

ACADEMIC POSITIONS

PROMISE Postdoctoral Fellow

August 2024 – August 2026

Department of Engineering and Science Education
College of Engineering, Computing and Applied Sciences
Clemson University, Clemson, SC

EDUCATION

PhD in Learning, Literacies and Technologies

August 2024

Mary Lou Fulton Teachers College
Arizona State University, Tempe, AZ
Dissertation: Exploring Characteristics of Play in the Puzzle and Mathematical Problem Solving of Undergraduates
Dissertation Committee: Elisabeth R. Gee (chair), Michelle Zandieh, Brian Nelson, Naneh Apkarian

Certificate in Statistics and Data Science

August 2024

School of Mathematical and Statistical Sciences
College of Liberal Arts and Sciences
Arizona State University, Tempe, AZ

Master of Science in Teaching

May 2020

Center for Research in STEM Education
University of Maine, Orono, ME
Thesis: Understanding Social Factors in Small Group Work in Undergraduate Mathematics Classrooms
Thesis Committee: Janet Fairman (co-chair), Natasha Speer (co-chair), Timothy Boester

Bachelor of Science in Mathematics Education

May 2015

School of Education
Boston University, Boston, MA

PEER REVIEWED PUBLICATIONS

Refereed Journal Articles

- [1] **Bernier, J.**, Gee, E. R., Kessner, T. M., Pérez Cortés, L. E., & Gao, Y. (In press). Patterns of Design Thinking in Playfixing Broken Games: An Exploratory Study. *Information and Learning Sciences*.
- [2] **Bernier, J.** & Zandieh, M. (2024). Comparing student strategies in a game-based and pen-and-paper task for linear algebra. *The Journal of Mathematical Behavior*, 73, 101105
<https://doi.org/10.1016/j.jmathb.2023.101105>
- [3] Su, M., Ha, J., Pérez Cortés, L. E., **Bernier, J.**, Yan, L., Nelson, B., Bowman, C. D., & Bowman, J. (2023). Understanding museum visitors' question-asking through a mobile app. *Educational Technology Research and Development*, 71(6), 2483–2506. <https://doi.org/10.1007/s11423-023-10265-6>

- [4] Gao, Y. B., **Bernier, J.**, Kessner, T. M., Pérez Cortés, L. E., & Gee, E. (2023). No player left behind: exploring the use of collaborative talk in a playfixing activity. *CoDesign*, 19(2), 128–141. <https://doi.org/10.1080/15710882.2022.2129692>
- [5] Pérez Cortés, L. E., Gao, Y. B., Kessner, T. M., **Bernier, J.**, & Gee, E. R. (2022). Playfixing broken games: A design-oriented activity for engaging in designerly ways of thinking. *International Journal of Game-Based Learning*, 12. <https://doi.org/10.4018/IJGBL.309127>
- [6] Jordan, M., **Bernier, J.**, & Zuiker, S. (2021). The Future Is Open and Shapable: Using Solar Speculative Fiction to Foster Learner Agency. *Literacy Research: Theory, Method, and Practice*, 70, 309-329. <https://doi.org/10.1177/23813377211028263>

Refereed Conference Publications

Full Papers (6+ pages)

- [7] **Bernier, J.** (2024). A Framework for Characterizing and Identifying Playful Mathematical Experiences. To be published in *Proceedings of the 26th Annual Conference on Research in Undergraduate Mathematics Education*. Omaha, NE: Special Interest Group of the Mathematical Association of America on Research in Undergraduate Mathematics Education (SIGMAA on RUME).
- [8] **Bernier, J.** & Zandieh, M. (2022). Comparing Student Strategies in Vector Unknown and the Magic Carpet Ride Task. In Karunakaran, S.S. & Higgins, A. (Eds.), *Proceedings of the 24th Annual Conference on Research in Undergraduate Mathematics Education* (pp. 46-53). Boston, MA: SIGMAA on RUME.

