

## Alexandria L. Muller

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### EDUCATION

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Current	<b>Ph.D. Science Education</b> University of California-Santa Barbara, Santa Barbara, CA Advisor: Dr. Danielle Harlow Thesis Title: An Investigation of Diversity, Equity, Accessibility, and Inclusion (DEAI) Practices and Challenges in Science Centers Expected graduation date: June 2025
2018 - 2021	<b>M.A. STEM Education</b> University of California-Santa Barbara, Santa Barbara, CA
2013 - 2017	<b>B.S. Ecology &amp; Evolutionary Biology</b> University of Arizona, Tucson, AZ Minors: Marine Science, Spanish Literature

### PROFESSIONAL EXPERIENCE

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2019 - present	<b>Graduate Student Researcher</b> , Department of Education, UC Santa Barbara <i>Practice-driven Research to Advance Constructivism-informed Tools for Informal Contexts in Education (PRACTICE)</i> NSF #1906320 under the supervision of Dr. Danielle Harlow <ul style="list-style-type: none"><li>Conducted research on effective facilitation practices within science museum spaces to inform the development of several museum professional development programs.</li></ul>
2021 - 2023	<b>Graduate Student Assistant</b> , UCSB Quantum Foundry, UC Santa Barbara <i>Enabling Quantum Leap: Q-AMASE-i: Quantum Foundry at UCSB</i> NSF# DMR-1906325 under the supervision of Dr. Stephen Wilson <ul style="list-style-type: none"><li>Collaborated with quantum scientists to develop 5 curricular modules to teach the foundational knowledge of quantum physics to high school students.</li><li>Consulted as a qualitative researcher on an introductory quantum science undergraduate and graduate course.</li></ul>
2018 - 2023	<b>Graduate Student Researcher</b> , Department of Education, UC Santa Barbara <i>Engineering Explorations</i> NSF #EEC-1824586 under the supervision of Dr. Danielle Harlow <ul style="list-style-type: none"><li>Led a team of museum staff, undergraduate, and graduate students in conducting research on what makes quality engineering educational programming that supports the learning of diverse students and teachers.</li></ul>

- Developed 9 curricular modules connecting museum field trip programs to classroom learning.

2018 - 2023

**Program Coordinator**, California NanoSystems Institute, UC Santa Barbara  
*School for Scientific Thought*

- Developed and led a training for graduate student and postdoctoral fellow instructors on best pedagogical practices.
- Supervised and coordinated STEM courses led by graduate students in STEM.

2019 - 2022

**Program and Research Coordinator**, Department of Education, UC Santa Barbara  
*The Curie-osity Program* under the supervision of Dr. Diana Arya

- Managed a team of 30 undergraduate students to host a 20-week long weekly afterschool program for girls and non-binary youth to support interest and self-efficacy development in STEM.
- Developed and conducted several research projects investigating students identity, STEM identity, and youth views of professionals.
- Mentored undergraduate student Hailey Clemens in publishing a peer-reviewed journal article titled *How participation in STEM focused programming resonates with youth* in the UCSB's 2020 URCA Journal.

2019 - 2022

**Graduate Student Coordinator**, California NanoSystems Institute, UC Santa Barbara  
*Apprentice Researchers*

- Recruited and trained 12 graduate student and postdoctoral fellows on effective and high-quality mentoring.
- Coordinated a 6-week summer camp for 12 high school students working with a UCSB mentor to conduct an end-to-end research project.

2018 - 2019

**Graduate Student Researcher**, Department of Education, UC Santa Barbara  
*Enabling Practical-scale Quantum Computing (EPiQC)*

NSF #17030088 under the supervision of Dr. Danielle Harlow

- Developed hands-on activities and courses for K-22 students centered around quantum mechanics properties.
- Conducted research on learning trajectories of complex topics.

2014 - 2017

**Undergraduate Student Researcher**, Biosphere 2, University of Arizona  
*Marine Science Laboratory* under the supervision of Dr. Rafe Sagarin

- Developed and conducted a study investigating the degradation of various plastics under current and future ocean acidification conditions.

## TEACHING EXPERIENCE

### UNIVERSITY

2018 - present

**Independent Research Study (ED199)**, Undergraduate Research Supervisor  
Department of Education, UC Santa Barbara  
Time taught: 12 quarters

2022 – 2024      **Greenworks (ED136)**, Teaching Assistant  
 Department of Education, UC Santa Barbara  
 Time taught: 3 quarters

2019 - 2024      **Introduction to Leadership Development (ED173)**, Teaching Assistant  
 Department of Education, UC Santa Barbara  
 Time taught: 3 quarters

2021 - 2023      **The Research University and The Transfer Student Experience (ED118/120)**,  
 Teaching Assistant  
 Department of Education, UC Santa Barbara  
 Time taught: 4 quarters

2021 - 2022      **Teaching and Teachers (ED150)**, Teaching Assistant  
 Department of Education, UC Santa Barbara  
 Time taught: 3 quarters

