

# David DW Liu

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## Education

- 2019      *University of California, Irvine*  
Ph.D. in Education  
*Dissertation:* Understanding Mexican-American Girls STEM Identity Resources and Development Across Different Types of Space and Across Time  
(Visit [SuperScienceSquad.com](http://SuperScienceSquad.com))
- 2018      *University of California, Irvine*  
M.A. in Education
- 2013      *University of California, Irvine*  
B.A. in Anthropology  
B.A. in Public Health Policy  
Minor: Educational Studies

## RESEARCH

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### Research Interests

• Science Education • Afterschool • Diversity • Research-Practice Partnership • Design-Based Research

### Publications

#### Journal Articles

(Submitted)

Liu, D., & Kang, H. (Revise and Resubit). Leveraged and recognized identity resources: Supporting the development of a STEM identity.

Liu, D. (Submitted). Trust, equity, collaboration, and learning in research practice partnerships.

(In Progress)

Lew, L.C. & Liu, D. (in progress). Re-conceptualizing digital literacy: Addressing challenges with equity and access to technology in the midst of large scale implementation

Liu, D. (in progress). Rules Across Different Settings and Impacts on Technology Competencies.

Liu, D. (in progress). Youth scientist communicating a scientific story: Implications in designing citizen science programs.

Liu, D., Zinger, D., & Gilbertson, N. (in progress). Teachers engaging with and building digital museums: Implications for museum educators.

Liu, D., Lee, K., Lewis, R., & Vandell, D. (in progress). Addressing the multiple settings in developing students' self-concept in STEM: Home, schools, and after school all matter

Liu, D., Kang, C.K, & Vandell, D. (in progress). Measures for rating quality of afterschool programs.

Liu, D., Vandell, D., Lao, J. (in progress) Preparing undergraduate students to teach afterschool programs.

Liu, D., Lee, K., & Vandell, D. (in progress). Summer camp participation: Closing the black and white reading gap in 5<sup>th</sup> grade.

#### Book Chapter

Vu, V. & Liu, D. (In Press). Promoting language as a human right in education through STEAM: Science, Technology, Engineering, Arts, and Mathematics.

#### Proceedings

Liu, D. (2017). (Re)conceptualizing a culture of STEM. Conference proceedings in American Anthropological Association (AAA) in Washington, D.C.

Liu, D., & Kang, H. (2017) Resource Flow when 5<sup>th</sup> grade Latinas Participate in Science. Conference proceedings in American Education Research Association Conference (AERA) in San Antonio, TX.

Liu, D., & Long, J.J. (2016). Participating in after school citizen science and developing authentic scientific practices. Conference proceedings in American Educational Research Association (AERA) conference in Washington, D.C.

#### **Conference Presentations and Posters**

- 2019      Liu, D. (2019). Gender Differences of Latinx 5th grade students and their in Recognition of STEM accomplishments. Paper presentation at National Association for Research in Science Teaching (NARST) in Baltimore, MA.
- Liu, D. (Submitted). Caught in the STEM Borderlands: Negotiating Hybrid Computer Scientist and Math Identities. Paper presentation at the American Education Research Association (AERA) in Vancouver, Canada.
- 2018      Liu, D. (2018). Expressive Robotics: Movement and Robots. Oral presentation at California STEAM Symposium in Long Beach, CA.
- Liu, D. (2018). Creating Video Documentaries of Community Ecosystems. Oral presentation at California STEAM Symposium in Long Beach, CA.
- Liu, D. (2018). What problem is in our ecosystem? Participatory Action Research through Using and Producing Scientific Practice to Improve the Community. Chair and Paper at American Anthropological Association (AAA) in San Jose, CA.
- Liu, D. (2018). A Bright Future for Latinas in STEM. Oral Presentation for Latinas/os in the US and Beyond: Diverse Perspectives on Latina/o Communities in Irvine, CA.
- Lew, L. & Liu, D. (2018). Re-conceptualizing digital literacy: Addressing challenges with equity and access to technology in the midst of large scale implementation. Paper presented at Journal of Language and Literacy Education conference in Atlanta, Georgia.
- 2017      Liu, D. (2017). Community based scholarship: Activism on and off the field. Session co-organizer and presenter at Digital Media and Learning Conference (DML) in Irvine, CA
- Liu, D., & Kang, H. (2017). (Re)conceptualizing a culture of STEM. Paper at American Anthropological Association (AAA) in Washington, D.C.
- Liu, D., & Kang, H. (2017). Designing afterschool computer science clubs for 5<sup>th</sup> grade Latinas. Paper presented at National Science Foundation CA INCLUDES in Anaheim, CA.
- Santagata, R., Kang, H., Liu, D., Stillwell, C., Kimball, S., Long, J.J., & Ludovise, S. (2017). Project CRYSTAL: Citizen science goes to school. Poster presentation for Citizen Science Symposium at Aquarium of the Pacific in Long Beach, CA.