Short Papers and Posters (1-5 pages)

- [9] **Bernier, J.**, Su, M., Yan, L., & Nelson, B. (2023). An analysis of the design and pedagogy of DragonBox algebra. In Blikstein, P., Van Aalst, J., Kizito, R., & Brennan, K. (Eds.), *Proceedings of the 17th International Conference of the Learning Sciences - ICLS 2023* (pp. 1873-1874). Montreal, QC: International Society of the Learning Sciences (ISLS).
- [10] **Bernier, J.**, Cabrera, L., Figueroa, F., Ha, J., Kramarczuk, K., Mak, J., Su, M., Xin, Y., Yan, L., Ketelhut, D. J., Nelson, B., & Terrell Shockley, E. (2022). Accessible Computational Thinking in Elementary Science. In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.), *Proceedings of the 16th International Conference of the Learning Sciences - ICLS 2022* (pp. 2024-2025). Hiroshima, Japan: ISLS.
- [11] Gao, Y., **Bernier, J.**, Kessner, T. M., Pérez Cortés, L. E., & Gee, E. R. (2021). No Player Left Behind: Exploring the Use of Collaborative Talk in a Playfixing Activity. In E. de Vries, Y. Hod, & J. Ahn (Eds.), *Proceedings of the 15th International Conference of the Learning Sciences - ICLS 2021* (pp. 977-978). Bochum, Germany: ISLS.
- [12] **Bernier, J.** (2020). Investigating the Influence of Gender Identity and Sexual Orientation in Small Group Work. In S.S. Karunakaran, Z. Reed, & A. Higgins (Eds.), *Proceedings of the 23rd Annual Conference on Research in Undergraduate Mathematics Education* (pp. 1173-1174). Boston, MA: SIGMAA on RUME.

CONFERENCE PRESENTATIONS

Peer-reviewed Regional, National, and International Conferences

- [1] Yan, L., Xin, Y., Figueroa, F., **Bernier, J.**, Terrell Shockley, E., Nelson, B., Ketelhut, D. J. (2024, November). Culturally Responsive Teaching Strategies in Computational Thinking-Infused Science Lessons on Elementary Level. [Paper Session]. Presented at the 2024 National Science Teacher Association (NSTA) National Conference, New Orleans, LA.
- [2] **Bernier, J.**, Heyer, N., Su, M., Yan, L., Islam, R., Ha, J., Jordan, M., & Nelson, B. C. (2024, April). A Design-Based Approach to Playful Algebra Learning with DragonBox Algebra. In Lei, Qingli [Session Organizer]: Play, Motivation and Engagement in Math Learning [Paper Session]. Presented at the American Educational Research Association (AERA) 2024 Annual Meeting, Philadelphia, PA.
- [3] Kramarczuk, K., **Bernier, J.**, Figueroa, F., Yan, L., Terrell Shockley, E., Coen, A., Su, M., Nelson, B. C., Xin, Y., & Ketelhut, D. J. (2024, April). Elementary Teachers' Positional Identities and Dispositions Towards Culturally Responsive Computational Thinking-Integrated Science. In Morandi, S. [Chair] & Madkins, T. C. [Session Organizer]: Sociopolitical Issues in STEM Teacher Education [Roundtable]. Presented at the AERA 2024 Annual Meeting, Philadelphia, PA.
- [4] Yan, L., **Bernier, J.**, Su, M., Islam, R., & Nelson, B. C. (2024, April). Every Voice Matters: Designing an Equitable Classroom Discussion Observation Protocol to Engage All Students. In Davey, B. [Chair] & Bae, C. L. [Session Organizer]: Creating New Spaces and Methods for Equity in Science Teaching and Learning [Roundtable]. Presented at the AERA 2024 Annual Meeting, Philadelphia, PA.
- [5] Kessner, T. M., **Bernier, J.**, Root-Williams, J., Gee, E. R. (2024, April). Ludoepistemic Consonance in Pre-Service Social Studies Teachers' (Re)Design of Monopoly as a Classroom Simulation. In Zhao, X. [Chair] & Sinclair, K. [Session Organizer]: Promising Practices in Social Studies Teaching and Learning [Roundtable]. Presented at the AERA 2024 Annual Meeting, Philadelphia, PA.
- [6] Root-Williams, J., Kessner, T. M., **Bernier, J.** (2024, April). Representation and Historical Antecedents in Videogames: The Queer-ious Case of Assassin's Creed. In Smith, K. P. [Chair] & Lund, V. K. [Session Organizer]: Video Games as Sites of Learning and Critical Media Literacies [Roundtable]. Presented at the AERA 2024 Annual Meeting, Philadelphia, PA.
- [7] **Bernier, J.**, Kramarczuk, K., Terrell Shockley, E., Figueroa, F., Yan, L., Xin, Y., Mak, J., Su, M., Ketelhut, D. J., & Nelson, B. (2024, March). CT+CRT+Science: Pathways to Integration in Elementary Teachers' Lesson Plans [Paper Session]. Presented at the 2024 Annual International Conference of the National Association for Research in Science Teaching (NARST), Online.
- [8] **Bernier, J.** (2024, February). A Framework for Characterizing and Identifying Playful Mathematical Experiences [Paper Session]. Presented at the 26th Annual Conference on Research in Undergraduate Mathematics Education (RUME), Omaha, NE.
- [9] **Bernier, J.**, Su, M., Yan, L., & Nelson, B. (2023, June). An Analysis of the Design and Pedagogy of DragonBox Algebra [Poster]. Presented at the 2023 ISLS Annual Meeting, Montreal, QC.
- [10] Gao, Y. B., **Bernier, J.**, & Gee, E. (2023, June). Game-Mediated Second Language Learning through Collaboratively Redesigning Broken Games [Poster]. Presented at the 2023 Computer Assisted Language Instruction Consortium Annual Conference, Minneapolis, MN.

