

Proceedings of 2026 Conference of TODOS: Mathematics for All



**TODOS en Comunidad:
Rooting Mathematics in Humanity**

June 24-25, 2026 | Orange County, CA

Suggested Citation for the proceedings:

Yi, J., & Martinez, R. (Eds.). (2026). *Proceedings of the 2026 annual meeting of the TODOS: Mathematics for All*. TODOS: Mathematics for All. <http://doi.org/10.63966/teem.vi>

Citation for each paper of the proceedings:

Authors. (2026). Title of Paper. In J. Yi & R. Martinez (Eds.), *Proceedings of the 2026 annual meeting of the TODOS: Mathematics for All*. (pp.##-##). TODOS: Mathematics for All. <http://doi.org/10.63966/teem.vi>

Copyright: Articles published in the Proceedings are copyrighted by the authors. Permission to reproduce an article or portions from an article must be obtained from the author.

Editors

Jiyeong Yi, Iowa State University, jiyeongi@iastate.edu

Ricardo Martinez, Pennsylvania State University, rfm5798@psu.edu

Thank You to Our Reviewers

Conference Proposal Reviewers

Melissa Gallagher
Celine Liu
Rachel Benoff
Beth Herbel-Eisenmann
Alexa Lee-Hassan

Proceedings Paper Reviewers

Crystal Craig
Sandra Zuniga Ruiz
Gianna Shields
Shristi Shrestha
Lauren Rigby
Leonor Pereda
Madeline Keyes
Ingrid Ristroph
Ruth Oliwe

History of TODOS: Mathematics for All

TODOS: Mathematics for ALL is a mathematics equity organization that emerged between 2000 and 2003 through the efforts of the Equity and Diversity Advisory Committee (EDAC) of the National Council of Teachers of Mathematics (NCTM). At NCTM annual meetings in 2001 and 2002, EDAC sponsored sessions focused on issues affecting the education of Hispanic/Latino students. These sessions brought together a group of dedicated educators who convened a founding meeting in Tempe, Arizona, in February 2003.

This inaugural gathering marked the official formation of TODOS. Participants established the organization's name, mission, goals, leadership structure, Constitution, and By-Laws, laying the foundation for its work in advancing equity and excellence in mathematics education.

TODOS was incorporated in Arizona in 2003, received 501(c)(3) nonprofit status in 2004, and became an official NCTM affiliate that same year. The organization held its first official meeting during the 2005 national conferences of NCTM and the National Council of Supervisors of Mathematics (NCSM). In the years that followed, TODOS expanded its presence through national, regional, state, and local conferences, becoming a leading voice for equity in mathematics education.

In 2009, TODOS launched its peer-reviewed journal, *Teaching for Equity and Excellence in Mathematics Education (TEEM)*. Beginning in 2010, the organization further broadened its professional learning opportunities through TODOS LIVE!, a series of interactive webinars for educators. Since 2005, TODOS has also hosted an annual business meeting in conjunction with the NCSM conference. The Iris M. Carl Leadership and Equity Award, first presented in 2006. Over the years, TODOS has recognized outstanding educators and students through a variety of awards presented at national, regional, state, and local conferences, further advancing its mission of promoting equity and excellence in mathematics education for all learners.

Mission & Goals

Grounded in equity. Driven by educators. Built for students.

The mission of TODOS: Mathematics for ALL is to advocate for equity and high quality mathematics education for all students, in particular, Latina/o/x students.

At TODOS, we believe every student deserves access to mathematics that reflects their brilliance, culture, language, and lived experience. We advocate for equity and excellence in math education—with a special emphasis on the experiences of Latina/o students—by connecting educators, families, and leaders with the tools and knowledge they need to create change.

Mission Goals

From supporting teacher growth to informing policy, the five goals of TODOS shape everything we do.

1. Advance educators' knowledge and ability in a way that leads to implementing an equitable, rigorous, and coherent mathematics program that incorporates the role language and culture play in teaching and learning mathematics.
2. Develop and support educational leaders who continue to carry out the mission of TODOS.
3. Generate and disseminate knowledge about equitable and high-quality mathematics education.
4. Inform the public and influence educational policies in ways that enable students to become mathematically proficient in order to enhance college and career readiness.
5. Inform families about educational policies and learning strategies that will enable their children to become mathematically proficient.

About the Conference

The TODOS 2026 Conference is a vibrant space for educators committed to humanizing mathematics learning. Attendees will engage in sessions that lift up student brilliance, challenge inequities, and offer actionable tools to catalyze change in classrooms, districts, and communities. Please refer to [this website](#) to learn more about the previous TODOS conferences.

This year's theme, *en Comunidad*, emphasizes learning *with* and *from* one another. Together, we will explore how mathematics education can honor identity, culture, language, and the lived experiences of all learners.

This conference is designed for:

- PK–12 teachers of mathematics
- Coaches and instructional leaders
- District and school administrators
- Researchers and higher education faculty
- Future teachers
- Community partners & nonprofit leaders
- Families, caregivers, and students engaged in math advocacy
- Anyone committed to equity and justice in mathematics

At TODOS Conferences, you can:

- Build community with educators and math equity activists from across the country
- Learn strategies that transform mathematics teaching and learning
- Center identity, culture, and humanity in your math practice
- Hear powerful stories and ideas from justice-oriented educators
- Engage in hands-on learning, dialogue, and collaboration
- Leave with actionable tools and new collaborations to improve student access, engagement, identity, and achievement

TODOS 2026 Conference Program Co-Chairs: Melissa Gallagher & Katie Rupe

Conference Strands

All conference sessions align with the four strands identified in the joint NCSM/TODOS Position Statement on Social Justice:

- **Beliefs & Structures**
 - Transforming beliefs and disrupting inequitable structures in mathematics education.
 - Sessions center dismantling deficit perspectives, fostering inclusive environments, and reimagining systems that support all learners.
- **Curriculum & Instruction**
 - Reimagining curriculum and pedagogy to support equitable mathematics learning.
 - Sessions highlight high expectations, culturally sustaining practices, multilingual learner brilliance, and actionable classroom strategies.
- **Families & Communities**
 - Recognizing families and communities as essential partners in mathematics learning.
 - Sessions explore building trust, shared leadership, identity development, and community-centered practice.
- **Systems & Accountability**
 - Transforming systems to promote equitable and rigorous math learning.
 - Sessions examine policy, accountability structures, teacher agency, technology, and replacing oppressive practices with liberatory ones.

Past Conferences

Year	Theme	Place	Date
2014	Beyond Awareness ~ Equity, Access and Achievement for ALL	Chandler, AZ	June 26-28
2016	Ensuring Equity and Excellence in Mathematics for ALL	Scottsdale, AZ	June 23-25
2018	It's <i>ALL</i> about <i>ALL</i> Students Learning Quality Mathematics: Advocating for Equity & Social Justice	Scottsdale, AZ	June 21-23
2021	Activating Agency, Access, and Advancement in Mathematics	Virtual	June 21-23
2023	Actions in Mathematics Education: Catalyzing, Cultivating, and Expanding Critical Conversations	Albuquerque, NM	June 21-23

Editors' Message

We are deeply honored and pleased to put in your hands the Proceedings of the TODOS 2026 Conference. As the inaugural volume of conference proceedings for TODOS: Mathematics for ALL, this publication marks a historic milestone in our organization's commitment to advancing equitable, humanizing, and social justice-oriented mathematics education.

The theme of the 2026 TODOS Conference, *En Comunidad*, captures the heart and vision of our mission. Intentionally grounding our collective work in this Spanish concept emphasizes the essential act of learning *with* and *from* one another. *En Comunidad* calls us to explicitly honor and value the rich cultures, languages, identities, and lived experiences that every student, educator, family, and researcher brings into mathematical spaces. Choosing this phrase as our conference theme serves as an active commitment to center community cultural wealth and linguistic diversity in every aspect of mathematics teaching and learning.

The past several years have brought unprecedented shifts across the United States and globally, shaped by the lingering impacts of the COVID-19 pandemic, geopolitical conflicts, rapid technological developments with artificial intelligence, and dynamic political and social changes. Amid these external pressures, it has been a challenge to maintain a consistent conference schedule to safely, equitably, and efficiently serve our members. In that light, the 2026 conference represents a vital turning point. It stands as a powerful testament to our collective resilience and a concrete step toward establishing a predictable, rigorous, and sustainable academic community. As we look ahead, it is our earnest hope that the TODOS conference will transition into an annual gathering, a reliable sanctuary where educators and scholars can re-energize, collaborate, and innovate together. At the core of this vision is student and educator agency. We view agency not as a passive goal, but as the fundamental starting point of the values TODOS champions. By empowering educators to disrupt inequitable structures and affirming students as capable mathematical thinkers, we activate the transformative potential of mathematics education.

The 2026 conference brought together a vibrant community of 140 registered participants dedicated to critical scholarship and transformative practice. The program featured more than 51 total sessions, including: (1) 46 peer-reviewed presentations spanning classroom practice, critical research, and community advocacy; (2) Inspiring keynote addresses and Presidents' addresses; and (3) Award presentations honoring outstanding leadership and teaching in equity-focused mathematics education.

We extend our sincere gratitude to all conference program co-chairs, session organizers, keynote speakers, presenters, peer reviewers, and attendees whose energy and insights made the conference a resounding success. Special thanks go to Lisa Jilk and the Award Committee for

their dedication in preserving and featuring the powerful statements of our awarded teachers within this volume, as well as the Research and Publications (R&P) Committee members for their rigorous review and editing process that ensured high scholarly standards throughout these proceedings. We are also deeply grateful to Jordan Register, whose technical expertise was instrumental in assigning DOIs and publishing this volume for widespread academic access. Finally, we express our profound appreciation for the steadfast leadership and long-term support of the TODOS Board, including Presidents Marian Dingle and Kari Kokka, alongside all board members whose vision continues to guide and sustain our community.

We hope these proceedings serve as a lasting resource, inspiration, and catalyst for action as we continue to advocate for equitable mathematics education—together, en comunidad.

In solidarity,

The Editorial Team Proceedings of the TODOS 2026 Conference

Jiyeong Yi
Iowa State University
TODOS Board Director (2023-26)
Research & Publications Committee Chair
(2023-26)

Ricardo Martinez
Pennsylvania State University
Research & Publications Committee Chair
(2026-28)

Table of Contents

History of TODOS: Mathematics for All.....	3
Mission & Goals.....	4
About the Conference.....	5
Conference Strands.....	6
Past Conferences.....	6
Editors' Message.....	7
Keynote.....	10
Building a collective classroom discourse: An open door to humanizing languaging.....	11
Crear un discurso colectivo en el aula: Una puerta abierta para humanizar el lenguaje.....	11
CHAPTER 1.....	19
Mapping the Commitment to Equity: Where TEEM Research Aligns with TODOS and What Gaps Remain.....	20
A Mosaic of Needs, Desires, and Hopes: Creating en Comunidad to Cultivate Action in Mathematics Education.....	24
Reimagining Geometry Lessons to Foster Empathy: Designing a Lantern with Math Modeling.....	29
Linguistically Equitable Mathematics for Emergent Multilinguals.....	34
Preservice Teachers' Operationalization of Community-Centered Data Talks.....	39
The Case for Ethnomathematics.....	43
Mathematics in Our Lived Experiences: Sharing Stories to Broaden Perceptions and Transform Learning.....	48
CHAPTER 2.....	53
Co-Learning with Data Stories: Rooting Data Practices in Humanity.....	54
CHAPTER 3.....	58
Asset-Oriented Math Instruction: Shifting Teacher Mindsets for Emergent Bilingual Success..	59
Celebrations.....	63
2026 Cathy Kinzer Memorial Professional Development Awardees.....	64
2026 Susie W. Håkansson Teacher Award Application.....	67
TODOS Membership.....	76

Keynote

Building a collective classroom discourse: An open door to humanizing languaging
Crear un discurso colectivo en el aula: Una puerta abierta para humanizar el lenguaje

Ferran/Fernando Rodriguez-Valls, Ph.D.
California State University, Fullerton
frodriguez-valls@Fullerton.edu

Abstract: At a time when intolerance and radicalism are overtaking dialogue, respect, and coexistence, it is crucial for schools to collectively build—involving students, educators, and the community—linguistically inclusive spaces. One step in this process is to value, embrace, and include students' linguistic repertoires. In this article, I analyze and propose paths we can co-create so that the language and discourse generated in classrooms represent and amplify students' identities. A humanizing education requires that every participant feel represented, included, and heard.

Resumen

En una época en que la intolerancia y el radicalismo se apoderan del diálogo, del respeto y de la convivencia, es clave que las escuelas construyan de manera colectiva —estudiantes, educadores y la comunidad— espacios lingüísticamente inclusivos. Uno de los pasos en este proceso es valorar, acoger, incluir los repertorios lingüísticos de las estudiantes. En este artículo analizo y propongo caminos que podemos co-crear para que la lengua y el lenguaje que se generan en las aulas representen y amplifiquen las identidades de las estudiantes. Una educación humanizadora requiere que cada participante se sienta representada, incluida y escuchada.

What does it take—and what does it mean—to create a classroom that is linguistically and culturally inclusive? Today, this question holds immense significance given the sociopolitical climate in which we find ourselves. Before sharing my answer to this and related questions, I want to state my positionality as an educator and a citizen. I arrived in California thirty years ago, shortly before Proposition 227 dismantled bilingual education. I came from Catalonia, where I had taught in Catalan. I mention this experience because, in a sense, Spanish was the language that represented the oppression of my linguistic identity. Upon arriving in California, I became someone who taught Spanish—and taught *in* Spanish. This ironic dichotomy has shaped, and continues to shape, my career as an educator and researcher. Spanish is part of my linguistic repertoire, alongside English, French, and Catalan. The latter represents who I am and connects me to my mother, grandmother, sisters, and roots. In a way, I have almost always felt that I was speaking what Derrida defines as "the monolingualism of the other." At times, my

voice shifts and adapts to the speech of the other, which causes it to lose some of its essence. This loss of identity means that speaking becomes, at times, a dehumanizing practice.

¿Qué se requiere y significa el crear un aula que sea lingüística y culturalmente inclusiva? Esta pregunta al día de hoy tiene una relevancia superlativa por el clima sociopolítico en el que estamos inmersos. Antes que comparta mi respuesta a esta y otras asociadas a los temas de la misma, quiero compartir mi posicionamiento como educador y ciudadano. Llegué a California hace treinta años, un poco antes de que la proposición 227 demoliese la educación bilingüe. Venía de Cataluña, donde daba docencia en catalán. Comparto esto porque, en cierta manera, el español era la lengua que representaba la opresión de mi identidad lingüística. Al llegar a California, me convertí en la persona que enseñaba español y en español. Esta irónica dicotomía marcó y sigue marcando mi carrera como docente e investigador. El español es parte de mi repertorio lingüístico, al igual que el inglés, el francés y el catalán. Este último representa quién soy y me conecta a mi madre, abuela, hermanas y mis raíces. De algún modo, casi siempre he sentido que estaba hablando lo que Derrida define como el monolingüismo del otro. Mi voz por momentos se morfa y se adapta al hablar del otro, lo cual hace que pierda un poco de su esencia.

Esta pérdida de identidad conlleva que el hablar se convierta por momentos en una práctica deshumanizante.

In my projects, research, and today's presentation, I analyze this loss of humanity in the classroom. A key aspect of this inquiry—focused on how to value, embrace, and include the voices of all students—examines the development of the ability to listen attentively to what they say, not only on a verbal level but also on physical and cognitive levels. Unfortunately, there are classrooms where educators monopolize speech in terms of the tool—language—and its usage—language. This control of discourse perpetuates the notion of linguistic supremacy (Smalls, Spears, and Rosa, 2021).

En mis proyectos, investigaciones y en la presentación de hoy, analizo esta pérdida de humanidad en los salones de clase. Uno de los aspectos claves en esta indagación de cómo valorar, abrazar e incluir las voces de todas las estudiantes examina el desarrollo de saber escuchar de manera atenta a lo que dicen estas, no solo a nivel verbal, sino también a nivel físico y cognitivo. Desafortunadamente, hay salones de clase donde las educadoras monopolizan el habla en términos de herramienta – lengua – y su uso: el lenguaje. Este control del discurso perpetúa la idea de supremacía lingüística (Smalls, Spears y Rosa, 2021).

