

# Hanall Sung

School of Education, University of North Carolina at Chapel Hill  
1096E Peabody Hall, Chapel Hill, NC 27514 USA  
hanalls@unc.edu, +1-608-960-3769

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## AREAS OF RESEARCH INTERESTS

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(Multimodal) Learning Analytics, Emerging Learning Technologies, Computer-Supported Collaborative Learning, Discourse Analysis, STEM Education, Self-regulated Learning

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## EDUCATION

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- 2023-Present **Postdoctoral Fellow in Learning Sciences and Psychological Studies**  
University of North Carolina at Chapel Hill
- *Postdoc advisors:* Matthew L. Bernacki and Jeffrey A. Greene
- 2017-2023 **Ph.D. in Educational Psychology (Learning Sciences)**  
University of Wisconsin–Madison
- *Dissertation:* Approaches to Analyzing Multimodal Interactions in STEM Learning with Technology: Triangulating and Interleaving
  - *Committee:* Mitchell J. Nathan (chair), David W. Shaffer, Martha W. Alibali, and Hala Ghouseini
- 2017-2020 **M.S. in Educational Psychology (Learning Sciences)**  
University of Wisconsin–Madison
- 2014-2016 **M.A. in Educational Technology**  
Ewha Womans University, South Korea
- 2009-2014 **B.A. in Educational Technology**  
Ewha Womans University, South Korea

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## AWARDS • HONORS • SCHOLARSHIP

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- Oct 2022 **Doctoral Consortium Scholarship**  
4<sup>th</sup> International Conference on Quantitative Ethnography (ICQE)
- Jun 2022 **Patricia and Michael Busk Travel Scholarship**  
School of Education, University of Wisconsin–Madison
- Jun 2022 **CSCL Naomi Miyake Best Student Paper Award**  
15<sup>th</sup> International Conference on Computer-Supported Collaborative Learning (CSCL)
- Feb 2022 **Student Research Grants Competition-Conference Presentation Award**

	University of Wisconsin–Madison
Sep 2021– May 2022	<b>Graduate School Fellowship</b> College of Education, University of Wisconsin–Madison
Mar 2021	<b>Wallace Student Scholarship</b> International Society of the Learning Sciences (ISLS)
Sep 2020	<b>Bridge to Success Scholarship</b> School of Education, University of Wisconsin–Madison
Apr 2019	<b>Student Research Grants Competition-Conference Presentation Award</b> University of Wisconsin–Madison
Sep 2017– May 2018	<b>Graduate School Fellowship</b> College of Education, University of Wisconsin–Madison
Sep 2016	<b>Best Master Thesis Award</b> College of Education, Ewha Womans University, South Korea
Feb 2015	<b>Highly Commended Poster Presentation Award</b> 3 <sup>rd</sup> Dubai International Conference in Higher Education, United Arab Emirates
Sep 2014	<b>Gold Prize in Best Paper Award</b> E-learning Korea 2014

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## **PUBLICATIONS**

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### **Peer-Reviewed Journal Articles**

#### Under Review

- Sung, H.**, Bernacki, M. L., Plumley, R. D., & Greene, J. A. (Invited). Investigating the patterns of self-regulated learning processes across differently motivated STEM learners. *Motivation and Emotion*.
- *Journal's impact factor (5-year)*: 3.296
  - Current status: Extended abstract has been invited for the full manuscript
- Sung, H.**, Bernacki, M. L., Greene, J. A., Yu, L., & Plumley, R. D. (Under 1<sup>st</sup> review). Understanding temporal processing of self-regulated learning using epistemic network analysis. *Journal of Science Education and Technology*.
- *Journal's impact factor (5-year)*: 5.175
  - Current status: Full manuscript is under 1<sup>st</sup> round of review (R1)
- Sung, H.** & Nathan, M. J. (Under 1<sup>st</sup> review). Unraveling temporally entangled multimodal interactions: Investigating verbal and nonverbal contributions to collaborative construction of embodied math knowledge. *International Journal of Educational Technology in Higher Education*.
- *Journal's impact factor (5-year)*: 9.4
  - Current status: Full manuscript is under 1<sup>st</sup> round of review (R1)

**Sung, H.** & Nathan, M. J. (Under 3<sup>rd</sup> review). Your body tells how you engage in collaboration: Machine-detected body movements as indicators of engagement in collaborative math knowledge building. *British Journal of Educational Technology*.