- [11] Terrell Shockley, E., Figueroa, F., Su, M., Yan, L., K. Kramarczuk, Xin, Y., Cabrera, L. Mak, J., **Bernier, J.**, Ha, J., Nelson, B. & Ketelhut, D. J. (2023, March) Making Computational Thinking Accessible to Multilingual Learners in Elementary Science [Poster]. Presented at TESOL 2023 International Convention & English Language Expo, Portland, OR.
- [12] **Bernier, J.**, Cabrera, L., Figueroa, F., Ha, J., Kramarczuk, K., Mak, J., Su, M., Xin, Y., Yan, L., Ketelhut, D. J., Nelson, B., & Terrell Shockley, E. (2022, June). Accessible Computational Thinking in Elementary Science [Poster]. Presented at the 2022 ISLS Annual Meeting, Online.
- [13] Gee, E. R., **Bernier, J.**, Kessner, T. M., Pérez Cortés, L. E., & Gao, Y. (2022, April). Exploring Patterns of Design Thinking in Playfixing Three Different Broken Games. In D. Rossi, (Chair): Breaking, Building, and Broadcasting: Analog and Digital Games and Affinity Spaces for Learning [Roundtable]. Presented at the AERA 2022 Annual Meeting, San Diego, CA.
- [14] **Bernier, J.** & Zandieh, M. (2022, February) Comparing Student Strategies in Vector Unknown and the Magic Carpet Ride Task [Paper]. Presented at the 24th Annual Conference on RUME, Boston, MA.
- [15] Kramarczuk, K., Cabrera, L., Ketelhut, D. J., Terrell-Shockley, E., Xin, Y., Mak, J., Nelson, B., **Bernier, J.**, Ha, J., Su, M., Yan, L., & Figueroa, F. (2022, January). A Professional Development Model for Integrating Computational Thinking and Culturally Responsive Teaching Practices into Elementary Science Practice [Poster]. Presented at the Association for Science Teacher Education (ASTE) Annual Conference 2022, Greenville, SC.
- [16] Gee, E. R., Kessner, T. M., Pérez Cortés, L. E., Gao, Y., & **Bernier, J.** (2021, August). Virtual tabletop game play and design for diverse participants and purposes [Workshop]. Facilitated at Foundations of Digital Games (FDG) 2021, Online.
- [17] Gao, Y., **Bernier, J.**, Kessner, T. M., Pérez Cortés, L. E., & Gee, E. R. (2021, June). No Player Left Behind: Exploring the Use of Collaborative Talk in a Playfixing Activity [Poster]. Presented at the 2021 ISLS Annual Meeting, Online.
- [18] **Bernier, J.** (2021, April). When Group Work in Undergraduate Math Classrooms is Socially Productive but Mathematically Unproductive [Poster]. Presented at the AERA 2021 Virtual Annual Meeting, Online.
- [19] Jordan, M., **Bernier, J.**, Zuiker, S., Miller, C., & Gabriel, A. (2020, December). Imagining Solar Energy Futures: Using futures thinking strategies to position youth as sustainability leaders. In M. Jordan [Discussant]: From sustainability to solidarity: imagining ecological futures across our networks [Symposium]. Presented at the Literacy Research Association 70th Annual Conference, Online.
- [20] **Bernier, J.** (2020, February). Investigating the Influence of Gender in Small Group Work [Poster]. Presented at the 23rd Annual Conference on RUME, Boston, MA.

