# GGSE REASEARCH SYMPOSIUM

Fostering Dynamic Communities for Equity, Accessibility, and Success in Education

**May 20-21, 2022**

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# Conference Information

This is our third annual symposium hosted by the Graduate Student Association in Education (GSAE). This year's conference theme, Fostering Dynamic Communities for Equity, Accessibility, and Success in Education, provides a space for scholars to discuss the ways in which we make education, as an insitute and practice, a place for all. We hope this space will exist for GGSE to support and challenge each other in finding best practice for our educational system and society. Furthermore, our theme asks us to consider how we support our larger education ecosystem.

The vision of this event is to provide a space for students and faculty to showcase their own work, receive formative feedback, and foster connection building within the GGSE, as well as with the larger UCSB community.

Paper presentations will be 15 minutes or less plus 5 minutes for Q&A. Poster presentations will be 10 minutes or less plus 5 minutes for Q&A.

For any general questions about the conference or technical difficulties on the day of the conference, please email GSAE at education-gsae@ucsb.edu.

# Schedule at-a-glance

## FRIDAY MAY 20, 2022

**Coffee, Tea, and Check-In (Courtyard)**................................................................**9:00AM**

Session #1: Belonging In Universities (ED 1213)......................................................9:30AM

Session #2: Educational Practices & Program Improve. (ED 1215)..........9:30AM

Session #3: Poster Session A (ED 1207)..................................................................10:30AM

Session #4: Community Centered Research (ED 1213)...............................10:30AM

Session #5: STEM Education (ED 1215)....................................................................10:30AM

**Lunch (4th Floor Patio)**........................................................................................**11:30AM**

**Keynote Speaker (ED 4108)**..............................................................................**12:30PM**

Session #6: Language in Use (ED 1213)................................................................. 1:30PM

Session #7: Postsecondary Institutions & Orgs. (ED 1215).............................1:30PM

Session #8: UN Sustainability Initiatives (ED 1217)...........................................1:30PM

## SATURDAY MAY 21, 2022

**Coffee, Tea, and Check-In (Courtyard)**................................................................**9:00AM**

Session #9: Ethnic Studies Curricula (ED 1213)...................................................9:30AM

Session #10: Teachers Of Multilingual Students (ED 1215)..........................9:30AM

Session #11: Bridging Multiple Worlds & CHAT (ED 1213)............................10:30AM

Session #12: Language Meets Content (ED 1215)..............................................10:30AM

**Lunch (4th Floor Patio)**........................................................................................**11:30AM**

**Diversity, Equity, and Inclusion Panel**........................................................**12:30PM**

Session #13: Poster Session B (ED 1207)..................................................................1:30PM

Session #14: Support Networks (ED 1213).............................................................1:30PM

# Keynote Speaker

Friday, May 20, 2022 12:30pm

## Adanari Zarate, PhD.

Dr. Adinaru Zarate has a PhD. in Chicana and Chicano Studies from UC Santa Barbara, an MA in Social and Cultural Analysis of Education from Cal State Long Beach, and a BS in Child and Adolescent Development from Cal State Fullerton. She has worked in educational settings for over 10 years, primarily focusing on high school and higher education students. Her research expertise is in Critical Pedagogy, Educational Experiences of Students of Color, and Sociocultural Linguistics. Dr. Zarate is currently the Associate Director for the ÉXITO program at UC Santa Barbara.

# Diversity, Equity, and Inclusion Panel

Saturday, May 21, 2022 12:30pm

***A Continued Conversation: Conversation and Student Concerns Related to DEI in GGSE***

*Professor Richard Durán, Associate Professor Diana Arya, and Mary Franitza*

Continuing the conversation of a previous Webinar in March, 2022, DEI Leadership in Education invites students to ask questions about the state of DEI affairs in the GGSE. Over the past few years, UCSB has made concrete efforts toward supporting the transformations needed to ensure that all students, staff, and faculty are able to thrive as we work and learn together. In particular, we have the new DE Vice Chancellor Office that works directly with appointed Diversity Officers for each department. These Diversity Officers are tasked with the mission to work with their respective colleagues in reviewing, revising, and making transparent how all aspects of our departmental work supports our shared vision for greater diversity, equity, and inclusion at our university.

This webinar is an opportunity to learn more about the DEI efforts in Education from the perspective of the Associate Dean of Diversity, Professor Richard Durán, the Graduate Diversity Offer in the Department of Education and Associate Professor Diana Arya. As Associate Dean for Diversity, Professor Durán contributes to oversight of the practices and processes across the GGSE that support the school-level Strategic Plan. Since her appointment in July 2020, Diversity Officer Diana Arya has been working with Education faculty to clarify and revise practices and resources that impact graduate students, As part of the mission to make visible all DEI-related practices and policies, Diana has been leading the development of a "living document" that provides greater transparency in ways that we work to support our students. In an effort to continue transparency to students, an open conversation is being held to hear students' voices and concerns.

Please join us in this important Q&A event that will be hosted and moderated by GSAE president, Mary Franitza.

# BELONGING IN UNIVERSITIES

*A Mixed Methods Inquiry into AAPIs' Experiences as they Navigate Higher Education During COVID-19*

Ryan Arellano (She/Her/Hers)


*A Partnership for Postsecondary Success in Arizona*

Christopher Ozuna (he/him/his)


*COVID-19's Effect on College Decision-Making for Santa Barbara High School AVID Seniors*

Sam Palicki (they/she), Lyra Okita (she/hers), Mia Buhain (she/hers), Jasmin Lopez (she/hers)


*Female Narratives of Struggle in an Introductory Physics Course*

Liliana Garcia

# EDUCATIONAL PRACTIVES & PROGRAM IMPROVEMENTS

*A Critical Exploration of Formative Reading Assessments from an Antiracist and Multiliteracies Perspective*
Sabiha Sultana

*Learning to Teach During a Pandemic: Preservice Secondary Science and Mathematics Teachers' Use of Resources*
Matthew Bennett (he/him), Valerie Valdez (she/her), Cameron Dexter-Torti (he/him), Donald McNish (he/him), Liliana Garcia (she/her), T. Royce Olarte (he/him), Sarah Hough (she/her), Sarah Roberts (she/her), Julie Bianchini (she/her)

*Preparing Teachers to Education Immigrant-Origin Youth: A Closer Look at University of California Teacher Education Courses*
Jessica Nguyen (she/her), Dr. Carolyn Sattin-Bajaj)

*Teacher Preparation for Immigrant-origin Children*
Dee Dee Hong (she/her); Jing Su (she/her); Juan Barrera Alcazar (he/him); María Romo-González (she/her)

# POSTER SESSION A

**A Study of How Middle School Science Teachers Draw on Student Funds of Knowledge to Engage Epistemic Agency**

Meghan Macias, she/her/hers

**APIDA College Student Participation in BLM**

Casidy Chen (she her hers)

**COVID-19 and College Identities: How COVID-19 Has Impacted College Students' Self-Identity**

Nathalie Paesler (she/her), Ali Muller (she/they), Devon Christman (she/her), Diana Arya (she/they)

**First-Gen Peer Mentorship in a Title V Academic Resource Center**

Sofia Sanabria

**Relationships between pre-service science teachers' life histories and their emerging conceptions of purpose for science education**

Matthew Shackley

# POSTER SESSION A (CONT.)

*Ubiquitous Computing & Computational Thinking*

Vicky Zhou she/her/hers, Richard Duran he/him/his

*Using Social Network Analysis Software to Trace Faculty Innovations in a MultiTeam System*

Mark Mader, Moorea Keene, T. Royce Olarte, Sarah Hough

*'We Are Here, and We Are Here to Stay': Formerly Incarcerated Students' Experiences and Educational Attainment in California Higher Education*

Gabriela (Gaby) Trachsel // she, her, hers

# COMMUNITY CENTERED RESEARCH

***Detangling Quantum Computers: Preliminary Findings of The General Public's Perception of Quantum Computers***

Devon M. Christman (she/her), Liliana Garcia (she/her), Collin Lejano (he/him)

***Seeking Meaningful Connections to Community: Exploring Undergraduate Community Engagement***

Stephanie M. Arguera

**Status of Community-based Rehabilitation Services for Chinese Individuals with Disabilities - A Comparative Look**

Yixin Lin (she/hers), Jing Su (she/hers), Mian Wang (he/his)

# STEM EDUCATION

***Ethnic Studies Pedagogy Better Prepares 21st-Century STEM Employees***

Miriam D., Burnettshe/they), Natasha Preeceshe/they), Maya Cooks(she/her), Ezra Aguimatang (he/him), Nandini Lyer(she/her); Rebeca M. Rios (she/her)

***Investigating Teacher Candidates' Changing Emphases of NGSS Engineering Practices and Crosscutting Concepts During Remote and Hybrid Teaching***

Donald McNish

***Recognition of Design Failure by Fourth Grade Students During an Engineering Design Challenge***

Ron Skinner, he/him

***The Great Space Race: The effect of a digital mathematics board game on preschoolers' number knowledge***

Jonna R. L. Wong (she/her/hers) and Dr. Yukari Okamoto, Ph.D. (she/her/hers)

# LANGUAGE IN USE

*A Review and Proposed Application of Syncretic Literacy Approaches in Secondary Mathematics Research*

Cameron Dexter Torti (he/him/his)

*Learning Communities are for Everyone: A Closer Look at Teacher Student Dialogue*

Tomy Nguyen He/His

*Observations of conceptual change and language development in pairs of students engaged in science activities*

John Galisky

*The Future of Education: Asset-based Pedagogy*

Emily Zomoroudi, Cameron Dexter Torti, Julie A. Bianchini, Sarah A. Roberts

# POSTSECONDARY INSTITUTIONS & ORGANIZATIONS

*Contextual Leadership Theoretical Framework*

Jamie Pillsbury-Fischler, she/her/hers

*School as a Second Shift: The Implications of Transfer Shock at UC Santa Barbara*

Caitlin Ng (she/her/hers)

*Understanding Postsecondary Institutional Selection*

Travis Candieas (he/him/his)

# UN SUSTAINABILITY INITIATIVES

**The Sustainable Development and Climate Justice in the GGSE**

Monica Mendoza (she/her/ella), Danielle Harlow (she/her), Devon Azzam (she/her), George Yatchisin (he/him), Amanda Andersen, Julie Bianchini (she/her), Diana Chagolla (she/her), Maryam Kia-Keating, Jeffrey Milem, Christopher Ozuna (he/him/his), Estefania Pihen (she/her), ; Matthew Shackley, Jing Su (she/hers), Briana Villasenor

# ETHNIC STUDIES CURRICULA

*A Relational Framework of Raciolinguistics: Teaching Race and Language To Latinx Students Through AAPI History*

Samantha Harris (she/her)

*Underrepresented Students' Sense of Belonging in Ethnic Studies Courses*

T. Royce Olarte (he/him); Sarah A. Roberts (she/her); Lydia Gee (she/her); Lauren Huang (she/her)

# TEACHERS OF MULTILINGUAL STUDENTS

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*Asset-based Pedagogies for English Learner Curriculum*

Carla Suarez Soto

*Learning and unlearning: Preservice teachers' critical language awareness, racial literacy, and ideologies*

Paula Sevilla, she/her

*The Effects of Dual Language Immersion on Elementary Students Learning Mathematics*

Azure Otani (She/Her), Cameron Torti & Dr. Sarah Roberts

# BRIDGING MULTIPLE WORLDS & CHAT

*A Sociocultural Perspective on Professional Identity Development: Mathematics Teaching Assistants as Early Career Instructors*

