

Haesol Bae, PhD

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EDUCATION

Ph.D. Instructional Systems Technology	2015-2021
Indiana University-Bloomington	Bloomington, IN
<ul style="list-style-type: none"> ▪ Minor in Learning & Developmental Sciences ▪ Dissertation: How Teachers Engage within PBL Classroom Environment: A Multiple Case Study of Elementary, Middle, and High School Teachers Orchestration and Scaffolding Practices 	

PROFESSIONAL EXPERIENCES

Assistant Professor	2023-Present
Educational Theory & Practice, University at Albany, SUNY	Albany, NY
Research Scientist	2021-2023
Center for Research on Learning & Technology, Indiana University	Bloomington, IN
Research Assistant	2015-2021
Instructional Systems Technology, Indiana University	Bloomington, IN
Director/Classroom Teacher	2011-2015
Hongik University Elementary School	Seoul, South Korea

MAJOR AWARDS

- Maris B. and Mary Higgins Proffitt Outstanding Dissertation Fellowship-award (2023) in the School of Education at *Indiana University*
Dissertation Recognized: Bae, H. How Teachers Engage Within PBL Classroom Environment: A Multiple Case Study of Elementary, Middle, And High School Teachers Orchestration and Scaffolding Practices.
- Outstanding Dissertation Award (2023) in the department of Instructional Systems Technology at *Indiana University*
Dissertation Recognized: Bae, H. How Teachers Engage Within PBL Classroom Environment: A Multiple Case Study of Elementary, Middle, And High School Teachers Orchestration and Scaffolding Practices.

- Outstanding Empirical Journal Article Award (2022) in the Research & Theory Division in *Association for Educational Communications and Technology*
Paper Recognized: Bae, H., Glazewski, K., Brush, T., & Kwon, K. (2021). Fostering transfer of responsibility in the middle school PBL classroom: An investigation of soft scaffolding. Instructional Science, 49, 337–363.
- Best Student Paper Award Finalist (2020) in *International Conference on Computer Supported Collaborative Learning*
Paper Recognized: Bae, H., Saleh, A., Feng, C., Glazewski, K., Hmelo-Silver, C. E., Chen, Y., Scribner, A., Brush, T., Lee, S. Y., Mott, B. W., & Lester, J. (2020) Designing Intelligent Cognitive Assistants with Teachers to Support Classroom Orchestration of Collaborative Inquiry
- Design And Development Division Awards in AECT (2020) Project Name: *Crystal Island: EcoJourneys Project*
- A Judicated Award for Conference's Best Poster (2019) at *the XXXIX Sunbelt Social Networks Conference of the International Network for Social Network Analysis*
- L.C. Larson Award \$2,800 (2017-2019)
- Center for Research on Learning & Technology (CRLT) Travel Scholarship \$500 (2018, 2019)
- Jerrold E. Kemp IST Fellowship Fund for \$550 (2017)
- Proffitt Faculty Fellowship, Indiana University at Bloomington (2015-2019)
- Kyungpook National University Graduate Scholarship (2008)

PUBLICATIONS

- 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.*
- Jeon, M., Kwon, K., & **Bae, H.** (2022). Does Function Follow Form?: Effects of Different Graphic Organizers in Asynchronous Online Discussions. *Educational Technology Research & Development*
- Bae, H.**, Craig, K., Xia, F., Chen, Y., & Hmelo-Silver, C.E. (2021). Developing Historical Thinking in Large Lecture Classrooms Through PBL Inquiry Supported with Synergistic Scaffolding. *Interdisciplinary Journal of Problem-based Learning.*
- Bae, H.**, Glazewski, K.D., Brush, T., & Kwon, K. (2021). Fostering Transfer of Responsibility in the Middle School PBL Classroom: An Investigation of Soft Scaffolding. *Instructional Science, 49, 337–363.*