- *Journal's impact factor (5-year)*: 5.606
- *Current status*: Full manuscript is under 3<sup>rd</sup> round of review (R3)

**Sung, H.,** Rau, M. A., & Van Veen, B. D. (Under 3<sup>rd</sup> review). Development of an intelligent tutoring system that assess internal visualization skills in engineering using multimodal triangulation. *IEEE Transactions on Learning Technologies*.

- *Journal's impact factor (5-year)*: 4.938
- *Current status*: Full manuscript is under 3<sup>rd</sup> round of review (R3)

**Sung, H.,** Swart, M., & Nathan, M. J. (Invited to revise). Improving pre-service teachers' noticing skills and attitudes about embodied mathematical reasoning through online collaborative professional learning. *Cognition & Instruction*.

- *Journal's impact factor (5-year)*: 4.195
- *Current status*: Full manuscript is under revision (R1)

### Published

**Sung, H.** & Jo, I. (2018). Utilizing Multimodal data to predict learning achievement: Behavioral log, psychophysiological response, and test anxiety. *Journal of Educational Technology*, 34(2), 287-308.

- <https://doi.org/10.17232/KSET.34.2.287>
- *Journal's KCI impact factor (5-year)*: 4.6

Jo, I., Park, Y., Yoon, M., & **Sung, H.** (2016). Evaluation of online log variables estimating learners' time management in Korean online learning context. *The International Review of Research in Open and Distance Learning*, 17(1), 195-213.

- <https://doi.org/10.19173/irrodl.v17i1.2176>
- *Journal's Impact factor (5-year)*: 3.43

### In Progress

**Sung, H.** & Nathan, M. J. (In progress). How do we collect, analyze, and interpret multimodal data? Multimodal learning analysis in CSCL environments.

Na, H. & **Sung, H.** (In progress). Learn Math Through Motion: A Game-based Embodied Approach to Geometry in Technology-enhanced K-12 Classrooms.

Sung, G. & **Sung, H.** (In progress). Connecting Blinks to Constructs: A Review-based Taxonomy of Validity Strategies in Multimodal Learning Analytics.

Swart, M., **Sung, H.**, Kirankumar, V., Xia, F., Kim, D., Kwon, O., Schenck, K., Walkington, C., & Nathan, M. J. (In progress). Embodied transmission of ideas: Collaborative construction of geometry content and mathematical thinking.

### Book Chapter

Kim, J., Lee, H., Yoo, Y., **Sung, H.**, Jo, I.H., Park, Y. (2015). Towards smart asynchronous discussion activity: Using social network analysis to investigate students' discussion patterns. In: Chen, G., Kumar, V., Kinshuk, Huang, R., Kong, S. (eds) *Emerging Issues in Smart Learning. Lecture Notes in Educational Technology*. Springer, Berlin, Heidelberg. [https://doi.org/10.1007/978-3-662-44188-6\\_50](https://doi.org/10.1007/978-3-662-44188-6_50)

### Peer-Reviewed Conference Proceedings and Posters

Na, H. & **Sung, H.** (Under review). The Effects of technology-enhanced embodied approach with augmented reality for geometry learning in K-12 Classrooms. *The 2024 Annual meeting of the Association for Educational Communications and Technology (AECT)*, Kansas city, MO

Sung, G. & **Sung, H.** (Under review). Connecting Blinks to Constructs: How are We Arguing for Validity in Multimodal Learning Analytics? *The 17th International Conference on Educational Data Mining (EDM) 2024*, Atlanta, GA.

**Sung, H.**, Plumley, R. D., Bernacki, M. L., & Greene, J. A. (Accepted). Exploring differently motivated STEM learners' self-regulated learning processes. *The American Psychological Association (APA) 2024*, Seattle, WA.

**Sung, H.**, Barro, M., Yu, L., Plumley, R. D., Bernacki, M. L., & Greene, J. A. (Accepted). Exploring the relationship between students' adherence to active learning and self-regulated learning processes. *The 2024 Annual meeting of International Society of Learning Sciences (ISLS)*, Buffalo, NY.

