AMY ELISE ADAIR

NSF Graduate Research Fellow, Graduate School of Education, Rutgers University
amy.adair@gse.rutgers.edu ◇ *amyeliseadair.com*

EDUCATION

Doctor of Philosophy in Education *2019 – present*
Rutgers University, New Brunswick, NJ
Concentration: Learning, Cognition, Instruction, & Development, Specialization: Learning Sciences

Master of Arts in Education *2019 – 2022*
Rutgers University, New Brunswick, NJ

Bachelor of Science in Mathematics *2014 – 2018*
Louisiana State University, Baton Rouge, LA
Concentration: Secondary Education, Minor: French

GRADUATE RESEARCH EXPERIENCE

NSF Graduate Research Fellow *2021 – present*
STEM Education and Learning Research - Artificial Intelligence
Advisor: Dr. Janice Gobert, Rutgers University
Previously worked as a Graduate Research Assistant from 2019 to 2021;
Involved with on-going research projects for the Inquiry Intelligent Tutoring System (Inq-ITS), including:

- Using natural language processing (NLP) techniques to develop automated scoring algorithms for students' written science and math explanations in Claim, Evidence, Reasoning (CER) framework
- Designing NGSS-aligned virtual science labs that assess students' competencies with NGSS practices, particularly with using mathematics within science inquiry
- Creating alerts for a teacher dashboard that support teachers in helping struggling students

Educational Testing Service (ETS) AI Research Labs Intern *Summer 2021*
Mentor: Dr. Kristen Herrick, ETS
Contributed to a cross-functional research & development team in the AI Research Labs with learning scientists, instructional designers, user-experience designers, data scientists, and software developers to design evidence-based, technological solutions for middle school English Language Arts classrooms

PUBLICATIONS

Adair, A., Dickler, R., & Gobert, J. (2020). Supporting teachers supporting students: Iterative development of TIPS in a teacher dashboard. In M. Gresalfi & I. S. Horn (Eds.), *14th International Conference of the Learning Sciences, Volume 3* (pp. 1769-1770). International Society of the Learning Sciences.

Dickler, R., **Adair, A.**, Gobert, J., Hussian-Abidi, H., Olsen, J., O'Brien, M., & Sao Pedro, M. (2021). Examining the use of a teacher alerting dashboard during remote learning. In I. Roll, D. McNamara, S. Sosnovsky, R. Luckin, & V. Dimitrova (Eds.), *International Conference on Artificial Intelligence in Education* (pp. 134-138). Springer, Cham.

Dickler, R., Sao Pedro, M., **Adair, A.**, Gobert, J., Olsen, J., Kleban, J., Betts, C., Staudenraus, C., & Roughan, P. (2021). Supporting students remotely: Integrating mathematics and sciences in virtual labs. In E. de Vries, Y. Hod, & J. Ahn (Eds.), *15th International Conference of the Learning Sciences* (pp. 1013-1014). International Society of the Learning Sciences.

Adair, A., Owens, J. A., & Gobert, J. (2022). Using epistemic network analysis to explore discourse patterns across design iterations of a teacher dashboard. In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.), *16th International Conference of the Learning Sciences* (pp. 297-304). International Society of

the Learning Sciences.

Olsen, J., **Adair, A.**, Gobert, J., Sao Pedro, M., & O'Brien, M. (2022). Using log data to validate performance assessments of mathematical modeling practices. In M. M. Rodrigo, N. Matsuda, A. I. Cristea, & V. Dimitrova (Eds.), *International Conference on Artificial Intelligence in Education* (pp. 488-491). Springer, Cham.

Herrick, K. S., Nachman, L., Montilus, K. D., Runyon, K. R. M, **Adair, A.**, Ferrara, L. (2022). An integrated approach to learning solutions: UCD + LS&D + AIEd. In M. M. Rodrigo, N. Matsuda, A. I. Cristea, & V. Dimitrova (Eds.), *International Conference on Artificial Intelligence in Education* (pp. 94-98). Springer, Cham.

Adair, A. (2023). Teaching and learning with AI: How artificial intelligence is transforming the future of education. *XRDS: Crossroads, The ACM Magazine for Students, 29*(3), 7-9.

Adair, A., & Koh, J. J. (2023). Making speech recognition work for children: An interview with Amelia Kelly. *XRDS: Crossroads, The ACM Magazine for Students, 29*(3), 26-29.

Adair, A., Sao Pedro, M., Gobert, J., & Owens, J. A. (2023). Assessing students' competencies with mathematical models in virtual science inquiry investigations. In, *17th International Conference of the Learning Sciences*. International Society of the Learning Sciences.

Adair, A., Sao Pedro, M., Gobert, J., & Segan, E. (2023). Real-time AI-driven assessment and scaffolding that improves students' mathematical modeling during science investigations. In N. Wang, G. Rebolledo-Mendez, N. Matsuda, O. C. Santos, & V. Dimitrova (Eds.), *International Conference on Artificial Intelligence in Education* (pp. 202-216). Springer, Cham.