Micah Swartz, T. Royce Olarte,, Sarah A. Roberts

*Navigating Pathways to College, Careers and Adulthood: Narrative Case Studies of Latinx Community College Transfer Students at a R1 Hispanic Serving Institution*

Bertin Solis

*"Sigo Soñando Y Sigo Volando": Latina/Latino Students Utilization of Community Cultural Wealth and Engagement in Multiple Worlds in Their Pathway Towards a College Degree*

Daniel Rios Arroyo (He/Him)

# LANGUAGE MEETS CONTENT

*Interactions between teachers and multilingual learners around representations in mathematics classrooms*

Zheng Dai, Lauren R. Huang, Azure Otani, Cameron Dexter Torti, Dr. Julie A. Bianchini, Dr. Sarah A. Roberts

*"The Reason Why I Got the Job is K-pop": Teacher Stances Towards Hallyu in Korean Language Instruction*

Huay Chen-Wu (she/her), Elica Sue (she/her), Samantha Harris (she/her)

# POSTER SESSION B

*How the COVID-19 Pandemic Affected Education as an Institution, Through the Mindset and Perspective of Teachers*

Allie Paez (she/her)

*Let's CHAT about COVID-19: Organizational and Functional Changes in Afterschool Programs Due to COVID-19 From a CHAT Perspective*

Jasmine Mitchell (she/her/hers), Alexandria Muller (she/they), Devon M. Christman (she/her)

*Secondary Science Preservice Teachers' Beliefs, Experiences, and Enactment of Justice-Centered Science Instruction*

Valerie Valdez she/her/hers

*STEAM curriculum with electric circuits*

Ashley Son

*Student participation in an English Support SKILLS Classrooms*

Cecilia Hua (she/they), Aiying Huang (she/her), Selena Martinez (she/her), Carla Suarez Soto (she/her)

# POSTER SESSION B (CONT.)

**Supporting Isla Vista Youth in Preparing for College**

Frances Valinsky, Bertin Solis, Richard Duran

**The Effect of Ethnic and Feminist Studies on BIPOC Undergraduates at UCSB**

Amanda Doan (she/her), Vince Feliciano (he/they), Melissa Garcia (they/she), Juana Martinez (she/her), Victoria Rivera (she/they)

**The Engineering Design Process in the Eyes of Students**

Alexandria Muller (she/they), Devon M Christman (she/her), Sera Barron (she/her), Danielle Harlow (she/her)

**The Future of Education: Asset-based Pedagogy**

Emily Zomoroudi she/they

**"We always knew it was broken": Motherhood and Education During the COVID-19 Pandemic**

Emily Searson (she/her)

# SUPPORT NETWORKS

*A Review of Promoters & Barriers to Accessing Mental Health Services Among First-Generation College Students of Color*

Diana Chagolla

*Community Building Efforts in Remote Learning Environments*

T. Royce Olarte, he/him; Damaris Hernandez, she/her; Hannali Pajela, she/her; Sarah Roberts, she/her

*The Role and Salience of Latino Parent Support in First-Generation Latina Undergraduate Experiences*

Diana Magaña (she/her)

*What does it take to be a good mentor? A preliminary look into the needs of mentees*

Mary Franitza (she/they)

GEVIRTZ GRADUATE SCHOOL OF EDUCATION
GRADUATE STUDENT ASSOCIATION IN EDUCATION

*Has the pleasure to present*

# PROM NIGHT

SATURDAY, MAY 21, 2022

*Mosher Alumni House*

Open to all ED, CCSP, TEP Students, & Guests
Food and Alcohol Available
Semi Formal Attire

RSVP at https://forms.gle/HcpPL2cU2BaiXnw67

## *A Critical Exploration of Formative Reading Assessments from an Antiracist and Multiliteracies Perspective*

Sabiha Sultana

Session #2: Educational Practice & Program Improvements

## Abstract:

Grounded in the Freirean emancipatory model, multiliteracies are the abilities to critically engage with multimodal texts, connect texts to lived experiences, unfold authors' social, political, racial, and cultural biases and oppressions, and take social actions by producing counterhegemonic multimodal texts. Based on this emancipatory view of multiliteracies as well as critical reading, my goal is to explore the existing formative reading assessments' potential to foster these skills. While accumulating relevant evidence of validity is a fundamental consideration for the credible scientific basis of the assessment validation process, ensuring racial justice for assessment takers is vital to reducing discrepancies between the observed and actual multiliteracies of diverse readers. Therefore, evaluating formative reading assessment constructs from an antiracist lens to determine whether these assessments recognize the experiential knowledge of BIPOC or not is crucial in the U.S. This study is a critical discourse analysis (Fairclough, 2001) of three formative reading inventories (Applegate et al., 2008; Leslie & Caldwell, 2011; Roe & Burns, 2011) with a critical lens (Randall, 2021) and antiracist validity framework (Randall et al., 2022). Specifically, I explored the presence of silent texts (Huckin, 2002), to identify implicit social, racial, linguistic, and cultural ideologies presented in these assessment items and validation processes. Preliminary findings suggest that no currently used assessments are designed to accommodate the multimodal aspects of reading in the 21st century. Further, knowledge and assumptions of assessment developers (the majority of whom are white men) are excluded from the process of determining evidence for validity. Implications from my study point to suggested approaches and practices for multiple stakeholders (i.e., teachers, school leaders, assessors, reading specialists, etc.) for reimagining assessment in schools that serve multiethnic, multilingual, and multicultural learners. This work contributes to similar efforts in developing culturally inclusive, equitable literacy-related programs, resources, and tools within the digital era.

## A Mixed Methods Inquiry into AAPIs' Experiences as they Navigate Higher Education During COVID-19

Ryan Arellano (She/Her/Hers)

Session #1: Belonging in Universities

Abstract:

Research has shown that Asian American and Pacific Islander (AAPI) students face higher education challenges that go unnoticed due to the Model Minority Myth. These obstacles are now being exacerbated by a pandemic which has been accompanied by an increase in racial tensions, a recession, and adverse health outcomes. This study utilized an exploratory sequential design to uncover AAPI experiences as they navigate college during a time of high stress and financial instability. Findings from the qualitative phase revealed that AAPIs are experiencing COVID-19-related racism on and off campus and that this discrimination is essentializing this population of students. Moreover, results reveal nuances in how AAPIs are perceiving institutional and home communities' support while they pursue a degree during a pandemic. Challenges in maintaining student-run ethnic organizations, low academic motivation, increased family responsibilities, and low perceived institutional support during a time of heightened marginalization are contributing to a poor campus climate for these students. Findings from the interview data are currently being used to inform the instrument development for the quantitative phase of this study.

## A Partnership for Postsecondary Success in Arizona

Christopher Ozuna (he/him/his)

Session #1: Belonging in Universities

### Abstract:

Arizona recognizes the urgency in improving the state's education system, especially in increasing the ability of students to access, enroll and complete postsecondary education. One way the state is pursuing this is through a unique partnership between the state education agency, a public university and an education-focused foundation. This partnership has resulted in our efforts to help communities set college-going goals, proactively admit students, and focus high schools on students' college success with our Postsecondary Feedback Reports Portal (PSFR). The PSFR Portal is a statewide tool that links high school data to community college and university data, allowing high schools to see students' course performance, chosen majors and use this information to improve their practices for future cohorts. By connecting formerly siloed data sources for the first time, we have been able to explore patterns and trends at the state, regional and local levels. We are able to identify which schools and districts seem to have the most prepared students for higher education, as measured by successful course completion. We are also able to identify where disparities are occurring and can proactively intervene with schools to provide needed resources. Because this data encompasses all of Arizona's public institutions, we have a very clear and accurate picture of what is happening across the state. We want to understand what is working well and how we can support partnerships across the state. We currently are working on the PSFR Success Catalog and accompanying Tool Kit. We are asking, "Where are the bright spots in AZ schools?" and then meeting with those educators to understand what is working, and which parts of this are scalable and transferable to other schools, whether that's via individual schools implementing a specific pedagogical, organizational or logistic strategy, or by gathering qualitative data to help guide the efforts of the state agency, legislature and other stakeholders. Arizona is a unique collection of communities: the state's population is heavily tilted towards Phoenix, but there are also several distinct categories of rural communities, as well as a concentration of tribal schools in the Navajo Nation. Arizona also has a strong charter sector, accounting for 25% of the state's enrollment, quite high compared to other states. This means Arizona's public school system will require very different, customized interventions to improve the quality, experience and outcomes for all of Arizona's students.

## *A Relational Framework of Raciolinguistics: Teaching Race and Language To Latinx Students Through AAPI History*

Samantha Harris (she/her)

Session #9: Ethnic Studies Curricula & Pedagogy

Abstract:

This project focuses on undergraduates' self-identity during the COVID-19 pandemic. The outbreak of COVID-19 has been an unprecedented event that has caused drastic changes in people's lives around the world, especially for young adults. The undergraduates at UCSB, and universities across the United States, have had to deal with returning to their parents' homes, continuing their education online, and taking all the precautions required to protect themselves and their families from COVID-19. According to the CDC's survey on mental health, the Household Pulse Survey, 52.1% of participants aged 18-29 years old reported symptoms of anxiety disorder or depressive disorder in October of 2020 (Centers for Disease Control and Prevention, 2020). Using artwork and open-ended surveys, I hope to gain insight into the living experiences and resulting self-identity of undergraduates at the University of California, Santa Barbara. Specifically, this project focuses on a community-based identity that being a student in a college creates, and how the COVID-19 pandemic impacted that identity. This project is still currently in progress, but data collection will be complete by the conference. Preliminary looks at the current data have shown recurrent themes of mixed feelings, isolation, and personal growth.

# Abstract Catalog

PRESENTATIONS LISTED IN ALPHABETICAL ORDER BY TITLE

*A Review and Proposed Application of Syncretic Literacy Approaches in Secondary Mathematics Research*

Cameron Dexter Torti (he/him/his)

Session #6: Language in Use

Abstract:

With a focus on the individualized instruction for multilingual learners in secondary mathematics classrooms, educators must seek approaches that affirm the lived experiences and cultural backgrounds of each student. Syncretic literacy (Duranti & Ochs, 1997) provides a frame for teachers to authentically assess their students and for students to individually represent their learning through various means. Syncretic literacy allows for multilingual learners to express their learning through both verbal and non-verbal expressions. Teachers adopting this approach in their classrooms provide equitable opportunity for multilingual learners, something especially important during coursework involving Algebra I content. This presentation will discuss the literature around syncretic literacy and present a proposed implementation of this construct in a secondary mathematics classroom.

# Abstract Catalog

## *A Review of Promoters & Barriers to Accessing Mental Health Services Among First-Generation College Students of Color*

Diana Chagolla

Session #14: Support Networks

Abstract:

This presentation will focus on reviewing literature that examines barriers and promoters of mental health service utilization among first generation college students and students of color. Overall the review found that high levels of perceived and personal mental health stigma, misinformation or lack of information about mental health services, preference to deal with issues on their own, preference to seek help from peers, lack of time to seek services, and location/time of services were all barriers to accessing mental health services for first-generation college students and students of color (Bledsoe, 2008; DeFreitas et.al., 2018; Jeong, Kim & Lee 2021; Shea & Yeh, 2008; Stebleton, Soria & Huesman 2014). Factors that were found to promote student well-being, and encourage students to access mental health services were, positive relationships with family and peers, greater knowledge of mental health services, greater integration, lower levels of mental health stigma, and a greater sense of belonging. Of importance to highlight is how having relationships with peers or parents who recognize signs of mental illness predicted a greater likelihood for students with symptoms to seek mental health services (Boyoung et.al., 2018). This is important because it highlights the significance of distributing mental health information not only within the campus community, but to the family members of students as well. Perhaps the most complex barrier to address is perceived and personal stigma towards mental health and utilization of services. These studies collectively argue for the campus community to demystify mental health stigma, create spaces in which first generation college students and students of color can talk about mental health and create programs for families that helps them identify signs of mental health illness. This also calls for the campus community, staff, professors, and teaching assistants to encourage the use of mental health services. By creating more awareness of the issues students face, and by offering more psychological support, we can foster a community that prioritizes the emotional healing of students.