Linguistic supremacy emerges from, among other sources, monoglossic ideologies (García & Torres, 2009). Such ideologies reinforce the monolingualism associated with the "English-Only" concept. In this context, the teacher's voice [in English] dominates the teaching and learning process. The educator's voice silences and suppresses students' voices—particularly those of emergent bilingual female students—and exerts control over the teaching and learning processes. Constructs such as "academic" and "standardized" language dilute the richness of the language students acquire in other settings: the community, the home, the family, and lived experiences. Zúñiga (2019) explains that reducing language to dualities—such as standard versus non-standard or academic versus non-academic—ignores the fact that language is always created within specific contexts (i.e., it is situated).

La supremacía lingüística emerge entre otras fuentes de ideologías monoglósicas (García y Torres, 2009). Tales idearios solidifican el monolingüismo asociado al concepto de English-only. En este contexto, la voz del maestro en inglés es la que domina el aprendizaje y la enseñanza. Las voces de los estudiantes, especialmente las de las alumnas bilingües emergentes, se silencian oprimidas por el control que ejerce la voz de la educadora. Constructos como lenguaje académico y estandarizado diluyen la riqueza del lenguaje que las estudiantes aprenden en otros espacios: comunidad, casa, familia, vivencias. Zúñiga (2019) explica que simplificar lengua y lenguaje en dualidades como estándar y no estándar, académico y no académico, ignora la idea de que ambos se crean siempre en contextos [they are situated].

Understanding that the language students bring to the classroom forms the foundation of their linguistic skills and literacy is key to co-creating a linguistically inclusive classroom and a discourse that reflects and respects students' identities and intersectionality. For decades, classrooms have been the very spaces where emergent bilingual students have been forced to abandon their linguistic repertoires—ranging from being prohibited from using their native languages to being compelled to suppress their bilingual abilities in order to demonstrate English proficiency (Gounari & Macedo, 2009; May, 2023).

Entender que el lenguaje que las estudiantes traen al salón de clases es la base de sus destrezas lingüísticas y su literacidad es clave para co-crear un aula inclusiva desde lo idiomático y un discurso que refleje y respete las identidades de las estudiantes y su interseccionalidad. Por décadas, los salones de clase han sido el refugio y el foro donde los estudiantes bilingües emergentes han tenido que renunciar al uso de sus repertorios lingüísticos. Desde prohibirles

utilizar sus lenguas maternas a obligarles a sesgar sus destrezas bilingües para mostrar su competencia lingüística en inglés (Gounari y Macedo, 2009; May, 2023).

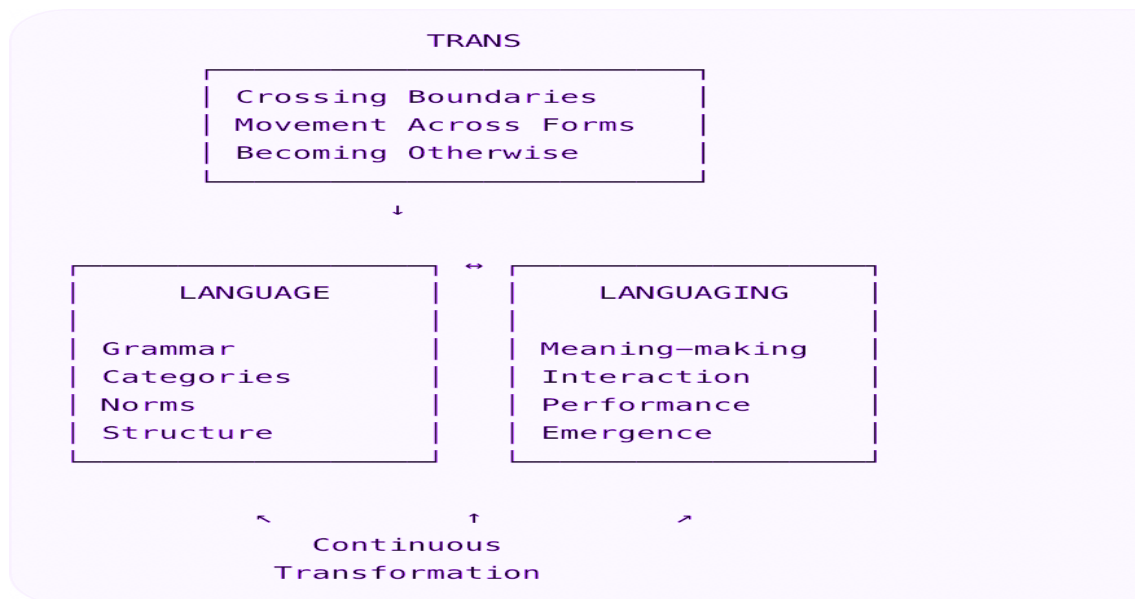
In response to this linguistic injustice, translanguaging pedagogy opens the door for students to utilize their entire linguistic repertoire without having to yield to paradigms of language separation. Before discussing this pedagogy in detail, it is essential to break down the constructs contained within the term "translanguaging" (Figure 1)¹. The prefix *trans-* connotes the breaking down of linguistic barriers and boundaries (Tian & Zong, 2026). Historically, certain schools of thought advocated for separating languages to preserve their "purity." These purist movements were—and remain—associated with ideologies linking language and nation (Zavala & García, 2025). The second part of the term—*linguaging*—encompasses two elements: *language* as the specific, arbitrary system used for communication, and *linguaging* as the act of using that language. Translanguaging pedagogy envisions language as a unitary system and *linguaging* as a flow in which the user fluidly employs their entire linguistic repertoire (García, 2025).

Como respuesta a esta injusticia lingüística, la pedagogía de translenguaje abre las puertas para que las estudiantes puedan utilizar todo su repertorio lingüístico sin tener que ceder ante paradigmas de separación de lenguas. Antes de hablar en detalle de esta pedagogía, es esencial desglosar los constructos incluidos en la palabra translenguaje (Figura 1). El prefijo [trans] connota el significado de romper barreras y fronteras lingüísticas (Tian y Zong, 2026). Anteriormente, ciertas escuelas de pensamiento abogaban por separar las lenguas para preservar su “pureza”. Estos movimientos puristas estaban y están asociados a ideologías de lengua y nación (Zavala y García, 2025). La segunda parte de la palabra [lenguaje] incluye dos elementos: [lengua] como un sistema arbitrario y específico que utilizamos para comunicarnos y [linguaje] como la acción de usar la lengua. La pedagogía de translenguaje visualiza la lengua como un sistema unitario y la acción [linguaje] como una corriente en la que el usuario utiliza fluidamente todo su repertorio lingüístico (García, 2025).

¹ This figure has been adapted from the work and images created by Zhongfen Tian and Susana Garcia. Thank you both for your research and inspiration. <https://sasn.rutgers.edu/zhongfeng-tian-tianzhongfeng>
<https://csumb.edu/directory/2475176315/message-153734-en.php>

Figure 1

Trans-Language-ING



Educators committed to implementing a translanguaging pedagogy recognize that translanguaging is integral to the identities of emergent bilingual students. This implies that translanguaging is not something that is taught. In a linguistically and culturally inclusive classroom, translanguaging must be part of the discourse co-created by students and educators (Ott, Dover, Peters, & Rodríguez-Valls, 2023). The commitment to co-creating this collective discourse reaffirms the idea that translanguaging is not a deviation from the norm, but rather a way for students to strategically and intentionally utilize their linguistic repertoires. This ideology and **stance** frame learning and teaching practices (collective pedagogy) as a shared endeavor and **design** (Dover & Rodríguez-Valls, 2022). Here, all student voices are valued and come together to form a collective voice. Creating spaces where all participants feel empowered to use their language constitutes a form of **linguistic activism** grounded in principles of social justice (Arraigada, 2022).

Las educadoras comprometidas a implementar la pedagogía de translenguaje son conscientes de que el translenguaje forma parte de las identidades de las estudiantes bilingües emergentes. Esto implica que el translenguaje no se enseña. En una clase lingüística y culturalmente inclusiva, el translenguaje debe formar parte del discurso co-creado por estudiantes y educadores (Ott, Dover, Peters y Rodríguez-Valls, 2023). El compromiso de co-crear el discurso colectivo reafirma la idea de que translenguar no es una desviación de la norma, sino la manera que

estudiantes eligen estratégica e intencionalmente de usar sus repertorios lingüísticos. Esta ideología y **posicionamiento** incluyen las prácticas de aprender y enseñar (pedagogía colectiva) como un esfuerzo y un **diseño** compartidos (Dover & Rodriguez-Valls, 2022). Aquí, todas las voces de las estudiantes son valiosas y se unen para formar una voz comunitaria. Crear espacios donde todas las participantes se sientan empoderadas y usar su lenguaje representa un **activismo lingüístico** basado en los principios de justicia social (Arraigada, 2022).

Linguistic activism dismantles the hierarchy maintained by those who use academic language as a tool to control knowledge. The use of the term "academic" implies and presupposes that language and communication originating in other contexts lack the value and respect required for validation and inclusion in academic activities. Isolating language within the academic sphere leads to stagnation, preventing it from evolving at the same pace as, for instance, the language of the community. Furthermore, the privileged group—centered on white, Western males—typically mirrors this academic language (Flores & Rosa, 2023). This group established arbitrary systems of language and usage to maintain its privilege and to define what is considered appropriate, correct, and standard.

El activismo lingüístico desmantela la jerarquía de aquellos que usan la lengua y el lenguaje académicos como herramienta para controlar el conocimiento. Usar la palabra "académico" indica y presupone que la lengua y la comunicación generadas en otros contextos carecen del valor y respeto necesarios para ser validados e incluidos en las actividades académicas. Aislar la lengua y el lenguaje en el espacio académico provoca un estancamiento que impide que ambos evolucionen al mismo ritmo que, por ejemplo, la lengua y los lenguajes de la comunidad. Además, el grupo privilegiado [white male western centered] generalmente refleja la lengua y el lenguaje académicos (Flores y Rosa, 2023). Este grupo estableció sistemas arbitrarios [lengua] y su uso [lenguaje] para mantener su privilegio y definir qué es apropiado, correcto y estándar.

Language and languaging are associated with other identities such as race, ethnicity, and gender, among others. To ignore that the system and its use grow and are reinforced by its users is to strip both of their roots and essence. Language should serve to humanize us, not to turn us into automatons of an artificial language. What we at the beginning of this article called the monolingualism of the other.

La lengua y el lenguaje están asociados a otras identidades como raza, etnia y género, entre otras. Ignorar que el sistema y su uso crecen y se retroalimentan de sus usuarios es despojar a

ambos de sus raíces y su esencia. La lengua y el lenguaje deben servir para humanizarnos, no para convertirnos en autómatas de un lenguaje artificial. Lo que al principio de este artículo denominamos el monolingüismo del otro.

I would like to conclude this article by inviting readers to ask themselves these four questions:

- What do you want to do regarding linguistic inclusion?
- How will you enhance your linguistic skills?
- What behaviors will you adopt?
- What do you need to disrupt and dismantle "English-only" ideologies and the "white gaze"?
- What do you need to build and consolidate linguistic justice?

As I noted at the beginning of this piece, the exercise of personal reflection is key to engaging in dialogue and analyzing which strategies, activities, and assessments must be implemented to ensure we are building a linguistically inclusive classroom. Education encompasses much more than generating knowledge. The classroom must cultivate respect, coexistence, citizenship, and critical thinking. Creating and nurturing these concepts requires that students be able to express themselves freely while co-constructing a collective discourse that incorporates their voices, language skills, and the literacy inherent in each subject. To recall the words of Paulo Freire, a humanizing education is not the transfer of knowledge; it is an act of care, dialogue, and freedom.

Quiero acabar este artículo proponiendo a las lectoras que se hagan estas cuatro preguntas:

- ¿Qué quieres hacer en materia de inclusión lingüística?
- ¿Cómo potenciarás tus habilidades lingüísticas?
- ¿Qué conductas adoptarás?
- ¿Qué necesitas para interrumpir y dismantelar las ideologías del «English-Only» y de la «white gaze»?
- ¿Qué necesitas para construir y consolidar la justicia lingüística?

Como apunté al principio de este escrito, el ejercicio de reflexión personal es clave para poder dialogar y analizar qué estrategias, actividades y evaluaciones deben implementarse para asegurarnos de que estamos construyendo un salón de clase lingüísticamente inclusivo. Educar es mucho más que crear conocimientos. El salón de clase debe ser un espacio donde se cultiven

el respeto, la convivencia, la ciudadanía y el pensamiento crítico. Crear y alimentar estos conceptos requiere que las estudiantes puedan expresarse libremente y, a la vez, co-construir un discurso colectivo que incluya sus voces, destrezas de lenguaje y la literacidad inherente en cada materia. Recordando las palabras de Paolo Freire, una educación humanizadora no consiste en transferir conocimiento; es un acto de cariño, diálogo y libertad.

References

- Arriagada, M. (2022). Identidad social y repertorios lingüísticos en el activismo medioambiental en línea. *Language Education and Multilingualism–The Langscape Journal*, 5, 69-97.
- Derrida, J., & Pons, H. (1997). *El monolingüismo del otro*. Buenos Aires: Manantial.
- Dover, A. G., & Rodríguez-Valls, F. (2022). *Radically inclusive teaching with newcomer and emergent plurilingual students: Braving up*. Teachers College Press.
- Flores, N., & Rosa, J. (2023). Undoing competence: Coloniality, homogeneity, and the overrepresentation of whiteness in applied linguistics. *Language learning*, 73(S2), 268-295.
- García, O., & Torres, R. (2009). Monoglossic ideologies and language policies in the education of US Latinas/os. In *Handbook of latinos and education* (pp. 208-219). Routledge
- García, O. (2005). Positioning heritage languages in the United States. *The Modern Language Journal*, 89(4), 601-605
- Gounari, P., & Macedo, D. (2009). Language as racism: A new policy of exclusion. In *Beyond pedagogies of exclusion in diverse childhood contexts: Transnational challenges* (pp. 31-46). New York: Palgrave Macmillan US.
- May, S. (2023). Linguistic racism: Origins and implications. *Ethnicities*, 23(5), 651-661.
- Ott, C. D., Dover, A. G., Peters, J., & Rodríguez-Valls, F. (2023). Amplifying newcomer and emergent plurilingual students' voice, agency and authority through enactments of authentic cariño. *Multicultural Perspectives*, 25(4), 185-195.
- Smalls, K. A., Spears, A. K., & Rosa, J. (2021). Introduction: Language and white supremacy. *Journal of Linguistic Anthropology*, 31(2), 152-156.
- Tian, Z., & Zong, J. (2026). Language Teacher Identity and Translanguaging. In *The Routledge Handbook of Language Teacher Identity* (pp. 341-354). Routledge.
- Zavala, V., & García, O. (2025). La enseñanza del español en la formación de maestros bilingües: hacia una educación lingüística crítica (Teaching Spanish in bilingual teacher education: Toward a critical language education). In *Español para Fines Específicos (EFE)/The Routledge Handbook of Spanish for Specific Purposes (SSP)* (pp. 451-464). Routledge.
- Zúñiga, C. E. (2019). Supporting “pedagogical” Spanish language competencies. *Teacher Education Quarterly*, 46(3), 79-98.

CHAPTER 1

Critical Research and Theoretical Inquiry

Capítulo 1

Investigación Crítica e Indagación Teórica

Mapping the Commitment to Equity: Where TEEM Research Aligns with TODOS and What Gaps Remain

Jiyeong Yi
Iowa State University
jiyeongi@iastate.edu

Ricardo Martinez
Pennsylvania State University
rfm5798@psu.edu

Madeline Keyes
Boston College
keyesma@bc.edu

Christa Jackson
Saint Louis University
christa.jackson@slu.edu

Shristi Shrestha
Iowa State University
shriisti@iastate.edu

Abstract: This study examines the evolution of equity-focused research within the *Teaching for Excellence and Equity in Mathematics* (TEEM) journal from 2009 to 2025. By mapping 80 published articles against the five guiding missions of TODOS: Mathematics for ALL, this paper identifies institutional strengths and critical research gaps, with particular focus on student-centered pieces. The analysis reveals a heavy concentration on multilingualism and elementary-level research, while highlighting underrepresented areas in middle and high school contexts.