Segan, E., Gobert, J., Pedro, M. S., **Adair, A.**, & Owens, J. A. (2024). Using AI-based assessment and scaffolds to identify student difficulties with plotting data and modeling in virtual science labs. In R. Lindgren, T. I. Asino, E. A. Kyza, C. K. Looi, D. T. Keifert, & E. Suárez (Eds.), *Proceedings of the 18th International Conference of the Learning Sciences* (pp. 1466-1469). International Society of the Learning Sciences.

Gobert, J., Dickler, R., & **Adair, A.** (2024). Using an AI-based dashboard to help teachers support students' learning progressions for science practices. In H. Jin, D. Yan, & J. Krajcik (Eds.), *Handbook of Research on Science Learning Progressions*. Taylor & Francis Group.

PRESENTATIONS

Adair, A., Dickler, R., & Gobert, J. (2021, March). *Developing and implementing teacher inquiry practice supports for remote and in-person instruction* [Poster presentation]. Rutgers Graduate School of Education Annual Poster Session.

Adair, A., Dickler, R., Gobert, J. & Lee, J. (2021, April). *Inq-ITS supports students maintaining their science inquiry competencies during remote learning due to COVID-19* [Poster presentation]. American Educational Research Association (AERA) Annual Meeting.

Dickler, R., O'Brien, M., Gobert, J., Olsen, J., **Adair, A.**, & Hussain-Abidi, H. (2021, April). *Analyzing student-teacher discourse prompted by a real-time alerting dashboard for science inquiry practices* [Roundtable paper presentation]. American Educational Research Association (AERA) Annual Meeting.

Dickler, R. & **Adair, A.** (2021, April). *Using the Inq-Blotter dashboard to support teachers and students on science practices* [Invited talk]. Rutgers Graduate School of Education Brown Bag Lecture Series.

Lee, J., **Adair, A.**, Gobert, J., & Dickler, R. (2021, August). *Can text features of investigative questions in science predict students' inquiry competencies?* [Conference presentation]. Annual Meeting of the Society for Text and Discourse.

Dickler, R., Gobert, J., **Adair, A.**, & Olsen, J. (2021, August). *Using a teacher dashboard to support students remotely on science inquiry* [Conference presentation]. Annual Meeting of the Society for Text and Discourse.

Sao Pedro, M., Gobert, J., & **Adair, A.** (2021, November). *Strengthening students' inquiry competencies via progress monitoring* [Conference presentation]. Science Teachers Association of New York State (STANYS) Conference, Rochester, NY, United States.

Sao Pedro, M., Gobert, J., **Adair, A.**, Olsen, J., Dickler, R., & Betts, C. (2022, March). *Using mathematics to deepen understanding of scientific phenomena* [Conference presentation]. National Science Teaching Association's National Conference on Science Education, Houston, TX, United States.

Sao Pedro, M., Gobert, J., **Adair, A.**, Dickler, R., & Betts, C. (2022, November). *Using mathematics to deepen understanding of scientific phenomena* [Conference presentation]. Kentucky Science Teachers Association Annual Conference, Richmond, KY, United States.

Adair, A., Dickler, R. F., Gobert, J., Sao Pedro, M., Olsen, J., Owens, J., & Lott, C. (2023, April). *Examining students' mathematical evidence in CER explanations during science inquiry contexts* [Symposium poster]. American Educational Research Association (AERA) Annual Meeting.

Li, H., **Adair, A.**, Li, G., Dickler, R. F., & Gobert, J. (2023, April). *Evaluation of automated scoring methods for students' claim, evidence, reasoning responses in science* [Symposium poster]. American Educational Research Association (AERA) Annual Meeting.

Owens, J. A., **Adair, A.**, Segan, E., & Gobert, J. (2023, June). *Automated analyses of students' difficulties with explanations in science inquiry* [Conference presentation]. Annual Meeting of the Society for Text and Discourse, Olso, Norway.

GRADUATE ACADEMIC HONORS AND AWARDS

National Science Foundation Graduate Research Fellowship *2021–present*
Five-year fellowship that provides three years of funding for doctoral students

Clarence E. Partch Memorial Fellowship *2020-2021*
Awarded by the Rutgers GSE to a full-time student based on merit

AERA Annual Meeting Graduate Student Assistance Fund Award *2023*
Awarded by the American Educational Research Association for participation at the 2023 Annual Meeting

Rutgers SGS Research & Travel Award *2023*
Awarded by the Rutgers School of Graduate Studies to assist with conference travel

AIED Conference Scholarship *2023*
Awarded by the International AI in Education (AIED) Society to assist with AIED 2023 conference travel

GRADUATE LEADERSHIP AND SERVICE

Coordinator, Rutgers GSE Lunch & Learn (Brown Bag) Series *2021 – 2023*
Helped plan weekly seminars with guest speakers on cutting-edge learning sciences research with an emphasis on advancing equity in education. See recordings at: https://www.youtube.com/@rutgersgse6132

President, Rutgers GSE Student Affairs Committee (GSAC) *2020 – 2022*
Collaborated with executive board members and GSE faculty to coordinate monthly meetings, develop a new GSAC website, and plan and disseminate information on GSAC initiatives, such as offering funding support for conference-related expenses to graduate students in the Graduate School of Education (GSE).