# Abstract Catalog

PRESENTATIONS LISTED IN ALPHABETICAL ORDER BY TITLE

## *A Sociocultural Perspective on Professional Identity Development: Mathematics Teaching Assistants as Early Career Instructors*

Micah Swartz, T. Royce Olarte,, Sarah A. Roberts

Session #11: Bridging Multiple Worlds & CHAT

Abstract:

This study examined how the social interactions that mathematics teaching assistants (TAs) have within their institution influenced their professional identity development as early-career undergraduate instructors. We drew on a sociocultural perspective of professional identity development (Beijaard et al., 2004; Gee, 2001) in higher education (Clarke et al., 2013 ) to examine TAs' interactions with students, faculty, and other TAs. A sociocultural lens accounts for the institutional contexts that TAs navigate, the social domains that exist, interactions with members of their community that occur, the roles individuals perform, and the intrapersonal domain, or identities they assigned to themselves. Our research questions were: (1) How did mathematics graduate students reflect on their developing professional identities as TAs? (2) Within which social contexts did TAs professional identities develop? We qualitatively analyzed five mathematics TAs' responses to semi-structured interviews about their experiences enacting sections remotely, the ways the course supported underrepresented and non-traditional (i.e., transfer) students, and the TAs' perceptions of their identities and roles as TAs and early-career educators. The research team wrote memos and identified themes in the TAs' reflections of their multidimensional professional identities. We found that some dimensions of their identities were more frequently situated within specific relationships, while others were evident in multiple relationships. Overall, the social interactions were sites for professional identity development. Identity is a complex construct, and a better understanding of how professional identity is developed can inform higher education institutions on ways to support positive professional identity development of future mathematics instructors.

# Abstract Catalog

## *A Study of How Middle School Science Teachers Draw on Student Funds of Knowledge to Engage Epistemic Agency*

Meghan Macias (she/her/hers)

Session #3: Poster Session A

Abstract:

With school populations across the country becoming increasingly representative of students from diverse cultural and linguistic backgrounds, new considerations must be made to promote equitable and engaged science learning for all students. This includes students who historically have had limited opportunities to achieve in science learning, namely students of color, multilingual learners, and students from low-income backgrounds. The overarching goal of this work is to examine how middle school science teachers in California provide opportunities for epistemic agency by drawing on students' funds of knowledge. It is important for science teachers to consider because of its implications for engaging students in a process of sensemaking, a call put forth by recent science education reforms like the Next Generation Science Standards. Epistemic agency is a construct which helps us to understand inequity in science education. By attending to who has more or less power to direct the intellectual work of the classroom, we come to see patterns in who is afforded more or less power. One approach to attending to issues of power in the classroom and respecting children, their intelligence, and the communities they come from is to utilize a funds of knowledge perspective (Moll et al., 1992). A funds of knowledge approach to teaching and learning encourages teachers to draw on the cultural and community knowledges that students bring from outside of the classroom (e.g., home and family) to counteract deficit perspectives of diverse student populations. The study was conducted in fall 2018 through the end of 2019 with public school STEM teachers in grades 6-8. 19 California teachers joined the project, 13 of whom were participants in a multiple-district NGSS implementation initiative. The other six teachers were from districts that were also making substantial attempts to implement NGSS but did not participate in the implementation initiative. Classroom observations, surveys (both teachers and students), and interviews were conducted with the 19 teachers in the study. The work presented here will focus on what funds of knowledge teachers leverage in their instruction to engage students in enacting epistemic agency.

# Abstract Catalog

## APIDA College Student Participation in BLM

Casidy Chen (she/her/hers)

Session #3: Poster Session A

Abstract:

Both the Covid-19 pandemic and Stop Asian Hate movement have been unraveling concurrently to the recent developments in Black Lives Matter, creating a unique climate of racial justice change. In the midst of this, Asian Pacific Islander Desi American (APIDA) college students' have found themselves in the extraordinary role of becoming authentic allies to the BLM movement while also navigating a new movement centered around their own Asian identities. My goal is to document and analyze the position of APIDA youth in this situation, and to contribute to literature on cross-racial solidarity and APIDA activist identities. Through conducting seventeen in-depth interviews with APIDA college student activists, I was able to find how respondents' understandings of activism have changed over the course of BLM, SAH, and Covid-19. More specifically, I looked at 1) what forms of activism they undertook and what they found to be meaningful and impactful work, and 2) how they understood the relationships between the two movements as well as their own positionality. The analyzed data revealed a general broadening of definitions for BLM activism that made it a more inclusive movement, but also a new pressure to seek authenticity within their activist work that originated from the increased usage of social media for the movement- largely tied to the Covid-19 pandemic. It was also found that the subjects had varied levels of participation in Stop Asian Hate, often citing dissonance with other Asian American activist perspectives as a major influence on their willingness to support. It is my hope that this paper will encourage the field to explore how APIDA youth today find their agency within racial justice action, at the intersection of social media, Asian American identity, and their college experiences.

# Abstract Catalog

## *Asset-based Pedagogies for English Learner Curriculum*

Carla Suarez Soto

Session #10: Teachers of Multilingual Students

Abstract:

English learner students fall behind academically from their non-English learner classmates. Past research has shown how English language classes for English learners often center around English only policies and don't encourage the use of students' linguistic and cultural knowledge. Classes for English learners focus only on learning English and the curriculum is not meant to help students succeed in other subjects, causing them to fall behind non-English learners. Furthermore, teachers are not properly prepared to teach English learners who come from culturally and linguistically diverse backgrounds. Asset-based pedagogies encourage curriculum that the cultural and linguistic background that students already have, in their education. From literature on asset-based pedagogies, I identified six core characteristics of asset-based pedagogies. I then used these characteristics to conduct qualitative research on four lesson plans from the School Kids Investigate Language in Life and Society (SKILLS) program, which uses asset-based pedagogies in English learning classrooms to answer the questions: What characteristics of asset-based pedagogy are necessary for English language learners? And, to what extent does SKILLS reflect asset-based curriculum for English language learners? This research would contribute to better understanding of how asset-based pedagogies can be used to create more appropriate grade level curricula for English learners and the ways that SKILLS could be improved to include more characteristics of asset-based pedagogy.

# Abstract Catalog

## *Community Building Efforts in Remote Learning Environments*

T. Royce Olarte (he/him); Damaris Hernandez (she/her); Hannali Pajela (she/her); Sarah Roberts (she/her)

Session #14: Support Networks

Abstract:

Learning in community has been an increasingly important goal of mathematics education over the last few decades, and this has led to a growing body of work on pedagogical practices that foster community in classrooms (e.g., Jaworski, 2008). Building community in physical and virtual classrooms was an already difficult task for teachers (Smith & Horton, 2018), but in 2020, the COVID-19 pandemic exacerbated the need to build social and learning communities and significantly contributed to the challenges of building these communities. In the present study, we examined how mathematics instructors and TAs engaged in pandemic-sensemaking (Christian & Barton, 2020) to adapt their community building efforts (Luehmann, 2008) for an online environment. We conducted semi-structured interviews with four mathematics TAs and three instructors and qualitatively analyzed their responses. The research team met to code the data, wrote memos, and discussed emergent themes in how the participants engaged in pandemic sensemaking to build community for the students.We found that both TAs and instructors engaged in pandemic sensemaking to inform and adapt their Connecting and Dialoging efforts - particularly noticing and making meaning of students' circumstances such as various time zones, and fatigue with remote instruction. TAs described more efforts associated with Encouraging and Mentoring than the faculty, which we attribute to the synchronous interactions TAs had with students during section and office hours. In a field that is already seen as exclusionary, establishing a community in mathematics and STEM fields can be of tremendous benefit to students. Our study can inform the design of professional development opportunities for mathematics TAs and instructors specific to emphasizing practices that build community for students.

## Contextual Leadership Theoretical Framework

Jamie Pillsbury-Fischler (she/her/hers)

Session #7: Post-Secondary Institutions and Organizations

Abstract:

Contextual Leadership' is a theoretical framework developed to conduct a case study investigation of the reflective practice of presence among professional leaders at a Title-V funded Student Center, also called "The Center," within a Hispanic Serving Institution. The Contextual Leadership framework used the primary research concept of presence as a means to investigate presence amongst four professional leaders through the assessment of both individual and organizational factors. The Center which was the subject of this research employed two to three professional staff members tasked with the development of programming based on students' need, including providing material support, mentorship opportunities, and informational workshops. Analyses of presence using the Contextual Leadership framework will illustrate how The Center supported and developed professional staff leaders.

# Abstract Catalog

## COVID-19 and College Identities: How COVID-19 Has Impacted College Students' Self-Identity

Nathalie Paesler (she/her), Ali Muller (she/they), Devon Christman (she/her), Diana Arya (she/they)

Session #3: Poster Session A

Abstract:

This project focuses on undergraduates' self-identity during the COVID-19 pandemic. The outbreak of COVID-19 has been an unprecedented event that has caused drastic changes in people's lives around the world, especially for young adults. The undergraduates at UCSB, and universities across the United States, have had to deal with returning to their parents' homes, continuing their education online, and taking all the precautions required to protect themselves and their families from COVID-19. According to the CDC's survey on mental health, the Household Pulse Survey, 52.1% of participants aged 18-29 years old reported symptoms of anxiety disorder or depressive disorder in October of 2020 (Centers for Disease Control and Prevention, 2020). Using artwork and open-ended surveys, I hope to gain insight into the living experiences and resulting self-identity of undergraduates at the University of California, Santa Barbara. Specifically, this project focuses on a community-based identity that being a student in a college creates, and how the COVID-19 pandemic impacted that identity. This project is still currently in progress, but data collection will be complete by the conference. Preliminary looks at the current data have shown recurrent themes of mixed feelings, isolation, and personal growth.

# Abstract Catalog

## COVID-19's Effect on College Decision-Making for Santa Barbara High School AVID Seniors

Sam Palicki (they/she), Lyra Okita (she/hers) Mia Buhain (she/hers), Jasmin Lopez (she/hers)

Session #1: Belonging in Universities

Abstract:

The onset of the COVID-19 Pandemic brought about widespread concern for many high school students regarding future educational plans. The combination of financial concerns and family responsibilities, and removal of direct support from educators created areas where high school students sought more support. We know that students' support through in person learning, in combination with access to faculty, results in students' abilities to successfully apply themselves in school. Without it, high school student perceptions of personal achievement can vary, resulting in students opting for alternatives to a four year university. Additionally, the constant drone of Zoom classes can make it hard for students to stay motivated about their future prospects. This study examines the factors considered in students' choices when it comes to enrolling in a community college, four year institution, or pursue work immediately after graduation. Overall implications of this study will lead to a better understanding of how teachers and school administrators can take actions to enrich attitudes surrounding higher education and better aid high-achieving, low-income students.