Na, H. & **Sung, H.** (Accepted). The Effects of Technology-enhanced embodied learning intervention for mathematics in K-12 classrooms. *The 2024 Annual meeting of International Society of Learning Sciences (ISLS)*, Buffalo, NY.

**Sung, H.**, & Nathan, M. J. (Accepted). Using learners' machine-detected body movements to reveal their verbal and nonverbal contributions to the co-creation of embodied math knowledge. *The 2024 Annual meeting of Korean American Educational Research Association (KAERA)*, Philadelphia, PA.

**Sung, H.**, Kim, D., Swart, M., & Nathan, M. (2023). Multimodal Behavior Analysis: Two Patterns of Collaborative Construction of Embodied Knowledge. *Proceedings of the Annual Meeting of the Cognitive Science Society*, 45, Sydney, Australia. Retrieved from <https://escholarship.org/uc/item/3nb4h58t>

Grondin, M., **Sung, H.**, Dey I., & Luu, R. (2022). Positionality matters: Diversifying research teams can affect data analyses. *The Learning Sciences Graduate Students Conference*, Bloomington, IL.

**Sung, H.**, & Nathan, M. J. (2022). Unraveling temporally entangled multimodal interactions in CSCL environments. Presented at *the 4<sup>th</sup> International Conference on Quantitative Ethnography (ICQE)*, Copenhagen, Denmark.

**Sung, H.**, & Na, H. (2022). Learning math with gestures: Exploratory research of integrating a technology-enhanced embodied intervention into classrooms.

Paper presented at the 2022 Annual meeting of the Association for Educational Communications and Technology (AECT), Las Vegas, NV.

- Sung, H.**, Swart, M. I., & Nathan, M. J. (2022). Methods for analyzing temporally entangled multimodal data. In Weinberger, A. Chen, W., Hernández-Leo, D., & Chen, B. (Eds.). (2022). *Proceedings of the 15th International Conference on Computer-Supported Collaborative Learning - CSCL 2022* (pp. 242-249). Virtual: International Society of the Learning Sciences.  
<https://doi.org/10.22318/cscl2022.242> [Awarded CSCL Naomi Miyake Best Student Paper]
- Sung, H.**, Swart, M., & Nathan, M. J. (2022). Teaching teachers teaching students: How embodied cognition can help pre-service teachers assess students' mathematical thinking. Paper presented at the 2022 Annual meeting of American Educational Research Association (AERA), San Diego, CA.
- Sung, H.**, & Nathan, M. J. (2021). Improving teachers' embodied mathematical understanding of students' gestures through online embodied learning activities. In *Proceedings of the Learning Sciences Graduate Students Conference* (pp. 5-6), Champaign, IL.
- Nachtigall, V., Nößler, A., & **Sung, H.** (2021). An epistemic network analysis of students' beliefs about natural and educational scientists. In: Wasson, B., Zörgő, S. (eds) *Advances in Quantitative Ethnography. ICQE 2021. Communications in Computer and Information Science, Volume 1522*. Springer, Cham, Virtual.  
[https://doi.org/10.1007/978-3-030-93859-8\\_14](https://doi.org/10.1007/978-3-030-93859-8_14)
- Sung, H.**, Swart, M., & Nathan, M. J. (2021). Enhancing K-12 pre-service teachers' embodied understanding of the geometry knowledge through online collaborative design. In Olanoff, D., Johnson, K., & Spitzer, S. M. (2021). *Proceedings of the forty-third annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 909-917). Philadelphia, PA.
- Swart, M., Kirankumar, V., **Sung, H.**, Xia, F., Kim, D., Kwon, O., Walkington, C., Schenck, K., & Nathan, M. J. (2021). Embodied transmission of ideas: Mathematical thinking through collaborative construction of geometry video game content. *Proceedings of the 43rd Annual Meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education* (pp. 1341-1345). Philadelphia, PA.
- Kirankumar, V., **Sung, H.**, Swart, M., Kim, D., Xia, F., Kwon, O., Walkington, C., & Nathan, M. J. (2021). Embodied transmission of ideas: Collaborative construction of geometric content and mathematical thinking. In Hmelo-Silver, C. E., De Wever, B., & Oshima, J. (Eds.), *Proceedings of the 14th International Conference on Computer-Supported Collaborative Learning - CSCL 2021* (pp. 177-180). Virtual: International Society of the Learning Sciences.  
<https://doi.org/10.22318/cscl2021.177>

