

# CLARE BAEK, PH.D.

Postdoctoral Scholar

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## EDUCATION

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<b>Ph.D., Urban Education Policy</b> , University of Southern California Educational Psychology concentration Advisor: Dr. Stephen Aguilar Dissertation: Educational Technologies as Tools for Self-Regulated Learning for Students with Autism in Post-Secondary Settings	2022
<b>M.Ed., Special Education</b> , University of San Diego Teaching credential with Added Authorization in Autism	2014
<b>M.A., Pure Mathematics</b> , San Diego State University Thesis: Analytic and Numerical Investigation of N Points on a 3-sphere	2013
<b>B.A., Pure Mathematics</b> , University of California, San Diego	2009

## ACADEMIC POSITIONS

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<b>Postdoctoral Scholar</b> , University of California, Irvine School of Education Digital Learning Lab (DLL) Advised by Dr. Mark Warschauer	2022-Present
<b>Research Assistant</b> , University of Southern California Rossier School of Education Learning Analytics and Psychology Lab (LAPeL)	2018-2022

## RESEARCH INTERESTS

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Educational technology, STEM education, Data science, Equity, Teacher development

## GRANT FUNDING

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<b>National Science Foundation (2023-2027)</b> , \$2,000,000 Deepening Computational Thinking for English Learners by Integrating Community-Based Environmental Literacy. PI: Mark Warschauer; <b>Co-PIs: Clare Baek</b> , Symone Gyles, Debra Richardson
<b>National Science Foundation (2024-2027)</b> , \$140,500 Research Experience for Undergraduates Supplement to “Deepening Computational Thinking for English Learners by Integrating Community-Based Environmental Literacy” PI: Mark Warschauer; <b>Co-PI: Clare Baek</b>

## RESEARCH EXPERIENCE

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### U.S. Department of Education (2019-2024), \$4,000,000

Education Innovation and Research, Improving Pedagogy to Accelerate Computational Thinking.  
PI: Mark Warschauer; **Postdoctoral Scholar: Clare Baek**

### National Science Foundation (2019-2022), \$1,000,000

Collaborative Network of Grades 3-5 Educators for Computational Thinking for English Learners.  
PI: Mark Warschauer; **Postdoctoral Scholar: Clare Baek**

### Great Public Schools Now (2020), \$30,000

Distance Learning and Educational Equity in the Wake of COVID-19.  
PI: Hernan Galperin; **Graduate Student Researcher: Clare Baek**

### Institute of Education Sciences (2018-2022), \$1,399,982

Advancing Middle School Teachers' Understanding of Proportional Reasoning for Teaching.  
PI: Yasemin Copur-Gencturk; **Graduate Student Researcher: Clare Baek**

## PUBLICATIONS

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### Refereed Journals

- Baek, C.**, Aguilar, S.J., & Warschauer, M. (2024). Exploring teachers' self-efficacy and willingness to provide accommodations in teaching students with autism. *Teaching and Teacher Education*.
- Baek, C.**, & Doleck, T. (in press). Learning analytics: A comparison of Western, Educated, Industrialized, Rich, and Democratic (WEIRD) and Non-WEIRD research. *Knowledge Management & E-Learning*.
- Baek, C.**, & Aguilar, S.J. (2023). Past, present, and future directions of learning analytics research for students with disabilities. *Journal of Research on Technology in Education*.
- Baek, C.**, & Doleck, T. (2022). Educational data mining: A bibliometric analysis of an emerging field. *IEEE Access*.
- Copur-Gencturk, Y., **Baek, C.**, & Doleck, T. (2022). A closer look at teachers' proportional reasoning. *International Journal of Science and Mathematics Education*.
- Aguilar, S.J., Galperin, H., **Baek, C.**, & Gonzalez, E. (2021). Live instruction predicts engagement in K-12 remote learning. *Educational Researcher*.
- Baek, C.**, & Doleck, T. (2021). Educational data mining versus learning analytics: A review of publications from 2015-2019. *Interactive Learning Environments*.
- Lemay, D., **Baek, C.**, & Doleck, T. (2021). Comparison of learning analytics and educational data mining: A topic modeling approach. *Computers & Education: Artificial Intelligence*.
- Aguilar, S.J., Karabenick, S., Teasley, S.D., & **Baek, C.** (2021). Associations between Learning Analytics Dashboard exposure and motivation in self-regulated learning. *Computers & Education*.
- Baek, C.**, & Doleck, T. (2020). A bibliometric analysis of the papers published in the Journal of Artificial Intelligence in Education from 2015-2019. *International Journal of Learning Analytics and Artificial Intelligence for Education (iJAI)*. 2(1), 67-84.
- Aguilar, S.J., & **Baek, C.** (2020). Sexual harassment in academe is underreported, especially by students in the Physical Sciences. *PLOS ONE*. [Cited in U.S. Supreme Court No. 20-216]

## Refereed Proceedings

Jacob, S., Gillen, B., Ojeda-Ramirez, S., **Baek, C.**, & Warschauer, M. (in press). Intersectional factors that influence K-2 students' computer science learning. Proceedings of the *Research on Equity and Sustained Participation in Engineering, Computing, and Technology* (RESPECT). ACM.