Keywords: TEEM, review, TODOS missions, equity

Introduction

The Teaching for Excellence and Equity in Mathematics (TEEM) journal was created from the "Noticias de TODOS" periodical in 2009. While the inaugural issue contained nine selected articles from past "Noticias de TODOS" and was enhanced with abstracts and Discussion and Reflection Enhancement (DARE) questions, subsequent issues generally featured three articles each. The journal sought to publish peer-reviewed, teacher-oriented articles that promoted equity and excellence in teaching practices. According to Lesser (2023), TEEM's explicit aim was to target diverse stakeholders and align with the TODOS mission statement to "advocate for equity and high quality mathematics education for all students — in particular, Latina/o students" (TODOS, n.d.). To that end, TODOS has five goals aligned with this mission statement that guide the organization's work.

With these guiding goals in mind, this study analyzed the journal's 16-year publication record to assess its alignment with TODOS's mission of equity and excellence in mathematics education. Our review, which covers articles published between 2009 and 2025, inclusive, focuses on those whose primary research subject is PK-16 students. A key goal is to identify

common or under-addressed themes, which provides a clearer picture of existing research characteristics and suggests a vision for future research needs.

Methodology

We systematically analyzed, starting with dividing articles by the published years among four authors, so we each examined 4 years of TEEM articles. The individual review utilized a dual-phase analytical approach:

- Phase I: AI-Assisted Landscape Scanning. An AI tool (Pensieve AI) was used to analyze all 80 published articles to identify broad patterns in thematic distribution and alignment with mission statements.
- Phase II: Qualitative Human Reanalysis. Following the initial scan, a meticulous human coding process was conducted. Each article was evaluated using the five TODOS Mission statements to ensure nuanced alignment and to analyze patterns of collaboration and inclusion.

We then collectively discussed the broad themes and coalesced them into related broad themes and mission alignment. Then we individually reviewed the articles and identified authorship, type, subject, primary subject, and research/paper type (e.g., empirical, theoretical). Finally, we addressed any overlap found among the articles through further discussion. Our analysis identified five central themes that structure the equity research landscape in TEEM: (1) Equity and Social Justice, (2) English Language Learners (ELLs) and Multilingualism, (3) Culturally Responsive Teaching and Relevance, (4) Identity, Power, and Representation, and (5) Family and Community Engagement.

Findings

The data demonstrates a robust commitment to specific areas but also reveals significant imbalances. We found that 17 of the 80 articles specifically focus on students. As Figure 1 shows, student research is heavily concentrated at the elementary level (10 articles), with significantly less attention given to middle school (3 articles) and high school (3 articles). We also note that seven of these 17 articles (41%) simultaneously examine teachers, suggesting a trend toward integrated classroom research. Research within this subset is predominantly driven by inquiries into multilingualism, with 88% of student-focused articles—all but two—prioritizing the experiences of English Learners, bilingual, or immigrant students. However, this focus is not evenly distributed across the K-12 spectrum. While elementary

education is well-represented with ten articles, both middle and high school settings remain significantly under-researched, contributing only three articles each to the corpus.

Figure 1

Student Grade Levels in TEEM Articles 2009-2025

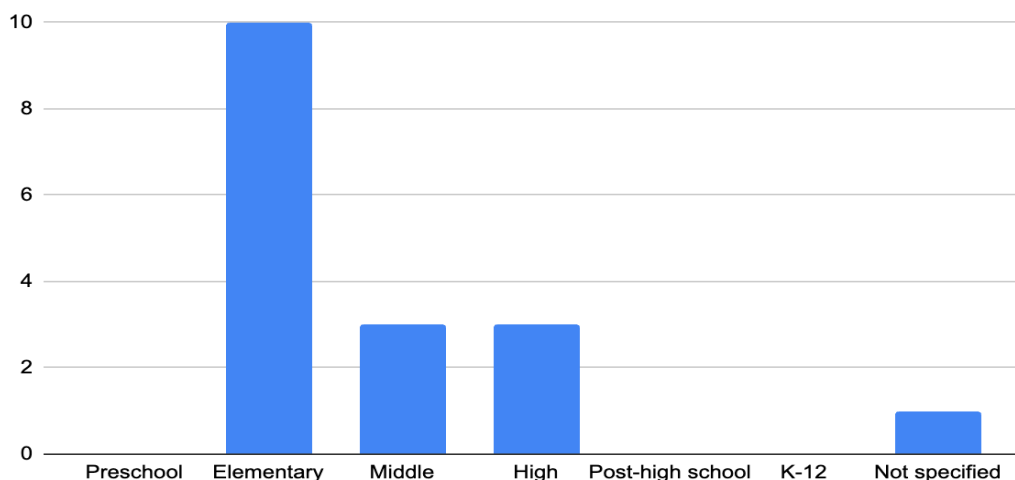


Table 1 shows how the TEEM articles align with identified common themes. We included only 55 empirical study-based articles for this analysis. Multilingualism is the most common theme in both the empirical and student-focused article groups. Family and community engagement was the least common.

Table 1

Themes in Empirical Articles with Comparison of Student-focused Articles and All

Research Subjects	Equity and Social Justice	ELLs and Multilingualism	Culturally Responsive Teaching and Relevance	Identity, Power, and Representation	Family and Community Engagement	Total
Students	3	6	1	3	0	8
All	28	30	17	22	6	55

The alignment of research subjects with the TODOS mission statements is similar across the groups. Missions 1 (Advance educators' knowledge and ability in a way that leads to implementing an equitable, rigorous, and coherent mathematics program that incorporates the role language and culture play in teaching and learning mathematics) and 3 (Generate and disseminate knowledge about equitable and high-quality mathematics education) are the most

frequently addressed missions by all research subject groups. Conversely, Missions 2 (Develop and support educational leaders who continue to carry out the mission of TODOS) and 5 (Inform families about educational policies and learning strategies that will enable their children to become mathematically proficient) show significantly low engagement across all groups.

Table 2

The Alignment of Research Subjects with the TODOS Mission Statements

Primary Research Subject	Mission 1	Mission 2	Mission 3	Mission 4	Mission 5
Student	16	1	16	12	1

Discussion and Conclusion

By systematically mapping these publications to the TODOS Mission statements, this study highlights areas of strong alignment and opportunities for growth. The journal has successfully fostered a community around multilingualism and elementary mathematics, and there is a valuable opportunity to expand student-centered research focusing on equity at the secondary level and to broaden current thematic concentrations, such as family/community connections and educational leader support. This diagnostic tool serves as a call to action for the field to more comprehensively fulfill the equity mandates set forth by TODOS.

References

- Lesser, L.M. (2023). Still TEEM-ing with enthusiasm: A history of TODOS' esTEEMed journal. *Teaching for Excellence and Equity in Mathematics*, 14(1), 37.
- TODOS (n.d). *Mission & Goals*. <https://www.todos-math.org/home/about/mission/>

A Mosaic of Needs, Desires, and Hopes: Creating en Comunidad to Cultivate Action in Mathematics Education

Beth Herbel-Eisenmann
Michigan State University
bhe@msu.edu

Katie Tasch Bielecki
Michigan State University
bielec13@msu.edu

Sabrina Zarza
Michigan State University
zarzasab@msu.edu

Faith I.D. Longnight
Michigan State University
longnigh@msu.edu

Ishan Santra
Michigan State University
santrais@msu.edu

Abstract: Based on an activity we designed for a youth participatory action research collaboration, we invite participants to engage in mixed-media arts creation that allows for reflection on relationships, community, and our roles to support “rooting mathematics in humanity”. In the first session, participants will consider a set of prompts, and individually/collectively, be invited to create cardstock tiles (*tesserae*) to become part of a larger wall-sized public *community mosaic*. In the second session, participants will use sticky notes and a pair-share to consider how their expressions of needs, desires and hopes (rather than ‘norms’) as individuals and as a community might spur reimagining and action toward rooting mathematics in humanity.

Keywords: norm-setting, artmaking, needs, desires, and hopes

Introduction

Based on a norms-articulating activity we designed for a youth participatory action research (YPAR) collaboration, we invite participants to engage in a mixed-media creation and to reflect on our individual/collective roles in supporting the “movement to catalyze, cultivate, and collaborate to expand critical transformation in mathematics education in comunidad.” We open space for people to consider their needs, hopes, and desires, both individually and collectively, as counter to traditional “norms” within math classrooms. We choose artmaking because the arts involve “imagination, creativity, and aesthetics” to support expressing one’s thoughts, feelings, and resistance and inspire social change because they are “central to politicization, critical consciousness, and meaning-making processes” (Goessling, et al., 2019, p. 1).

Norms in Mathematics Education and Participatory Action Research

As former mathematics teachers, our team of co-authors (who also co-facilitated weekly sessions with youth) considered how to create a welcoming and affirming space for youth. To plan, we began with a range of ideas related to classroom *norms* to inform our work in the

informal setting of our YPAR initiative. Although classroom teachers had worked for years to develop routines and expectations that supported student learning, it was not until the 1990s that math education researchers became interested in classroom norms. Yackel and Cobb (1996), for example, characterized norms as “regularities in communal or collective classroom activity [which] are considered to be jointly established by teacher and students as members of the classroom community” (p. 178). They distinguished between *social norms*, which focused on students’ explanations and justifications, and *sociomathematical norms*, which included “what counts as an acceptable explanation and justification” (Yackel & Cobb, 1996, p. 461). More recently, a focus on norms appears in discussions on innovative teaching, for example, the “positive classroom norms” to support learning on the YouCubed website (Boaler, 2022).

As we engage in participatory practices, however, we turned to the participatory action research literature related to norms (or “community agreements”), which centers both creating community *and* addressing power relations. Raygoza (2016), for example, described how activities can both create a “beloved community” (King, 2010) and a space for “transformational resistance” (p. 123). Outside of mathematics education, Campano and colleagues (2015) suggested that norms should be made explicit, specify ethical dimensions, and emphasize egalitarian processes and ways to foster trust, especially in contexts where there are power asymmetries. We are compelled by this work and its attention to power, resistance, ethics, and trust—ideas rarely mentioned in work on norms in mathematics education.

Centering Needs and Healing

Inspired by Fishman (2020), who critiques classroom norms for reflecting systemic priorities and conformity, we shifted our approach to focus on youth’s *needs* and further drew on ideas that centered healing (see Zarza et al., 2025; Zarza et al., in review): *desires* (Tuck, 2009) and *hopes* (e.g., Duncan-Andrade, 2009). In this session, we engage participants in the community-building activity we designed for youth. In doing so, we hope to reflect on what is gained by doing something that is not commonly done in mathematics classrooms. We use artmaking as an entry point for people to express needs, desires, and hopes (rather than norms) and to engage with these from a place of curiosity.

In our YPAR collaboration, we have found that a critical arts-based approach has the potential to disrupt norms *in informal education spaces*. For example, a critical arts-based approach allowed youth to refuse mathematization and supported youth to link their needs to

school-based harm toward collective healing (Zarza et al., in review). We also suggest that an arts-based approach can disrupt norms and norms-related research *in mathematics classrooms*, which centers status quo ways of knowing mathematics and the lead of the teachers in establishing norms (Stephan, 2020). We have found that honoring and foregrounding youth's differences with critical artmaking allows for co-creating a space where youth can set their own criteria for a "welcoming space" and what counts as mathematics. Through a critical arts-based approach that centers youth as knowledgeable and where educators can amplify youth's brilliance, all who participate are valued and can shape the learning community in ways that attend to power, resistance, and ethics. In the next section, we describe the community-building experience.

Just Paint What You Need Right Now

Just paint what you need right now is a critical arts-based approach that can disrupt typical norms activities in mathematics classrooms through artmaking. What our participants will take part in is modeled after what we did with youth and centers a pedagogy of love (Caraballo et al., 2017). This arts-based approach has the potential to create space for voices that may have been considered unworthy or irrelevant, and to promote joy.

In our first 30-minute session together, we will share a brief overview of the activity and what we learned from youth. Participants will then be invited to engage in mixed-media artmaking on cardstock we provide. Each person will create an individual piece of art or *tesserae* (an individual cardstock "tile"). We will invite participants to consider relationships, mathematics and humanity as they create art that responds to one or more of the following questions:

- What are you hoping for in this (TODOS) space?
- Imagine a space that roots mathematics and mathematics education in humanity.
 - How would it *feel*? How would it *be*?
- What do you hope and dream for?
- And, finally, in the words of our youth: *Just paint what you need right now*

When their tesserae are finished, participants will hang their individual tesserae within a larger wall-sized *community mosaic* in the designated conference area. Although individual tesserae allow for individual expressions of needs, hopes, and desires, the community mosaic provides a

reflective space of what conference participants, as a community, need/hope/desire for in the TODOS conference space.

Participants throughout the conference will have an opportunity to engage with the community mosaic as it emerges across the conference. We hope the community mosaic will change in shape, grow in texture and color, and increase in depth and collective meaning over the course of the conference. During sessions, cardstock and art supplies will be available at the community mosaic so any participant, as they are inspired, can create a tesserae through jottings, sketches, and/or collage to add to the mosaic. To engage further, throughout the conference, there will be sticky notes at the mosaic for participants to record reflections on/around this collective mosaic in response to what it is doing to/for each of us throughout the conference.

In our second 30-minute session, we will ask everyone to view the community mosaic and be prepared for a pair-share focused on the conference theme and how this kind of activity might be used in other educational spaces. We'll reflect on the similarities and differences between this artmaking experience and how participants have typically negotiated norms in their own classrooms. We'll also share some of the art created by the youth in our YPAR collaboration, reflecting on how their artmaking allowed them to "bring knowledge from their homes and communities" and for educators to disrupt "dominant discourses about mathematics, learning and teaching" (NCSM & TODOS, 2025, pp. 2-3). Affirming art as praxis, can "enhance an individual's understanding of themselves, others, and their sociocultural worlds and [generate] the tools necessary to re-imagine and take action toward social justice (e.g. Bell, 2010; Greene, 1995)" (Goessling, 2019, p. 17).

Conclusion

This collaborative, interactive arts-based invitation welcomes various knowledges through creating tesserae and centering individual's needs, hopes and desires. Here in this TODOS space, across the conference, participants' needs, hopes, and desires will take shape in the community mosaic and foster conversations about the conference theme: *Creating en Comunidad to Cultivate Action in Mathematics Education*. As an alternative to typical norms-setting activities in mathematics classrooms, we show how artmaking can push Fishman's critique of classroom norms and allow us to reflect on past experiences, articulate our experiences in the here and now, while also imagining more just futures for mathematics education for ourselves and our students.

References

- Boaler, J. (2022). Setting up positive norms in math class. YouCubed.
<https://www.youcubed.org/wp-content/uploads/2017/09/Norms-Paper-2022.pdf>
- Campano, G., Ghiso, M. P., & Welch, B. (2015). Ethical and professional norms in community-based research. *Harvard Educational Review*, 85(1), 29-49.
- Caraballo, L., Lozenski, B. D., Lyiscott, J. J., & Morrell, E. (2017). YPAR and critical epistemologies: Rethinking education research. *Review of research in education*, 41(1), 311-336.
- Duncan-Andrade, J. (2009). Note to educators: Hope required when growing roses in concrete. *Harvard Educational Review*, 79(2), 181-194.
- Fishman, E. (2020). Who cares about classroom norms? Human needs and community healing. *Rethinking Schools*, 35(2). <https://rethinkingschools.org/articles/who-cares-about-classroom-norms/>
- Goessling, K. P., Wright, D., Wager, A. C., & Dewhurst, M. (2019). A critical mixtape for the movement: reflecting on creative and critical youth practices in research. *International Journal of Qualitative Studies in Education*, 33(1), 1–7. <https://doi-org.proxy2.cl.msu.edu/10.1080/09518398.2019.1678791>
- Raygoza, M. C. (2016). Striving toward transformational resistance: Youth Participatory Action Research in the mathematics classroom. *Journal of Urban Mathematics Education*, 9(2), 122–152.
- Stephan, M. (2020). Sociomathematical norms in mathematics education. In: Lerman, S. (eds) *Encyclopedia of Mathematics Education*. Springer, Cham.
https://doi-org.proxy2.cl.msu.edu/10.1007/978-3-030-15789-0_143
- Tuck, E. (2009). Suspending damage: A letter to communities. *Harvard Educational Review*, 79(3), 409–427.
<https://doi.org/10.1177/0016675661t3n15>
- Wright, D. E. (2020). Imagining a more just world: Critical arts pedagogy and youth participatory action research. *International Journal of Qualitative Studies in Education*, 33(1), 32-49.
- Yackel, E., & Cobb, P. (1996). Sociomathematical norms, argumentation, and autonomy in mathematics. *Journal for research in mathematics education*, 27(4), 458-477.
- Zarza, S.N., Bielecki, K.T., Herbel-Eisenmann, B., Marciano, J. E. (2025) Healing and systemic repair in mathematics: Norm setting with youth. In *Proceedings of the 47th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*.
- Zarza, S.N., Herbel-Eisenmann, B., Marciano, J., & Bielicki, K.T. (in review). “I have a wonder”: How youth (re)thread collective needs in youth participatory action research.