- Uttamchandani, S., **Bae, H.**, Feng, C., Glazewski, K., Hmelo-Silver, C., Brush, T., Mott, B., & Lester, J. (2021). Teacher orchestration systems supported by AI: Theoretical possibilities and practical considerations. In F. Ouyang, P. Jiao, B. McLaren, & A. Alavi (Eds.), *Artificial intelligence in STEM education: The paradigmatic shifts in research, education, and technology*. CRC Press.
- Bae, H.**, & Kwon, K. (2021). Developing metacognitive skills through class activities: what makes students use metacognitive skills? *Educational Studies*, 47(4), 456-471.
- Ding, A., Qu, P., **Bae, H.**, Eruglec, F., Nadir, H., Glazewski, K.D., & Brush, T. (2021) The Dilemmas of Teaching Dilemmas In A Foreign Language Classroom. *International Journal of Designs for Learning*, 12(3), 86–101.
- Boling, E., Alangari, H., Gyabak-Kumka, K., Guo, M., Hajdu, I., Khlaif, Z., Kizilboga, R., Tomita, K., Alsaif, M., Lachheb, A., **Bae, H.**, Ergulec, F., Zhu, M., Basdogan, M., Buggs, C., Sari, A., & Techawitthayachinda, R. (2017). Core Judgments of Instructional Designers in Practice. *Performance Improvement Quarterly*, 30(3), 199-219.
- Bae, H.**, Feng, C., Glazewski, K., Hmelo-Silver, C., Brush, T., Mott, B., & Lester, J. (Under Review). Co-designing a Classroom Orchestration Assistant for Game-based PBL Environments
- Bae, H.**, Glazewski, K.D., Hmelo-Silver, C., & Brush, T. (Submitted for Review). Scaffolding Collaborative Problem-Based Learning: Differing Teacher Practices across Grades Levels.
- Feng, C., **Bae, H.**, Glazewski, K., Hmelo-Silver, C. E., Brush, T. A., Lee, S., Mott, B. W., & Lester, J. (Submitted for review). Exploring Facilitation Strategies to Support Socially Shared Regulation in a Problem-based Learning Game.

REFEREED CONFERENCE PROCEEDINGS

- Chen, Y., **Bae, H.**, Saleh, A., Uttamchandani, S., Hmelo-Silver, C. E., Glazewski, K., Mott, B. W., & Lester, J. (2022, June). A Real-time Teacher Dashboard for a Game-based Collaborative Inquiry Learning Environment. In Proceedings of the *In Proceedings of International Conference of the Learning Sciences (ICLS)*. Virtual.
- Hmelo-Silver, C. E., Puntambekar, S., Glazewski, K., Lawrence, L., Rummel, N., Alevan, V., Biswas, G., Uttamchandani, S., Saleh, A., **Bae, H.**, Brush, T., Mott, B., Lester, J., Goss, W., Gnesdilow, D., Passonneau, R., Singh, P., Kim C., & Worsley, M. (2022, June). Artificial Intelligence and Ambitious Learning Practices. In Proceedings of the *International Conference of the Learning Sciences (ICLS)*. Virtual.
- Hong, D., **Bae, H.**, Chen, Y., Uttamchandani, S., Saleh, A., Hmelo-Silver, C. E., Glazewski, K., Mott, B. W., & Lester, J. (2022, June). Designing a Teacher Guidance Tool for Collaborative Inquiry Play. In Proceedings of the *In Proceedings of International Conference of the Learning Sciences (ICLS)*.

Virtual.

Saleh, A., Wang, T., Chen, Y., Feng, C., Phillips T., **Bae, H.**, Hong, D., Uttamchandani, S., Hmelo-Silver, C. E., Glazewski, K., Park., K., Taylor, R., Mott, B. W., & Lester, J. (2022, June). A student-centered scaffolding system for collaborative game-based problem-solving environments. In *Proceedings of the In Proceedings of International Conference of the Learning Sciences (ICLS)*. Virtual.

Saleh, A., Feng, C., **Bae, H.**, Hmelo-Silver, C. E., Glazewski, K., Lee, s., Mott, B. W., & Lester, J. (2021, June). Negotiating Accountability and Epistemic Stances in Middle-School Collaborative Discourse. In *Proceedings of the International Conference on Computer Supported Collaborative Learning (CSCL)*. Virtual.

Saleh, A., **Bae, H.**, Hmelo-Silver, C. E., Glazewski, K., Chen, Y., Mott, B. W., & Lester, J. (2020, June). Using Activity Theory to Understand the Synergy between Human and Computer Support in Collaborative Inquiry Learning. In *Proceedings of the International Conference on Computer Supported Collaborative Learning (CSCL)*. Nashville, TN.