## *Detangling Quantum Computers: Preliminary Findings of The General Public's Perception of Quantum Computers*

Devon M. Christman (she/her), Liliana Garcia (she/her), Collin Lejano (he/him)

Session #4: Community Centered Research

Abstract:

Quantum information science (QIS) is a quickly growing field of study with increasing importance due to the vast developments in quantum computing technology over the past decade. Soon, the global workforce will need employees prepared to enter jobs that rely on workers who have at least some background and familiarity with quantum concepts. Due to such demand, many universities and high schools have started offering more classes that integrate QIS into their curriculum with some states adopting quantum standards into their high school physics curriculum (Texas Education Agency, 2022). Even though quantum information science is entering classrooms, many people may still have little to no opportunities to engage with quantum concepts in an academic setting, as quantum topics are often only addressed in upper-level physics classes or require an extensive background in mathematics. Additionally, "quantum" has become a science-fiction buzzword and many people hold misconceptions about what "quantum" means and how advances in QIS will impact their lives (Lavorgna et al., 2020). Using data collected during a public QIS-themed event, our study explores the general public's understanding of quantum information science, and how advances in QIS will impact their lives. This talk presents preliminary findings from written responses collected during the QIS event.

## *Ethnic Studies Pedagogy Better Prepares 21st-Century STEM Employees*

Miriam D., Burnett (she/they), Natasha Preece (she/they), Maya Cooks(she/her), Ezra Aguimatang (he/him), Nandini Lyer(she/her); Rebeca M. Rios (she/her)

Session #5: STEM Education

Abstract:

This work is driven by a larger study: ÉXITO: Educational eXcellence and Inclusion Training Opportunities. Based on 1146 surveys administered in introductory ethnic studies and feminist studies courses at a Research 1 University, participants who identified as STEM majors (n=414) were included in the analysis for this paper. Framing this paper with the 21st-century Employability Skills and Ethnic Studies Pedagogy, this study highlights how the skills taught in ethnic and feminist studies courses benefit students majoring in STEM. Graduates should possess both discipline-specific expertise and broad skills and knowledge, which will enable solutions to complex challenges and innovation (American Association of Colleges and Universities [AAC&U], 2007, 2011, 2015). This paper investigates whether Ethnic Studies pedagogy does increase sociocultural understanding of diverse epistemologies to assist STEM students in acquiring 21st-century life and career skills to thrive outside of the classroom. While coding for 21st-century skills, emotional intelligence and cultural competence emerged as themes students noted that reaffirmed empathy and growth in personal mindset moving forward as needed when engaging in problem-solving that requires multicultural and social justice literacies. This research encourages equity, diversity, and inclusion in higher education. The literature presented promotes the formation of intersectional STEM identities that are key to underrepresented minority students' success (Herrera et al., 2012). This paper is a call to STEM educators to re-assess the current curriculum and program course guidelines to strengthen the relationship between higher education competencies and the practical needs of the workplace.

## *Female Narratives of Struggle in an Introductory Physics Course*

Liliana Garcia (she/her)

Session #1: Belonging in Universities

Abstract:

Introductory physics courses are designed to teach STEM students foundational physics material. For STEM majors, a deep understanding of this material is essential for their continued success in STEM. To address the large achievement gaps in many introductory courses, instructors are employing significant active learning techniques, which often include peer-to-peer instruction (Haak, 2011). However female-identifying students experience these beginning course activities differently than their male-identifying counterparts. These learning techniques can fail to recognize the gendered difference in the field. Achievement and motivation theories conceptualize the beliefs, attitudes, and emotional and social behaviors a student might bring into the classroom which indicate a particular orientation to their work and accomplishment [Ames, 1992; Freeman et al.,2007]. In classrooms with a high degree of peer-to-peer interaction, negative or demoralizing social behaviors might negatively affect students' identity in the classroom. Some women experience explicit and implicit bias while studying physics, some may experience being recognized as a person who can excel in physics and mentoring by physics instructors differently from men even in the absence of discrimination. In this paper, we analyze semi-structured interviews with female students studying in the Central Coast area of California with the aim of understanding female students' stories of struggle and how female students' self-identity is influenced by their experiences.

# Abstract Catalog

***First-Gen Peer Mentorship in a Title V Academic Resource Center***

Sofia Sanabria

Session #3: Poster Session A

Abstract:

This study aims to examine how first-generation college students support their peers through mentorship in a Title V grant-funded academic resource center. First-generation college, or "first-gen," students are the first in their families to experience the culture of college as they balance the different components of higher education. While first-gen students learn to navigate their own academic experiences, the students who work in resource centers are tasked with offering their peers support in their academic pursuits while holding a critical role in creating supportive and validating environments that assist their first-generation and historically underrepresented peers succeed in higher education. Title V grants create opportunities for new institutional structures, such as various types of centers and programs, aimed at supporting students. Insufficient research has examined Title V centers and the mentorship within them. At its core, this phenomenological study will illuminate the experiences of first-generation college students providing peer mentorship through a community cultural wealth lens while contributing to the literature on Title V centers.

## How the COVID-19 Pandemic Affected Education as an Institution, Through the Mindset and Perspective of Teachers

Allie Paez (she/her)

Session #13: Poster Session B

Abstract:

The purpose of this study is looking into how the COVID-19 pandemic affected education as an institution, through the mindset and perspective of teachers. This was done by interviewing nine K-12 teachers through zoom, and includes three teachers from each level: elementary, middle, and high school. Analysis of the data highlighted four main themes: online learning and use of technology, social emotional development, how family dynamics and home life affected schooling, and the need for school and moving forward. The data overall showed a change in how the teachers perceived their role in education through their interactions with their students and the adaptations they utilized during the online learning time. They also talked about the changes they felt coming back in person, even with the modifications they had to deal with since they were interviewed during the tail-end of the Omicron spike in February and March of 2022. The findings of this study are significant to the future of sociology of education because of the focus on the teacher perspective's, which are often overlooked in this field of research.

# Abstract Catalog

## *Interactions between teachers and multilingual learners around representations in mathematics classrooms*

Zheng Dai, Lauren R. Huang, Azure Otani, Cameron Dexter Torti, Dr. Julie A. Bianchini, Dr. Sarah A. Roberts

Session #12: Language Meets Content

Abstract:

Multilingual learners are a growing population in PK-12 education settings in the United States (NCES, 2020). With such a growing population, it is important to enact to equitable instruction for multilingual learners. Algebra I classrooms are an especially vital space for investigation due to Algebra's role as a gatekeeper to mathematics and academic success for students (Moses & Cobb, 2001). Specifically, multilingual learners are asked to access representations in their mathematics classroom, such using graphs, tables, and equations to communicate their reasoning regarding the mathematics, either verbally or in writing (Moschkovich, 2002). The results of these opportunities provide multilingual learners' opportunities to demonstrate their learning of content and language. This presentation seeks to examine one such teacher facilitated interaction in an Integrated Math I classroom during a professional development lesson, which focused on integrating mathematics language routines into teachers' instructional practice. In investigating the interaction between a teacher and a multilingual learner, which was captured while a student wore a wearable camera, we will provide an example of how the teacher used a mathematics language routine to provide access to a representation. In turn, we examined how the multilingual learner utilized the routine to respond to the mathematics task and communicated their mathematical reasoning.

## *Investigating Teacher Candidates' Changing Emphases of NGSS Engineering Practices and Crosscutting Concepts During Remote and Hybrid Teaching*

Donald McNish

Session #5: STEM Education

Abstract:

This study examines the various influences that shape a preservice secondary science teacher's views of NGSS Science and Engineering Practices and Crosscutting Concepts as well which ones they consider to be the most important to focus on in their classroom. The study considers pre-existing opinions, influences from their Teacher Education Program, and influences of their experiences with their cooperation teachers in their classrooms. The study also considers the unique challenges to learning these skills during the COVID pandemic. The study utilizes four sets of interviews from nine pre-service teachers over the period of the 2020 - 2021 academic school year. The study is framed around developing as part of a community of practice, pandemic learning, and an understanding of Next Generation Science Standards. The study's research question centers around preservice science teachers' ideas about what they identify as the most important NGSS practices and concepts in the context of a community of practice and in a pandemic learning environment.

## *Learning and unlearning: Preservice teachers' critical language awareness, racial literacy, and ideologies*

Paula Sevilla (she/her)

Session #10: Teachers of Multilingual Students

Abstract:

This paper presents a critical analysis of the literature on Critical Language Awareness (CLA) and its implications for preservice teacher education. While CLA in education has been researched more broadly, this review focuses specifically on how CLA has been used in the education of preservice teachers (PSTs). Such a review is necessary since, despite the fact that, for decades now, scholars have pointed to the importance of CLA in education (Alim, 2005, 2010; Fairclough, 1992), the call to develop CLA amongst multilingual PSTs of color and their majority (white, English dominant) counterparts continues to be significant (Chang, et al., 2020; Quan, 2021; Shi & Rolstad, 2020). Furthermore, while white PSTs have shown interest in learning about language variation, for example, studies show that they are hesitant to acknowledge their own privilege or critique power structures (Godley et al., 2015). We, therefore, propose future research that will investigate how using a Racial Literacy framework (Sealey-Ruiz, 2020; Price-Dennis & Sealey-Ruiz, 2021) combined with CLA is useful in teacher education. We will analyze interviews with PSTs in bilingual authorization and general education credentialing programs at a California university to better understand how PSTs acknowledge and unravel their previously unidentified ideologies and, in so doing, how they may reshape their pedagogies and practices in the classroom. We seek to develop a CLA and Racial Literacy framework that can be utilized in teacher education programs to train PSTs to recognize and unlearn the unexamined assumptions and attitudes they bring into the classroom with them.

*Learning Communities are for Everyone: A Closer Look at Teacher Student Dialogue*

Tomy Nguyen (He/His)

Session #6: Language in Use

Abstract:

Dialogue and discussion between students and teachers are key components in building conceptual understanding. This paper will show plans on findings about dialogue differences between two prospective teachers (PT), Yareli and Amara, who facilitate small group interventions of emergent bilinguals, students with disabilities, and students who require extra math support. A Latina multilingual learner (MLL) student who was in the process of receiving an IEP, Jade, moves from one math learning community to another and her involvement within the intervention changes drastically. The goal is to analyze each verbal interaction between student and teacher. We can find how learning communities, ones that foster more invites to elaborate reasoning, allows students to build their ideas from others' ideas and allows for students to express and justify her ideas and reasons with her teacher and peers more often.

## *Learning to Teach During a Pandemic: Preservice Secondary Science and Mathematics Teachers' Use of Resources*

Matthew Bennett (he/him), Valerie Valdez (she/her), Cameron Dexter-Torti (he/him), Donald McNish (he/him), Liliana Garcia (she/her), T. Royce Olarte (he/him), Sarah Hough (she/her), Sarah Roberts (she/her), Julie Bianchini (she/her)

Session #2: Educational Practice & Program Improvements

Abstract:

Supporting preservice teachers to enable a successful entry into teaching has been a key goal of teacher education programs for several decades. However, the COVID-19 pandemic created contextual changes that impacted how preservice teachers both learned to teach and began developing their teaching practice. In this study, we considered how preservice secondary science and mathematics teachers used resources while learning to teach during the 2020-21 school year, and how shifting contexts for learning to teach impacted the resources these preservice teachers used. We qualitatively analyzed interviews from 15 participants conducted at four points during the year. We found that face-to-face tools, knowledge-embedded tools, and technology tools were the most common resources used, but varied as teaching contexts changed from remote to hybrid instruction. While the pandemic brought technology to the forefront of education, technology tools were not uniformly considered to be helpful resources, and sometimes inhibited teachers' abilities to elicit student ideas to adapt instruction. We argue that understanding the resources used by preservice teachers during a tumultuous year can provide teacher educators with a firmer sense of how to adapt the resources they provide to preservice teachers, whose contexts for teaching and learning are neither uniform nor predictable.