Reimagining Geometry Lessons to Foster Empathy: Designing a Lantern with Math Modeling

Mayahuel Gutiérrez Malik
University of Illinois
mgmalik2@illinois.edu

Gloriana González
University of Illinois
ggonzlz@illinois.edu

Abstract: We show a case of a lesson that was implemented in a geometry class for students to enact design-based principles and connect with each other. Design-oriented challenges encourage students to empathize and build on their ideas. Intertwining these principles with math modeling and community-oriented settings offers opportunities for students to experience authentic math problem-solving and foster their sense of belonging. The design challenge was to create a lantern for a calm classroom environment using math modeling. The study has implications for supporting the belonging of all students in math classrooms and encouraging students' creativity.

Keywords: Culturally-responsive teaching, Design-based lessons, Empathy, Math Modeling

Introduction

Integrating community-oriented learning in classrooms gives students authentic math modeling experiences. However, *what does that kind of math look like?* We present a case of a lesson where students applied symmetry to create lanterns for their classroom. The lesson is anchored in human-centered design (HCD), math modeling (MM), and design justice (DJ) principles. Our questions are: *How are students interacting with HCD, DJ principles, and MM? Where do we see evidence of these interactions?* We analyzed the design solutions of two design teams to offer an example of empathy, creativity, and community-based learning in math.

Theoretical Perspectives

The implementation of math modeling approaches in classrooms can lead students to see math as valuable (Suh, 2023). Through modeling, students apply mathematics to authentic scenarios (Alsina & Salgado, 2022.) Our lesson integrates a human-centered design approach (Lawrence et al., 2024), where students' math models are a key part of designing solutions to proposed challenges. Human-centered design requires students to empathize by imagining the perspectives of those most affected by the challenge, and use those perspectives to create solutions. Finally, the lesson is infused with Design Justice Principles: community-led practices for a more just world (Costanza-Chock, 2020). Particularly, Principle 2: "We center the voices of those who are directly impacted by the outcomes of the design process", and Principle 4: "We

believe that everyone is an expert based on their own lived experience, and that we all have unique and brilliant contributions to bring to a design process” (Design Justice Network, 2018).

Context and Methods

The research team created design-based lessons that teachers modify during lesson study. In fall 2025, we facilitated a lesson study in which a team of teachers adapted the “Designing a Lantern” lesson. This context has been used in education (Kangas et al., 2013). Amelia Stewart (math teacher) and Evelyn Collins (special education teacher) volunteered to teach the lesson in their 10th grade geometry class of 25 students, at a public school in the Midwest (all pseudonyms). The school is predominantly Black (35%) and Hispanic (25%). We focus on Group 1, the “Pink Unicorns,” with Ilana, Reese, and Juliana and Group 2 (unnamed) with Jacobi and Kenyi. We filmed the lesson and collected the lesson artifacts. The first author coded the 4-min segments for evidence of students’ actions illustrating design processes, math modeling standards, or design justice principles. The authors discussed the coding and the first author created visuals leading to a discussion of the findings.

Findings

The “Designing a Lantern” Lesson

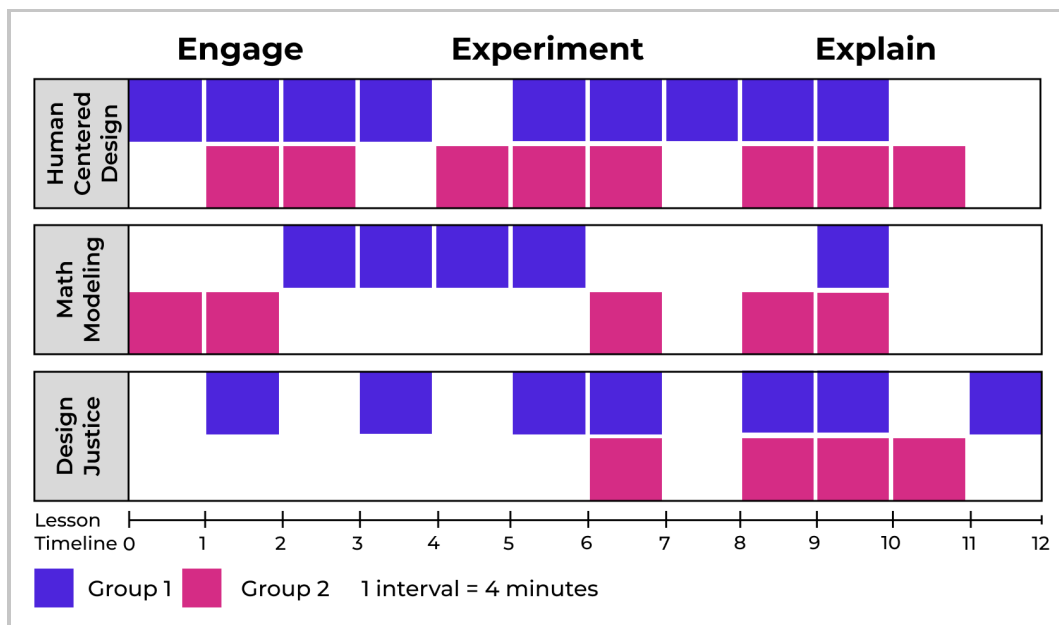
The lesson has three phases: Engage, Experiment, and Explain. The activities encourage students to empathize, iterate, and prototype their ideas with a design kit. In addition, the teachers suggested creating a class playlist where students added songs they found calming to play throughout the lesson. In the “Engage” phase, students discussed what they found calming. From discussions and individual brainstorms, students analyzed common themes and illustrated these through shapes. During the “Experiment” phase, students sketched shapes using symmetry properties. Students iterated on these sketches and incorporated them in a lantern prototype. After cutting the shapes, students assembled the lanterns as triangular prisms with LED tea lights. In the “Explain” phase, students reflected on the design process.

Finding 1: Math Modeling Was Integrated with DJ and HCD Throughout the Lesson

Fig. 1 shows that students’ interactions with math modeling were integrated with actions oriented around human-centered design or design justice principles at the same time.

Fig 1.

Visualization of coding data illustrating student use of Math Modeling, Human-Centered Design, and Design Justice Principles.



Despite different design choices, the groups' trajectories involved interacting with math modeling at the same time as some human-centered design process and/or design justice principle. For example, G1 used patty paper to check for symmetry before finalizing a prototype, ensuring the shapes would "look good." In this moment, the symmetry of their shapes was highlighted, by checking for accuracy, from both design and math perspectives.

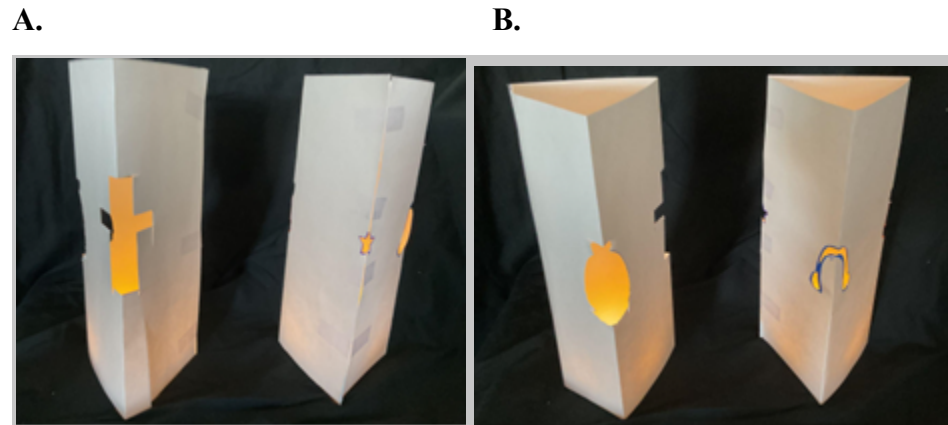
Finding 2: Students Were Able to Bring Themselves to the Lesson

Students approached the design challenge by bringing parts of their identity and learning about others' identities at the same time. In G2, core themes guiding shape design were "money" and "faith." These themes resulted in a cross and a money bag symbol on the lantern (Fig 4. A & B). In the Explain phase, G2 discussed their rationale for these decisions; Jacobi stated, "the cross is our faith, and money is what we like," incorporating personal interests and beliefs into the design. Group 1's themes were based on discussions about calming places. Juliana remarked "I've never been anywhere but my house," which led Alani to ask "couldn't we imagine like a really nice Airbnb somewhere though?" Thereafter, they discussed tropical vacations and symbols (e.g., star for starfruit). Additionally, Reese considered "anywhere where I have music" to be calming, identifying characteristics of spaces beyond location. Their final themes, tropical

and music, illustrated the lived experiences and personal identities the Pink Unicorns brought to the lesson.

Fig 4.

Final Lantern Prototypes. G2 lanterns left, G1 lanterns right in both A & B.



In addition, the playlist built on lesson curriculum to support cultural sustainment, by encouraging students to interact with the lesson’s context and share parts of themselves, like through music. G1 discussed artists they had chosen to play, like Ivan Cornejo and Taylor Swift, sharing different perspectives, including language, with each other. In this lesson, students participated in math that supported their unique identities, experiences, and perspectives (Aguirre et al., 2024). Particularly, the creative nature of the activities left room for students to make math their own, bringing personal experiences and aspects of their identity to the lesson.

Reflection and Dialogue

This study illustrates ways design can be integrated with modeling to create lessons that allow students to consider identity, be creative, and empathize. Design-based lessons can support students to learn math in ways that make sense to them, and push them to consider different perspectives aligned with culturally responsive mathematics teaching (CRMT). When math is taught to require the perspective of another, like in a design challenge, it encourages student engagement where they can incorporate aspects of their identity and connect with peers. In addition, supporting elements, like the playlist, can further offer opportunities for students to connect with lesson material. This supports the *Knowledge and Identities* strand of CRMT, giving students more ways to connect with math (Turner et al., 2026). Additionally, the emphasis on collaboration encourages students to empathize with perspectives beyond their own. In this way, students are prompted to dream beyond their circumstances and engage in “disoñar”:

dreaming through design (Escobar, 2018). We encourage teachers to create design-based lessons that promote empathy and belonging.

Acknowledgements

Research supported by a National Science Foundation's grant to Gloriana González (Principal Investigator) and Saadeddine Shehab (Co-Principal Investigator) for the project, "Engaging Teachers in Integrating Human-Centered Design for Geometry Problem-based Instruction," Grant No. DRL-2300689. Opinions, findings, conclusions, or recommendations are those of the authors and do not necessarily reflect the views of the National Science Foundation. We thank the teachers, the students, and the FRACTAL research team for their feedback to the analysis.

References

- Aguirre, J., Mayfield-Ingram, K., & Martin, D. B. (2024). *Impact of identity in K-12 mathematics: Rethinking equity-based practices*. National Council of Teachers of Mathematics.
- Alsina, Á., & Salgado, M. (2022). Understanding early mathematical modelling: First steps in the process of translation between real-world contexts and mathematics. *International Journal of Science and Mathematics Education*, 20(8), 1719-1742. <https://doi.org/10.1007/s10763-021-10232-8>
- Costanza-Chock, S. (2020). *Design justice: Community-led practices to build the worlds we need*. The MIT Press. <https://doi.org/10.7551/mitpress/12255.001.0001>
- Design Justice Network. (2018). Design Justice Network Principles. Retrieved December 15, 2024 from <https://designjustice.org/read-the-principles>.
- Escobar, A. (2018). *Designs for the pluriverse*. Duke University Press
- Kangas, K., Seitamaa-Hakkarainen, P., & Hakkarainen, K. (2013). Design thinking in elementary students' collaborative lamp designing process. *The Journal of Design and Technology Education*, 18(1), 30-43. <https://doi.org/10.24377/DTEIJ.article1662>
- Lawrence, L., Shehab, S., & Tissenbaum, M. (2024). Understanding non-designers' practices and processes in a Human-Centered Design course. *International Journal of Innovation in Education*, 9(5), 1-27. <https://doi.org/10.1504/IJIE.2024.10063914>
- Suh, J. M., Tate, H., Rossbach, M., Green, S., Matson, K., Aguirre, J., ... & Steen, S. (2023). Dilemmas and design principles in planning for justice-oriented community-based mathematical modeling lessons. *Mathematics Teacher Educator*, 11(3), 210-230. <https://doi.org/10.5951/MTE.2022-0025>
- Turner, E., Carlson, M. A., Brown, J., Greene, M., Aguirre, J., & Suh, J. (2026). Elementary teacher practices for culturally responsive mathematical modeling. *Journal of Mathematics Teacher Education*, 1-34. <https://doi.org/10.1007/s10857-025-09736-9>

Linguistically Equitable Mathematics for Emergent Multilinguals

Leonor A. Pereda
Whittier Elementary School
peredaleonor@gmail.com

Abstract: It is a misconception that math is a *universal language*. Monolingual math assessments obscure the mathematical abilities of multilingual students, perpetuating inequitable academic and professional outcomes. This research scrutinizes and dismantles linguistic barriers in assessments and instruction that limit access to rigorous mathematics. Through analysis of math assessments and exploration of instructional strategies, this paper proposes the implementation of Linguistically Equitable Mathematics (LEM) practices that honor students' diverse identities and language resources in order to ensure an equitable and high-quality mathematics education for all learners.

Keywords: Cognitively Guided Instruction, Emergent Multilinguals, English Language Learners, Linguistically Equitable Mathematics, Universal Design for Learning

Introduction

William Edwards Deming said, "Every system is perfectly designed to get the result that it does." To his point, math is academically leveraged to allow a select few access to lucrative STEM fields. The Pew Research Center reports that English Language Learners (ELLs) continue to be underrepresented in STEM, and we can trace how inaccessibility to rigorous mathematics courses produces these results (Pew Research Center, 2021). National assessments measure math abilities and dictate placement of ELLs into advanced or remedial math classes.

When tests prioritize the English language, it bars students from accessing their multilinguistic assets, resulting in poor scores and affecting future access to rigorous math courses. To deny one part of our students' identity is to deny their entire humanity. As educators, we must use a critical lens to identify linguistic barriers in assessments and implement instructional strategies to facilitate linguistically and academically equitable math instruction that honors the humanity of our students' multifaceted identities as a whole. The central question is: How do we facilitate an equitable mathematics education to meet the linguistic and academic needs of emergent multilinguals?

This paper responds by offering two actionable recommendations: The first is to implement Linguistically Equitable Mathematics (LEM) modifications to tests, and the second is to implement LEM instructional strategies. The (LEM) lens is a tool to critically view

institutionalized practices that prevent equitable math access for Emergent Multilinguals (EMs). Employing this critical lens centers the academic, cultural, and professional interests of our EMs when viewing data, assessments, and instructional practices.