Bae, H., Saleh, A., Feng, C., Glazewski, K., Hmelo-Silver, C. E, Chen, Y., Scribner, A., Brush, T., Lee, S. Y., Mott, B. W, & Lester, J. (2020, June). Designing Intelligent Cognitive Assistants with Teachers to Support Classroom Orchestration of Collaborative Inquiry. In *Proceedings of the International Conference on Computer Supported Collaborative Learning*. Nashville, TN. (Best Student Paper Finalist)

Bae, H., Craig, K., Danish, J., Hmelo-Silver, C.E., Uttamchandani, S., & Szostalo, M., (2019, June). Mediating Collaboration in History with Network Analysis. In *Proceedings of Computer Supported Collaborative Learning (CSCL)*, Lyon, France.

Bae, H., Craig, K., Danish, J., Hmelo-Silver, C.E., Uttamchandani, S., Szostalo, M., & McCranie, A., (2019, June). The Power of Network Analysis Tool for Collaborative Learning. Interactive Demo and In *Proceedings of Computer Supported Collaborative Learning (CSCL)*, Lyon, France.

Bae, H., Glazewski, K.D., Hmelo-Silver, C.E., Lester, J., Mott, B.W., & Rowe, J., (2019, June). Intelligent Cognitive Assistants to Support Orchestration in CSCL. In *Proceedings of Computer Supported Collaborative Learning (CSCL)*, Lyon, France.

Bae, H., Xia, F., Chen, Y., Craig, K., & Hmelo-Silver, C. E. (2018, June) Developing Historical Thinking in PBL Class Supported with Synergistic Scaffolding. In *Proceedings of International Conference of the Learning Sciences (ICLS)*, London, England.

CONFERENCE PRESENTATIONS

- Bae, H.**, Glazewski, K., Hmelo-Silver, C. E., & Brush, T. (To be presented). Scaffolding PBL: Expert Teacher Strategies Differ across Grades Levels. *American Educational Research Association (AERA)*.
- Bae, H.**, Kwon, K., Glazewski, K., Ottenbreit-Leftwich, A., Closser, F., Jeon, M., & Kim, K. (To be presented). Investigating the Process and Strategies for Teacher Empowerment in Virtual Co-design Sessions. *American Educational Research Association (AERA)*.
- Feng, C., **Bae, H.**, Chen, Y., Uttamchandani, S., Wang, T., Hong, D., Glazewski, K., Hmelo-Silver, C. E., Brush, T., Lee, S., Mott, B. W., & Lester, J. (To be presented). Rethinking Troubleshooting: Transforming Technology Troubleshooting into Critical Facilitation Moments in Problem-Based Learning Implementation. *American Educational Research Association (AERA)*.
- Bae, H.**, Glazewski, K., Brush, T., & Hmelo-Silver, C. E., (2022, October). Exploring Orchestration Practices and Orchestration Load in Elementary, Middle, and High school PBL classrooms. Annual Conference of *Association for Educational Communications and Technology (AECT)*.
- Kim, K., Ottenbreit-Leftwich, A., Kwon, K., Glazewski, K., Closser, F., **Bae, H.**, & Jeon, M. (2022, October). Design considerations of synchronous online AI professional development for middle school teachers. Annual Conference of *Association for Educational Communications and Technology (AECT)*.
- Jeon, M., Kwon, K., Ottenbreit-Leftwich, A., Glazewski, K., Closser, F., **Bae, H.**, & Kim, K. (2022, October). Developing a Student-centered AI Literacy Curriculum for Rural Middle School Students. Annual Conference of *Association for Educational Communications and Technology (AECT)*.
- Jeon, M., Kwon, K., & **Bae, H.** (2021, November). Effects of Graphic Organizers in Asynchronous Online Discussions. Annual Conference of *Association for Educational Communications and Technology (AECT)*.
- Bae, H.**, Saleh, A., Feng, C., Glazewski, K., Hmelo-Silver, C. E., Brush, T., Mott, B. W., & Lester, J. (2021, November). “just vote yes.*sigh*”: Facilitating Scientific Discussion in a Collaborative Problem and Game-based Learning Environment. Annual Conference of *Association for Educational Communications and Technology (AECT)*.
- Feng, C., Saleh, A., **Bae, H.**, Glazewski, K., Hmelo-Silver, C. E., Brush, T., Mott, B. W., & Lester, J. (2021, November). Exploring Strategies to Redirect Disruptive Talk in Middle-school Collaborative Inquiry Discourse. Annual Conference of *Association for Educational Communications and Technology (AECT)*.
- Bae, H.**, Chen, Y., Saleh, A., Glazewski, K., Hmelo-Silver, C. E., Brush, T., Lee, S., Mott, B. W., & Lester, J. (2021, April). “How Big is a Tilapia?” Negotiating the Direction of Collaborative Inquiry in a Game-based Learning Environment. *American Educational Research Association*

(AERA) Annual Virtual Meeting.