2020              **Elementary Science Teaching Methods (ED320S)**, Teaching Assistant  
 Department of Education, UC Santa Barbara  
 Time taught: 2 quarters

2018              **Introduction to Oceanography (EARTH4)**, Teaching Assistant  
 Department of Earth Science, UC Santa Barbara  
 Time taught: 1 quarter

#### ELEMENTARY & SECONDARY (K-12) SETTINGS

2019 - 2023      **Private Tutor**, Santa Barbara, CA  
*Chelsea Miro Educators*

2019              **Quantum Computing Instructor**, Santa Barbara, CA  
*School for Scientific Thought*

2018 - 2019      **Exhibit Facilitator**, Santa Barbara, CA  
*Sea Center*

2018 – 2019      **Reading Tutor**, Santa Barbara, CA  
*McEnroe Reading and Language Arts Clinic*

2016 – 2018      **Education Outreach Specialist**, Tucson, AZ  
*Biosphere 2*

2016 – 2017      **Principal Investigator**, Tucson, AZ  
*Summer Science Academy*

2014              **Program Coordinator**, Tucson, AZ  
*Tucson Children's Museum*

## **PUBLICATIONS**

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(\*Museum Practitioners, ^Undergraduate Students)

### REFEREED PUBLICATIONS

- [7] Goeke, M., **Muller, A.**, Alvarez-Vargas, D., Van Steenis, E. (2023). How do we sit at the table?: Shifting Roles and Power in Research Practice Partnerships. *The Assembly*.
- [6] Skinner, R., Harlow, D., Gunther, D., Wesolowski, KJ., Marckwordt, J., **Muller, A.** (2022). Facilitating Learner-Centered Interactions Through Applied Improvisation. *Connected Science Learning*.
- [5] **Muller, A.**, \*Connolly, T., \*Skinner, R., Galisky, J., Christman, D. M., Hirst, C., Harlow, D. (2022). Wondering about Wobbling: An Earthquake design challenge. *Science and Children*.
- [4] Marckwordt, J., **Muller, A.**, Harlow, D., Franklin, D., Landsberg, R. (2021). Understanding Quantum Computing through Entanglement Dodgeball. *The Physics Teacher*.
- [3] **Muller, A.**, Christman, D. M., Rice, M., ^Soto-Apolinar, F., Hirsch, S., Arya, D. J. (2021). Undergraduate motivations for participating in afterschool programs: A case study of The STEMinst Project. *Afterschool Matters*.
- [2] **Muller, A.**, \*Connolly, T., \*Skinner, R., & Harlow, D. (2020). Extending Learning of Engineering Beyond the Field Trips. *Science and Children*.
- [1] Harlow, D., \*Skinner, R., \*Connolly, T., & **Muller, A.** (2020). Partnering to develop coordinated engineering education program across schools, museum field trips, and afterschool programs. *Connected Science Learning*.

### REFEREED CONFERENCE PROCEEDINGS

- [5] **Muller, A.**, Harlow, D., \*Skinner, R., Garcia, L. (2021). Student Communication of Engineering Design Solutions. *2021 American Society for Engineering Education Conference Proceedings*.
- [4] Harlow, D., \*Skinner, R., **Muller, A.** (2021). Engineering Explorations: Connecting K-12 classroom learning and field trip experiences through engineering design. *2021 American Society for Engineering Education Conference Proceedings*.
- [3] Franklin, D., Palmer, J., Jang, W., Lehman, E., Marckwordt, J., Landsberg, R., **Muller, A.**, Harlow, D. (2020). Exploring Quantum Reversibility with Young Learners. *International Computing Education Research Conference Proceedings*.
- [2] **Muller, A.**, \*Connolly, T., \*Skinner, R., Christman, D. M. M. & Harlow, D. (2020). Design Principles to Support Physics and Engineering Learning in Complementary Classrooms and Field Trip Activities. *Physics Education Research 2020 Conference Proceedings*.

- [1] **Muller, A.**, \*Connolly, T., \*Skinner, R., Harlow, D., (2019). Design-based research project to develop science and engineering program linking field trip experiences to classroom experiences. *Physics Education Research 2019 Conference Proceedings*.