## Let's CHAT about COVID-19: Organizational and Functional Changes in Afterschool Programs Due to COVID-19 From a CHAT Perspective

Jasmine Mitchell (she/her/hers), Alexandria Muller (she/they), Devon M. Christman (she/her)

Session #13: Poster Session B

Abstract:

An important aspect of many afterschool programs is interactive activities and hands-on learning. During the COVID-19 pandemic, fostering this type of learning became difficult due to new safety guidelines. Most programs were required to convert to virtual forms of programming, which meant that program coordinators had to change their curriculum and program structure to accommodate. The sudden change forced many afterschool programs to shift their organizational structure and fundamental goals to fit the needs of their participants. We studied the switch from in-person to virtual programming during the COVID-19 pandemic in multiple afterschool programs affiliated with a large research university in California. These afterschool programs partner with local organizations to engage youth in literacy-driven activities that foster STEM knowledge and environmental and social awareness. Before the pandemic, the programs heavily relied on in-person field trips, demonstrations, and interactive activities. They experienced significant organizational and curricular changes due to the COVID-19 guidelines. We interviewed coordinators in multiple programs to study this shift and assess how each dealt with the volatile environment. Interviews were analyzed using emergent coding, and findings were categorized using Cultural-Historical Activity Theory (CHAT). In this paper, we explore the tensions that arose between the various socio-cultural aspects of the program as a result of the shift to virtual programming and discuss the implications of these tensions for program structure.

*Navigating Pathways to College, Careers and Adulthood: Narrative Case Studies of Latinx Community College Transfer Students at a R1 Hispanic Serving Institution*

Bertin Solis

Session #11: Bridging Multiple Worlds & CHAT

Abstract:

I present on the academic and career identity pathways of Latinx students transferring from community colleges in California (CA) to a University of California (UC) campus. The end outcome is to understand how 2-year community colleges and 4-year universities that are Hispanic Serving Institutions in CA can support Latinx students to transfer and complete a UC education including pathways to graduate school. The study is important in the context of a growing Latinx population in the U.S. who while enrolling in greater numbers, predominantly matriculate in the community college and have some of the lowest rates of transfer to four-year universities and degree completion of all racial/ethnic groups. Three complementary frameworks guide this qualitative research study: The Bridging Multiple Worlds Theory (BMWT), the Multicontextual Model for Diverse Learning Environments (MMDLE), and Cultural-Historical Activity Theory (CHAT). A case study methodology is employed to generate identity profiles of students' pathways to and through college. This allows me to describe students as embedded cases within the colleges and universities they attended. Data will include multiple ethnographic interviews focused on capturing students' narrative accounts of everyday activities across their social worlds in the process of navigating pathways to and through college. It will also include prompts specific to Latinx transfer students including their perceptions of the campus climate, drawing from the MMDLE. Together, this approach supports the analysis of students' narratives regarding persistence in navigating pathways to and through college including transfer from community college to a selective R1 HSI.

## *Observations of conceptual change and language development in pairs of students engaged in science activities*

John Galisky

Session #6: Language in Use

Abstract:

This multi-case, mixed methods study will compare conceptual development of student pairs engaged in a science activity to individuals engaged in the same activity. Using a balance scale protocol I propose an analysis of children's peer talk to identify when and how conceptual change occurs and how the students utilize relational language (Gentner, 2003) and explanatory language (Blum-Kulka, et al., 2010). Looking closely at students' language before, during, and after conceptual development it may be possible to observe patterns of language use and language development across the group. Balance scale protocols are well-established in cognitive science but are typically applied to individuals, not pairs. Videos of student interactions provide the opportunity for multimodal conversation analysis focused on dialogue, facial expression, gesture, and gaze. Using multimodal features of video data it is possible to distinguish moments in the conversation when students produce explanations of what they already know from moments when they are develop new conceptual understanding. Measuring concept development is typically achieved through pre-test/post-test, cognitive interviews, or think-alouds. Testing demonstrates the extent of conceptual development but not cognitive processes; cognitive interviews are difficult to standardize; and think-aloud protocols require participant training in order to fully capture student thinking. Through peer conversation it is possible to access not only student ideas but the language students apply to develop those ideas. Using conversation analysis and a clearly defined cognitive task, we are able to observe when concepts emerge and, in some cases, how those concepts develop through a social interaction. Combining pre-test/post-test and conversation analysis I will address three research questions: 1) Do pairs of students engaged in conversation around a cognitive task develop better conceptual understanding than students working individually? 2) In what manners do students demonstrate conceptual development? 3) What aspects of peer conversation around these activities afford growth in discursive literacy?

## *Preparing Teachers to Education Immigrant-Origin Youth: A Closer Look at University of California Teacher Education Courses*

Jessica Nguyen (she/her), Dr. Carolyn Sattin-Bajaj

Session #2: Educational Practice & Program Improvements

Abstract:

Growing up in an immigrant family powerfully shapes a young person's academic and developmental trajectory. Evidence shows significant consequences for immigrant-origin youth associated with punitive immigration policies, undocumented status, and immigration enforcement actions (Zayas et al., 2017). In addition, immigrant-origin children in the U.S. are more likely to live in poverty than their non-immigrant-origin peers (Child Trends, 2018), and some of them have experienced prolonged separations from their parents (Suárez-Orozco, Todorova, & Louie, 2002). While a large body of literature examines strategies to support students' multilingual development (Garcia et al, 2017; Rutherford-Quach & Hakuta, 2019), there is a scarcity of research focusing on the knowledge, sensibilities, and skills teachers need to support and educate immigrant-origin students. Furthermore, few studies have examined whether state accreditation bodies have considered the needs of this growing population in their accreditation standards and requirements. Yet, California is a particularly important region to advocate for better ways to support immigrant populations due its unique demographic. California currently holds the highest number of immigrants than any other U.S. state, with about 27% (11 million) residents identifying as a foreign-born immigrant (Public Policy Institute of California, 2022). The two ethnic groups that carry the highest percentage of immigrants in California—Asian/Pacific Islander and Latina/o/x—have grown drastically between 1970 to 2019, with Asian/Pacific Islanders growing from 3% to 15% of the state population and Latina/o/x from 13% to 39% (Public Institute of California, 2021). In this study, we ask: In what ways, if any, are topics related to migration, immigration policies, immigration enforcement and their effects on students and families included in University of California (UC) Teacher Education Program (TEP) Courses? Of courses that include our focal migration-related topics, what specific content are covered and what mediums are used to teach these topics? Utilizing qualitative research methods of applied summative content analysis (Heieh & Shannon, 2005), we perform an in-depth analysis of TEP course syllabi from four participating UC schools to identify what is currently being taught around immigrant education and how instructors are engaging teacher candidates in this material. Our findings will help illuminate what crucial topics surrounding immigrant education have room to be expanded upon within UC TEPs in order to better train K-12 teacher candidates to educate and support immigrant-origin students.

# Abstract Catalog

PRESENTATIONS LISTED IN ALPHABETICAL ORDER BY TITLE

***Recognition of Design Failure by Fourth Grade Students During an Engineering Design Challenge***

Ron Skinner (he/him)

Session #5: STEM Education

Abstract:

Through engineering design challenges, students engage in engineering practices such as envisioning multiple solutions to problems, iteratively designing and testing prototypes to optimize designs, persisting and learning from design failures, and working effectively in teams. The practice of persisting and learning from design failures is essential to engineering design, as most engineering problems are not easily solved, and offers unique ways of knowing and learning not otherwise incorporated into K-12 education. To understand how elementary school students engage in the practice of persisting and learning from design failures, we must first understand how, if at all, they recognize that a design failure has occurred. I studied fourth grade students engaged in an engineering design challenge to iteratively design and test multiple models for a vehicle, constructed from a piece of paper and masking tape, that carries a metal washer the size of a penny to the ground as slowly as possible when dropped. I examined the ways in which design failure occurs during an engineering design challenge and how students recognize, neglect to recognize, or misinterpret design failure. I conclude that in addition to anticipating failure, conducting fair tests, and making focused observations, students must have an understanding and awareness of the evolving criteria and constraints of the design problem in order to recognize failure. During the iterative engineering design process, each identified failure begins a new cycle in which a new problem is defined (the problem causing the failure), and the criteria and constraints of a new solution (the remedy for the problem) are identified. If lacking an understanding and awareness of criteria and constraints represents a barrier to recognizing an initial design failure, it also represents a barrier to recognizing all subsequent failures in the design process and thus a barrier to persisting and learning from failure.

## *Relationships between pre-service science teachers' life histories and their emerging conceptions of purpose for science education*

Matthew Shackley

Session #3: Poster Session A

Abstract:

This study is a qualitative analysis of interviews conducted with 11 preservice biology teacher candidates (PTCs) enrolled in a 1-year post-baccalaureate teacher education program, addressing the research question: How do PTCs' life histories connect to their emerging conceptions of purpose (CoPs) for teaching and learning science. This work is grounded in an understanding of how lived experiences, namely an "apprentice of observation" during their own time as K-12 students, shapes PTC's beliefs about teaching and learning (Lortie, 1975). Research on the topic of teacher beliefs demonstrates that they are dynamic orientations, influenced by factors in the teacher's personal and professional lives (Bryan, 2012). These beliefs act as amplifiers and filters which shape the way teachers' conceptual knowledge of subject matter and pedagogy, their pedagogical content knowledge (PCK), is enacted to produce equitable science instruction (Carlson et al., 2019). CoP is an understudied construct of teacher beliefs, which influences teachers' PCK in this way (Grossman, 1990). Two cycles of selective coding and analysis were conducted to capture PTCs' discussions of personal life histories and emerging CoPs for science education. PTCs who identified as having always wanted to pursue a career in teaching more consistently emphasize social utility and transferable skills as important purposes of science education. PTCs whose identity is defined by their own pursuit of academic achievement or careers in science focus more on preparing students similarly for entrance into the STEM pipeline. These findings are significant because they indicate that CoPs for science education are predictably shaped by PTCs' own lived experiences, particularly as students of science themselves. Further study is needed to better understand how these different beliefs evolve through the course of teacher education and how they interact with teachers' PCK to influence instruction in their own classrooms.

## School as a Second Shift: The Implications of Transfer Shock at UC Santa Barbara

Caitlin Ng (she/her/hers)

Session #7: Post-Secondary Institutions and Organizations

Abstract:

My research proposal approaches the idea of a study that will utilize a combination of both qualitative and quantitative data focused on transfer student experiences at UC Santa Barbara. Ultimately, the students would be a heterogeneous sample, specifically students who did transfer from various California Community Colleges. There is a projected goal that once transfer students are admitted, that they will be able to graduate from the university within two years. However, the average time-to-degree elapsed here at the University of California, Santa Barbara often ranges from two to four years upon matriculation. Thus, I seek to understand the following: "How did second year transfer students from the University of California, Santa Barbara navigate their path to degree completion through the COVID-19 pandemic?" The term "transfer-shock" has been created to refer to the tendency of academic and social disorientation amongst students transferring from one institution of higher education to another. In many studies, native students (students who have entered the university straight from high school) are shown to perform better than transfer students academically. Prior research also alludes to the difficulties transfer students have integrating into the campus' student life. My study aims to examine transfer-shock's role, if any, here at UC Santa Barbara.