Committee-Reviewed, Invited, and Local Conferences

- [21] **Bernier, J.** (2024, February). Exploring Playfulness in Solving Puzzles and Mathematical Problems [Poster]. Presented at the 10th Annual Teachers College Doctoral Council Education Research Conference (TCDC Conference), Tempe, AZ.
- [22] Yan, L., Xin, Y., Figueroa, F., **Bernier, J.**, Terrell Shockley, E., Nelson, B., & Ketelhut, D. J. (2024, February). Practical Strategies for Culturally Responsive Teaching in Computational Thinking Integrated Elementary Science Lessons [Poster]. Presented at the 10th Annual TCDC Conference, Tempe, AZ.

- [23] **Bernier, J.** (2023, October). Hands-On with Playfixing: Exploring Using ‘Broken’ Tabletop Games to Experience Design [Workshop]. Facilitated at the North American Simulation and Gaming Association (NASAGA) 2023 Annual Meeting, St. Louis, MO.
- [24] **Bernier, J.** & Yan, L. (2023, February). The Play and Experience of DragonBox Algebra [Poster]. Presented at the 9th Annual Teachers TCDC Conference, Tempe, AZ.
- [25] Yan, L., & **Bernier, J.** (2023, February). Every Voice Matters: Building an Equitable Classroom Discussion Protocol to Include All Students [Poster]. Presented at the 9th Annual TCDC Conference, Tempe, AZ.
- [26] **Bernier, J.** (2023, February). Playfixing Across Contexts and Content: An Interactive Presentation & Discussion [Workshop]. Facilitated at the 9th Annual TCDC Conference, Tempe, AZ.
- [27] **Bernier, J.** (2023, February) Puzzles and Playful Mathematical Problem Solving [Paper Session]. Presented at the 9th Annual TCDC Conference, Tempe, AZ.
- [28] **Bernier, J.** & Zandieh, M. (2022, November). Comparing Student Strategies in a Game-Based and Pen-and-Paper Task for Linear Algebra [Poster]. Presented as the ASU College of Integrated Sciences and Arts Student Showcase, Mesa, AZ.
- [29] Mauntel, M., Amresh, A., **Bernier, J.**, Bettersworth, Z., Plaxco, D., & Zandieh, M. (2021, May). Vector Unknown: A Game about Linear Combinations [Video]. Presented at the 2021 STEM For All Video Showcase, Online.
- [30] **Bernier, J.** (2020, June). Investigating the Influence of Gender in a Small Group Interaction [Video]. Presented at the RiSE Interdisciplinary Research Group Virtual Showcase, Online.
- [31] **Bernier, J.** (2019, June). Background and Design for a Study on Gender Identity and Sexual Orientation in Small Group Work in Undergraduate Math [Poster]. Presented at the 2019 RiSE Summer Conference, Orono, ME.