Emergent Multilinguals

Using the LEM lens, consider that in 2024, 8th grade EMs in California scored, on average, 224, a difference of 52 points below their non-ELL peers at 276 (NAEP, 2024). This paper argues that the score disparity is due to high-stakes national assessments written by monolinguals for monolinguals. EMs struggle to decipher the language in these problems even before they begin solving (Mosqueda, 2015). With these scores, schools funnel EMs into remedial mathematics courses even though many immigrant EM students may have had competitive mathematics courses in their countries of origin (Gutiérrez, Rochelle, 2002).

Opponents argue that EMs have no excuse for low math achievement because mathematics is a *universal language*. The LEM lens counters that the language used to write math word problems is intentionally coded to prevent access to mathematics, resulting in a systemic denial of EMs' access to rigorous mathematics and the opportunity to demonstrate their true abilities. Jo Boaler concurs that mathematics has the power to “[end] students’ dreams of college and even of high school graduation” (Boaler, 2016). Ensuring that our students can access rigorous mathematics regardless of language is the mission educators are tasked with.

1st Recommendation: Linguistically Equitable modifications to assessments

Language modifications to assessments are adopted from Abedi and Lord’s *The Language Factor in Mathematics Tests*, where they compare the scores of EM’s and proficient English speakers on math word problems. In a math assessment composed of NAEP problems, half of the problems remained unaltered, while the rest were modified to be accessible for EM students. They hypothesized that “Unfamiliar or infrequent vocabulary and passive-voice constructions may affect comprehension for certain groups of students” (Abedi and Lord, 2000). Two experts reviewed the problems to ensure the modified problems were equivalent in rigor to the unmodified problems and did not compromise math tasks; see Table 1.

They concluded that these modifications benefited the scores of EM’s, low SES students, and students in low or average math classes. These modifications did not affect the performance of proficient speakers of English nor students in the advanced math classes.

Our 4th grade level team of three teachers applied linguistic modifications to problem #4 of the Unit 3 assessment: “*Jada has 2 cups of walnuts for trail mix. She has 3 packages of walnuts that are each $\frac{3}{4}$ cup. Does Jada have enough walnuts to make trail mix?*” (Illustrative Mathematics, 2023). The problem was edited so that abstract/impersonal presentations were made more concrete and relative clauses were recast. The final modified problem read: *Jada has 3 bags of walnuts. Each bag of walnuts has $\frac{3}{4}$ cup. She needs a total of 2 cups of walnuts for trail mix. Does she have enough?* Each teacher reported improvement in this particular problem compared to the same unmodified problem from last year’s 4th graders' test results.

Table 1

Example of modifications to those inaccessible linguistic features of story problems.

Linguistic feature	Unmodified	Modified
Voice of verb phrase- Change Passive verbs to active.	<i>If a marble is taken from the bag...</i>	<i>If you take a marble from the bag...</i>
Relative clauses- Removed or recast.	<i>The total number that Lee delivers in 5 days...</i>	<i>How many newspapers does he deliver in 5 days?</i>
Question phrases- Complex question phrases changed to simple.	<i>Which is the best approximation of the number...</i>	<i>Approximately how many...</i>
Abstract/impersonal presentations- Made more concrete.	<i>2,675 radios sold...</i>	<i>2,675 radios that Mrs. Jones sold...</i>

Note: Adapted from Abedi, Jamal and Lord, Carol (2000)

2nd Recommendation: LEM Instructional Strategies

This paper offers two instructional strategies to access mathematics concepts equitably. The first, Code-switching or working in students’ primary language (L1), is effective because it validates one’s L1 in academic spaces, encourages collaborative meaning-making, and utilizes EMs’ entire language repertoire to scaffold understanding (Gutiérrez, 2002). Execute this by grouping an EM student with an English-dominant student. Aside from lowering the affective filter, this fosters collaborative discussion using language assets to make sense of the math content together.

The second strategy, UDL, alters the learning environment to reduce barriers of access and center learners (Meyer et al., 2014). This is accomplished via three main principles of

representation, engagement, and action/ expression. To successfully implement the first, representation means presenting information through varying communication, such as audio, video, visuals, and manipulatives. This allows all students to access learning content regardless of language and learning abilities. The second, engagement, addresses diverse modes of recruiting learner interest and motivation via multiple engagement modes with the learning tasks via independence, collaboration, challenges, or creative expression. The third principle of action/ expression liberates the acceptable modes of communication by which EM's respond and demonstrate their learning. Summative assessments need not be limited to traditional formats.

Closing

In alignment with the TODOS Mission statement, this research “[generates] and disseminates knowledge about equitable and high-quality mathematics education” via analysis of assessment data and instruction. This paper “...advocates for educational policies that enable students to become mathematically proficient in order to enhance college and career readiness.” It is a disservice to our students to continue to facilitate lessons and assessments that obscure their true math abilities. To trace how English is a gatekeeper means to identify the systems of power in place that deny access to rigorous mathematics and, as a result, deny access to institutes of higher education and, consequently, competitive professions. By speaking truth to power, this paper aims to “advance educators’ knowledge and ability in a way that leads to implementing an equitable, rigorous, and coherent mathematics program that incorporates the role language and culture play in teaching and learning mathematics.” Prohibiting access to mathematics is a systematic denial of our students' humanity. We cannot continue to exile our EM students to the fringes of academic and professional achievement with inaccessible assessments and inequitable teaching practices.

References

- Abedi, J., & Lord, C. (2000). The language factor in mathematics tests. *Applied Measurement in Education*, 14(3), 219–234. https://doi.org/10.1207/S15324818AME1403_2
- Boaler, J. (2016). Mathematical mindsets: Unleashing students' potential through creative math, inspiring messages, and innovative teaching. Jossey-Bass.
- Gutierrez, R. (2002). Enabling the practice of mathematics teachers in context: Toward a new equity research agenda. *Mathematical Thinking and Learning*, 4(2-3), 145-87.
- Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal design for learning: Theory and practice*. CAST Professional Publishing
- Mosqueda, Eduardo & Téllez, K. (2015). Developing Teachers’ Knowledge and Skills at the Intersection of English Language Learners and Language Assessment. *Review of Research in Education*, 39(1), 87–121. <https://doi.org/10.3102/0091732X14554552>
- Pew Research Center. (2021). STEM Jobs See Uneven Progress in Increasing Gender, Racial and Ethnic Diversity. Retrieved November 1, 2025 from

<https://www.pewresearch.org/social-trends/2021/04/01/stem-jobs-see-uneven-progress-in-increasing-gender-racial-and-ethnic-diversity/>

U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. (2022). *National Assessment of Educational Progress Report Cards*. U.S. Department of Education. Retrieved February 26, 2026, from <https://www.nationsreportcard.gov/ndecore/xplore/NDE>

Illustrative Mathematics. (2023). *Imagine IM Grade 4 Math*. Imagine Learning.
<https://www.imaginelearning.com/products/math/imagine-im/>

Preservice Teachers' Operationalization of Community-Centered Data Talks

Gianna Shields
San José State University
gianna.shields@sjsu.edu

Sandra Zuniga Ruiz
San José State University
sandra.zunigarui@sjsu.edu

Abstract: This paper examines how preservice teachers (PSTs) designed community-centered data talks in an elementary mathematics methods course at a public university. Following a three-hour lecture on data science, PSTs collaboratively planned grade-band investigations using a structured progression: Wonder, Collect/Curate, Represent, Interpret, Act. Analysis of planning artifacts, peer feedback, and written reflections revealed a developmental trajectory in representation, equity framing, and action orientation, along with explicit attention to language scaffolds and sampling fairness. Findings suggest that structured design tools and critique protocols can support PSTs in operationalizing equity-centered data science instruction.

Keywords: preservice teacher education, data science, elementary mathematics

Introduction

Equity-centered mathematics instruction requires tools that translate commitments to language, culture, and identity into daily instructional design (Aguirre et al., 2013). In elementary settings, data science offers powerful opportunities for students to investigate meaningful questions connected to their lived experiences while engaging in reasoning and representation (Bargagliotti et al., 2020). However, data science instruction frequently centers on technical graph construction, often at the expense of interpretive reasoning, discourse, and data-informed decision-making (Ruf et al., 2024).

This study examines how preservice teachers (PSTs) planned equity-centered data talks when tasked with designing tasks connected to students' communities. This paper analyzes planning artifacts to examine how PSTs used equity-centered principles: particularly representation, fairness, discourse supports, and action orientation in data science design. PSTs used a structured data talk planning template to design K–2 or 3–5 lessons around a community-connected topic or context. The template guided them to identify the lesson purpose, select an appropriate data display, describe the data source, and include a fairness note about whose data would be represented and how data would be collected equitably. It also prompted PSTs to plan Notice–Wonder, Interpret & Critique, and Act (Bargagliotti et al., 2020) questions, along with a sentence frame, anticipated misconception, scaffold, and exit ticket to support students' interpretation and decision-making.

The guiding research question is: How do preservice teachers operationalize equity-centered principles when designing community-based data talks in elementary mathematics?

Theoretical Framing

This study is based on the idea that meaningful mathematical engagement depends on seeing mathematics as sense-making (Hiebert & Grouws, 2007), recognizing language's role in reasoning (Moschkovich, 2010), and valuing students' communities as assets (Aguirre et al., 2013). Mathematics connected to students' lived experiences can foster agency and belonging by connecting classroom inquiry to community contexts (Gutstein, 2006). Based on the Franklin et al. (2007) framework, PSTs used a structured data investigation progression, formulate questions, collect data, analyze data, interpret results to guide lesson design. This progression framed data science as a cycle of posing questions, working with data, representing and interpreting results, and taking informed action (Bargagliotti et al., 2020).

Methods

Context and Activity

Data was collected in an elementary mathematics methods course (n=24) during a unit on data science instruction. PSTs previously participated in a three-hour lecture introducing data science progressions and action-oriented data investigations (Bargagliotti et al., 2020; Ruf et al., 2024). Students spent 10 weeks reading and discussing the book *Early Elementary Mathematics Lessons to Explore, Understand, and Respond to Social Injustice* (Koestler et al., 2022), a grounding for community-centered lesson planning. The session included modeled data talks from the instructor and a discussion of equity-centered statistical investigative practices. Following the data science readings and lecture, PSTs were grouped by grade band and given 30 minutes to design a data talk using the structured template. Groups presented their plans, and peers provided structured feedback using a "1 Praise, 1 Question, 1 Suggestion" protocol.

Data Sources and Analysis

Data included completed planning templates, slide presentations, and peer feedback comments. Artifacts were analyzed using inductive thematic coding across four dimensions: (1) Community relevance, (2) Language scaffolds, (3) Representation accessibility, and (4) Action orientation. Initial codes were derived from the planning template structure and equity-centered framework, then refined through patterns emerging from data. Because data talks were not implemented, findings reflect design decisions rather than classroom outcomes.

Findings

PSTs operationalized equity-centered data science design across four analytic dimensions: community relevance, language scaffolds, representation accessibility, and action orientation. Across these dimensions, grade-band differences suggested a developmental trajectory from procedural fairness and classroom-level decision-making toward structural awareness, sampling fairness, and civic-oriented action.

PSTs designed data talks around contexts connected to students' classroom and community experiences. Early-grade groups used familiar topics such as shape sorting, recess choices, and field trip preferences to position students' experiences as legitimate sources of mathematical inquiry. Upper-grade groups extended this community relevance toward broader social conditions. For example, the middle school group investigated transportation access on early release days, asking how many students struggled to get home and proposing cross-grade data collection to examine unequal access.

PSTs used language scaffolds to support participation in interpretation and critique. The 1–2 grade recess investigation included sentence frames such as “I notice that...” and “I wonder why...” to support comparison and reflection. The 3–4 grade genre task used frames such as “___ is more popular in ___ grade than in ___ grade,” helping students avoid superficial comparisons. The middle school transportation group used “I notice ___ about this data, I wonder why...” to connect lived experience with statistical evidence. These scaffolds show that PSTs attended to language as a tool for mathematical reasoning, not only as general classroom support.

PSTs selected representations with attention to accessibility and anticipated misconceptions. As shown in Table 1, anticipated misconceptions also became more interpretive across grade bands: early-grade plans focused on classification and voting confusion, while upper-grade plans anticipated issues such as assuming equal group sizes or assuming that all students have the same transportation access.

PSTs connected data interpretation to action, though the scale of action varied by grade band. Early-grade investigations used data to support fair classroom decisions, such as choosing recess activities or field trips. The transportation investigation offered the clearest example of civic-oriented action: PSTs proposed using data to advocate for transportation supports or

after-school access. In this case, data functioned not only as a representation but also as a tool for institutional critique and potential change.

Table 1.

Patterns in PST Data Science Design

Grades	Context	Representation	Equity / Fairness	Misconceptions
TK–K	Shape sorting	Picture/Dot-line	Sorting clarity	Sorting by size/color
1–2	Recess	Tally/Picture	One vote / student	Voting confusion
3–4	Book Genres	Bar graph	Unequal group sizes	Assuming equal totals
6–8	Transportation	Bar graph	Varied experiences	Assuming access
SPED	Field trips	Tally	Decision-making	Tie-breaking

Discussion & Implications

Although these data talks were not enacted in classrooms, the planning artifacts suggest that structured design tools can support PSTs in translating equity-oriented principles into concrete data science instruction. The consistent inclusion of community-centered contexts, explicit discourse scaffolds, attention to sampling fairness, and decision-making components indicates that coherent planning templates may help bridge theory and practice in teacher preparation (Aguirre et al., 2013). Math methods coursework in teacher preparation programs should explicitly address data science practices such as sampling fairness and interpretation, require intentional language scaffolds to support reasoning, and incorporate action-oriented components that connect data to decision-making. Additionally, structured peer critique can serve as a powerful mechanism for refining equity-centered lesson design. Framing data investigations as cycles that move from questioning to action appeared to help PSTs conceptualize learning and teaching data science as a participatory and human-centered activity rather than a procedural one.

References

- Aguirre, J. M., Mayfield-Ingram, K., & Martin, D. B. (2013). *The impact of identity in K–8 mathematics learning and teaching: Rethinking equity-based practices*. National Council of Teachers of Mathematics.
- Bargagliotti, A., Franklin, C., Arnold, P., Gould, R., Johnson, S., Perez, L., & Spangler, D. A. (2020). *Pre-K–12 guidelines for assessment and instruction in statistics education II (GAISE II): A framework for statistics and data science education*. American Statistical Association.
- Gutstein, E. (2006). *Reading and writing the world with mathematics: Toward a pedagogy for social justice*. Routledge.
- Hiebert, J., & Grouws, D. A. (2007). The effects of classroom mathematics teaching on students' learning. In F. Lester (Ed.), *Second handbook of research on mathematics teaching and learning*.
- Moschkovich, J. (2010). Language and mathematics education: Multiple perspectives and directions for research. Information Age Publishing.
- Ruf, V., Thues, D., Malone, S., Kuechemann, S., Becker-Genschow, S., Vogel, M., & Bruenken, R. (2024). *A systematic review of empirical research on graphing numerical data in K–12 STEM education*. arXiv preprint.

The Case for Ethnomathematics

Lekha Tantry
Knowles Teacher Initiative
lekha.tantry@knowlesteachers.org

Abstract: Ethnomathematics is a class that addresses the non-European roots of mathematics, showcasing the role of power and privilege in how we teach mathematics. Through this class, teachers can bring out topics of ethics and morality in the context of mathematics. Other teachers can gain insight into how students are able to engage with the material taught, as they implement Ethnomathematics as singular lessons or an elective class. Student input and feedback, class activities and discussions are brought up to make the case for Ethnomathematics to be taught to students for them to engage with math through a different lens.

Keywords: Ethnomathematics, classroom lessons, power, privilege

Introduction

“This is really good, Nayely! Miss, you should give her an A,” one student yelled from across the room as we were conducting our gallery walk of final projects for our last day of Ethnomathematics, the elective math course I was teaching that semester. As I circled the room of students rotating at the sound of the five minute timer I set, I watched them learn about the projects their peers had completed. The assignment was to choose an aspect of their cultural heritage, and connect it to mathematics. Some students looked into the beat patterns of Jazz, others into Bachata and transformations, or cornrows and braid theory. Every student had a unique aspect of their culture represented through the math it was utilizing. Nayely’s explored the use of tessellation designs in traditional skirts from El Salvador.