## Secondary Science Preservice Teachers' Beliefs, Experiences, and Enactment of Justice-Centered Science Instruction

Valerie Valdez (she/her/hers)

Session #13: Poster Session B

## Abstract:

Justice-centered discourses are often absent from many educational contexts, especially in the sciences (Rodriguez, 2015). In the U.S., science education in public schools has been driven by A Framework for K-12 Science Education (National Research Council, 2012) and the Next Generation Science Standards (NGSS; NRC, 2013). However, in A Framework for K-12 Science Education, issues of "justice" are only referred to twice (Forsythe & Chan, 2021) and justice-centered issues and topics are largely absent from these standards (Rodriguez, 2015). While these pedagogies are not explicitly stated in the standards, it is imperative that teachers learn justice-centered ways of teaching, and that this be introduced in teacher education programs. One way that preservice teachers (PSTs) can work towards equity in their science classrooms is by learning to enact justice-centered science instruction. Educators who make justice-centered science instruction the foundation of their classrooms adopt curriculum that is academically rigorous and relevant to students (Ladson-Billings, 2020), teach empowering content and liberating, student-centered pedagogies (North, 2009), teach students about the historically racist and inequitable aspects of science (Morales-Doyle, 2017), and also teach that science is a critical tool in alleviating equity and social justice issues. Science educators can raise students' awareness about environmental and sociopolitical issues in science through the use of critical, community-based pedagogies (Buxton, 2010) and by building connections to students' lives, cultures, interests, and experiences (Paris & Alim, 2014). Thus, social justice science instruction requires teachers to identify and make inequality visible, give students a critical lens through which they may analyze and critique inequitable and racist systems, and teach ways that students can contribute to the creation of a more equitable society (Goodwin & Darity, 2019). Because it is critical to teach in an equitable and socially-just way, many scholars have created practices and frameworks to support teachers in this work. One such framework, which will be used to frame this study, is Morales-Doyle's (2017) framework for socially-just science instruction (Morales-Doyle, 2017). Based on the seminal tenets of culturally relevant pedagogy (Ladson-Billings, 1995) and Paulo Freire's critical consciousness (1992), justice centered science instruction presents a way of engaging students in academically rigorous learning which is based on social and environmental justice issues. The three tenets of the framework include basing instruction on social and environmental justice phenomena, maintaining equitable academic expectations, and framing students as producers of knowledge and culture. In this qualitative study, I investigated how justice centered science instruction was taught to a cohort of preservice secondary science teachers, and what they ultimately learned about justice-oriented science instruction. Interviews with nine science secondary preservice teachers were conducted; I used data from interviews with five of the preservice teachers. Four interviews were conducted with each preservice teacher, which allowed me to see a progression of their ideas and practices on justice-centered science instruction throughout the school year. Interview questions were centered around the NGSS standards and how they learned how to teach them, targeting students' academic needs and making content accessible in order for students to succeed academically, while prioritizing an equity and justice lens through which they interpreted and reflected on their practices. Interview questions also focused on how learning justice-centered science instruction was impacted by the pandemic and remote instruction. By investigating what is actually enacted and learned about justice-centered pedagogies by science preservice teachers, teacher education programs may be able to identify teaching practices and coursework that are effective, as well as areas for improvement.

## *Seeking Meaningful Connections to Community: Exploring Undergraduate Community Engagement*

Stephanie M. Arguera

Session #4: Community Centered Research

Abstract:

Town-gown conflicts are not new. With the return to in-person instruction at major universities following COVID-19 vaccine availability and mandates, however, HE institutions across the country have reinvigorated already (in)tense studentification patterns. Complex studentification issues have exacerbated both non-student- and student-housing conflicts, particularly through piece-meal solutions. Incomplete solutions such as this demonstrate the need for strengthening university-community relationships in ways that address the complexity of their conflicts. This qualitative dissertation project will use narrative and thematic analysis of surveys, interviews and focus groups with undergraduate students to consider the ways that UC Santa Barbara (UCSB), a predominantly white institution (PWI) and minority serving research institution (MSRI), connects undergraduate students to the local community. The study will examine how the university conveys its relationship with the local community to prospective and newly enrolled students, as well as scrutinize how current students view and enact this relationship to the community in their participation in various types of service-learning types of activities for local youth and families. Specifically, this research will consider a range of community engagement opportunities that are available to undergraduates at one four-year, PWI and MSRI research university located along the central California coast, and examine how these influence or impact their knowledge of or ideas about the local community. Currently in data collection phase, this presentation will focus on the background, theoretical frameworks, early data collection strategies, as well as preliminary findings.

## *"Sigo Soñando y Sigo Volando": Latina/Latino Students Utilization of Community Culturas Wealth and Engagements in Multiple Worlds in Their Pathway Towards a College Degree*

Daniel Rios Arroyo (He/Him)

Session #11: Bridging Multiple Worlds & CHAT

Abstract:

The growing numbers of Latina/Latino students entering community college to start their higher education journey has been increasing in the past several years. This study utilizes and expands on Community Cultural Wealth (CCW) (Yosso, 2005) to highlight the cultural wealth that Latina/Latino students utilize in their pursuit of a college degree. Furthermore, this study also utilizes Bridging Multiple Worlds (BMW) (Cooper, 2011) to examine how students' multiple worlds (peers, school, family) link together and impact students' challenges, resources, and success in their educational experiences. This study aimed to answer the following research questions: How do Latina/o students utilize community cultural wealth in their pathway towards obtaining a college education? To what extent, if any, does Latina/o student world's change and how do they provide systems of support and/or cause challenges as students transition into college? This study followed a qualitative approach and data was collected through interviews with 5 participants. This study used a grounded theory approach to yield themes directly from the data collected and apply community cultural wealth theory and bridging multiple worlds theory to analyze forms of wealth that Latina/Latino students have and use as tools of empowerment, motivation, and resilience that often go unnoticed (Yosso, 2005) and bridging multiple worlds theory which focuses on the individual student narrative and the multiple worlds that students interact with and depart from that may provide challenges or resources (Cooper, 2011). Findings suggest that Latina/Latino students utilize various forms of cultural wealth as capitals to navigate through the transition from high school to college. Findings also suggest that Latina/Latino students engage in multiple worlds throughout their education journey towards a college degree.

## Status of Community-based Rehabilitation Services for Chinese Individuals with Disabilities - A Comparative Look

Yixin Lin (she/hers), Jing Su (she/hers), Mian Wang (he/his)

Session #4: Community Centered Research

Abstract:

For children and individuals with disabilities, community rehabilitation centers play a key component in their recovery process. In many developed countries, the community rehabilitation system is relatively mature to meet the needs of the visitors. However, in China, where 83 million people are estimated to have a disability in 2022 and 34 million of them are children under the age of 18, such a system has just begun to evolve. Particularly in China, children with debilities who do not have access to general education will have to rely on community-based rehabilitation services to receive special education. Although the national government has set goals and invested funding into the community rehabilitation programs, the effect is yet to be revealed. This project aims to evaluate the current status of community rehabilitation centers in China based on data drawn from a regional survey conducted by the China Disabled Persons' Federation. From a comparative lens, we will place the community rehabilitation centers in China on a global scale and assess their strengths and weaknesses, in order to identify areas for improvements and provide necessary recommendations.  The current survey included 536 rehabilitation centers attached to different administrative levels, including county and district, township and sub-district, village and local community. The survey data provided several meaningful topics for in-depth exploration. First, we would like to focus on the center-related questions and answers. Compared to the status of community rehabilitation service providers in the U.S., we would like to know which administrative levels of Chinese centers provided more services, the relationship between the services they provided and their affiliated bureaucratic agency, and from where (purchased, financial budget, cooperative programs, etc.) and from what affiliated governmental agency they receive financial support. Second, it would be crucial to investigate service-related questions, such as what services they provided, how these services were provided, and how many people benefited from the services were all noteworthy questions. Further data analysis and interviews with stakeholders involved in this program will be conducted to answer the above questions. Further, implications for policy and practice will be discussed.

# Abstract Catalog

## STEAM curriculum with electric circuits

Ashley Son

Session #13: Poster Session B

Abstract:

This study explores the experiences that involve teaching and learning key ideas of STEM (Sciences, Technology, Engineering, and Mathematics) and concepts emphasizing electric circuits of common electric appliances, as well as electromagnetic current and its properties, to individuals ranging from children to young adults. An electric circuit is defined as a path for the transmission of electric current. An electric current is the movement of charged particles such as electrons, protons, and ions. Depending on how the charges move through a circuit, the current is classified as either alternating or direct. When an electric current flows through a circuit, the electrical energy within the current is transferred over to a device that converts this into other forms of energy capable of doing work, such as powering lights, appliances, and other devices. Understanding electric circuits and electric currents are essential for one to comprehend how electricity works. Electric circuits can be simple or complex, but they all have three main components: wires that carry out the current through a circuit; a power source, such as a generator or a battery; and a device that uses the current to do some type of work, such as a lamp or motor. We will specifically be using paper circuits to introduce to St. George Youth Center. A paper circuit is a low-voltage electrical circuit made with conductive copper tape or conductive ink, LEDs, a power source such as a coin-cell battery, and standard paper. Furthermore, paper circuits materials are low cost, provide a low threshold to entry, and are all items with familiarity. Paper circuits will provide a myriad of chances for students who are unfamiliar with computational thinking while being able to express their creative and artistic side. Utilizing paper circuits helps introduce the fundamentals of electricity, how circuits work, and the concept of STEAM (STEM + arts) overall. By doing so we aim to incorporate the idea of makerspaces with technology in order to engineer a new type of learning environment for the students that will promote the concept of sense, analyze, actuate, and encourage the development of innovation competencies within science, technology, engineering, and mathematics.

# Abstract Catalog

## *Student participation in an English Support SKILLS Classrooms*

Cecilia Hua (she/they), Aiying Huang (she/her), Selena Martinez (she/her), Carla Suarez Soto (she/her)

Session #13: Poster Session B

Abstract:

SKILLS instructors for English Language Development classrooms can struggle to engage students in classroom learning activities, a problem reflected in many K-12 educational settings. Lack of student engagement results in less than ideal learning outcomes pursued by the SKILLS program, which encourages students to develop their own ideas through engagement about sociolinguistic topics. Hence, to understand the ways in which teachers can increase student engagement, we compare the activities used in two ELD classrooms in the SKILLS program and the engagement they yield. Through this research we attempt to answer the following question: What classroom activities that teachers use in the ELD classrooms in the SKILLS program are the most successful in yielding student engagement? This study takes a teacher action research approach to create an intervention to increase engagement by making detailed observations in class and reflecting on each session in writing and through group briefings. Using this data, we will be able to compare what was successful in increasing student participation and what wasn't. Through this research we hope to be able to propose new ideas and activities for engagement with respect to the SKILLS curriculum. This research can be used to better inform educators about the best activities to incorporate into their lesson plans in order to increase participation from students and improve learning outcomes.

## Supporting Isla Vista Youth in Preparing for College

Frances Valinsky, Bertin Solis, Richard Duran

Session #13: Poster Session B

Abstract:

We explore the preliminary findings from a collaborative project between the UC Links-St. George Youth Center, and a UCSB undergraduate service-learning course. The study analyzes the multiple activities involved in undergraduate students' creation of a video intended to encourage and/or inform youth at the site about preparing to go to college. This project wouldn't be possible without our expansive learning system. UC Links network, graduate students, undergraduate students, St. George, and the IV community share a common goal: serving youth. Given social oppressive structures and the barriers to education, critical pedagogy is the frame of our project, and it helps us conceptualize our roles as agents of change in the community: going to college being one of them. COVID-19 had significant influence on creating this project because of its disruptions to education and the social world. Thus, the undergraduate's videos serve as a conversation starter to engage and re-engage in dialogue with the youth about their future, social realities, and problem-solving opportunities (that will only make them a stronger applicant for college). The undergraduate's different individual experiences added to their funds of knowledge creates an invaluable resource for the youth, and the uniqueness of afterschool programs allows for these conversations to happen in a more organic way. The undergraduates being immersed in the youth's environment prior to creating and discussing the videos with them, anticipates a richer conversation given the established comfort level of confiding in one another. This study will add to the ongoing effort and research to investigate how to better serve our youth and their future and strengthen the ties and support between the university and community.

