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

AREAS OF RESEARCH INTERESTS

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

EDUCATION

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 Ghousseini

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

AWARDS · HONORS · SCHOLARSHIP

Oct 2022 — **Doctoral Consortium Scholarship**
4th 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**
15th 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	**Graduate School Fellowship** College of Education, University of Wisconsin–Madison
Mar 2021	**Wallace Student Scholarship** International Society of the Learning Sciences (ISLS)
Sep 2020	**Bridge to Success Scholarship** School of Education, University of Wisconsin–Madison
Apr 2019	**Student Research Grants Competition-Conference Presentation Award** University of Wisconsin–Madison
Sep 2017–May 2018	**Graduate School Fellowship** College of Education, University of Wisconsin–Madison
Sep 2016	**Best Master Thesis Award** College of Education, Ewha Womans University, South Korea
Feb 2015	**Highly Commended Poster Presentation Award** 3rd Dubai International Conference in Higher Education, United Arab Emirates
Sep 2014	**Gold Prize in Best Paper Award** E-learning Korea 2014

RESEARCH GRANTS

Intramural Grants Funded

2024- 2025	**AI for Education: Developing Curricula, Planning for External Funding, and Connecting Faculty** - *Funding source*: AI Tennessee Initiative ($21,000) - *Role*: Co-PI (PI: Louis Rocconi; Co-PIs: Joshua Rosenberg, Rachel Wong, Joshua Fagan, Xiaopeng Zhao, Gregory Peterson, Kelly Boles)

PUBLICATIONS

Peer-Reviewed Journal Articles

Published

Sung, H. & Nathan, M. J. (in press). 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

Sung, H., Rau, M. A., & Van Veen, B. D. (in press). 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

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

Under Review

Na, H. & **Sung, H.** (under 1st review). Learn Math Through Motion: A Game-based Embodied Approach to Geometry in Technology-enhanced K-12 Classrooms. *Interactive Learning Environments*.
- *Journal's impact factor (5-year)*: 5.434
- Current status: Full manuscript is under 1st round of review (R1)

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 1st review). Beyond frequency: Using epistemic network analysis and multimodal traces to understand temporal dynamics of self-regulated learning. *Journal of Science Education and Technology*.
- *Journal's impact factor (5-year)*: 5.175
- Current status: Full manuscript is under 1st round of review (R1)

Sung, H. & Nathan, M. J. (under 1st 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 1st round of review (R1)

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)

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

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, IH., 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

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.** (Accepted). 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., Xia, F., & Nathan, M. J. (2024). Using learners' machine-detected body movements to reveal their verbal and nonverbal contributions to the co-creation of embodied math knowledge. Presented at the round table session of *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 4th 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.), *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.dx.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

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. (Eds.), *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.dx.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

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.dx.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 12th International Conference for Media in Education (ICoME)*, Seoul, Korea

INVITED TALKS AND PRESENTATIONS

Sung, H. Coding Nonverbal data (2022). *QE Sandbox*, Virtual. Retrieved from 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.

RESEARCH EXPERIENCE

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

TEACHING EXPERIENCE

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*

MENTORSHIP EXPERIENCE

2024	**Linyu Yu.** Doctoral student. UNC-Chapel Hill
2023-2024	**Ju Lim.** Doctoral student. UW-Madison
2023	**Saerok Park.** Doctoral student. Korean EduTech/Learning Sciences Research Network (KELS).
2022-2023	**Quinn Mierlak.** Undergraduate student. UW-Madison

2021-2023	**Fangli Xia.** Doctoral student. UW-Madison
2021-2023	**Jaeyoon Choi.** Doctoral student. UW-Madison
2021-2023	**Jihyun Rho.** Doctoral student. UW-Madison
2021	**Veena Kirankumar.** Undergraduate Research Intern. UW-Madison
2021	**Seongho Choi.** Graduate student. Global Engagement office, UW-Madison
2021	**Hae Sol Park.** Graduate student. Global Engagement office, UW-Madison
2021	**Hyelin Park.** Graduate student. Global Engagement office, UW-Madison
2021	**Manuel Rueda.** Graduate student. Global Engagement office, UW-Madison
2021	**Ting (Sophia) Cheng.** Graduate student. Global Engagement office, UW-Madison
2020	**Samyu Iyer.** Undergraduate Research Intern. UW-Madison
2019	**Claudia Ramly.** Doctoral Student. UW-Madison
2019	**Xiaoyuan (Ethan) Zhong.** Undergraduate Research Intern. UW-Madison
2018-2019	**Travis Cao.** Undergraduate Research Intern. UW-Madison
2017-2018	**Yuqing (Vanessa) Wu.** Undergraduate Research Intern. UW-Madison

EDITORIAL SERVICE

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)

PROFESSIONAL SERVICE

Conference Committee Roles

2022	**Communications Committee Member** Learning Sciences Graduate Student Conference (LSGSC)
2020	**Host Committee Member** Learning Sciences Graduate Student Conference (LSGSC)

2019	**Program Committee Member**
	International Conference on Quantitative Ethnography (ICQE)
2018-2019	**Submissions Committee Member**
	Learning Sciences Graduate Student Conference (LSGSC)

Scholarly Community Involvement

2023-	**Admin and Facilitator**
	Korean EduTech/Learning Sciences Research Network (KELS)
2020	**Peer Mentor**
	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

SKILLS AND CERTIFICATION

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)

REFERENCES

Mitchell J. Nathan, Ph.D.
Vilas Distinguished Achievement
Professor

David W. Shaffer, Ph.D.
Vilas Distinguished Achievement
Professor

Departments of Educational Psychology (Learning Sciences)
University of Wisconsin-Madison, Madison, WI
mnathan@wisc.edu

Eric R. Hamilton, Ph.D.
Jan and Robert Davidson Endowed Professor
Graduate School of Education and Psychology
Pepperdine University, Los Angeles, CA
eric.hamilton@pepperdine.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

Departments of Educational Psychology (Learning Sciences)
University of Wisconsin-Madison, Madison, WI
dws@education.wisc.edu

Matthew L. Bernacki, Ph.D.
Tarbet Distinguished Scholar
Associate Professor
Learning Sciences and Psychological Studies
University of North Carolina at Chapel Hill, Chapel Hill, NC
mlb@unc.edu