- Nachtigall, V., **Sung, H.** (2019). Students' collaboration patterns in a productive failure setting: An epistemic network analysis of contrasting cases. In: Eagan, B., Misfeldt, M., Siebert-Evenstone, A. (eds) *Advances in Quantitative Ethnography. ICQE 2019. Communications in Computer and Information Science, vol 1112*. Springer, Cham, Madison, WI. [https://doi.org/10.1007/978-3-030-33232-7\\_14](https://doi.org/10.1007/978-3-030-33232-7_14)
- Sung, H.**, Cao, S., Ruis, A., & Shaffer, D. (2019). Reading for breadth, reading for depth: Understanding the relationship between reading and complex thinking using epistemic network analysis. In Lund, K., Niccolai, G. P., Lavoué, E., Hmelo-Silver, C., Gweon, G., & Baker, M. (Eds.), *A wide lens: Combining embodied, enactive, extended, and embedded learning in collaborative settings, 13th International Conference on Computer Supported Collaborative Learning (CSCL) 2019, Volume 1* (pp. 376-383). Lyon, France: International Society of the Learning Sciences. <https://doi.org/10.22318/cscl2019.376>
- Wu, B., **Sung, H.**, & Shaffer, D. W. (2019). Exploring the epistemic development trajectories in jigsaw-based collaborative problem solving. Paper presented at *the 2019 Annual Meeting of the American Educational Research Association (AERA)*, Toronto, Canada.
- Sung, H.**, Cao, T., Ruis, A. R., & Shaffer, D. W. (2019). An epistemic network analysis to investigate the interaction between reading and complex thinking using multimodal data. Poster presented at *the University of Wisconsin-Madison Education Research Poster Fair*, Madison, WI.
- Bhatt, H., Cao, T., **Sung, H.**, Siebert-Evenstone, A., Eagan, B., & Shaffer, D. W. (2019). Analysis of multi-modal learning data using horizon of observation ENA. Poster presented at *the University of Wisconsin-Madison Education Research Poster Fair*, Madison, WI.
- Sung, H.**, & Shaffer, D. W. (2018). An exploratory epistemic network analysis of combining multimodal data streams to understand student learning process. In *Proceedings of the Learning Sciences Graduate Students Conference* (pp. 172-173), Nashville, TN.
- Sung, H.**, Swiecki, Z., Wu, B., & Shaffer, D. W. (2018). Reading for breadth, reading depth: A multimodal analysis of student learning processes with epistemic network analysis. Poster presented at *the University of Wisconsin-Madison Education Research Poster Fair*, Madison, WI.
- Lee, H., **Sung, H.**, Park, Y., & Jo, I. (2015). Investigation influences of participation, regularity and centrality on learning achievement. Poster presented at *the 3rd Dubai International Conference in Higher Education*, Dubai, United Arab Emirates **[Awarded Highly Commended Poster Presentation]**
- Lee, H., **Sung, H.**, Yu, J., Park, Y., & Jo, I. (2015). Clustering of online students: Towards an elaborated prediction model of learning achievement. Paper presented at *E-learning Korea 2015*, Seoul, Korea.
- Lee, H., **Sung, H.**, Yu, J., Park, Y., & Jo, I. (2015). Development of prediction models based on the clustered online learners' behavioral patterns. In *Proceedings of*

*The International Academic Conference on Teaching, Learning and E-learning (IAC-TLEI)*, Budapest, Hungary. [ISBN: 978-80-905791-4-9](#)