- Liu, D., & Kang, H. (2017) Resource Flow when 5<sup>th</sup> grade Latinas Participate in Science. Paper presented at American Education Research Association Conference (AERA) in San Antonio, TX.
- 2016 Liu, D., & Kang, H. (2016) Identity Work of 5<sup>th</sup> grade Latina in Science: How Resources and Figured Worlds are Hybridized. Paper at Society for the Advancement of Chicanos/Hispanics and Native Americans (SACNAS) in Long Beach, CA.  
Liu, D., & Long, J.J. (2016). Participating in after school citizen science and developing authentic scientific practices. Paper at American Educational Research Association (AERA) conference in Washington, D.C.  
 Lao, J., & Liu, D. (2016). Preparing undergraduates for quality K-12 support in OST. Oral presentation for University-Community Links Conference 2016 in Berkeley, CA.
- 2013 Liu, D. (2013), Mexican orphanages and nonprofit organizations. Poster for Twentieth Annual Undergraduate Research Opportunities Program, Irvine, CA.  
Liu, D. (2013), Mexican orphanages and nonprofit organizations. Oral presentation for Twentieth Annual Undergraduate Research Opportunities Program in Irvine, CA.

## Research Experience

- 2017 - Present *Lead Researcher for Designing After School Science Programs to Connect Schools, Homes, and Communities*  
*Faculty Sponsor: Dr. Hosun Kang, UC Irvine*  
 • Implementation of an afterschool STEM program and ethnographic case study of how Latinas draw on their cultural practices and resources from home and school in an after-school science program. This project received support the Newkirk Center for Science & Society.
- 2017- Present *Lead Researcher for Graduate Women Engineers and Diversity Organizations*  
*Faculty Sponsor: Dr. James Earthman, UC Irvine*  
 • Oral history project and phenomenological study of how graduate women engineers feel supported in their graduate experiences. This project is in collaboration with graduate women engineers from the Henry Samueli School of Engineering at UC Irvine.
- 2016- Present *Researcher for Expressive Robotics: Teaching Robotics through Dance*  
*PI: Dr. Viet Vu, UC Irvine*  
 • A design experiment studying how the cultural practices and resources of art (dancing) can draw on the cultural practices and resources of science (robotics) to create a hybrid space of STEAM. This project is in collaboration with the Claire Trevor School of the Arts at UC Irvine.
- 2015 *Researcher for Cultivating and Researching Youth Systems Thinking through Authentic Learning (Project CRYSTAL)*  
*PI: Dr. Rossella Santagata, UC Irvine*  
 • Ethnographic case study of how two 5<sup>th</sup> grade Latinas draw on their cultural practices and resources from home and school in an after school computer science club. This project is in collaboration with the Francisco J. Ayala School of Biological Sciences at UC Irvine. This project received support from the Crystal Cove Conservancy, the Nicholas Endowment and UC Irvine.
- 2015-17 *Researcher for University Community Links Project/ Certificate in Afterschool & Summer Education (CASE)*  
*PI: Dr. Deborah Vandell, UC Irvine*  
 • Longitudinal quantitative study understanding how undergraduates develop practices to prepare for out of school time leadership.

- 2015      *Researcher for Out of School Citizen Science Project*  
*PI: Dr. Jennifer Long, UC Irvine*
- Design based research project on how students use scientific practices based on NGSS in an outdoor citizen science project. This project is in collaboration with the Francisco J. Ayala School of Biological Sciences at UC Irvine. This project received support the Newkirk Center for Science & Society.
- 2014- 15      *Researcher for Power of Discovery Study*  
*PI: Dr. Deborah Vandell, UC Irvine*
- Longitudinal quantitative study on how quality of afterschool programs predicts academic outcomes of youth.
- 2014 - 18      *Research and Program Evaluation Associate (practicum)*  
*Site: Discovery Cube OC in Santa Ana, CA*
- Descriptive and RCT studies on how youth learn science in afterschool programs, assemblies, and at the science museum.
- 2013      *Learning about Learning in Museums*  
*PI: David Sobel, Brown University*
- Phenomenological study investigating children's developing social cognition, particularly about how and why knowledge mediates the development of diagnostic reasoning. This project received support from NSF Award #1661068.

