024-Present	Computers & Education
2024-Present	Asia Pacific Education Review
2024-Present	Journal of Research on Technology in Education
2024-Present	International Journal of STEM Education
2024-Present	Social Psychology of Education
2023-Present	Behavior & Information Technologies
2022-Present	Education and Information Technologies

Conference reviews

2023-Present	International Society of Learning Science (ISLS)
2022-Present	Association for Educational Communications and Technology (AECT)
2022-Present	American Educational Research Association (AERA)
2022-Present	Society of Information Technology and Teacher Education (SITE)

Conference facilitator

2023	Association for Educational Communications and Technology (AECT) Korean Society for Educational Technology (KSET) Division

Departmental Service

2022-2023	Vice President of Professional Development in Graduate of Instructional Systems Technology (GIST)
2023	Creative and Advertising team of IST conference
2021	Conference Reviewer of IST conference

Community Services

2022-2023	Coach, After-school Robotics club at Childs Elementary School
2023	STEAM night facilitator at Monroe County Community School Corporation

PROFESSIONAL AFFILIATIONS

2023-Present	Center for Integrative Research in Computing and Learning Sciences (CIRCLS)
2023 -Present	International Society of Learning Science (ISLS)

2023-Present	Special Interest Group Computer Science Education (SIGCSE)
2021-Present	American Educational Research Association (AERA)
2021-Present	Korean-American Educational Research Association (K-AERA)
2021-Present	Society for Information Technology and Teacher Education (SITE)
2016-Present	Association for Educational Communication and Technology (AECT)
2016-Present	Korean Society of Educational Technology (KSET)

REFERENCES

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