- Sung, H.**, Lee, H., Park, Y. & Jo, I. (2014). Mediating effects of team activity on the relationship between students' centrality and learning achievement in online discussion-based class. *Proceedings of The International Conference of Educational Technology (ICET), Volume 2*. Seoul, Korea: The Koreans Society for Educational Technology.
- Yoo, Y., Jo, I., Park, Y., Lee, H., & **Sung, H.** (2014). Analyzing online discussion activity: Using social network analysis with learning analytics approach. Paper presented at *the 2014 Annual meeting of the Association for Educational Communications and Technology Conference (AECT)*, Jacksonville, FL.
- Kim, J., **Sung, H.**, Park, Y., & Jo, I. (2014). Applying learning analytics dashboard as a learning supporting tool: A case study of online statistics class. Paper presented at *E-learning Korea 2014*, Seoul, Korea. **[Awarded Gold Prize in Best Paper]**
- Sung, H.**, Yoon, M., Park, Y., & Jo, I. (2014). Relationship of students' online behavior pattern and their psychological characteristics. Paper presented at *the 12<sup>th</sup> International Conference for Media in Education (ICoME)*, Seoul, Korea

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## INVITED TALKS AND PRESENTATIONS

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- Sung, H.** Coding Nonverbal data (2022). *QE Sandbox*, Virtual. Retrieved from [osf.io/m2x6g](https://osf.io/m2x6g)
- Sung, H.** (2022). Multimodal Learning Analytics. *Birds of a Feather (BOF) Networking session at Learning Analytics and Knowledge (LAK) conference*, Virtual.
- Nathan, M. J., Swart, M., Kim, D., **Sung, H.**, & Xia, F. (2021). Instructional gestures: Handy ways to promote comprehension and learning. *The teaching and learning forum, organized by College and Steenbock libraries at University of Wisconsin-Madison*, Virtual.
- Siebert-Evenstone, A., Swiecki, Z., Eagan, B., **Sung, H.**, & Shaffer, D. W. (2018). Developing and validating automated discourse codes: An introduction to nCodeR. In *Proceedings of the Learning Sciences Graduate Students Conference* (pp. 195-196), Nashville, TN.

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## RESEARCH EXPERIENCE

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- Aug 2023– Present      **Postdoctoral fellow**  
Transformative Undergraduate Self-regulated STEM Learning and Education Research ([NSF# 1920756](#))  
University of North Carolina at Chapel Hill  
- PI: Matthew Bernacki / Co-PI: Jeffrey Greene

- Investigated the relationship between students' think-aloud verbal data, behavioral log data, and academic success
  - Applied epistemic network analysis to multimodal data to understand students' self-regulated learning processes
- Jan 2023–  
May 2023
- Project Assistant**  
Designing cross-curricular integrated mathematics with Social Studies  
University of Wisconsin–Madison
- *PI: Agarwal, Priyanka*
  - Led professional development program for teachers to design diversity and inclusion-focused cross-curricular math instruction
  - Conducted interviews and qualitative analysis
- Sep 2020–  
May 2023
- Research Assistant**  
Mathematical Action and Gesture in Instruction and Cognition Lab  
University of Wisconsin–Madison
- *Advisor: Nathan, Mitchell J.*
  - Led design and development of an online, collaborative embodied learning intervention for pre-service math teachers
  - Orchestrated the entire project, including IRB, recruitment, data collection, data analysis, and research findings dissemination
- Jul 2019–  
Aug 2020
- Project Assistant**  
Learning Internal Visualization Skills for Complex Engineering Concepts in Active Learning Classes ([NSF# 1933078](#))  
University of Wisconsin–Madison
- *PI: Rau, Martina A.*
  - Led design and development of an intelligent tutoring system (ITS) through close collaboration with a programmer and content experts
  - Conducted lab studies independently, leading data collection, data analysis, and research findings dissemination
- Aug 2017–  
Jul 2019
- Research Assistant**  
Assessing Complex Collaborative STEM Learning at Scale with Epistemic Network Analysis ([NSF# 1661036](#))  
University of Wisconsin–Madison
- *PI: Shaffer, David W.*
  - Led research project on multimodal analysis, combining behavioral log data and chat data to understand the learning process
  - Contributed to the development of rENA (Epistemic Network Analysis in R) for accurate modeling of multiple streams of data
- Sep 2014–  
Aug 2016
- Research Assistant**  
Korea Research Foundation & Brain Korea 21 Plus  
Ewha Womans University