#### BOOK CHAPTERS

- [4] **Muller, A.**, Christman, D. M., ^Paesler, N., ^Mitchell, J., ^Vu, K., McBeath Nation, J., Arya, D. J. (2023). Fostering belonging in a university research community of practice [Manuscript in print]. In E. Rueda & C. Swift (Eds.), *Creating Academic Belonging for Underrepresented Students: Models and Strategies for Faculty Success*.
- [3] **Muller, A.**, Christman, D. M. M., McBeath Nation, J., Mitchell, J., Vu, K., Paesler, N., & Arya, D. J. J., (2023). Fostering belonging in a university research community of practice. In E. Rueda & C. L. Swift (Eds.), *Academic Belonging in Higher Education* (1st ed., pp. 128 – 144). Routledge.  
<https://doi.org/10.4324/9781003443735-12>.
- [2] Arya, D. J., **Muller, A.**, Cano Barrios, J., Huyen, F., Rice, M., & Christman, D. M., (2022). Undergraduate service learning as a context for exploring the ‘Institutional Void’ of higher education. In E. A. Nemeth & A.N. Patterson (Eds.), *Pursuit of liberation: Critical service-learning as capacity building for historicized, humanizing, and embodied action*.
- [1] Harlow, D., Marckwordt, J., & **Muller, A.**, (2019). Looking ahead: A vision of informal science education in 2070. In B. Akpen (Ed.), *Science education: Visions of the future*.

#### WORKS IN PROGRESS

- [5] Arya, D. J., Cano, J., Christman, D. M., Meier, V., Mottus, R., **Muller, A.**, Ozgen, D., Pihen, E., Shackley, M. (2023). Ready for the re-set: A multimodal, multilingual tour of Community Based Literacies [Manuscript submitted for publication]. In M. Faulstich & M. Mahmood (Eds.), *UCLinks Edited Volume*.
- [4] Andersen, A., **Muller, A.**, Chen, J., Harlow, D., and Skinner, R. (2023). “Yes, and!” *How improvisation supports creative facilitation* [Manuscript in preparation]. Department of Education, University of California-Santa Barbara.
- [3] **Muller, A.**, Marckwordt, J., Skinner, R., Harlow, D. (2022). *Informal science educators’ perceptions of their role in visitor science identity development* [Manuscript in preparation]. Department of Education, University of California-Santa Barbara.
- [2] **Muller, A.**, Galisky, J., Christman, D. M. M., Skinner, R., Harlow, D. (2021). *From Ideas to Identities: Design principles for an assets-based approach to linking formal and informal engineering education* [Manuscript in preparation]. Department of Education, University of California-Santa Barbara.
- [1] **Muller, A.**, Lucas, K., Garcia, L. (2021). *First-year seminar’s facilitation of undergraduate student connection to college microsystems* [Manuscript in preparation]. Department of Education, University of California-Santa Barbara.

## PRESENTATIONS

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### INVITED TALKS

- [3] **Muller, A.** (2019, November 5). *Design-based research and it's applications* [Presentation]. Gevirtz Graduate School of Education Program, Santa Barbara, California, United States.
- [2] Harlow, D., **Muller, A.** (2019, November 8). *The design of museums and aquariums* [Presentation]. Stanford University, Stanford, California, United States.
- [1] **Muller, A.,** Harlow, D., (2019, August 7). *Engineering Explorations: How do we make field trips last?* [Presentation]. University of California at Santa Barbara Graduate Division, Santa Barbara, California, United States.

### REFEREED CONFERENCE PRESENTATIONS

- [45] **Muller, A.** (accepted). *We have IDEAs: How science museums envision and implement inclusion, diversity, equity, and accessibility efforts in the United States.* [Poster presentation]. NARST Annual International Conference, Denver, Colorado, United States.
- [44] McCurdy, R., Fantacone, D., **Muller, A.,** & Simon, M. (accepted). *Connecting science to every student's lived experiences: Promoting equitable science learning through diverse contexts and perspectives* [Conference session]. NARST Annual International Conference, Denver, Colorado, United States.
- [43] **Muller, A.,** \*Skinner, R., & Harlow, D. (accepted). *Museum facilitator understanding of exhibit potential for open-ended and interactive facilitation encounters* [Poster presentation]. NARST Annual International Conference, Denver, Colorado, United States.
- [42] **Muller, A.,** \*Skinner, R., & Harlow, D. (under review). Challenging traditional museum facilitation practices through practice-based facilitation professional development. In A. Muller & A. Hock (Chairs), *Educational partnerships as collective resistance: Perspectives from emerging scholars and collaborators* [Structured poster session]. American Education Research Association (AERA) Annual Conference, Philadelphia, Pennsylvania, United States.
- [41] Goeke, M., & **Muller, A.** (under review). *Past, present, and futures: Intentional dreaming with early-career researchers about museum education and research* [Structured poster session]. 2024 American Education Research Association (AERA) Annual Conference, Philadelphia, Pennsylvania, United States.
- [40] **Muller, A.,** & Hock, A. (under review). *Educational partnerships as collective resistance: Perspectives from emerging scholars and collaborators* [Structured poster session]. 2024 American Education Research Association (AERA) Annual Conference, Philadelphia, Pennsylvania, United States.
- [39] Hock, A., Berger, W., **Muller, A.,** Mahoney, C., Arce-Trigatti, P., & Wentworth, L. (accepted). *RESHAPE presents: Towards a field of collaborative education research* [Workshop presentation]. Connected Learning Science Conference, Virtual.