PARTICIPATION IN GRANT-FUNDED RESEARCH

Funded Grants Worked On

Collaborative Research: Accessible Computational Thinking in Elementary Science Classes within and across Culturally and Linguistically Diverse Contexts **2021 – 2024**

NSF Award Nos.: 2101526, 2101039 Award Amounts: \$1,172,781, \$931,058
 Principal Investigators: Diane Ketelhut (2101526), Brian Nelson (2101039)
 Co-PI: Ebony Terrell Shockley (2101526)

Simulation-Based Inquiry-Oriented Linear Algebra **2021 – 2023**

NSF Award No.: 1712524 Award Amount: \$337,999
 Principal Investigator: Michelle Zandieh
 Co-PIs: Ashish Amresh, David Plaxco

Integrating Computation into Science Teaching and Learning in Grades 6-8

2019

NSF Award No.: 1842359

Award Amount: \$1,250,000

Principal Investigator: Susan McKay

Co-PIs: Mitchell Bruce, Harlan Onsrud, Sara Lindsay, James Fratini

MANUSCRIPTS IN PROGRESS

Manuscripts in Review

- [1] Root-Williams, J. L., Kessner, T. M., & **Bernier, J.** Representation and Historical Antecedents in New Media: The Queer-ious Case of Assassin's Creed. *Under review at Games and Culture.*
- [2] **Bernier, J.**, Kramarczuk, K., Terrell Shockley, E., Figueroa, F., Yan, L., Xin, Y., Mak, J., Su, M., Ketelhut, D. J., & Nelson, B. Exploring Culturally Responsive Teaching Practices in Computational Thinking + Science Lesson Planning. *Under review at Journal for STEM Education Research.*
- [3] Kramarczuk, K., **Bernier, J.**, Mak, J., Figueroa, F., Terrell Shockley, E., Xin, Y., Yan, L., Nelson, B., & Ketelhut, D. J. A Matryoshka Doll of Elementary Science Teacher Positionalities: Implications for Computational Thinking and Culturally Responsive Professional Development. *Under Review at Science Education.*

Manuscripts in Preparation

- [4] **Bernier, J.**, Heyer, N., Su, M., Yan, L., Ha, J., Islam, R., Jordan, M., & Nelson, B. A Design-Based Approach to Playful Algebra Learning with *DragonBox Algebra* (working title). *Target Journal: Digital Experiences in Mathematics Education*
- [5] Kessner, T. M., **Bernier, J.**, Root-Williams, J. L., & Gee, E. R. Ludoepistemic Consonance in Pre-Service Social Studies Teachers' (Re)Design of Monopoly as a Classroom Simulation (working title). *Target Journal: TBD*
- [6] Yan, L., Xin, Y., Figueroa, F., **Bernier, J.**, Terrell Shockley, E., Nelson, B., Ketelhut, D. J. Practical Strategies for Culturally Responsive Teaching in Computational Thinking Integrated Elementary Science Lessons (working title). *Target Journal: TBD*

Scholarship in Development

- [7] **Bernier, J.** Characteristics of Play in the Puzzle Solving and Mathematical Problem Solving of Undergraduates (working title). *Target Journal: TBD*

COLLEGIATE TEACHING EXPERIENCE

Instructor of Record

TEL 111, Exploration of Education
Arizona State University, Tempe, AZ
On Campus, ~15 students

Fall 2022

MAT 107, Elementary Descriptive Geometry
University of Maine, Orono, ME
On Campus, ~25 students

Spring 2019

Collaborative Teaching (Lectures, Recitations, and Design)

MAT 116, Introduction to Calculus
University of Maine, Orono, ME
with Ayesha Maliwal-Bundy, M.A. (course coordinator) and Chris Smith, M.A.
On Campus/Moved online due to COVID-19, ~160 students

Spring 2020

Teaching Assistant (Grading & Recitation Only)

MAT 126, Calculus I
University of Maine, Orono, ME
Instructor of Record (2019): Byungjae Son, Ph.D.
Instructor of Record (2018): Julien Rosen, Ph.D.
On Campus, ~75 students per semester

Fall 2018, 2019

Guest Speaker

ESED 8000, Seminar in Engineering, Science, and Mathematics Education
Clemson University, Clemson, SC
Instructor: Lisa Benson, Ph.D.