- Chen, Y., **Bae, H.**, Saleh, A., Glazewski, K., Hmelo-Silver, C. E., Mott, B. W., & Lester, J. (2021, April). Building Group Accountability in a Collaborative Learning Environment. *American Educational Research Association (AERA) Annual Virtual Meeting*.
- Craig, K., **Bae, H.**, Danish, J., McCranie, A., Uttamchandani, S., Szostalo, M., & Hmelo-Silver, C.E. (2020, June) Building Temporality and Textuality: Scaffolding History Reading Comprehension with Net.Create, an Interactive Open-Source Network Analysis Tool”at *the XXXIX Sunbelt Social Networks Conference of the International Network for Social Network Analysis* (Montreal, Quebec, Canada), 2019 A judicated award for conference’s best poster.
- Craig, K., Danish, J., **Bae, H.**, Szostalo, M., Humburg, M., Hmelo-Silver, C. E., McCranie, A. (2020, April) Net.Create: Network Analysis in Collaborative Co-Construction of Historical Context in a Large Undergraduate Classroom. *American Educational Research Association (AERA)* (presentation cancelled due to COVID-19, but conference proceedings were published and included final paper submission)
- Bae, H.**, & Kwon, K. (2019, April). Teachability of Metacognitive Skills: What Makes Students Use Metacognitive Skills? *American Educational Research Association (AERA) Annual Meeting*, Toronto, Canada.
- Bae, H.**, Glazewski, K.D., Brush, T., & Kwon, K. (2018, October). Investigating Scaffolding as Social Interaction: Looking Closely at Fading through Conversation Analysis. *Association for Educational Communications and Technology (AECT) Annual Meeting*, Kansas City, MO
- Bae, H.**, Glazewski, K.D., Brush, T., & Kwon, K. (2018, April). Fostering Transfer of Responsibility in the Middle School PBL Classroom: An Investigation of Dialogic Scaffolds. *American Educational Research Association (AERA) Annual Meeting*, New York, NY.
- Zhu, M., **Bae, H.**, Kwon, K., & Park, J. (2017, November). The Effect of Instructor Guidance on the Quality of Online Discussion. *Association for Educational Communications and Technology (AECT) Annual Meeting*, Jacksonville, FL.
- Karlin, M., **Bae, H.**, Alsaif, M., Basdogan, M., Edelberg, T., Nadiruzzaman, H., Sari, A., Zhu, M., Brush, T., & Glazewski, K.D. (2017, November). Signals of Reflective Thinking Among Middle School Learners in a Maker Environment. *Association for Educational Communications and Technology (AECT) Annual Meeting*, Jacksonville, FL.
- Bae, H.**, & Kwon, K. (2017, November). Increasing Students’ Implementation of Metacognitive Strategies: What Makes Students Use Metacognitive Strategies?. *Association for Educational Communications and Technology (AECT) Annual Meeting*, Jacksonville, FL.

- Yao, Z., Aldemir, T., Arrington, T. L., **Bae, H.**, & Neumann, K. L., (2017, November). Leadership in Student Organizations: Experiences and Reflections from Student Leaders. *Association for Educational Communications and Technology (AECT) Annual Meeting*, Jacksonville, FL.
- Karlin, M., **Bae, H.**, Alsaif, M., Basdogan, M., Edelberg, T., Nadiruzzaman, H., Sari, A., Zhu, M., Brush, T., & Glazewski, K.D. (2017, April). Examining Reflective Thinking in Middle School Design Problem Solving in a Maker Environment. *American Educational Research Association (AERA) Annual Meeting*, San Antonio, TX.
- Bae, H.**, Zhu, M., Techawitthayachinda, R., Alsaif, M., & Cho, Y. (2016, March). What Do Online Students Learn in a Project-Based Class? *IST conference*, Bloomington, IN