- [38] Andersen, A., **Muller, A.**, ^Chen, J., Harlow, D., & \*Skinner, R., (2023, May 19-20). *“Yes, and!” How improvisation supports creative facilitation* [Poster presentation]. Language, Interaction, and Social Organization Conference, Santa Barbara, California, United States.
- [37] **Muller, A.**, ^Churchley, N., ^Yun, T., & Garcia, L. (2023, April 18-21). *Who can be a scientist?: Youth perceptions of STEM pathways* [Paper presentation]. NARST Annual International Conference, Chicago, Illinois, United States.
- [36] Andersen, A., **Muller, A.**, ^Chen, J., Harlow, D., & \*Skinner, R. (2023, April 18-21). *Practice-based facilitation and improvisation support facilitator confidence* [Poster presentation]. NARST Annual International Conference, Chicago, Illinois, United States.
- [35] **Muller, A.**, Lucas, K., & Garcia, L. (2023, April 13-16). *Views of a biology-focused first-year seminar across stakeholder perspectives* [Round table paper presentation]. American Education Research Association (AERA) Annual Conference, Chicago, Illinois, United States.
- [34] Christman, D. M., & **Muller, A.** (2023, April 13-16). *A system of misfits: How COVID-19 disrupted undergraduate’s perceived belonging in the university bioecological system* [Round table paper presentation]. American Education Research Association (AERA) Annual Conference, Chicago, Illinois, United States.
- [33] Arya, D. J., Cano, J., Christman, D. M., Meier, V., Mottus, R., **Muller, A.**, Ozgen, D., Gonzalez, E., & Shackley, M. (2023, April 13-16). *Agency, co-learning, and belonging: A three-pronged approach for transforming k-12 learning*. [Poster presentation]. American Education Research Association (AERA) Annual Conference, Chicago, Illinois, United States.
- [32] Andrade Martínez, F., Andersen, A., Riordan Jr, E., Hill, A., **Muller, A.**, & Lambert, R. (2022, October 6-7). *Reimagining hybrid learning: A case study of shifting pedagogy to center humanism in course design* [Paper presentation]. Engaging Teaching Symposium III, Santa Barbara, California, United States.
- [31] **Muller, A.** & Landsberg, R. (2022, September 12-15). *Quantum computers in the museum? Introduction, activities, and why your visitors will care* [Lightning Presentation]. Association of Science and Technology Centers (ASTC) Annual Conference, Pittsburgh, Pennsylvania, United States.
- [30] **Muller, A.**, & Christman, D. M. (2022, April 22-25). *Flexible research practices in afterschool programs in the face of a global pandemic* [Paper presentation]. American Educational Research Association (AERA) Annual Conference, San Diego, California, United States.
- [29] Mitchell, J., **Muller, A.**, Christman, D. M., & Arya, D. J. (2022, April 22-25). *“You’re muted”: How afterschool programs worked to support youth voices in the face of COVID-19* [Paper presentation]. American Educational Research Association (AERA) Annual Conference, San Diego, California, United States.
- [28] **Muller, A.**, ^Barron, M., Christman, D. M., \*Skinner, R., & Harlow, D. (2022, March 27-30). *Student depictions of the engineering design process* [Paper presentation]. NARST Annual International Conference, Virtual.