Fall 2024

FMS 365, Video Games and Narrative
Arizona State University, Tempe, AZ
Instructor: Jeffrey Holmes, Ph.D.

Spring 2023, 2024

OTHER TEACHING EXPERIENCE

Teaching Certifications

Mathematics, Grades 7 – 12 (300), Maine
Initial Licensure issued 2016
Professional Licensure issued 2018, renewed 2023
Expires 2028

2016 – 2028

K-12 Teaching

7 – 12 Mathematics Teacher
Maine Connections Academy
South Portland, ME / Hybrid

August 2016 – May 2018

Student Teacher
Trinity Grammar School
Sydney, NSW, Australia

August 2014 – December 2014

Informal Education & Tutoring

Camp Counselor

Girls Make Games
Raleigh, NC / Online

July 2022

Resource Center Tutor

Boston University
Boston, MA

September 2012 – May 2014

FELLOWSHIPS, HONORS, MINOR GRANTS, AND AWARDS

Institution	Award	\$ Amt	Date
<u>Fellowships and General Awards</u>			
Clemson University	PROMISE Postdoctoral Fellowship	\$160,500	August 2024 – August 2026
Arizona State University	University Graduate Fellowship	\$2,720	January 2024
Arizona State University	University Graduate Fellowship	\$3,888	February 2023
Arizona State University	Graduate College University Grant	\$10,000	August 2022 & January 2023
Girls Make Games	Girls Make Games Fellowship	\$2,000	July 2022
Arizona State University	University Graduate Fellowship	\$3,576	February 2022
Arizona State University	University Graduate Fellowship	\$5,236	August 2020 & January 2021
University of Maine	Most Outstanding MST Graduate	N/A	May 2020

Research Funding

Arizona State University	Learning, Literacies, and Technologies Program Committee Research Award	\$605	January 2024
Arizona State University	Howard Sullivan Learning Technologies Grant	\$180	January 2024
Arizona State University	Graduate College & GPSA Graduate Research Support Program	\$2,000	September 2023
Arizona State University	Mary Lou Fulton Teachers College Mini-Grant	\$180	April 2022

Institution	Award	\$ Amt	Date
<u>Travel/Conference Funding</u>			
Arizona State University	Mary Lou Fulton Teachers College Travel Grant	\$900	January 2024
Arizona State University	Graduate and Professional Society Travel Award	\$950	December 2023
International Society of Learning Sciences	Presenter Hardship Fund	\$430	June 2023
Arizona State University	Graduate and Professional Society Travel Award	\$950	May 2023
Girls Make Games	Game Developers Conference All-Access Pass	\$2,204	February 2023
Arizona State University	Graduate and Professional Society Travel Award	\$950	December 2021
Arizona State University	Graduate College Travel Award	\$300	December 2021
American Educational Research Association	Division C Graduate Student Registration Fee Waiver	\$65	March 2021
Arizona State University	Graduate College Online/Remote Travel Award	\$180	March 2021

SERVICE

Departmental

Organization Committee Member

10th Annual Teachers College Doctoral Council Conference
Mary Lou Fulton Teachers College, Arizona State University, Tempe, AZ

February 2024

Communications Officer

Teachers College Doctoral Council
Mary Lou Fulton Teachers College, Arizona State University, Tempe, AZ

August 2023 – May 2024

Lead Organizer

RiSE Interdisciplinary Research Group Virtual Research Showcase
Center for Research in STEM Education, University of Maine, Orono, ME

June 2020

President

RiSE Interdisciplinary Research Group
Center for Research in STEM Education, University of Maine, Orono, ME

August 2019 – May 2020

Programmatic

Student Representative

Learning, Literacies, and Technologies Program Committee
Mary Lou Fulton Teachers College, Arizona State University, Tempe, AZ

August 2021 – May 2022

Non-Academic

Chairman

Vice Chairman

Treasurer

Troop 160 Memorial Scout Camp
Auburn, ME / Lewiston, ME / Osborn, ME

February 2023 – Present

October 2010 – February 2023

January 2017 – May 2020