Student Representative, Career Community Advisory Board *2020 – 2022*
Provided a doctoral student perspective at monthly meetings to help the Rutgers Career Exploration &

Success (CES) staff in developing programs and workshops for doctoral students.

PROFESSIONAL SERVICE

International Conference of the Learning Sciences
Peer Reviewer *2022, 2023*

American Educational Research Association Annual Meeting
Peer Reviewer *2023*

XRDS (Crossroads): The ACM Magazine for Students
Guest Editor *2023*

International Journal of Science and Mathematics Education
Peer Reviewer *2024*

TEACHING EXPERIENCE

Mathematics Teacher, West Feliciana High School *2018 – 2019*
Taught Advanced Math, AP Calculus BC, and Introduction to Robotics for grades 10 to 12.

Pre-Service Teacher, LSU Geaux Teach Program *2014 – 2018*
Observed and taught standards-aligned, problem-based lessons for grades 5 to 12, including Geometry Honors, Advanced Math Dual Enrollment, AP Calculus AB, and AP Computer Science Principles.

Instructor/Coach, LSU Math Circle Summer Program & Competition Team *2015 – 2018*
Designed and implemented hands-on activities for advanced mathematical concepts, mentored students' mathematical research projects, and coached students for national math competitions.

Tutoring Lab Coordinator, LSU Cain Center for STEM Literacy *2015 – 2017*
Tutored at McKinley High School, coordinated tutoring lab at Lee High School and LSU Science Residential College, and conducted group study sessions for *Praxis* Mathematics Content Knowledge exam.

Math Tutor, LSU Veteran and Military Student Services *2016 – 2018*
Held daily office hours to provide individual tutoring to student veterans in college-level math courses.

UNDERGRADUATE RESEARCH EXPERIENCE (MATHEMATICS)

Senior Honors Thesis, LSU Ogden Honors College *2017 – 2018*
Advisor: Dr. Frank Neubrander, LSU
Completed project on operator semigroups induced by first-order differential equations

MSRI-UP Student, Mathematical Sciences Research Institute *Summer 2017*
Advisors: Dr. J. Maurice Rojas, Texas A&M and Dr. Federico Ardila, SFSU
Explored algebraic geometry approaches to find maximum number of roots for structured polynomials
Poster presentations:

SACNAS National Diversity in STEM Conference, Salt Lake City, UT *October 19-21, 2017*
Joint Mathematics Meetings, San Diego, CA *January 10-13, 2018*

Undergraduate Researcher, LSU Math Consultation Clinic *Summer 2016*
Advisor: Dr. Peter Wolenski, LSU
Contributed to the development of a data analysis program used to detect sucks in signals obtained from infant bottle feedings for early childhood nutrition research.

Research Intern, Geaux Teach Robert Noyce Summer Internship *Summer 2015*
Advisor: Dr. Frank Neubrander, LSU
Investigated the asymptotic properties of the solutions of second-order linear difference equations.
Poster presentations:

LSU Summer Undergraduate Research Conference, Baton Rouge, LA	*July 31, 2015*
Midwest Regional Noyce Connections Conference, Omaha, NE	*October 28-30, 2015*
LSU College of Science Dean's Circle Dinner, Baton Rouge, LA	*October 21, 2016*

UNDERGRADUATE ACADEMIC HONORS AND AWARDS

University Medalist	*2018*
College Honors	*2018*
LSU Distinguished Communicator	*2018*
LSU Flagship Resident Scholarship	*2014–2018*
Demarcus D. Smith Scholarship	*Fall 2015, 2016*
Louisiana Parent Teacher Association Scholarship	*Spring 2016*
Pasquale Porcelli Junior Scholarship	*2016–2017*
College of Science Burland Scholarship	*2016–2017*
Michael and Carol Stamatedes GeauxTeach Student Scholarship	*2016–2017*
Dana Hopkins Memorial Scholarship	*2017–2018*
Tiger Athletic Foundation Thesis Scholarship	*Fall 2017*
SACNAS Travel Scholarship for SACNAS National Diversity in STEM Conference	*2017*
MAA Travel Grant for Joint Mathematics Meetings	*2018*
Friends of French Award for Outstanding 3rd Year French Student in Literature	*2017–2018*