- [27] Christman, D. M., ^Ortega, K., ^Paesler, N., **Muller, A.**, ^Chen, C., & ^Vu, K. (2022, March 27-30). *Youth science identity and perspectives of scientists after participation in a stem-based afterschool program* [Paper presentation]. NARST Annual International Conference, Virtual.
- [26] Christman, D. M., **Muller, A.** (2021, July 31-August 4). *Floating and Falling: 3<sup>rd</sup> grader's depictions of forces in wind columns* [Poster presentation]. AAPT Annual Winter Meeting, Virtual.
- [25] ^Randall, A., Rioux, M., **Muller, A.**, Bianchini, J., & Viskupic, K. (2021, October 10-13). *Experiences and perceived training needs of geoscience graduate teaching assistants* [Paper presentation]. Geological Society of America Conference, Portland, Oregon, United States.
- [24] Harlow, D., \*Skinner, R., **Muller, A.**, \*Wesolowski, K. J., & ^Randall, A. (2021, May 11-18). *Engineering explorations*. STEM For All Video Showcase: COVID, Equity, and Social Justice, Virtual. <https://stemforall2021.videohall.com/presentations/2014>
- [23] \*Skinner, R., Harlow, D., Hough, S., Marckwordt, J., **Muller, A.**, & \*Wesolowski, K. (2021, May 11-18). *Informal STEM facilitator training program*. STEM For All Video Showcase: COVID, Equity, and Social Justice, Virtual. <https://stemforall2021.videohall.com/presentations/2083>
- [22] Randall, A., **Muller, A.**, ^Barron, M., & Harlow, D. (2021, August 4-5). *Relations between teacher, students, and content in physics-based engineering activities* [Paper presentation]. Physics Education Research Conference (PERC), Virtual.
- [21] Harlow, D., \*Skinner, R., & **Muller, A.** (2021, July 26-29). *Engineering Explorations: Connecting K-12 classroom learning and field trip experiences through engineering design*. Presentation at American Society for Engineering Education (ASEE) Annual Conference, Virtual.
- [20] **Muller, A.**, Harlow, D., \*Skinner, R., & Garcia, L. (2021, July 26-29). *Student communication of engineering design solutions* [Paper presentation]. American Society for Engineering Education (ASEE) Annual Conference, Virtual.
- [19] **Muller, A.**, van Loon, K., Hay, M., Marckwordt, J., \*Skinner, R., & Harlow, D. (2021, April 7-11). *Informal science educators' perceptions of effective facilitation practices* [Paper presentation]. NARST Annual International Conference, Virtual.
- [18] **Muller, A.**, Christman, D. M. M., Ortega, K., Arya, D. J., & Hirsch, S. (2021, April 7-11). *The weight of motivational factors on undergraduate students' decision to join stem youth-based programming* [Paper presentation]. NARST Annual International Conference, Virtual.
- [17] **Muller, A.**, ^Randall, A., ^van Loon, K., ^Schwab, D., \*Connolly, T., \*Skinner, R., & Harlow, D. (2021, April 8-12). *Teacher perceptions of engineering and students' potential in engineering activities* [Paper presentation]. American Educational Research Association (AERA) Annual Conference, Virtual.
- [16] **Muller, A.**, Harlow, D., & \*Skinner, R. (2021, April 8-12). *Practices and associated strategies to inform facilitation of visitors-centered learning in informal science education* [Paper Presentation]. American Educational Research Association (AERA) Annual Conference, Virtual.



- [15] Marckwordt, J., **Muller, A.**, & Christman, D. M. (2021, April 8-12). *Informal educators' approaches to creating rich learning experiences within a physical science museum* [Paper presentation]. American Educational Research Association (AERA) Annual Conference, Virtual.
- [14] **Muller, A.**, Christman, D. M., Galisky, J., \*Skinner, R., Hirst, C., & Garcia, L. (2021, February 26-27). *Design principles for developing accessible engineering curricula linking formal and informal spaces* [Paper presentation]. Curriculum Camp, Virtual.
- [13] **Muller, A.**, & Harlow, D. (2020, July 6). *Environeering: Preparing teachers to prepare children for environmental innovation* [Paper presentation]. The California Higher Education Sustainability Conference, Virtual.
- [12] Christman, D. M., **Muller, A.**, Rice, M., ^Soto-Apolinar, F., Hirsch, S., & Arya, D. J. (2020, July 22). *Supporting undergraduate facilitators to strengthen physics outreach programs* [Paper presentation]. The Physics Education Research Conference (PERC), Virtual.
- [11] **Muller, A.**, \*Skinner, R., \*Connolly, T., Christman, D. M., & Harlow, D. (2020, July 22). *Design principles to support physics and engineering learning in complementary classrooms and field trip activities* [Paper presentation]. The Physics Education Research Conference (PERC), Virtual.
- [10] Franklin, D., Palmer, J., Landsberg, R., Singhal, K., Marckwordt, J., **Muller, A.**, Salac, J., & Harlow, D. (2020, August 1-5). *Draft learning trajectories for K-12 quantum computing* [Paper presentation] ACM Special Interest Group on Computer Science Education Conference, Virtual.
- [9] Harlow, D., \*Skinner, R., & **Muller, A.**, (accepted 2020). *Designing Complementary Activities for Learning in Classrooms and Field Trips to an Interactive Science Center* [Paper presentation]. NARST Annual International Conference. [Portland, OR]. (\*\*Presentation was accepted but not presented because NARST 2020 was cancelled due to novel coronavirus COVID-19).
- [8] **Muller, A.**, ^Corona, V., \*Skinner, R., \*Connolly, T., & Harlow, D., (accepted 2020) *Teacher Learning through Participation in an Outreach Program to Link Field Trips with Classroom Curriculum* [Paper presentation]. NARST Annual International Conference. (\*\*Presentation was accepted but not presented because NARST 2020 was cancelled due to novel coronavirus COVID-19).
- [7] Hansen, A.K., **Muller, A.**, ^Camara, Q., ^Kaur, P., & ^Martinez, A. (accepted 2020). *Connecting STEM learning across boundaries: Secondary teachers' experiences facilitating field trips in Central California* [Paper presentation]. American Educational Research Association (AERA) Annual Conference. (\*\*Presentation was accepted but not presented because AERA 2020 was cancelled due to novel coronavirus COVID-19).
- [6] **Muller, A.**, Harlow, D., & \*Skinner, R., (accepted 2020). *Delphi study to identify key facilitator practices and strategies across informal science education spaces* [Paper presentation]. American Educational Research Association (AERA) Annual Conference. (\*\*Presentation was accepted but not presented because AERA 2020 was cancelled due to novel coronavirus COVID-19).
- [5] **Muller, A.**, & \*Spracher, K., (2020, March 4-6). *Expanding the Vision: University Research Practice Partnerships* [Paper presentation]. California Association of Museums Annual Conference, Los Angeles, California, United States.