## TEACHING

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### Invited Speaking Events

- 2018      •Imagining a Future of Science, Technology, Engineering and Math (STEM) for Latinas in the Community. Newkirk Center for Science and Society (June 4, 2018).
- University of California Santa Barbara's Graduate Student Speaking Series in Education (April 17-18, 2018)
- University of Southern California Pullias Center's Convening on College Access in a Digital Era: A Practitioner Convening (March 9, 2018)

### Teaching Assistant at UC Irvine (evaluations available upon request)

- 2019      • 21<sup>st</sup> Century Literacies (Online -Undergraduate Level)
- 2018      • Children, Schools, and Cinemas (Undergraduate Level)  
 • Origins, Purposes, and Central Issues in K-12 Education (Undergraduate Level)  
 • 21<sup>st</sup> Century Literacies (Undergraduate Level with 4 discussion sections)  
 • Development and Learning in Education (Online - Undergraduate Level)
- 2017      • Children, Schools, and Cinemas (Undergraduate Level)
- 2017      • Outcomes of Schooling and Student Assessment (Graduate Level)  
 • Children, Schools, and Cinemas (Undergraduate Level)
- 2016      • Advance Concepts in Learning and Cognition (Graduate Level)

- 2015
  - Advance Concepts in Learning and Cognition A (Graduate Level)
  - Advance Concepts in Learning and Cognition B (Graduate Level)
  - Theories of Development and Learning (Undergraduate with 2 discussion sections)
  - Educational Research Design (Undergraduate Level with 3 discussion sections)
- 2014
  - 21<sup>st</sup> Century Literacy (Undergraduate Level)

### Teaching Experience in Pre K-12 Settings

- 2017- Present
  - 5<sup>th</sup> grade Science Teaching Aide and Afterschool Teacher at El Sol in Santa Ana, CA
- 2016
  - 5<sup>th</sup> grade Science Teaching Aide and Afterschool Teacher at El Sol in Santa Ana, CA
  - 5<sup>th</sup> grade Science Teaching Aide at Advanced Learning Academy in Santa Ana, CA
  - 4<sup>th</sup> & 5<sup>th</sup> grade Science Teaching Aide at Roosevelt Elementary in Santa Ana, CA
- 2014
  - Zoo Education Docent at Roger Williams Park Zoo in Providence, RI
- 2013
  - STEM Educator at Providence Children's Museum in Providence, RI
- 2012-13
  - Curriculum Coordinator at Laguna Hills High School in Laguna Hills, CA
- 2010-12
  - Social Studies Teaching Intern at Laguna Hills High in Laguna Hills, CA
- 2009-10
  - Pre-K Jumpstart Corp Member at Whittier Preschool in Costa Mesa, CA

### Guest Lectures

- 2018
  - Lecture: Designing Opportunities to Learn for Students
    - 21<sup>st</sup> Century Literacies (Undergraduate course)
  - Lecture: Challenging Deficit Perspectives in Science
    - Multicultural Education in K-12 (Undergraduate course)
    - Children, Schools, and Cinemas (Undergraduate course)
  - Lecture: Technology Use in Children's Learning
    - 21<sup>st</sup> Century Literacies (Undergraduate course)
- 2017
  - Lecture: Social Relevant Curriculum and Digital Media Practices
    - Multicultural Education in K-12 (Undergraduate course)
    - 21<sup>st</sup> Century Literacies (Undergraduate course)
  - Lecture: Educational Opportunities and Charter Schools
    - Children, Schools, and Cinemas (Undergraduate course)
  - Lecture: Culturally Relevant Pedagogy
    - Children, Schools, and Cinemas (Undergraduate course)
- 2016
  - Lecture: Supporting the Authoring of a Science Identity
    - Advanced Concepts in Learning and Cognition (Graduate Course)
  - Lecture: Sociocultural Theory
    - Theories of Development and Learning Applied to Education (Undergraduate course)
- 2015
  - Lecture: Sociocultural Theory
    - Theories of Development and Learning Applied to Education (Undergraduate course)

Lecture: The Intersection of Culture and Science

- Global Healthcare Systems (Undergraduate course)

#### Courses Prepared to Teach (Undergraduate and Graduate Level)

- Methods: qualitative methods/methodology (data collection & analysis), video in research, and research design
- Content Area: STEM teaching and learning, out of school learning, socio-cultural perspectives in education, diversity and equity in education, educational psychology, and classroom assessment.