After class, Nayely and I spoke about her reflections on presenting with the class, and how she was feeling about presenting at the Our Math Roots Conference in New York City in May. As we discussed, she said “Thank you for making us do this project, Ms. Tantry. It made me learn more about my own culture. And, it made me more proud of it!” What more could I ask for?

About Ethnomathematics

Ethnomathematics consists of two parts: “Ethno,” the “ingredients that make up the cultural identity of a group” and “Math,” the domain that involves “arithmetic, classifying, ordering, inferring, and modeling” (D’Ambrosio, 2001). I piloted this class at my school for two years as a means to provide students with opportunities to see themselves and learn about the diversity of

this subject, as well as give them the space to challenge how they think about history, mathematics, ethics, power, and privilege. Inspired by Rebecca Guarino’s “Our Math Roots,” a collective of teachers piloting lessons incorporating sociology and mathematics, this class included lessons showcasing non-European roots of mathematics from all around the world, from Ghana to India to Peru (Guarino, 2024). On their website, anyone can see teacher and student made lessons that incorporate diverse cultural heritages with various mathematical concepts, the ultimate goal to deconstruct the Eurocentric views we have of “who is a doer of mathematics.”

I have loved teaching this class to my group of predominantly BIPOC (Black, Indigenous, Person of Color) students as we unpack the roles of power and privilege and who decides what we learn in our standardized curriculums. We question why we have not heard of these mathematicians or mathematical heritages, and how these heritages can empower us to see ourselves as mathematicians.

Math of My Elders

Their first homework assignment attempted to reframe how they were thinking about the role of math in their community. I named it “Math of My Elders,” and asked them to connect with an elder in their community (such as a grandparent or grandparent figure), and ask questions about their experiences with math. It begins unassumingly, asking questions about their hobbies, childhood experiences, adulthood experiences, before getting into more specifics with mathematics.

This semester, I had students record their conversations, and pick a two minute clipping of it to share in small groups. As I listened to groups share, quite vulnerably, their audio clippings, and the subsequent guided discussions that followed, I was overjoyed to hear the connections they were making between their respective family member’s experiences with math. While many elders did not consider themselves to be mathematicians, many of them were using it or had been using it often, whether for household chores, art, finances, or their careers. As students spoke, they were growing to validate their elders’ mathematical knowledge and assets in ways I hope they do for each other and themselves. In their reflections, many of them wrote, “I see now how math is used in many different ways.” One student added, “I realized that even if my grandma did not go to school, she still used math to survive.”

Do we need money?: A Socratic Seminar Discussion

As teachers, we all know that October is a trek to get to the much anticipated Thanksgiving Break. This year has been no different. However, amidst our collective weariness of school, one particular Ethnomathematics class shone through.

During the end of Unit 2, we usually have our Socratic Seminar discussion to wrap up our lessons on Latin American representations of math. Every semester, during this time, we engage in a discussion on the Piraha Tribe. The framing is as such: The Piraha Tribe are an Indigenous tribe in the Amazon that are unique in that they do not use numbers or a number system in the way we do. Instead of having numbers, a small quantity would be described as “few” and a large quantity as “many.” The documentary we watched on this topic goes on to explain how numbers are not necessary, and the tribe is able to live without them.

Thus carried our central question for this discussion: *“Do we need numbers?”* Every time I’ve facilitated this discussion, it has gone differently, from debates about the differences between “few” and “many” to what counts as “doing math” and “using numbers.” Students delved into what their grandmothers or grandfathers were doing and how this could count as “doing math,” even if they themselves did not consider it as such. They unpacked what formal and informal education looks like, and how validated and invalidated their elders felt doing mathematics based on their educational background. Students left the discussion wondering, “What does it look like to be a doer of mathematics?” Such is the power of a class like this - The opportunity to leave space for students to not just talk about the content of mathematics, but how they feel about it. What is school for if not to analyze why we do what we do, why we learn what we learn, and how to do it better?

This semester led to a discussion I was not prepared for. For context, this semester’s class is unique - I have some very loud, brazen personalities, coupled with quieter students who can surely raise their voice when they are brought to it. Our discussion began (with me, the silent observer), and the natural leaders began to lead. I saw wonderful discussion moves, students inviting the quieter friends into the conversation with tact, other students quelling back-and-forth discussions that seemed to be going in circles - They led a seminar that any teacher would be proud of. But what really astonished me was the content of it. We quickly went from “Do we need numbers?” to “Do we need money?” Students asked questions about how to assign value, if money could not be used. If nothing had value, and everything was available to everyone, would

people use greed to take more than they needed? If money did not exist, would people feel motivated to work? Could we or would we work solely to sustain our resources?

At the end of the discussion, I posed a question to them - “If we were absolutely assured that everyone around us was honest and would only take what was necessary for them, could we live in a world with no money?” All students enthusiastically agreed.

Dreaming of a Better World

When given the space to dream, my students dream of a world that is better for all. They dream of a world in which they don’t have to worry about resource scarcity, about working to barely survive to support the machine of capitalism - of a world in which they work to keep each other safe, to keep each other alive, to love and support each other. They dream of a world in which labor under capitalism doesn’t exist. As we learn more and more of the atrocities of the upper class, of what can happen to those with too much power, it can be refreshing to hear the hope and positivity of students, to dream of a different world. To see the humanity in each other. We all have the capacity to trust each other, to serve each other, to love each other. Where along the way do we get lost? In a system that is fed by our distrust of each other, how can we bring ourselves, those around us, and most of all, our students, our youth, to the central question -

“What do we owe each other, if not everything?”

Ethnomathematics has become this unique opportunity for me to not only address the role of power and privilege in the context of how we do math, but also to open up broader conversations on ethics and morals, on societal norms (or what we have decided is normal). This class invites them to challenge these norms and rethink how we can change the way the world works. This class challenges student thinking, challenges my own thinking. It attempts to change how students are grappling with not just mathematics, but how they see themselves and those around them as doers of math. We have the opportunity to examine how knowledge is disseminated in our history and how power can play a role in what we learn today.

Through my experiences with this class, I have learned that our youth are already thinking about these ideas, and forming their own perspectives based on their lived experiences. What better way to support them in these processes than to facilitate these discussions in the context of math? What better way to help students build a better world, than to give them the space to let them talk about building a better world for themselves and those around them? What better way to do this than with a class like Ethnomathematics?

References

- D'Ambrosio, Ubiratan. (2001). What is ethnomathematics, and how can it help children in schools?. *Teaching Children Mathematics*. 7. 308-310. 10.5951/TCM.7.6.0308.
- Guarino, R. (2024, April 16). *Our Math Roots*. Our Math Roots. <https://ourmathroots.com/>

Mathematics in Our Lived Experiences: Sharing Stories to Broaden Perceptions and Transform Learning

Kimberly J. Yoak
Coalition for Mathematics for Human Flourishing
kim.yoak@cm4hf.org

Abstract: Many people feel unwelcome in mathematics, which is regrettable, but not inevitable. We share initial outcomes of a video interview project documenting adults’ lived experiences of mathematics. In these videos, people share how they engage in mathematics in their lives and how these experiences relate – or do not easily relate – to their memories of school “mathematics.” Many participants are members of groups that have been historically marginalized and/or underrepresented in STEM fields. We plan to use these stories to catalyze collaborative, sustained work to center humanity in school mathematics.

Keywords: mathematics, lived experience, storytelling, humanizing

Rationale for our work

People experience mathematics in myriad ways that are often not represented in school. Since beliefs about mathematics in the United States tend to be grounded in western, white, heterosexual, male norms, school mathematics programs are often limited and limiting for young people who belong to historically marginalized cultures and communities (NCSM/TODOS, 2016). Thus, the Coalition for Mathematics for Human Flourishing has been established with this mission: to gather and share stories of people’s lived experiences, to establish broad views of mathematics, and to advance human rights and human flourishing – that is, the well-lived life for all people – in school mathematics and beyond. When those who make decisions at all levels for schools are able to see mathematics in a broader, more inclusive light, school experiences can begin to mirror the NCSM/TODOS vision that “uplifts students to learn rigorous and relevant mathematics” (2016). As Francis Su argues in *Mathematics for Human Flourishing* (2020), we can promote meaning, beauty, justice, community, and other “basic human desires” through experiences with mathematics that value the humanity, dignity, and worth of all.

Our method for gathering stories of mathematics

We work to gather stories that reflect a wide variety of lived experiences of mathematics, finding participants who represent diverse cultural backgrounds, ages, genders, and careers that may not be viewed as typical “STEM” (science, technology, engineering, mathematics) professions. After learning of someone with a story potentially to share, often through our own

networks, we e-mail them to explain our goals and to invite them to talk with us. So far, we have done video interviews, but we encourage people to consider other media for sharing their experiences – visual art, music, poetry, or prose. We use a consent form that makes explicit the participant’s right to choose what aspects of their story are shared and in what venues.

For each interview, we send the participant a list of questions beforehand; [these questions can be found at this link](#). We also share a [brief version of the Standards for Mathematical Practice](#) and the [“basic human desires” from Su \(2020\)](#). One of our team members conducts the interview via Zoom, which records video and audio and produces a transcript.

Following the interview, one of our team members reviews the transcript and video and selects a tentative set of excerpts to be used for an approximately 15-minute edited video. (In the future, two team members will review the video separately to add another perspective.) We choose segments that we believe will help educators and policymakers to broaden their views of mathematics and to consider how school mathematics could be more humanizing. The refinement of each video is an iterative process that involves communication among our team, the participant, and our video editor. We also add captions, graphics to highlight ideas in the story, and discussion questions in a separate document for those who view the video.

Key themes and ideas from stories of mathematics

Each individual’s experiences with mathematics are unique, but we have observed common themes among them that are informative in considering how we might better center humanity in school mathematics.

Definitions of “mathematics” have evolved

Our participants view mathematics in more complex ways as adults than they did as young people, recognizing that it involves concepts and reasoning, not just computation. One individual, an events and marketing coordinator for a nonprofit, commented:

It is just funny thinking about how math has evolved in my life, like starting out... “Oh, it's this easy, simple thing that's fine! And oh, my gosh! There's a letter in here now”... if I have to do something mathematically related, if it's obviously math, like traditional, I'm probably gonna skirt away from it. But if it's anything that has to do with concepts of math, it seems like I'm kind of drawn to those types of things, which is kind of cool.

Many school mathematics experiences felt predetermined and lacked relevance

Negative feelings about school mathematics are not universal, but these types of feelings were perhaps the most frequently expressed throughout these interviews:

Quote 1 (a building contractor)

[My school was] very structured, and, you know, this is the way that you have to do it, and it's the only way... I definitely think that, you know, some of those things deterred me a little bit... I would get complacent, or kind of bored with the lesson, and my natural instinct is to just be like, forget it, I don't want to do it.

Quote 2 (professor of public health)

One of the things that I noticed about math even then, and certainly in retrospect, is, although it isn't disconnected from real life, it was taught as if it was somewhat disconnected from real life. So certainly they would use examples that invoked real things, but... this is one of the things you just have to know...

The Standards for Mathematical Practice are evident in adult experiences

When we asked our participants whether they had had life or school experiences that reflected the [Standards for Mathematical Practice](#), virtually all examples that they gave related to their adult lives and not to school mathematics – and they each quickly cited multiple examples of these Standards in their adult experiences. The professor of public health commented: “Easily number 4 [Model with mathematics]... because to me that serves as the justification, and certainly the motivation to address 1, 2, 3, and then 5.” He then went on to discuss how Standards 6 and 7 were relevant in his work. A participant who is a fine art and design operations coordinator readily gave examples of how Standards 1, 2, 3, and 6 appeared in her work, and, when asked about Standard 7 in relation to the others, discussed this as well.

Participants hope that young people experience mathematics as relevant and enjoyable

All of our participants expressed, in various ways, that they hoped young people could view mathematics as relevant and joyful, rather than disconnected and stressful (recalling their own experiences). The public health professor shared: “My hope for students of the future, and I can look no further than my son, right, who's in 5th grade... is that it's relevance. It's all about relevance and context for me.” The fine art and design operations coordinator commented: “I wish young people saw, or had the opportunity to see math as play.”

Reflections on our own learning thus far

In a project such as this one, the learning is ongoing. There are always more stories to gather, more questions to ask, and more ways to help people to consider how these stories can guide future decision making related to school mathematics.

One realization for our team has been that it is not especially easy to find people who are willing to share their experiences with mathematics in a semi-structured setting. We conjecture that this may be due to their anxiety about mathematics or the belief that they do not have anything “interesting” to share about mathematics in their lives. We would like to try using informal group conversations in order to help people become more comfortable discussing mathematics and potentially more willing to share their individual experiences. We also wish to encourage, as mentioned earlier, story sharing in other formats (art, text, etc.).

Using this work to root mathematics in humanity

Since this project focuses on sharing stories of how mathematics is experienced by human beings in their lives, it promotes the TODOS 2026 Conference theme of “Rooting Mathematics in Humanity.” We have been excited to see our participants resonate so strongly with the Standards for Mathematical Practice since they are an existing framework in school mathematics that could – with refinements to policy and practice – be emphasized far more in future years. Further, we have been encouraged by our participants’ desire for young people to experience mathematics in more relevant and joyful ways than many of them felt they did in school. If we can help more educators, legislators, and policymakers to hear these calls, we can – based on our developing collective understanding – make transformative decisions that help to promote meaningful and inclusive opportunities for every student.

TODOS Alignment

The goals of this project particularly reflect goals 1, 3, and 4 from the **TODOS Mission Statement**. The project aims to “advance educators’ knowledge” that will enable them to enact equitable mathematics programs that center the humanity and unique experiences of learners (TODOS goal 1). The work from this project will be publicly available at no cost, which allows us to “disseminate knowledge about equitable and high-quality mathematics education” (TODOS goal 3). Further, the intended audience for this work also includes community members and policymakers who have influence over large-scale decisions about schooling (TODOS goal 4).

References

- National Council of Supervisors of Mathematics & TODOS. (2016). Mathematics Education Through the Lens of Social Justice: Acknowledgment, Actions, and Accountability. <https://www.todos-math.org/home/resources/position-statements/>
- National Governors Association Center for Best Practices and Council of Chief State School Officers. (2010). Standards for Mathematical Practice. <https://www.thecorestandards.org/Math/Practice/>
- Su, F. (2020). Mathematics for Human Flourishing. Yale University Press.

CHAPTER 2

Session Insights and Presentation Decks

Capítulo 2

**Perspectivas de las Sesiones y Presentaciones
Visuales**

Co-Learning with Data Stories: Rooting Data Practices in Humanity

Sabrina N. Zarza
Michigan State University
zarzasab@msu.edu

Maria Cruciani
Michigan State University
cruciani@msu.edu

Faith Longnight
Michigan State University
longnigh@msu.edu

Beth Herbel-Eisenmann
Michigan State University
bhe@msu.edu

Ishan Santra
Michigan State University
santrais@msu.edu

Abstract: This submission will share selected slides from the presentation titled, *Co-Learning with Data Stories: Rooting Data Practices in Humanity*. The purpose of this contribution is to provide the frameworks guiding the Youth Participatory Action Research (YPAR) initiative that this work stems from, along with the resources and questions used to invite youth to engage with data moves and data stories. We also share the Notice, Wonder, Feel, Act, Reimagine (Kahn et al., 2022) framework, used to invite participants to reflect on what it means to learn alongside youth and reimagine data exploration as an intergenerational co-learning practice.