GRANTS

- [Funded] Collaborative Research: Hearing each other's voices: Community Models for Professional Learning for Teachers and Researchers. (2023) PI: Cindy E. Hmelo-Silver; Co-PIs: **Haesol Bae**, Krista Glazewski, Joshua Danish. National Science Foundation. \$1,515,083.00
- [Not Funded] Examining Student Group Discourse for Equitable Orchestration in a collaborative PBL Classroom. (2023) PI: **Haesol Bae**. National Academy of Education (NAEd)/Spencer Postdoctoral Fellowship. \$70,000.00
- [Not Funded] Collaborative Research: AI Inquiries: Integrating Artificial Intelligence into Middle School Science with Immersive Inquiry Learning. (2023) PI: Krista Glazewski; Co-PIs: **Haesol Bae**, Anne Ottenbreit-Leftwich. National Science Foundation. \$1,655,000.00

PROFESSIONAL AFFILIATIONS

- Association for Educational Communication and Technology (AECT)
- American Educational Research Association (AERA)
- International Society of the Learning Sciences (ISLS)

RESEARCH

Research Scientist
Indiana University

2021-Present
Bloomington, IN

- [Engage AI](#): Research on narrative-centered learning technologies, embodied conversational agents, and multimodal learning analytics to create deeply engaging collaborative story-based learning experiences, Krista Glazewski, Cindy Hmelo-Silver & James Lester
- [Intelligent Augmented Cognition for Teaching \(I-ACT\)](#): Transforming Teacher Work with Intelligent Cognitive Assistants, Krista Glazewski, Tom Brush, Cindy Hmelo-Silver & James Lester
- [AI Goes Rural](#): Co-designing AI Curriculum with K-12 teachers focusing on how AI is involved in students' lives and the ethics surrounding AI for middle schoolers in rural communities, Kyungbin Kwon, Krista Glazewski, Anne Ottenbreit-Leftwich, Mehmet M. Dalkilic & Raj Acharya

Research Assistant **2015-2021**

Indiana University Bloomington, IN

- [Big Data from Small Groups](#): Learning Analytics and Adaptive Support in Game-based Collaborative Learning, Cindy Hmelo-Silver, James Lester & Krista Glazewski
- [Net.Create](#): Using Network Analysis to Support Digital Humanities in Large History Classrooms, Kalani Craig, Cindy Hmelo-Silver, Joshua Danish, & Ann McCrani
- [PBL-Tech](#): Developing PBL video cases, Thomas Brush & Krista Glazewski

Journal Editorial Assistant **2017-2020**

The Interdisciplinary Journal of Problem-Based Learning (IJPBL) Bloomington, IN

TEACHING

Adjunct Assistant Professor **2023 Spring**

Indiana University Bloomington, IN

- R561, Evaluation and Change in Instructional Development Process (F2F)

Associate Instructor (*instructor of record*) **2019 Summer**

Indiana University Bloomington, IN

- R341, Multimedia in Instructional Design (Online)

Teaching Assistant **2016-2020**

Indiana University Bloomington, IN

- R521, Instructional Design and Development (Online & F2F)
- R621, Analysis for Instruction and Performance Improvement (Online & F2F)
- R685, Learning through Problem-solving (Online)
- W220, Technical Issues in Education (F2F)

English Department Director/Classroom teacher **2011-2015**

Hongik University Elementary School

South Korea

Teacher Educator

2010-2013

EPIK (Government English Program in Korea)

Various venues, South Korea

LEADERSHIP/SERVICE

- Reviewer for Interdisciplinary Journal of Problem-Based Learning (IJPBL) (2021-Current)
- Selection committee for the School of Education Award for Excellence in Mentoring (2019)
- Committee member for Jacobs Educator Selection Committee (2018)
- Proposal reviewer for AECT (2018-Current)
- Proposal reviewer for International Conference of the Learning Sciences (2018-Current)
- Proposal reviewer for IST Conference (2018)
- Proposal reviewer for KSET and Design and Development divisions at AECT Conference (2016)
- IST Conference Chair (2018)
- IST Conference Webmaster (2017)
- Equipment supporting volunteer at AECT (2016, 2017)
- KSET Coordinator at AECT (2016, 2017)
- Vice President of Graduate of Instructional Systems Technology (GIST) (2016)