## *Teacher Preparation for Immigrant-origin Children*

Dee Dee Hong (she/her); Jing Su (she/her); Juan Barrera Alcazar (he/him); María Romo-González (she/her)

Session #2: Educational Practice & Program Improvements

## Abstract:

Immigration is dramatically reshaping education systems worldwide. Currently, 25 percent of the school-aged population in the United States (19.6 million young people) has at least one foreign-born parent, and 5 million children or 7 percent of all children enrolled in public and private K-12 schools in the U.S. are living with at least one undocumented parent (Passel & Cohn, 2018). What is more, an estimated 675,000 children under the age of 18 in the U.S. are themselves undocumented immigrants (Passel & Cohn, 2018). While a large body of scholarship examines strategies to support students' multilingual development, there is a dearth of literature focusing on the knowledge, sensibilities, and skills that teachers need to support and educate immigrant-origin students. Goodwin (2002, 2017) drew attention to the need for teacher education to prepare teachers to effectively serve immigrant students and identify the specific aspects of their experiences as immigrants about which teachers ought to be aware. Yet, immigrant students comprise only a small proportion of the overall population of young people in schools whose lives are touched by migration, with the large majority of students being second-generation children of immigrants. Therefore, in this paper, we advance a framework that builds on Goodwin's (2002, 2017) work and identifies some of the fundamental experiences, policies, and phenomena shaping the lives of immigrant-origin children with which all teachers should be familiar in order to successfully educate this group of students. To start, we discuss the ways that growing up with immigrant parents influences young people's development, identities, and engagement in schools and underscore the importance of teachers knowing and understanding this. This includes consideration of the role of language in limiting school-family communication, the effects of children serving as interpreters for adult family members, and the complex family dynamics that may result. Next, we highlight the significance of teachers' awareness the impact of undocumented status and/or living with mixed status family members. We identify the set of key immigration policies that influence the lives of immigrant-origin young people with which teachers should be familiar, including DACA and Plyer vs. Doe. Finally, we foreground the salience of trauma in the lives of many children of immigrants, identifying the multiple potential factors and trauma exposures at different stages of immigration and pointing to research-based trainings in trauma-informed educational strategies that teachers, and in turn, their students may benefit from. Together, we present a framework that describes essential knowledge and understanding that teacher education programs could incorporate into their work to prepare teachers to serve and support an increasingly diverse population of students in their classrooms.

## The Effects of Dual Language Immersion on Elementary Students Learning Mathematics

Azure Otani (She/Her), Cameron Torti, & Dr. Sarah Roberts

Session #10: Teachers of Multilingual Students

Abstract:

There are many bilingual households within the United States (Barac, et al., 2014, p.2). As a result, many children grow up learning English as their second language. Part of acquiring a new language is learning its respective number system. Because of this, bilingual children tend to learn how to count in one language from parents, and then in English at school. There are many pros and cons to this learning technique. It allows students to understand difficult concepts in their own language first, and then adapt what they have learned into the English equivalent. The same can be said vice versa. In other words, students can utilize the opportunity to opt to learn concepts in the language that makes more sense to them in the situation. Through research, we can identify not only the cognitive-developmental advances a student can make in a bilingual setting but also the benefits of learning mathematics in their mother tongue (Ester, et al., 2021 p. 1). When a mathematical education in both languages is combined, there is an exponential increase in opportunities for a student to understand a concept, theorem, or formula. In addition, learning mathematics in one language, and then being taught again in another allows for repetition and confidence within a student as they solidify the concept. Through this literature review, the effects of young bilingual students learning mathematics through a dual language educational career will be discussed.

# Abstract Catalog

## PRESENTATIONS LISTED IN ALPHABETICAL ORDER BY TITLE

***The Effect of Ethnic and Feminist Studies on BIPOC Undergraduates at UCSB***

Amanda Doan (she/her), Vince Feliciano (he/they), Melissa Garcia (they/she), Juana Martinez (she/her), Victoria Rivera (she/they)

Session #13: Poster Session B

Abstract:

### *The Engineering Design Process in the Eyes of Students*

Alexandria Muller (she/they), Devon M Christman (she/her), Sera Barron (she/her), Danielle Harlow (she/her)

Session #13: Poster Session B

Abstract:

The Engineering Design Process (EDP) has long been documented and has been adapted for use in elementary classrooms. Early classroom representations of the EDP consisted of linear models such as "Plan, Design, Check, Share" from Barger, et al. (2005); however, recent efforts have focused on a more flexible and non-linear engineering design process that depict iterative approaches to engineering design (See, for example, Engineering is Elementary (Museum of Science, Boston; 2020), Engineering by Design (ITEEA, 2011), TeachEngineering (University of Colorado, Boulder)). Through a Research-Practice Partnership between a university in southern California and a local interactive science center, we developed engineering-focused curricular modules to support teachers in connecting field trip learning to the classroom, thus extending the engagement of students with engineering and the engineering design process. Our work is based on a non-linear model of the EDP that encourages students to move between the various stages of the design process. In this paper, we explore how sixth-grade students depict the EDP after participating in a four-part engineering curricular module.

## The Future of Education: Asset-based Pedagogy

Emily Zomoroudi, Cameron Dexter Torti, Julie A. Bianchini, Sarah A. Roberts

Session #6: Language in Use

Abstract:

How can we as a country improve the motivation and academic success of our nation's disenfranchised children? High-stress state testing, standardized curricula, and a hierarchical set of decontextualized skills disregard a student's valuable background knowledge, culture, and experiences as resources for learning (Dudley-Marling, 2007). Asset-based pedagogies have emerged in teacher education and instruction (I et al, 2020), providing opportunities for teachers to facilitate paradigm-shifting instruction and make learning more equitable for their students. Asset-based pedagogies focus on the unique strengths of each student in the classroom. It promotes equity, accessibility, and success in education within diverse communities. It is an approach to teaching that emphasizes what students already know and are capable of rather than their areas of weakness. This presentation describes the positive impact of implementing asset-based pedagogies in K-12 classrooms through the lens of teachers performing professional development around mathematics language routines and key principles for reform-based instruction with multilingual learners. We aim to highlight the existing benefits of implementing asset-based pedagogy in K-12 classrooms across the United States while discussing prior research on asset-based pedagogies and formulating ideas to incorporate asset-based pedagogy into future curriculums throughout the country.

## *The Great Space Race: The effect of a digital mathematics board game on preschoolers' number knowledge*

Jonna R. L. Wong (she/her/hers) and Dr. Yukari Okamoto, Ph.D. (she/her/hers)

Session #5: STEM Education

Abstract:

Understanding numbers is an early critical skill that must be mastered to be successful in mathematics. Although mathematics education research has been conducted in regard to early numerical abilities, in light of current events, there needs to be more research about activities that can be used to promote numerical understanding in children through remote instruction or activities that parents can participate in at home with their children. In this study, preschool children ages 4 - 6 years-old will play a digital mathematics board game, called "The Great Space Race". The game is modeled after a physical board game used in prior research that has been shown to improve preschoolers' number knowledge in past studies. The unique features of this study include taking the game from the physical into the digital realm and having parents play the game with the children instead of trained researchers. The study will be conducted remotely through Zoom sessions with researchers for pre and posttest measures as well as training to play the game. The board game is a classic race to the finish style game with a board that contains 10 spaces labeled from 1 to 10. The parent and child will take turns "rolling" a one or a two and advancing their tokens accordingly. The game ends when the first player reaches the 10 space. Parents and children will be asked to play the game approximately 20 times between the pre and posttest. Performance on pre and posttest measures of number knowledge will be compared to determine if playing "The Great Space Race" improved preschoolers' number knowledge. Parents will also be asked questions about their experiences with the game as well.

## The Sustainable Development and Climate Justice in the GGSE symposium

Monica Mendoza (she/her/ella), Danielle Harlow (she/her), Devon Azzam (she/her), George Yatchisin (he/him), Amanda Andersen, Julie Bianchini (she/her), Diana Chagolla (she/her), Maryam Kia-Keating, Jeffrey Milem, Christopher Ozuna (he/him/his), Estefania Pihen (she/her), ; Matthew Shackley, Jing Su (she/hers), Briana Villasenor

Session #8: UN Sustainability Initiatives

Abstract:

Understanding numbers is an early critical skill that must be mastered to be successful in The Sustainable Development and Climate Justice in the GGSE symposium provides an exciting opportunity to advance our knowledge and develop a unified stance from GGSE towards local environmental sustainability, justice, and equity issues. This symposium features presentations from an interdisciplinary group of researchers and practitioners aimed at sustainable development. Sustainable Development means developing in ways that protect people and the planet and requires consideration of multiple interacting environmental and societal issues from climate change, pollution, and the overuse of resources, to poverty, to racial and gender inequities. The United Nations Sustainable Development Goals (SDGs) were adopted by member states (countries that are members of the United Nations) in 2015 as a universal call to action to protect both the planet and its people. The 17 Sustainable Development Goals include social goals such as reducing inequities, eliminating poverty, and access to quality education, alongside environmental goals of clean energy, protecting life on land and below the water, and climate action. The GGSE is well positioned to educate children and the community in ways that will provide students with the knowledge, skills, and attitudes to be a positive part of the efforts to mitigate the social and environmental impacts of climate change with a goal of sustainable development. In this symposium, we will highlight a sample of the many teaching, research, and outreach activities already occurring at the GGSE that align with the UN's Sustainable Development Goals and discuss next steps for future work.

**"The Reason Why I Got the Job is K-pop": Teacher Stances Towards Hallyu in Korean Language Instruction**

Huay Chen-Wu (she/her), Elica Sue (she/her), Samantha Harris (she/her)

Session #12: Language Meets Content

Abstract:

This study examines teacher and student stances towards Hallyu content in Korean language instruction through interviews with Korean language instructors as well as surveys and focus groups with their students. Hallyu, also known as the Korean Wave or K-wave is a term that refers to the global boom of Korean popular culture especially K-pop music and Korean dramas; it has been connected to the increased enrollment in Korean language courses at higher education institutions in the past several years despite an overall decline in foreign language course enrollment. However, few studies have addressed how Korean language instructors have responded to this Hallyu-driven demand for Korean language education and fewer still have examined where heritage learners fit into this trend. Preliminary findings from the interviews include teachers' stances towards Hallyu as both an asset and a challenge for their teaching practices. Some interviewees were unsure of how their students might be responding to this content and expressed particular uncertainty regarding heritage learners' stances towards Hallyu. Implications for language learning and teaching will be discussed.

# Abstract Catalog

PRESENTATIONS LISTED IN ALPHABETICAL ORDER BY TITLE

*The Role and Salience of Latino Parent Support in First-Generation Latina Undergraduate Experiences*

Diana Magaña (She/Her/Hers)

Session #14: Support Networks

Abstract:

While more and more Latina/o students are enrolling in higher education institutions today than ever before, Latina/o undergraduates consistently have some of the lowest degree completion rates. Over the years, researchers have increased their understanding of the supports successful Latina/o students utilize to overcome common hurdles and persist to degree. Although mounting evidence provides increasing support for the primary role that parents play in Latina/o postsecondary success, many of the studies that have evidenced manifestations of Latino parent support have done so by happenstance in examinations of related phenomena. As such, this study sought to produce a rich and comprehensive understanding of the various way in which Latino parents' support can be expressed to and how it is valued by Latina undergraduates. Using a grounded theory approach, interviews with 26 first-generation Latina undergraduates were analyzed and yielded nine categories of parental support described by at least 20% of the participants in each category: (1) "Check in" on them; (2) Provide empowering messages; (3) Be a sounding board; (4) Understand that college is an arduous experience; (5) Communicate realistic expectations; (6) Trust their decisions; (7) Allow them space to grow; (8) Encourage them to get engaged; (9) Provide concrete support. Findings reveal that students value forms of parental support that accommodate their desire for greater independence, in line with individualistic norms endorsed by and deeply rooted in Western postsecondary settings. Interestingly, however, findings also revealed that students ascribe equal, if not greater, value to manifestations of support that enable a continued sense of interdependence with their parents, arguably influenced by the collectivist orientation of their upbringing, and from which they draw great strength and motivation.