- Advisor: Jo, Il-Hyun
- Led research project on prediction modeling of learning achievement using student behavioral log data
- Conducted social network analysis on discussion data collected in a learning management system (LMS) and MOOC context

Jul 2014–  
Aug 2014

**Research Assistant**

Institute for Teaching and Learning Center, Ewha Womans University

- Supported the digitization of instructional contents
- Conducted lecture video content analysis

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## TEACHING EXPERIENCE

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### University of Wisconsin-Madison

Sep 2022–  
Dec 2022

**Lecturer**

Department of Educational Psychology

- *EP 301: How people learn* (Undergraduate, in-person)
- Conducted lectures throughout the semester
- Instructor effectiveness score: 4.77/5

Jun 2022–  
Aug 2022

**Teaching Assistant**

Learning Analytics Master's program

- *EP 551: Quantitative Ethnography* (Graduate, online)
- *EP 501: Thinking and Learning* (Graduate, online)
- Assisted students in data analysis through one-on-one lab sessions and graded weekly assignments and the final project
- TA Effectiveness score: 4.58/5

Jun 2021–  
Aug 2021

**Teaching Assistant**

Learning Analytics Master's program

- *Analytics EP 501: Thinking and Learning* (Graduate, online)
- Graded weekly assignments and final project
- TA Effectiveness score: 4.71/5

Aug 2020–  
May 2021

**Tech teaching Assistant**

Department of Computer Sciences

- *CS 240: Introduction to Discrete Mathematics*
- *CS 220: Data Science Programming I*
- *CS 354: Machine Organization and Programming* (Undergraduate, online)
- Assisted in creating digital learning contents and facilitating (a)synchronous discussions

Apr 2020

**Guest lecturer**

Department of Educational Psychology

- *EP 301: How people learn* (undergraduate, in person)

- Conducted a lecture on *Technology in Education*
- Aug 2019–  
May 2020      **Teaching Assistant**  
Department of Educational Psychology
- *EP 301: How people learn* (Undergraduate, in person)
  - Graded weekly assignments and final project
  - TA Effectiveness score: 4.45/5

### University of Alabama

- Sep 2022      **Guest lecturer**  
Instructional Technology Master program
- *INTE 534: Issues and Trends in Instructional Technology* (Graduate, online)
  - Conducted a lecture on *Current trends and issues in Learning Analytics*

### Ewha Womans University

- Jun 2022      **Guest lecturer**  
School of Education
- *Educational Technology program* (Undergraduate and Graduate, hybrid)
  - Conducted a lecture on *Research trends in Learning Sciences and Learning Analytics*

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## MENTORSHIP EXPERIENCE

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|-----------|---|
| 2024      | <b>Linyu Yu.</b> Doctoral student. UNC-Chapel Hill  |
| 2023-2024 | <b>Ju Lim.</b> Doctoral student. UW-Madison   |
| 2023      | <b>Saerok Park.</b> Doctoral student. Korean EduTech/Learning Sciences Research Network (KELS). |
| 2022-2023 | <b>Quinn Mierlak.</b> Undergraduate student. UW-Madison   |
| 2021-2023 | <b>Fangli Xia.</b> Doctoral student. UW-Madison   |
| 2021-2023 | <b>Jaeyoon Choi.</b> Doctoral student. UW-Madison   |
| 2021-2023 | <b>Jihyun Rho.</b> Doctoral student. UW-Madison   |
| 2021      | <b>Veena Kirankumar.</b> Undergraduate Research Intern. UW-Madison                              |
| 2021      | <b>Seongho Choi.</b> Graduate student. Global Engagement office, UW-Madison                     |
| 2021      | <b>Hae Sol Park.</b> Graduate student. Global Engagement office, UW-Madison                     |
| 2021      | <b>Hyelin Park.</b> Graduate student. Global Engagement office, UW-Madison                      |
| 2021      | <b>Manuel Rueda.</b> Graduate student. Global Engagement office, UW-Madison                     |