- [4] \*Francis, D., Landsberg, R., \*Culp, K., \*Maktoufi, R., **Muller, A.**, Marckwordt, J., Harlow, D., & \*SubbaRao, M., (2019, September 21-24). *Conquering Complexity with Active Engagement*. Association of Science and Technology Centers (ASTC) Annual Conference, Toronto, Canada.
- [3] Harlow, D., \*Skinner, R., Hansen, A., **Muller, A.**, Macias, M., Nation, J., Marckwordt, J., Pulgar, J., Spina, A., Arevalo, A., & Lucas, K. (2019, July 24-25). *Museum-based physics education research through research-practice partnerships (RPPs)*. Parallel session at 2019 Annual Meeting of the Physics Education Conference (PERC). Provo, UT.
- [2] **Muller, A.**, Skinner, R., & Harlow, D., (2019, July 24-25) Design-based research project to develop a science and engineering education program linking field trip experiences to classroom experiences. In D. B. Harlow (chair), *Museum-based physics education research through research-practice partnerships (RPPs)* [Symposium poster session]. Physics Education Research Conference (PERC) Annual Conference, Provo, Utah, United States.
- [1] Marckwordt, J., **Muller, A.**, Harlow, D., Landsberg, R., Franklin, D., Palmer, J., Singhal, K., (2019, July 24-25). Outreach to the public: interactive activities to lay the foundation for quantum computing. In D. B. Harlow (chair), *Museum-based physics education research through research-practice partnerships (RPPs)* [Symposium poster session]. Physics Education Research Conference (PERC) Annual Conference, Provo, Utah, United States.

#### UNREFEREED CONFERENCE PRESENTATIONS

- [30] Andersen, A., Chen, J., **Muller, A.**, Harlow, D., & Skinner, R., (2023, May 26-27). “Whoosh, Bang, Pow!” *What happens when you apply improvisation to education?* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [29] Andersen, A., **Muller, A.**, Chen, J., Harlow, D., & Skinner, R. (2023, March 20). “Yes, and!” *Improvisation as an inclusive facilitation strategy* [Poster presentation]. Inclusive Teaching Symposium, Santa Barbara, California, United States.
- [28] Mendoza, M., Harlow, D., Azzam, D., Yatchisin, G., Andersen, A., Bianchini, J., Chagolla, D., Kia-Keating, M., Milem, J., Ozuna, C., Pihen, E., Shackley, M., Su, J., Villasenor, B., & **Muller, A.** (2022, May 20-21). *The sustainable development and climate justice* [Poster presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [27] **Muller, A.**, Christman, D. M., ^Barron, S., & Harlow, D. (2022, May 20-21). *The engineering design process in the eyes of students* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [26] ^Paesler, N., **Muller, A.**, Christman, D. M. M., & Arya, D. J. (2022, May 20-21). *Covid-19 and college identities: How covid-19 has impacted college students' self-identity*. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [25] ^Mitchell, J., **Muller, A.**, & Christman, D. M. (2022, May 20-21). *Let’s CHAT about COVID-19: Organizational and functional changes in afterschool programs due to COVID-19 from a CHAT perspective* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.

- [24] ^Mitchell, J., Christman, D. M., **Muller, A.**, & Arya, D. J. (2021, August 3). *Fighting Zoom Fatigue: How literacy-based programs engaged youth and undergraduate facilitators during the COVID-19 pandemic* [Poster presentation]. UCSB's Undergraduate Research and Creative Activities (URCA) Digital Colloquium, Virtual.
- [23] **Muller, A.**, ^Randall, A., Skinner, R., & Harlow, D. (2021, July 31-August 3). *Teacher views of physics-based engineering activities* [Paper presentation]. American Association of Physics Teachers (AAPT) Annual Conference, Virtual.
- [22] ^Mitchell, J., **Muller, A.**, Christman, D. M., & Arya, D. J. (2021, May 14-15). *Education in the COVID-19 era: A study of the organizational changes made within informal educational programs due to COVID* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Virtual.
- [21] ^Chen, C., **Muller, A.**, Christman, D. M., & Arya, D. J. (2021, May 14-15). *Undergraduate considerations when selecting a major to study at a four-year institution* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Virtual.
- [20] ^Ortega, K., Chen, C., **Muller, A.**, Christman, D. M., & Arya, D. J. (2021, May 14-15). *Youth perceptions of authors and scientists in an afterschool program* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Virtual.
- [19] ^Randall, A., Rioux, M., **Muller, A.**, & Bianchini, J. (2021, May 14-15). *Assessing geoscience graduate teaching assistants' experiences and perceived training needs for classroom and field settings* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Virtual.
- [18] Christman, D. M., **Muller, A.** (2021, May 14-15). *Somewhat an engineer?: A Rasch Model analysis of likert-scale items to understand student ideas about scientists and engineers* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Virtual.
- [17] Lucas, K., Garcia, L., & **Muller, A.** (2021, May 14-15). *Filling the void: The role of seminars in supporting first-year students* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Virtual.
- [16] **Muller, A.**, Christman, D. M., ^Chen, C., & Arya, D. J. (2021, May 14-15). *Into the Unknown: An investigation into the lived experience of undergraduate students* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Virtual.
- [15] **Muller, A.**, \*Skinner, R., & Harlow, D. (2021, May 14-15). *Crafts to Communicate: How first-grade students leverage physical representations of design solutions to communicate ideas in engineering activities* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Virtual.
- [14] ^Ravi, P., ^Paesler, N., **Muller, A.**, Rice, M., Arya, D. J., & Hirsch, S. (2020, April 3). *Changes in desired career and college major in 4-6<sup>th</sup> grade youth as a result of participation in stem programming* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [13] ^Vu, K., **Muller, A.**, Rice, M., Arya, D. J., & Hirsch, S. (2020, April 3). *The differences in benefits from participation in a stem outreach program for undergraduate stem and non-stem facilitators* [Paper

presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.

- [12] ^Chen, C., ^Roche, J., **Muller, A.**, Rice, M., Arya, D. J., & Hirsch, S. (2020, April 3). *Stem programs' impact on the school subject interests of girls* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [11] ^Clemens, H., **Muller, A.**, Christman, D. M. M., Rice, M., Arya, D. J., & Hirsch, S. (2020, April 3). *How participation in stem focused programming resonates with youth* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [10] **Muller, A.**, \*Skinner, R., & Harlow, D. (2020, April 3). *Designing complementary activities for learning in classrooms and field trips to an interactive science center* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [9] **Muller, A.**, \*Skinner, R., & Harlow, D. (2020, April 3). Delphi study to identify key facilitator practices and strategies across informal science education spaces [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [8] **Muller, A.**, ^Schwab, D., ^van Loon, K., \*Connolly, T., \*Skinner, R., & Harlow, D. (2020, April 3) *identifying key components of engineering design curriculum to inform future curriculum development* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [7] **Muller, A.**, Rice, M., Christman, D. M., ^Soto- Apolinar, F., Hirsch, S., Arya, D. J., & Hirsch, S. (2020, April 3) *undergraduate motivations to participate as facilitators in youth-based programming* [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [6] Marckwordt, J., **Muller, A.**, Christman, D. M., \*Skinner, R., & Harlow, D. (2020, April 3). *Facilitator understanding of effective open-ended facilitation practices in a science museum*. [Paper presentation]. Gevirtz Graduate School of Education Research Symposium, Santa Barbara, California, United States.
- [5] **Muller, A.**, Marckwordt, J., \*Connolly, T., \*Skinner, R., & Harlow, D. (2019, July 22-24). *Engineering Explorations: Integrating physics and engineering activities into classrooms* [Paper presentation]. American Association of Physics Teachers (AAPT) Annual Conference, Provo, Utah, United States.
- [4] Markwordt, J., **Muller, A.**, Harlow, D., Landsberg, R., & Franklin, D. (2019, July 22-24). Make quantum computing more accessible through interactive activities [Paper presentation]. American Association of Physics Teachers (AAPT) Annual Conference, Provo, Utah, United States.
- [3] **Muller, A.**, Marckwordt, J., Harlow, D., Landsberg, R., Franklin, D., Palmer, J., & Singhal, K. (2019, May 22-23). Outreach to the public: Interactive activities to lay the foundation for quantum computing [Poster presentation]. *EPiQC NSF Retreat*, Chicago, Illinois, United States.

[2] **Muller, A.**, Cole, J., & \*Lane, F. (2017, May 12). *Plastic degradation in a marine environment* [Poster presentation]. University of Arizona Spirit of Inquiry Poster Conference, Tucson, Arizona, United States.

[1] **Muller, A.** (2014, April 10). *Teaching science through popular literature* [Poster presentation]. University of Arizona's Honors College First Year Poster Conference, Tucson, Arizona, United States.

#### WORKSHOPS

[6] **Muller, A.** (2023, November 7). *Constructive Feedback* [Workshop]. NARST Graduate Student Committee Academic Writing Series, Virtual.

[5] **Muller, A.** (2023, October 24). *Intro to Academic Writing* [Workshop]. NARST Graduate Student Committee Academic Writing Series, Virtual.

[4] **Muller, A.**, Balajiee, A., Hock, A., Arce-Tigatti, P., Wentworth, L. (2023, February 6). *RESHAPE reading group- Building the field for collaborative education research: A framework by the Collaborative Education Research Collective* [Workshop]. RESHAPE Network Meeting, Virtual.