### SERVICE

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#### Service to the University

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| 2018 | <ul style="list-style-type: none"> <li>• PhD Mentor in School of Education Mentor Program</li> </ul>   |
| 2017 | <ul style="list-style-type: none"> <li>• Diversity Recruitment Representative for PhD Admissions Committee</li> <li>• Graduate Student Writing Mentor</li> <li>• PhD Mentor in School of Education Mentor Program</li> </ul> |
| 2016 | <ul style="list-style-type: none"> <li>• Graduate Student Writing Mentor</li> <li>• PhD Mentor in School of Education Mentor Program</li> </ul>  |
| 2015 | <ul style="list-style-type: none"> <li>• Cohort Representative</li> <li>• Media and Outreach Manager for Discover Science Initiative (DSI)</li> <li>• Doctoral Student Recruitment Committee</li> </ul>                      |

#### Service to the Profession

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|-----------|--|
| Reviewer  | <ul style="list-style-type: none"> <li>• American Education Research Association Conference</li> <li>• Developmental Psychology</li> <li>• Journal for Research in Science Teaching</li> <li>• Journal of Urban Mathematics Education</li> <li>• National Association of Research in Science Teaching Conference</li> <li>• Science Education</li> <li>• Society for Advancing Chicanos/Hispanics &amp; Native Americans in Science</li> </ul> |
| 2017-2018 | <ul style="list-style-type: none"> <li>• Co-Chair, Standing Committee on the Anthropology of Environmental and Science Education, Council on Anthropology and Education, American Anthropological Association</li> </ul>   |

### GRANTS & AWARDS

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#### Grants and Scholarships Awarded

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|------|-------------------|--|
| 2018 | \$5,000           | New Venture Competition  |
| 2017 | \$10,000<br>\$800 | Newkirk Graduate Research Fellowship<br>UCI School of Education Travel Grant |

2016	\$1,000	California Association of Museums Fellowship
	\$1,000	Digital Media and Learning Research Fellowship
	\$975	UCI Graduate Division Travel Grant
	\$800	UCI School of Education Travel Grant
2015	\$1,000	California Association of Museums Fellowship (declined)
2013	\$3,500	Getty Multicultural Undergraduate Grant
2012	\$400	Undergraduate Research Opportunities Program Grant

### Grants and Scholarships Under Review and Unfunded

2018	\$20,000	Haynes Lindley Doctoral Dissertation Fellowship (unfunded)
2017	\$9,000	California Immigrant Research Initiative (unfunded)
2016	\$30,00	DECADE Graduate Diversity Award (unfunded)
2015	\$166,720	NSF Graduate Research Fellowship STEM Education (unfunded)

### Honors

- 2016 • NSF Graduate Research Fellowship Honorable Mention STEM Education

### MISCELLANEOUS

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### Press Release

- 2018 • Partnering Locally for National Impact in Public School Innovation, pg. 25-27 (Highlights of my dissertation research and community engagement and research practice partnership)  
[http://education.uci.edu/uploads/7/2/7/6/72769947/223421\\_uci\\_mag\\_2018.pdf](http://education.uci.edu/uploads/7/2/7/6/72769947/223421_uci_mag_2018.pdf)
- 2017 • Demystifying STEM (Highlights of my dissertation research and outreach)  
<https://news.uci.edu/2017/09/11/demystifying-stem>
- Cultivating the Next Generation of Scientists (Highlights of Project CRYSTAL where I served as researcher)  
<https://news.uci.edu/2017/06/05/cultivating-the-next-generation-of-scientists>
- Making the CASE for extracurricular education (Highlights of *University Community Links Project/ Certificate in Afterschool & Summer Education [CASE]* where I served as researcher)  
<https://news.uci.edu/2017/09/26/making-the-case-for-extracurricular-education>

### Professional Affiliations

- American Educational Research Association (AERA)
- National Association for Research in Scientific Teaching (NARST)
- Society for Advancing Chicanos/Hispanics & Native Americans in Science (SACNAS)
- American Anthropology Association (AAA)

**Research Assistants Mentored**

- Designing After School Science Programs to Connect Schools, Homes, and Communities  
Algrae Gorospe\*, Alondra Villegas\*, Carlos Henriquez, Debbie Vang, Elaine Nguyen, Lourdes (Lulu) Galindo, Mariah Morales, Maura Dennehy White, Pamela Garcia+, Steven Vu, Sophia Nguyen, Susana Reyes-Valdez, Tessa Pulido, and Vanessa Comia\*

- Graduate Women Engineers and Diversity Organizations  
Grace Lin (PhD Student), Jill Pestana (PhD Student), Jennifer Schuler (PhD Student), Kristel Dupaya (PhD Student), and Lianna Fung (PhD Student)

- Expressive Robotics: Teaching Robotics through Dance  
Amy Bui, Rachel Kim, Samantha Liu, Stephanie Albuquerque, Yeseung Choi, and Yejeong (Clare) Choi

- Cultivating and Researching Youth Systems Thinking through Authentic Learning (Project CRYSTAL)  
Jacqueline Hernandez, Jennifer Leong, Maria Galindo, Steven Vu, and Vanessa Comia

University Community Links Project

- John Yun

\*= student received undergraduate research opportunities grants

**Research Skills**

- Software
  - STATA 14
  - Vosaic (formerly known as StudioCode)
  - MAXQDA 12
  - Dedoose
  - NVivo 10
  - SPSS 22
  - HLM7