Jacob, S. R., **Baek, C.**, & Warschauer, M. (2023). Computational literacy, language, and culture. *Proceedings of the IEEE Annual International Conference on Research on Equity and Sustained Participation in Engineering, Computing and Technology* (RESPECT). IEEE.

Aguilar, S.J., & **Baek, C.** (2019). Motivation information seeking and graph comprehension in relation to help-seeking and comparison among college students. *Proceedings of the Ninth International Conference (LAK'19)*. ACM, New York, NY.

## Refereed Book Chapter

**Baek, C.**, Jacob, S. R., Saito-Stehberger, D., Garcia, L., Ojeda-Ramirez, S., & Warschauer, M. (in press). Computer science curriculum to promote computational thinking and literacy for English Language Learners. In D. Huffman, K. Feldman, & I. Herrick (Eds.), *STEM to STREAMS: Towards a more equitable vision of STEM education*. Rowman & Littlefield.

## Policy Report

Aguilar, S.J., Galperin, H., **Baek, C.**, & Gonzalez, E. (2020). When school comes home: How low-income families are adapting to distance learning. <https://doi.org/10.35542/osf.io/su8wk>

## MANUSCRIPTS UNDER REVIEW

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**Baek, C.**, Saito-Stehberger, D., Jacob, S.R., Nam, A., & Warschauer, M. (revise and resubmit). Empowering elementary school students with disabilities: Computer programming through culturally sustaining curriculum. *Computer Science Education*.

**Baek, C.**, Tate, T., & Warschauer, M. (revise and resubmit). "ChatGPT seems too good to be true": College students' use and perceptions of generative AI. *Computers & Education: Artificial Intelligence*.

Hong J., **Baek, C.**, & Doleck, T. Measuring self-regulated learning from multimodal data: A review.

**Baek, C.**, Hong J., & Doleck, T. Artificial Intelligence in Education: A bibliometric review.

## MANUSCRIPTS IN PREPARATION

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**Baek, C.**, Garcia, L., Saito-Stehberger, D., Nam, A., & Warschauer, M. Exploring teachers' perspectives and instructional strategies in promoting students' computational thinking development.

**Baek, C.**, Saito-Stehberger, D., Nam, A., Lopez, G., Jacob, S.R., & Gyles, S., & Warschauer, M. Computer science framework to teach community-based environmental literacy and data literacy to diverse students.

## CONFERENCE & OTHER PRESENTATIONS

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### Refereed Conference Presentations

- Baek, C.,** Garcia, L., Saito-Stehberger., & Warschauer, M. (2024, April). Exploring teachers' perspectives and instructional strategies in promoting students' computational thinking development [Paper Session]. American Educational Research Association, Philadelphia, PA.
- Baek, C.,** Saito-Stehberger, D., Nam, A., Lopez, G., Jacob, S.R., & Warschauer, M. (2024, April). Empowering elementary school students with disabilities: Computer programming through culturally sustaining curriculum [Roundtable Session]. American Educational Research Association, Philadelphia, PA.
- Jacob S.R., Montoya, J., Prado Y., **Baek, C.,** & Warschauer, M. (2024, April). Universal Design for Learning and computational thinking for multilingual students [Paper Session]. American Educational Research Association, Philadelphia, PA.
- Baek, C.,** & Aguilar, S. J. (2023, May). Educational technologies as tools for self-regulated learning for students with Autism in post-secondary settings [Paper Session]. American Educational Research Association. (Online)
- Jacob, S. R., **Baek, C.,** & Warschauer M. (2023, April). Computational literacy, language, and culture [Paper Session]. American Educational Research Association. Chicago, IL.
- Jacob, S., **Baek, C.,** & Warschauer, M. (2023, March). Examining coding and literacy instruction for bilingual students [Individual Paper]. American Association of Applied Linguistics, Portland, OR.
- Baek, C.,** & Aguilar, S. J. (2022, April). Special education community's discussions on Twitter during COVID-19: sentiment analysis and topic modeling approach [Paper Session]. American Educational Research Association. San Diego, CA.
- Baek, C.,** & Aguilar, S. J. (2021, April). Training and supporting teachers to improve their attitude towards students with Autism [Roundtable Session]. American Educational Research Association. (Online)
- Baek, C.,** & Aguilar, S. J., & Gray, A. (2021, April). The use and evaluation of educational technology in special education from 2009-2019 [Paper Session]. American Educational Research Association. (Online)
- Copur-Genturck, Y., **Baek, C.,** & Doleck, T. (2021, April). Empirical study of teachers' proportional reasoning and their performance on proportional relationship Problems [Paper Session]. American Educational Research Association. (Online)
- Gonzalez, E., & **Baek, C.** (2020, October). The economic and academic experiences of students during COVID-19. COVID-19 Work in Progress Conference. Los Angeles, CA.
- Baek, C.,** & Aguilar, S. J. (2020, April). Sexual harassment in academia is underreported, especially by students in the Physical Sciences [Roundtable Session]. American Educational Research Association. San Francisco, CA. <http://tinyurl.com/tn2jkvq> (Conference Cancelled)
- Aguilar, S.J., & **Baek, C.** (2019, March). Motivated information seeking and graph comprehension. Paper presented at the Learning Analytics and Knowledge Conference (LAK' 19). Phoenix, AZ.