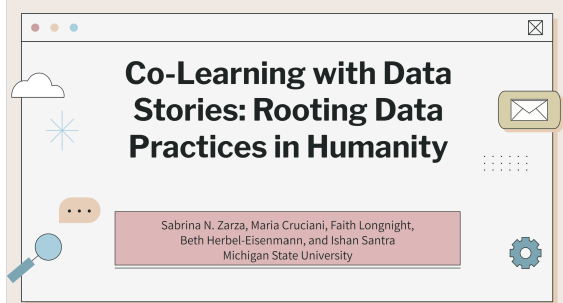
Keywords: Data Practices, Youth Participatory Action Research, Community Learning

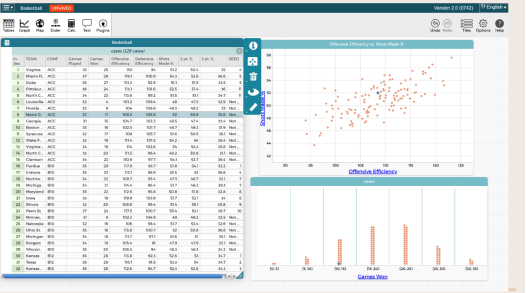
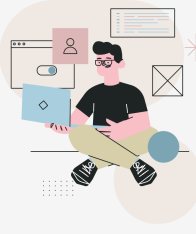
Introduction

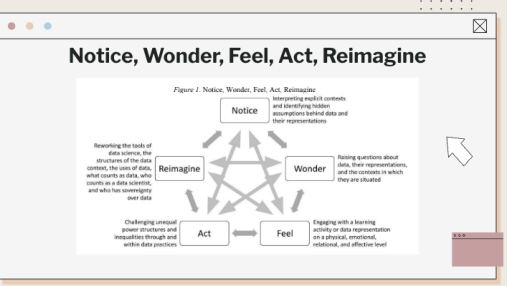
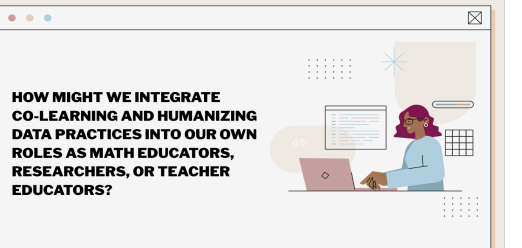
This presentation focuses on a workshop conducted with the Youth Voices Project, a community-based Youth Participatory Action Research (YPAR) initiative between Pondside Houses, a subsidized housing community in the US Midwest, university researchers, and community educators. Since 2019, middle and high school students in the Youth Voices Project have investigated issues of importance to them and their community. Past projects have included raising money to improve the property's basketball court (Marciano et al., 2020), increasing awareness of the Black Lives Matter movement among residents of their community (Marciano et al., 2023), and advocating for change to local school policy and practices (Marciano et al., 2024; Marciano, 2025). Previously, we have investigated ways in which engagement with mathematics has replicated notions of adultism often depicted in traditional classroom structures where teachers, the adults, are positioned as the primary holder of knowledge (Zarza et al., 2025; Zarza et al., Under Review). In this workshop, youth, university faculty members, and graduate research assistants, including the authors of this presentation, learned alongside one another, creating an intergenerational learning space that we hoped would disrupt adultism. Using March Madness data, participants in the workshop learned how to use Common Online Data Analysis Platform (CODAP), a free, web-based data analysis tool. Through this process, participants' engaged in data moves—intentional actions that transform a dataset—to explore relationships

between variables, working towards the creation of a data story. During this session, we share brief video clips from the workshop and invite participants to reflect using the Notice, Wonder, Feel, Act, Reimagine (NWFAR) framework (Kahn et al., 2022). These slides align with TODOS's mission by advocating for equitable, culturally responsive engagement with mathematics towards data literacy. Rooted in the conference theme, it challenges traditional, hierarchical models of mathematics and statistics instruction by centering intergenerational and humanizing approaches that work to disrupt knowledge and power dynamics between adults and youth.

Selected Slides

	Here is the title slide.
	This slide was used to introduce the YPAR initiative in which the CODAP workshop took place. We highlight the intergenerational setting and how the structure of the Youth Voices Project has fostered the disruption of knowledge and power dynamics often present between youth and adults, especially in traditional classroom settings.
	YPAR is an approach centering youths' perspectives in collaborative inquiry where youth develop, study, share, and take action with respect to meaningful, community-situated research questions alongside peers and adult collaborators. The work is guided by culturally relevant and sustaining educational approaches (Ladson-Billings, 2014; NYSED, 2018; Paris & Alim, 2014, 2017), that seek to center youths' desires (Tuck, 2009), experiences, perspectives and voices.

Critical, Community-Situated Data Practices (CCDPs) (Marciano, Herbel-Eisenmann, & Watson, 2024) - the ways in which youth collect, critically analyze, represent, and communicate data within and about their communities - Conceptualized to center cultural epistemologies of racially, ethnically, linguistically, and socioeconomically diverse youth (Watson & Petrone, 2020), prioritize relationality (Mirra et al., 2016; Paris & Winn, 2014), and challenge adultism (Bertand, et al., 2020); - an ontological, epistemological, methodological, and pedagogical approach that challenges the “white gaze” of western, white, adult male-centered and rugged individualistic (Bang et al., 2013; Leonard et al., 2021; McGee, 2021; Paris, 2019) STEM knowledge generation (p. 1). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the CCDPs team and do not necessarily reflect the views of the National Science Foundation.	This slide goes over the NSF Grant in which this project was funded by at the time of the workshop. Specifically, we highlight Critical, Community-Situated Data Practices (CCDPs), which was a guiding frame for our work.
Common Online Data Analysis Platform (CODAP) - Free, web-based data analysis tool - Designed specifically for education - No statistical programming required To access CODAP: 	This slide discusses the common online data analysis platform (CODAP), a free, web-based data analysis tool designed specifically for educational contexts. A QR code is provided to access CODAP.
	This slide demonstrates CODAP’s dynamic data visualization capabilities, highlighting how users can interactively manipulate variables and see immediate graphical updates. A dataset used during a CODAP workshop with youth is displayed.
Data Moves - A data move (Erickson et al., 2019) is an intentional action that transforms a dataset - Grouping - Filtering - Creating visualizations - Used to: - Explore questions and discover patterns - Shape the story the data tells. 	This slide defines a data move (Erickson et al., 2019) and provides an example created in CODAP. In the top display, each dot represents a unit of analysis. When an independent and dependent variable are selected, the data move is completed by generating a visualization, shown in the bottom graph.
Looking at Data Let's look at some data and then play with that data - What are the variables that are interesting to you? - What relationships between variables may be interesting? - How do we move things around to make sense of new bits of the data that have been collected? - Where did this information come from? Who are the participants? How are the participants represented on the visualizations we created? - What might have been asked or observed in order to collect this data? 	This slide contains some of the questions used during our session with youth when we invited them to play with data on CODAP.

	After viewing video clips from the CODAP workshop, the audience reflected using the Notice, Wonder, Feel, Act, Reimagine (NWFAR; Kahn et al., 2022) prompts. We also invited conversation about youth and adults culturally sustaining peer interactions (CSPIs, Marciano, 2025) while they engage in data moves (Erickson et al., 2019).
	Guided discussion from a humanistic stance on data practices (Lee et. al., 2021) and drawing on CSPIs (Marciano, 2025) to deepen insights we ask the audience to consider: How might we integrate co-learning and humanizing data practices into our own roles as math educators, researchers, or teacher educators?

References

- Erickson, T., Wilkerson, M., Finzer, W., & Reichsman, F. (2019). Data moves. *Technology Innovations in Statistics Education*, 12(1). <https://doi.org/10.5070/T5121038001>
- Kahn, J., Rubel, L., Lim, V.Y., Peralta, L.M., Jiang, S., & Herbel-Eisenmann, B. (2022). Notice, wonder, feel, act, and reimagine: A framework for social justice and equity in data science education. *Educational Technology and Society. Special issue on Learning at the Intersection of Data Literacy and Social Justice*, 25(4), 80-92. <https://www.jstor.org/stable/48695983>
- Ladson-Billings, G. (2014). Culturally relevant pedagogy 2.0: A.k.a. the remix. *Harvard Educational Review*, 84(1), 74-84. <https://doi.org/10.17763/haer.84.1.p2rj131485484751>
- Lee, V. R., Wilkerson, M. H., & Lanouette, K. (2021). A call for a humanistic stance toward K–12 data science education. *Educational Researcher*, 50(9), 664-672. <https://doi.org/10.3102/0013189X211048810>
- Marciano, J. E. (2025). Examining Youths' Culturally Sustaining Peer Interactions in a Community-Based Participatory Research Initiative. *Urban Education*, 61(1), 13-42. <https://doi.org/10.1177/00420859251331546>
- Marciano, J.E., Johnson, L. & Beymer, A. (2023). "Our voice and dreams matter": Supporting youths' racial literacy. *Journal of Literacy Research*, 55(2), 145-169. <https://doi.org/10.1177/1086296X231178511>
- Marciano, J.E., Peralta, L. M. & Lee, J. S. (2024). Examining the schooling desires of youth during the COVID-19 crisis. *Harvard Educational Review*, 94(3), 425-447. <https://doi.org/10.17763/1943-5045-94.3.425>
- Marciano, J.E., Peralta, L. M., Lee, J. S., Rosemurgy, H., Holloway, L. & Bass, J. (2020). Centering community: Enacting culturally responsive-sustaining YPAR during COVID-19. *Journal for Multicultural Education*, 14(2), 163-175. <https://doi.org/10.1108/JME-04-2020-0026>
- New York State Education Department (2018), "Culturally responsive-sustaining education", available at: <https://www.nysed.gov/sites/default/files/programs/crs/culturally-responsive-sustaining-education-framework.pdf>
- Paris, D., & Alim, H. S. (2014). What are we seeking to sustain through culturally sustaining pedagogy? A loving critique forward. *Harvard Educational Review*, 84(1), 85-100. <https://doi.org/10.17763/haer.84.1.9821873k2ht16m77>
- Paris D. & Winn, M. (Eds. 2014) *Humanizing research: Decolonizing qualitative inquiry with youth and communities*. Sage Publishing, Inc.
- Tuck, E. (2009). Suspending damage: A letter to communities. *Harvard Educational Review*, 79(3), 409-428. <https://doi.org/10.17763/haer.79.3.n0016675661t3n15>
- Zarza, S. N., Bielecki, K. T., Herbel-Eisenmann, B., & Marciano, J. E. (2025). Healing and Systemic Repair in Mathematics: Norm Setting with Youth. In Zbiek, R. M., Yao, X., McCloskey, A., & Arbaugh, F. (Eds.) *Proceedings of the forty-seventh annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education*. (pp. 219-223). The Pennsylvania State University. <https://doi.org/10.51272/pmna.47.2025>
- Zarza, S. N., Herbel-Eisenmann, B., Marciano, J. E., & Bielecki, K. T. (Under Review). "I Have a Wonder": Youth (Re)Threading Collective Needs in Youth Participatory Action Research. *Teachers College Record*.

CHAPTER 3

**Praxis in the Classroom: Lessons, Tasks, and
Teacher Resources**

Capítulo 3

**Praxis en el Aula: Lecciones, Tareas y
Recursos para Docentes**

Asset-Oriented Math Instruction: Shifting Teacher Mindsets for Emergent Bilingual Success

Jiyeong Yi
Iowa State University
jiyeongi@iastate.edu

Shristi Shrestha
Iowa State University
shriisti@iastate.edu

Betsy Araujo
Iowa State University
betsya@iastate.edu

Abstract: This submission presents a lesson plan designed and implemented for high school emergent bilingual students (EBs). Through collaboration and co-teaching with the classroom teacher, we integrated various research-based strategies for EBs, such as translanguaging and multiple modes of communication. This lesson covers graphing piecewise functions and systems of linear equations with the context of story-based time-distance relationships.

Keywords: emergent bilingual, translanguaging, function graph, asset-based teaching

Introduction

Leveraging the cultural/linguistic assets of Emergent Bilinguals (EBs) and providing them with opportunities to engage in cognitively demanding tasks are crucial for positioning EBs as capable math learners (Celedón-Pattichis & Ramirez, 2012; Langer-Osuna & Esmonde, 2017). Our study followed seven high school teachers of Algebra 1/Pre-Algebra EB-only classes in a year-long Collaborative and Situated Professional Development (CSPD) program (Yi et al., 2025). Through CSPD, teachers shifted from viewing EBs as passive/reluctant to confident, self-directed, and mathematically capable students. This change was supported by redesigned instructional approaches, including modeling tasks that encouraged home language use and math reasoning. We present one such highly engaging pre-algebra lesson.

The Five-Act Task Framework

All lessons in this project used the Five-Act (Yi et al., 2025) as the lesson development framework. This framework was repeatedly shared and emphasized with teachers during CSPD cycles.

Table 1

The Purposes and Examples of Each Act in the Five-Act Task Framework

Act	Description	Purpose
Act 0	Assessing/scaffolding before Act 1	To support EBs by providing background knowledge of the problem's language, context, and mathematics.

Act 1	A story with conflict via multimedia/visuals/physical movements and problem posing based on the story	To engage EBs in a relevant real-life story towards an authentic understanding of the mathematical situation, and to empower EBs by having them pose their own problem
Act 2	Student-driven collection of information and strategies	To give EBs the agency to reflect on the story and develop their own assumptions to solve it
Act 3	Model construction with solution(s)	To provide EBs with an opportunity to visualize/model their mathematical process to analyze and improve their decisions in real life.
Act 4	Collective communication of solutions/thinking process	To support EBs as they develop English proficiency while also building mathematical competency

The lesson

Mathematical Objectives: Identify and connect piecewise functions to a story.

Language Objectives: Write a story that describes a piecewise function graph.

Standards: 8.F.B.4, 8.F.B.5 [can be also used for HS.F-IF.B.4 with focusing on intercepts]

Lesson Duration: Approx. 45 minutes

Materials: Chart paper, Markers, Graph Templates, Journal Templates, Lesson Slide ([Download](#))

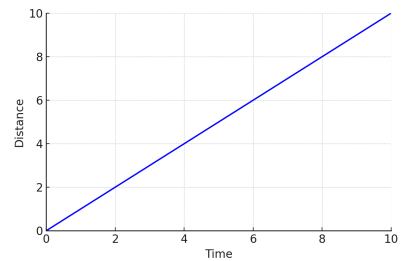
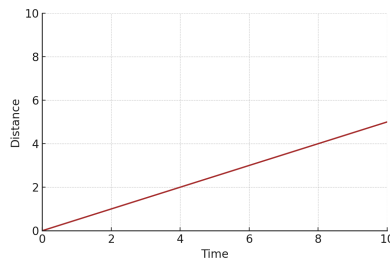
Activities | 5 Act Task

Act 0: Building Common Knowledge about Context, Math, and Language

1. Show the slide with two images below to test students' knowledge of the language and understand the context of the story problem: hare/rabbit/bunny and tortoise/turtle (choose the pair that students feel most comfortable with, such as bunny-turtle or rabbit-turtle, and use them throughout the lesson).



2. Show an image that shows a rabbit and a tortoise at the start of a race track with two linear time-distance graphs. Ask the students: What do you notice? What do you wonder?



[Guide students to understand the graphs with questions:
Who is faster? Who takes a longer time?]

3. Ask the students who they think will win the race.

Act 1: Introduce The Story of Race between Tortoise and Rabbit

1. Show the video that shows the race between the tortoise and the rabbit. Some good examples of such videos are:
 - a. [The Tortoise and the Hare by Cocomelon](#)
 - b. [The Tortoise and The Hare Story Read Along by Curious World](#)
 - c. [The Tortoise and the Hare Short Film by Animaza Studios](#)
2. Ask the students after watching the video: What do you notice? What do you wonder?
3. Show the problem "Draw a time-distance graph about the race of the hare and tortoise" in the lesson to the students in their native languages. Then ask native speakers of the languages to read the problem aloud. In the lesson sample, the languages are English, Korean, French, Spanish, Swahili, Tigrinya, Arabic, Pashto, and Persian/Dari.