## *Ubiquitous Computing & Computational Thinking*

Vicky Zhou (she/her/hers), Richard Duran (he/him/his)

Session #3: Poster Session A

Abstract:

We live in a society where computing is ubiquitous, even if you don't realize it. The concept of ubiquitous computing is that computing today can be found everywhere all around us to accomplish important everyday tasks and can support more and more forms of learning and communication. We can communicate all over the world through our cell phones and access knowledge bases that can answer questions we pose in an instant. Our shared motorized bikes in cities can charge themselves, the food delivery service can use computers to manage orders from customers to their delivery, and the shopping website that utilizes our browsing history can recommend goods that we might or might not need. All of those are examples of how ubiquitous computing is making an impact on our lives, and this influence of the Internet of Things (IoT) is only going to grow stronger and faster at an exponential rate illustrating that computation is needed more than ever by humans. A deep insight is that many everyday artifacts, whether they run on electricity or not, are "computational" by their very design—they are artifacts that by design: sense signals, process them, and actuate responses. They process signals as symbols with syntactical features that operate in a manner determined by their material and asbmbolic embodiment as programable automata.

## *Underrepresented Students' Sense of Belonging in Ethnic Studies Courses*

T. Royce Olarte (he/him); Sarah A. Roberts (she/her); Lydia Gee (she/her); Lauren Huang (she/her)

Session #9: Ethnic Studies Curricula & Pedagogy

Abstract:

Students with a strong sense of belonging within a university are more committed to the institution and are more likely to remain in college (Johnson et al., 2007). However, not all students can easily develop this sense of belonging, and there is a growing concern in higher education about how underrepresented (e.g., low-income, first-gen, BIPOC, transfer) students experience a sense of belonging. Universities bear the responsibility for developing this sense of belonging (Hurtado & Carter, 1997), and helping students to integrate into existing institutional structures. While many efforts and programs have been developed to address this concern, little is known about how Ethnic Studies courses contribute to students' sense of belonging within universities. Our research question was: How did an Ethnic Studies course designed to prepare future K-12 Ethnic Studies educators contribute to underrepresented students' sense of belonging? We drew on Hoffman et al. (2003) to examine how the student/peer relationships and student/faculty relationships that resulted from the Ethnic Studies course contributed to a sense of belonging within the course and the university at large. Five Ethnic Studies majors participated in focus group interviews, and we qualitatively analyzed their responses by writing memos and identifying common themes. We found that participants reported extremely positive student/faculty relationships that resulted from the professor's pedagogy, the professors' emotional and moral support, and the course curriculum. Participants noted feeling seen, heard, and empowered by the professor to continue in their career pursuits. Overall, the Ethnic Studies course created a space for students to share and process their lived experiences and build a community with others who share similar values, beliefs, and career goals. Ethnic Studies courses designed to equip students with the knowledge and skills to be Ethnic Studies educators can also foster a sense of belonging for underrepresented students.

## Understanding Postsecondary Institutional Selection

Travis Candieas (he/him/his)

Session #7: Post-Secondary Institutions and Organizations

### Abstract:

Understanding postsecondary institutional admissions requires understanding the complex social foundations of higher education institutions. Higher education organizations are institutionalized within U.S. society and as such operate under socially legitimated myths of selection. Pressures emerging from the rapidly diversifying U.S. population and federal interest in Hispanic Serving Institutions provide postsecondary institutions reasons to adapt or change their organizational structures for survival. Postsecondary organizations are also accountable to government, community, and student stakeholders, which complicates and intensifies political forces. These conditions faced by higher education organizations have led to changes and adaptations to maintain legitimacy, possibly at the expense of functional capability. This study explores postsecondary financial support, admission criteria, and advising functions related to organizational selection processes. Research on group performance motivates this research to evaluate the extent to which institutional workgroup members engage with technical processes as well as with structural characteristics of the institution related to admissions rituals. Workgroups include leadership and front-line administrators who engage with structural, human resources, political, and symbolic aspects within the organization. Workgroups are involved in the social construction of typical organizational characteristics that produce organizational behaviors and institutional outcomes. The research design employs a mixed methods explanatory sequential approach to establish a statistical baseline for postsecondary institutional performance around admissions using data from the Integrated Postsecondary Education Data System (IPEDS). Further qualitative inquiry is used to explore organizational processes utilized when implementing admission policies. Findings and possibilities for future research considering other postsecondary institutional myths in a globalized economy are considered.

# Abstract Catalog

## PRESENTATIONS LISTED IN ALPHABETICAL ORDER BY TITLE

### *Using Social Network Analysis Software to Trace Faculty Innovations in a MultiTeam System*

Mark Mader, Moorea Keene, T. Royce Olarte, Sarah Hough

Session #3: Poster Session A

Abstract:

Catalyzing New Practices for the San Joaquin Valley to Innovate Effective Teaching Pedagogies in Lower-Division Mathematics and Chemistry Courses (subsequently referred to as MC2) is an NSF project that brings together teams of STEM faculty from three Hispanic-Serving Institutions in order to generate ideas for and support the development of innovative curriculum, including new high impact practices, in lower-division high-failure-rate chemistry and mathematics courses. An evaluation study of this project is using multiple methods to both capture the formation of ideas for innovation as they occur within project activities, as well as the collaborations that dispersed and the resources needed to move these ideas into action in faculty classrooms. In this paper presentation we share how we are using one such method, social network analysis and associated network storytelling software, as useful evaluation tools for tracing and depicting the formation and growth of innovations, how they are shared within and across teams and the types of resources that they draw upon as a mechanism to do so. Proposals for innovations are generated by interdisciplinary faculty in a think-tank, IDEAs lab and dispersed via the inter-team collaborative activities. Participants then, form a multiteam system and assessment of the effectiveness is often dependent upon understanding the mechanisms by which the individual teams manage their own group effectiveness while at the same time facilitating the functioning of the overarching goals of the MTS which include disseminating the innovations and the ideas behind them throughout the MTS. Initial analyses reveal mechanisms called Promising Implementation Practices (PIPS) such as inter- and intra-team collaborations formed, connecting to, and utilizing already established department HIPs, nurturing connections made to other IDEAs faculty and identifying essential needed resources early in the process. SNA and storytelling software allow us to show the trajectory of PIPS as they unfolded time.

# Abstract Catalog

## *"We always knew it was broken": Motherhood and Education During the COVID-19 Pandemic*

Emily Searson (she/her)

Session #13: Poster Session B

Abstract:

During the COVID-19 pandemic, educators at public K-12 schools in the United States grappled with school closures and the new, online classroom environment. Simultaneously, mothers faced a "new normal" as their children attended school from home. How do participants who identify with both of these categories explain the effects of the COVID-19 pandemic on their lives at work and at home? The results of this study demonstrate that educators who are also mothers faced a "double whammy" as they contended with the pandemic's effects on the workplace and the domestic sphere. The interview participants reported an increase in emotional labor as they worried over the pandemic's disastrous consequences for students. Further, they identified workplace supports, such as school administrators and teacher's unions, as a point of contention, suggesting a broader awareness of labor conditions. The label "essential worker" triggered a common belief that the COVID-19 pandemic portrayed teachers as "heroes"; yet, the participants also argued that their concerns with education as an institution and the lack of proper compensation and benefits for teachers were glossed over by their "essentialness." The participants pointed to the COVID-19 pandemic's exacerbation of inequities within education, such as access to technology, funding for school districts, and learning itself. The findings show that the pandemic's highlighting of these inequalities, however, reflect broader, systemic issues. Further, the interviewees held nuanced understandings of these issues which they articulated succinctly. However, the interviewees' structural diagnosis of educations' ills, the pandemic's lingering inequities, and their occupation itself contrasted with their understanding of life at home, particularly the increase in household work and childcare during the pandemic. These findings contribute to research on education and women's studies by examining how the teaching occupation as a "pink industry" intersects with motherhood and the pandemic's effects on both.

PRESENTATIONS LISTED IN ALPHABETICAL ORDER BY TITLE

*'We Are Here, and We Are Here to Stay': Formerly Incarcerated Students' Experiences and Educational Attainment in California Higher Education*

Gabriela (Gaby) Trachsel (she/her/hers)

Session #3: Poster Session A

Abstract:

Mass incarceration of juveniles and young adults presents many challenges to rehabilitating individuals into society. Yet, researchers neglect to consider how having opportunities to obtain an education outside of confinement can support successful reintegration. To explore the experiences of formerly incarcerated students and their perceptions of support during reintegration periods, as well as reform for the system and their colleges, this study interviewed eight individuals who have attended four-year programs at universities across California. Additionally, this study has looked critically at multimedia platforms like podcasts and news articles to examine how formerly incarcerated students present their thoughts and feelings towards restorative justice in the public sphere. Transcription and thematic coding of interview data, along with multimedia sources, showed five overarching themes: adversity during childhood served as a catalyst to acting 'defiantly,' there is a significant lack of care and resources inside and outside of the prison institutions, motivation for obtaining a college education stemmed largely from supportive individuals around participants, defining the criminal justice system as broken yet understanding the need for one, and thoughts on reform. Society largely focuses on the idea that prison institutions create positive change in that they lessen the likelihood of recidivism and create socially "functioning" individuals. However, system-impacted individuals are stripped of their autonomy upon contact with the system and thereafter. The findings of this study indicate a need for educational institutions to better support formerly incarcerated individuals and provide them the resources necessary to desist from crime and succeed in life outside of prison. The implications for restorative justice measures being implemented in universities across California are discussed.

*What does it take to be a good mentor? A preliminary look into the needs of mentees*

Mary Franitza (she/they)

Session #14: Support Networks

Abstract:

Undergraduate students at R1 ranked universities primarily interact and build relationships with university staff and graduate students. Between undergraduate students and university affiliates, traditional models of undergraduate mentorship have taken hierarchically, where relationship between mentor and mentee include the unidirectional dissemination of practical knowledge. However, as graduate students play an integral role in supporting culturally and linguistically diverse students in their pursuits toward graduate school (Mireles-Rios & Garcia, 2019; Herrera et al., 2011; Méndez-Morse, 2004), these models of mentorship have shifted. For many culturally and linguistically diverse students, graduate students serve as the most direct institutional agent. This qualitative study investigates how graduate students best support and mentor undergraduate students. Initial findings support previous findings in which graduate student mentorship is strong when mentorship is representational (Mireles-Rios & Garcia, 2019), part of identity-validating program involvement (Herrera et al., 2011), and includes specific skill development (Méndez-Morse, 2004). However, in combination with one another, the three consistent characteristics of graduate student mentorship apart from faculty or other university affiliated mentorship included accessibility, flexibility, and increased access to social networks. Larger implications for these findings include higher education institutional responsibility to support graduate-undergraduate student relationships and graduate student training to include mechanisms for accessible, flexible, and wide-reaching engagement with undergraduate students.