2021	<b>Ting (Sophia) Cheng.</b> Graduate student. Global Engagement office, UW-Madison
2020	<b>Samyu Iyer.</b> Undergraduate Research Intern. UW-Madison
2019	<b>Claudia Ramly.</b> Doctoral Student. UW-Madison
2019	<b>Xiaoyuan (Ethan) Zhong.</b> Undergraduate Research Intern. UW-Madison
2018-2019	<b>Travis Cao.</b> Undergraduate Research Intern. UW-Madison
2017-2018	<b>Yuqing (Vanessa) Wu.</b> Undergraduate Research Intern. UW-Madison

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## EDITORIAL SERVICE

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### Peer-reviewed Journal Reviewer

2024-	Journal of Science Education and Technology
2024-	Cognition and Instruction
2023-	Journal of Educational Psychology

### Annual Conference Proposal Reviewer

2022-	Annual meeting of American Educational Research Association (AERA)
2021-	International Conference on Computer-Supported Collaborative Learning (CSCL)
2021-	Psychology of Mathematics Education-North American Chapter Conference (PME-NA)
2018-2022	Learning Sciences Graduate Student Conference (LSGSC)

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## PROFESSIONAL SERVICE

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### Conference Committee Roles

2022	<b>Communications Committee Member</b> Learning Sciences Graduate Student Conference (LSGSC)
2020	<b>Host Committee Member</b> Learning Sciences Graduate Student Conference (LSGSC)
2019	<b>Program Committee Member</b> International Conference on Quantitative Ethnography (ICQE)
2018-2019	<b>Submissions Committee Member</b> Learning Sciences Graduate Student Conference (LSGSC)

### Scholarly Community Involvement

2023-	<b>Admin and Facilitator</b> Korean EduTech/Learning Sciences Research Network (KELS)
2020	<b>Peer Mentor</b> Global Engagement Office, UW-Madison

- 2018–2019    **President**  
Korean Students and Scholars Association (KSSA), UW-Madison
- 2014–2017    **Executive Member**  
Korean Society for Educational Technology
- 2014–2017    **Executive Member**  
Association for Educational Communication and Technology
- 2014–2017    **Assistant Administrator**  
Korean Society for Learning and Performance

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## SKILLS AND CERTIFICATION

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### Research Methods and Software

- Multimodal data collection and analysis (gesture, automatic detection of body movement, behavioral log data, speech, physiological data)
- Discourse analysis tools (Epistemic network analysis; ENA)
- Natural language processing techniques (NLP; e.g., RegEx)
- Proficient in quantitative data analysis and software (Python, R, SPSS)
- Proficient in qualitative data analysis and software (V-Note, Transana)
- Experience with JavaScript, AWS Transcribe (automatic speech recognition), and Cognitive tutor authoring tools (CTAT)

### Language

- English (fluent), Korean (native), Japanese (intermediate), French (novice)

### Certification

Teacher’s license in Ethics (Certified by Korean Ministry of Education)

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## REFERENCES

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### **Mitchell J. Nathan, Ph.D.**

Vilas Distinguished Achievement  
Professor  
Departments of Educational Psychology  
(Learning Sciences)  
University of Wisconsin-Madison,  
Madison, WI  
[mnathan@wisc.edu](mailto:mnathan@wisc.edu)

### **David W. Shaffer, Ph.D.**

Vilas Distinguished Achievement  
Professor  
Departments of Educational Psychology  
(Learning Sciences)  
University of Wisconsin-Madison,  
Madison, WI  
[dws@education.wisc.edu](mailto:dws@education.wisc.edu)

### **Eric R. Hamilton, Ph.D.**

Jan and Robert Davidson Endowed  
Professor  
Graduate School of Education and  
Psychology

### **Matthew L. Bernacki, Ph.D.**

Tarbet Distinguished Scholar  
Associate Professor  
Learning Sciences and Psychological  
Studies

Pepperdine University, Los Angeles, CA  
[eric.hamilton@pepperdine.edu](mailto:eric.hamilton@pepperdine.edu)

University of North Carolina at Chapel  
Hill, Chapel Hill, NC  
[mlb@unc.edu](mailto:mlb@unc.edu)

**Jeffrey A. Greene, Ph.D.**  
McMichael Professor  
Learning, Development and Psychological  
Studies  
University of North Carolina at Chapel Hill,  
Chapel Hill, NC  
[jagreene@email.unc.edu](mailto:jagreene@email.unc.edu)