### Poster Presentation

- Baek, C.** (2020, March). Impact of watching a first-person perspective video on teachers' attitude towards children with autism. USC Rossier Research Office Poster Session. Los Angeles, CA.

### Guest Lecture

- Baek, C.** (2023, March). Educational Data Science. Guest lecture at Simon Fraser University, Burnaby, BC, Canada.
- Baek, C.** (2023, April). Controversies in Learning and Instruction. Guest lecture at USC Rossier School of Education. Los Angeles, CA.
- Baek, C.** (2022, September). Multiple Regression in Multivariate Statistics. Guest lecture at Simon Fraser University, Burnaby, BC, Canada

## **Invited Talk**

**Baek, C.**, (2024, April). Designing and Implementing Inclusive Learning Analytics for Diverse Students. Seminar given at Politecnico di Milano, Milano, Italy.

**Baek, C.**, (2018, October). Successful Women in STEM field. Talk given at The Help Group Summit. Los Angeles, CA.

## **PROFESSIONAL AFFILIATIONS**

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Society for Learning Analytics Research (SoLAR)

American Educational Research Association (AERA)

## **SERVICES**

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### **Guest Co-Editor**

Journal of Research in Technology Education: Special Issue on Computer Science Education for All. (To be published in Fall 2025).

### **Ad-hoc Peer Review for Journals**

Review of Educational Research

British Journal of Educational Technology

Education and Information Technologies

Journal of Research on Technology in Education

International Journal of STEM Education

International Journal of Information Technology & Decision

International Journal of Informatics and Communication Technology

International Journal of Technology and Education Innovation

Frontiers in Education

Cybernetics and Systems

Journal of Data Science

Applied Sciences

Journal of Computational Social Science

International Journal of Research & Technology

User Modeling and User-Adapted Interaction

## Program Committee

RESPECT 2023: Conference for Research and Equity and Sustained Participation in Engineering, Computing, and Technology

## Peer Review for Conferences

RESPECT IEEE Annual International Conference on Research on Equity and Sustained Participation in Engineering, Computing, and Technology, 2023

American Educational Research Association (AERA) Division C-Learning and Instruction, 2019-2022

SIG-Special and Inclusive Education Research (AERA), 2019-present

## Institutional Service

**Co-leader (2019-2021):** Asian American & Pacific Islander Doctoral Support Group at USC Rossier

## TEACHING EXPERIENCE

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### Teaching Assistant

Foundations of Digital Learning 2022  
University of California, Irvine, Irvine, CA

Introduction to Quantitative Methods 2020  
University of Southern California, Los Angeles, CA

Educational Performance Problems: The Role of Learning 2019  
University of Southern California, Los Angeles, CA

### Teaching

Mathematics and Computer Science High School & Elementary School Teacher 2015-2018  
STEM 3 Academy (The Help Group), Los Angeles, CA

Mathematics and Computer Science Teacher 2014-2015  
Village Glen High School (The Help Group), Los Angeles, CA

## PROFESSIONAL EXPERIENCE

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Mathematics and Computer Science Department Chair 2016-2018  
STEM 3 Academy (The Help Group), Los Angeles, CA

AP Reader, AP Computer Science Principles, Educational Testing Service 2017, 2018  
Kansas City, MO

## HONORS AND AWARDS

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**Rossier Dean's Assistantship**, University of Southern California 2018-2022

**Erik Duval Scholarship**, Society of Learning Analytics Research 2021

<b>Internal Research Funds</b> , University of Southern California <i>Educational Technologies as Tools for Self-Regulated Learning for Students with Autism in Post-Secondary Settings</i> Research Grant (\$1500) <b>Principal Investigator.</b>	2021
<b>Internal Research Funds</b> , University of Southern California <i>Impact of Watching a First-Person Perspective Video on Teachers' Attitude Towards Children with Autism</i> Research Grant (\$1424) <b>Principal Investigator.</b> Co-PI: Stephen Aguilar	2019
<b>Employee Excellence Award</b> , The Help Group	2016
<b>LA. Division III, Runaway Train 1<sup>st</sup> Place (Coach)</b> , Odyssey of the Mind	2015
<b>Walter Fitch Trust Endowed Scholarship</b> , University of San Diego	2012, 2013

## SKILLS & COMPETENCIES

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### Languages

English (fluent: reading, writing, and speaking)

Korean (native/fluent: reading, writing, and speaking)

### Programming

R, Python, Java, LaTeX, Processing, C++

### Software

Stata, Mplus, R