[3] Sharkey, J., Kirskey, J., **Muller, A.**, (2020, March 3). *Funding 102: University funding opportunities* [Workshop]. Girvetz Graduate School of Education, Santa Barbara, California, United States.

[2] Sharkey, J., Kirskey, J., **Muller, A.**, (2019, December 9). *Funding 101: Departmental funding opportunities* [Workshop]. Girvetz Graduate School of Education, Santa Barbara, California, United States.

[1] **Muller, A.**, Lambert, S., (2019, November 9). *The chemistry of the oceans* [Workshop]. I Heart STEM Festival at the University of California Santa Barbara, Santa Barbara, California, United States.

#### **FELLOWSHIPS AND AWARDS**

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Nov 2023	<b>Gale and Richard Morrison Fellowship- \$4500</b> Gevirtz Graduate School of Education <i>University of California- Santa Barbara</i>
Nov 2023	<b>Philip and Helen Green Research Fellowship- \$3340</b> Gevirtz Graduate School of Education <i>University of California- Santa Barbara</i>
Sept 2023	<b>Dissertation Fellowship- \$1500</b> Gevirtz Graduate School of Education <i>University of California- Santa Barbara</i>
Mar 2023	<b>Education Grad Slam 2<sup>nd</sup> Place</b> Graduate Division <i>University of California- Santa Barbara</i>
Dec 2022	<b>Basu Fellowship- \$200</b> <i>NARST Equity &amp; Ethics Committee</i>

Nov 2022	<b>Morrison Fellowship Award- \$1500</b> Gevirtz Graduate School of Education <i>University of California- Santa Barbara</i>
Oct 2021	<b>ED Excellency- Community Service- \$700</b> Gevirtz Graduate School of Education <i>University of California- Santa Barbara</i>
April 2020	<b>Graduate Research Fellowship Program- Honorable Mention</b> <i>National Science Foundation</i>
Aug 2018- Jun 2022	<b>Regents Fellowship- \$58,000 + Tuition and Fees</b> Gevirtz Graduate School of Education <i>University of California- Santa Barbara</i>

## SERVICE

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### TO THE PROFESSION

2023 – Present	<b>Volunteer</b> , NARST Ethics and Equity Committee
2022 – Present	<b>Volunteer</b> , NARST Graduate Student Networking and Communications Committee
2022 – Present	<b>Reviewer</b> , The Physics Teacher Journal
2021 – Present	<b>Committee Member</b> , Rising Educational Scholars Helping Advance Partners & Equity (RESHAPE) Visioning Committee
2020 – Present	<b>Reviewer</b> , American Society of Engineering Education (ASEE)
2020 – Present	<b>Reviewer</b> , Journal of Higher Education Outreach and Engagement (JHEOE)
2019 – Present	<b>Reviewer</b> , National Association of Research in Science Teaching (NARST)
2019 – Present	<b>Reviewer</b> , American Educational Research Association (AERA)
2019 – 2021	<b>Reviewer</b> , Physics Education Research Conference (PERC)

### UNIVERSITY

2022 – Present	<b>Graduate Student Member</b> , Human Subjects Committee, UC Santa Barbara
2021 – Present	<b>Graduate Student Representative</b> , GGSE Climate & Communications Task Force, UC Santa Barbara
2021 – 2022	<b>Vice President of Social and Community Building</b> , Graduate Student Association Education, UC Santa Barbara
2020 – 2021	<b>Graduate Student Mentorship Consultant</b> , Inter-cohort Mentorship Program, UC Santa Barbara
2019 – 2020	<b>Graduate Student Representative</b> , Funding Workshop Committee, UC Santa Barbara
2019	<b>Graduate Student Representative</b> , Strategic Planning Committee, UC Santa Barbara

### COMMUNITY

2019 – Present	<b>Swingin' the West Coast</b> , Founder and Volunteer Instructor
2018 – 2021	<b>Cotillion Ballroom Dance</b> , Volunteer Instructor; President 2019-2020; Vice President 2020-2021
2018 – 2020	<b>Strictly Social</b> , Volunteer Instructor
2017 – 2018	<b>Tucson Blues Club</b> , Volunteer Instructor
2017 – 2018	<b>Tucson Swing Club</b> , Volunteer Instructor

2014 – 2017      **Arizona Swing Cats**, Founder, President and Volunteer Instructor

PROFESSIONAL ORGANIZATIONS

2020 – Present      **Rising Educational Scholars Helping Advance Partners & Equity (RESHAPE)**

2019 – Present      **Physics Education Research Conference (PERC)**

2019 – Present      **American Association of Physics Teachers (AAPT)**

2018 – Present      **National Association on Research and Science Teaching (NARST)**

2018 – Present      **American Educational Research Association (AERA)**

2018 – 2022      **California Association of Museums (CAM)**

2018 – 2019      **National Marine Educators Association (NMEA)**