Act 1: Our Math Problem

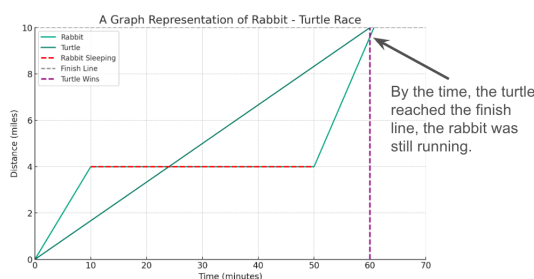
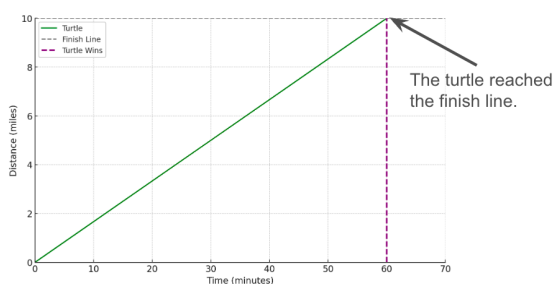
- Draw a time-distance graph about the race of hare and tortoise. [English]
- 토끼와 거북이의 경주에 대한 시간-거리 그래프를 그려보세요. [Korean]
- Dessinez un graphique temps-distance sur la race du lièvre et de la tortue. [French]
- Dibuja una gráfica tiempo-distancia sobre la carrera de la liebre y la tortuga. [Spanish]
- Chora mchoro wa umbali wa muda kuhusu mbio za hare na kobe. [Swahili]
- ብዛዕባ ዓሌት ሓርማዝን ዕንቅርቢትን ናይ ግዜ ርክቀት ግራፍ ስኣል። [Tigrinya]
- ارسم تمثيلاً بيانياً للمسافة الزمنية حول سباق الأرنب والسحفاة. [Arabic]
- د خر او کیشو د نسل په اړه د وخت فاصله گراف رسم کړئ. [Pashto]
- یک نمودار فاصله زمانی در مورد نژاد خرگوش و لاک پشت ترسیم کنید. [Dari/Persian]

Act 2: Find Clues and Strategies

1. Ask students, "What information do you need?" Students may ask about the distance and time. Allow them to make assumptions as needed.
2. Provide graph [templates](#) for each pair of students and allow them to work together.

Act 3: Address the Problem Without and With Teacher Help

1. For the first 3 minutes, allow students to create/develop their models without the teacher's help.
2. After 3 minutes, help students understand/read graphs correctly. Show only the tortoise's movement (linear graph) on a slide, and ask students where the hare is.



Act 4: Sharing the Solution

1. Ask students to write a [journal](#). In the journal, provide them a graph and ask, "Who do you think won the race? Why?"

Note: All images in the lesson plan are generated by AI (ChatGPT 4).

Lesson Reflection & TODOS Alignment

We found that students responded very actively to this lesson because they knew the story and even the animation from their younger siblings. The teachers who experienced students' high engagement and participation in challenging math tasks with a familiar story demonstrated a positive shift from deficit to asset-oriented positioning of students, as CSPD and the Five-Act Task can challenge deficit views and promote equity in mathematics education.

References and Resources

- Celedon-Pattichis, S., & Ramirez, N. G. (Eds.). (2012). *Beyond good teaching: Advancing mathematics education for ELLs*. Reston, VA: National Council of Teachers of Mathematics.
- Langer-Osuna, J. M., & Esmonde, I. (2017). Insights and advances on research on identity in mathematics education. In J. Cai (Ed.), *Compendium for Research in Mathematics Education* (pp. 637–648). Reston, VA: National Council of Teachers of Mathematics.
- Yi, J., Sourwine, J., & Shrestha, S. (2026). Understanding equity in multilingual math classrooms: Teacher positioning for emergent bilinguals. *Mathematics Education Research Journal*. <https://doi.org/10.1007/s13394-026-00582-3>

Celebrations

TODOS Teacher Awardees

Celebrations

Docentes Galardonados de TODOS

2026 Cathy Kinzer Memorial Professional Development Awardees

The Cathy Kinzer Memorial Professional Development Award has been established to honor Dr. Kinzer for her life-long commitment to equity in mathematics professional development. To continue her work, this award was given to an individual to attend the 2026 TODOS Conference with the theme “TODOS en Comunidad: Rooting Mathematics in Humanity” in Orange County, CA, on June 24 - 25, 2026.

Dr. Cathy Kinzer was a passionate educator, a gifted leader, an enduring inspiration, and a beautiful friend to teachers. She began her teaching career at Mesilla Park Elementary School in Las Cruces, New Mexico and received the Presidential Award for Excellence in Mathematics Teaching. She later earned her doctorate in Curriculum and Instruction with a specialization in Mathematics Education from New Mexico State University. A tenured professor in the NMSU College of Education, Dr. Kinzer served on many state and nationally funded grant projects to improve mathematics teaching and learning. She was an early and dedicated supporter of TODOS and served as President of the New Mexico Council of Teachers of Mathematics. Through her work with and endless support of both pre-service and in-service teachers, Dr. Kinzer left a lasting legacy of kindness and expertise. Her involvement in lesson study efforts afforded very special opportunities for many educators and their students in New Mexico. Dr. Kinzer had an unshakable belief in the capabilities and talents of classroom teachers and in the value of excellent professional development. The TODOS Dr. Cathy Kinzer Award truly honors her career and what she meant to so many of us.

2026 Cathy Kinzer Award Recipient: Edmar Orata

Edmar Orata's Statement

I joined TODOS Mathematics because I believe that every learner deserves the opportunity to succeed at their own level. Mathematics should be accessible, empowering, and meaningful for all students, regardless of background or prior learning experiences. TODOS' mission of equity and excellence in mathematics aligns with my own belief that strong support, culturally responsive teaching, and high expectations can open doors for students who may not have traditionally seen themselves as “math learners.”

As a former ESL teacher for six years, I saw firsthand how language barriers often mask students' true mathematical abilities. Working closely with my Hispanic students, I advocated for

mathematics instruction that honored their linguistic strengths and supported their growth. I learned that when students are given the right tools, encouragement, and culturally validating instruction, they thrive. Joining TODOS allows me to continue championing these values and contributing to a community committed to mathematics for all.

I used parent-focused materials to communicate more effectively with my key stakeholders—the families. By offering information in clear, accessible language and providing guidance on how they could support their children at home, I helped parents feel more confident and involved in their child’s learning. I also relied on data resources to identify Hispanic communities in the area so I could better understand their needs and tailor my communication in culturally responsive ways.

These resources strengthened my relationships with parents and helped build trust, collaboration, and shared commitment. This approach aligns closely with TODOS’ belief in mathematics equity for all, because when families feel included and informed, students are more empowered to succeed. By connecting more deeply with parents and recognizing the cultural and linguistic strengths of the community, I was able to support a more equitable and meaningful mathematics experience for every learner.

As an advocate for equity in underprivileged communities, I used my involvement in TODOS to uplift and support my students, especially those who are often overlooked. I actively nominated and encouraged my learners to pursue opportunities, and this year two of them were recognized with awards. Seeing them celebrated reminded me how powerful it can be when students from marginalized backgrounds are given the same chances as their peers. They may face challenges in life, but when someone believes in them and opens doors for them, their confidence and potential grow.

My dedication to equity continues to motivate me to seek greater platforms, like TODOS, where I can amplify my advocacy. I want to contribute to meaningful change and ensure that historically marginalized communities have access to the same opportunities, recognition, and support as any other group. By staying involved in organizations committed to fairness and representation, I hope to help shape a future where all students—regardless of background—are empowered to succeed.

This year’s TODOS theme, “ALL: Community, Mathematics, and Humanity,” holds deep meaning for me as a former ESL teacher and now a new math coach. It reflects the belief that

mathematics is not only an academic subject but also a human connection that brings communities together. Throughout my career, I have advocated for equal opportunities for all learners, regardless of their entry level, language background, or cultural identity. I have worked to ensure that every student feels seen, supported, and capable of achieving success in mathematics.

I have also presented effective ESL math strategies that help multilingual students thrive and gain confidence. My hope is that these students will one day carry these skills back into their own communities and uplift those around them. I joined TODOS because I share the same dream as many parents: the belief that no matter where we come from, we can succeed and contribute meaningfully to others. This theme reminds me why I do this work—to empower students, honor their families, and help create a more equitable future for all.

I taught ESL high school math for six years and recently transitioned into a coaching role, where I continue to advocate for equal opportunities for all learners. Through this advocacy, I've seen remarkable growth—my students consistently outperformed their peers in regular classes on state and international assessments. My work has been recognized with the GADOE Language Trailblazer Award for championing ESL learners, and I am honored to be the 2025 GCTM High School Excellence in Teaching Award recipient. As a coach, I hope to share this passion with my teachers and community, inspiring the same commitment to equity, high expectations, and meaningful support for every student.

2026 Susie W. Håkansson Teacher Award Application

TODOS is honored to offer scholarships, in honor of Dr. Susie Håkansson, to full-time elementary teachers or full-time secondary teachers who teach mathematics to attend the 2026 TODOS Conference in Orange County, CA on June 24-25, 2026.

Dr. Susie W. Håkansson is currently a Mathematics Education Consultant (mostly on a volunteer basis). She was a charter TODOS member in 2003 and TODOS President from 2014-2016. She also served many roles on the TODOS Board as Finance Chair, Member Services Chair, and NCTM Representative in addition to her responsibilities as President. She is currently the Layout Editor for Teaching for Excellence and Equity in Mathematics (TEEM), the TODOS Journal.

In 2019, Susie was committed to finding resources for mathematics teachers in the classroom to attend TODOS Conferences. As a result of her efforts, the TODOS Board renamed the Teachers' Conference Fund to the Susie W. Håkansson Teacher Fund. Susie taught high school mathematics (LAUSD), served as a faculty advisor for secondary mathematics pre-service students and a lecturer in the Department of Mathematics at UCLA, and has over 35 years of experience providing professional development to PreK-16 teachers of mathematics. Susie was the Executive Director of the California Mathematics Project (CMP) and a CMP Regional Site Director prior to that, collaborating with others to design and implement institutes, workshop series, and school site programs mainly for classroom teachers, particularly programs that focus on providing access to high quality and rigorous mathematics for ALL students. Currently, Susie is working with the California Action Network for Mathematics Excellence and Equity (CANMEE) with its lesson study programs that focus on increasing students' agency, ownership, and identity and providing access to high quality and rigorous grade level mathematics for underserved and historically excluded students.

2026 Susie H. Award Recipients:

Jessica Moses

Regie Padre

Monica Sanchez

Kwesi Yankey

Gabriela Zuniga

Jessica Moses' Statement

I teach 3rd grade math in Nashville, TN, to a group of largely (about 70%) Latinx students. I strive towards high quality, humanizing, equitable mathematics instruction, but I am working against a low-quality mandated curriculum that is actively harmful to my students. Attending the TODOS conference will expose me to meaningful ideas and educators that will help me build my practice towards what I know is high quality instruction. I am always searching for meaningful ways to improve my practice, and TODOS's mission aligns so closely with my philosophy of education. I know this conference will help me build from my students' experiences and identities to support their development as confident, capable mathematicians.

I belong to a group called The Educators Cooperative, which is an educator-run organization that builds community and capacity among teachers. I participate actively in their conferences, which provide an opportunity for meaningful connection and collaboration with teachers across all parts of the education world. Their annual "unconference" is an event I look forward to each year, because I know, through conversation with other teachers, I always come away with concrete ideas to implement in my classroom. Often, these ideas are not explicitly instructional, but are ways to relating to and with students, of centering my instruction around my students' identities and humanity, and of building a space where all students can academically thrive. Because teachers in this organization come from all areas of education (public, private, charter, etc), we do not experience the same systemic constraints. I find it inspiring to "pop my bubble" (I work in a large urban district) and hear other teachers' perspectives, and I always come away with new ideas to implement.

Most recently, after an EdCo event, I implemented a new reflection protocol at the end of mathematical discussions. This protocol, adapted from a middle school teacher, asks questions like "What is a mistake you made today? How did it help you understand?" and "Who did you learn from today?". These questions help deepen student understanding of math class as a place of exploration, learn from all classmates, and reflect.

I believe in high quality, equitable, humanizing mathematics instruction for ALL learners, and I strive towards this in my everyday practice. In my context, I am constrained by a low-quality, harmful curriculum that actively pushes out many learners. To work against this, I collaborate with many stakeholders, both in my daily work with students, and in my work more broadly to push against these materials. I have seen firsthand the importance of community and

collaboration in strengthening mathematics instruction from the ground up. I am continuously looking for ways to improve my own instruction and to spread what I know to be meaningful, high quality instructional ideas more broadly. The TODOS conference will support me in this work, both in my own classroom, and in sharing ideas about mathematics instruction through advocacy work in my school and even at the district level.

I am excited about the prospect of thinking with, and learning from, stakeholders from all aspects of the mathematics education world to broaden my own ideas about humanizing, meaningful mathematics experiences for all. I hope to come away with concrete ideas and inspiration for my own classroom practice that I can share with the other educators I work with. All learners deserve access to meaningful mathematics education, and this conference will help me deepen my understandings so that I can share them with my corner of the math ed universe.

Regie Padre's Statement

Attending the TODOS Conference will directly support the needs of my middle school students in Bisbee, Arizona, where the majority of learners are Spanish speakers and many are emerging bilinguals. My students often face challenges in mathematics related to language barriers, gaps in prior learning, and limited access to instruction that affirms their cultural and linguistic identities. TODOS' strong focus on equity, culturally responsive mathematics instruction, and support for Latinx students aligns closely with the realities of my classroom.

Through the conference, I will gain strategies to strengthen mathematical discourse, support academic language development, and design lessons that honor students' cultural backgrounds while maintaining high expectations. Learning how to leverage students' home language as an asset—not a barrier—will help my students better access rigorous mathematical concepts and build confidence in sharing their thinking. Additionally, collaborating with educators who serve similar communities will provide practical tools and resources I can immediately implement in my classroom and share with colleagues. Attending the TODOS Conference will empower me to create a more inclusive, equitable math learning environment where my Bisbee students feel seen, valued, and capable of success in mathematics.

One professional development experience that had a strong impact on my students was training focused on culturally responsive mathematics instruction and supporting multilingual learners in the middle school classroom. The professional development emphasized the

importance of mathematical discourse, multiple representations, and honoring students' home language as a resource rather than a barrier.

After implementing these strategies, I intentionally structured lessons to include more student talk, sentence stems, and visual supports, and I encouraged students to explain their reasoning in both English and Spanish when appropriate. As a result, my students became more confident in sharing their thinking, participated more actively in class discussions, and demonstrated deeper conceptual understanding. Students who were previously hesitant to speak began taking academic risks, collaborating more with peers, and showing greater perseverance when solving challenging problems. This experience reinforced for me that when instruction is culturally responsive and language-inclusive, students are more engaged, empowered, and successful in mathematics.

The theme “*TODOS en Comunidad (ALL in Community): Rooting Mathematics in Humanity*” deeply resonates with me because it reflects the reality of my classroom and why I teach. As a middle school math teacher in Bisbee, Arizona, I work with students who bring rich cultures, languages, and lived experiences into the classroom—many of them Spanish speakers. Rooting mathematics in humanity means recognizing my students as whole people and honoring who they are as learners.

To me, humanizing mathematics means building relationships, creating a sense of belonging, and making space for students' voices. When students feel seen and respected, they are more willing to share their thinking, take risks, and engage deeply in learning. Allowing students to explain their reasoning in English, Spanish, or both has helped shift math from something intimidating to something collaborative and meaningful.

This theme impacts my teaching by reminding me that mathematics is not just about procedures, but about connection and community. It encourages me to design lessons that value collaboration, cultural relevance, and student agency while maintaining high expectations. What excites me most about this theme is the emphasis on learning and growing together. It inspires me to continue strengthening my classroom community and to learn alongside educators who are committed to equity, justice, and humanity in mathematics for ALL students.

I am deeply committed to implementing a high-quality mathematics education that nurtures students' curiosity and respect for academics from a young age. In my classroom, I strive to create an environment where students see mathematics as meaningful, challenging, and

attainable, not just as a subject to complete but as a way of thinking and problem-solving that carries value beyond school. By setting high expectations, encouraging perseverance, and celebrating effort and growth, I help students develop strong academic habits and confidence early in their educational journey. My goal is to build a solid mathematical foundation that empowers students to take pride in their learning, value academic success, and see themselves as capable learners who are prepared for future opportunities.

Monica Sanchez's Statement

I know that by attending the TODOS conference, I will acquire additional skills to bring back to TODOS los estudiantes in my Bilingual SPED class. These are students who not only face language and intellectual barriers, but also the environmental challenges and the stigma associated with being in a resource group. I recognize that being an emergent bilingual and having disabilities can both be strengths when teachers utilize specific strategies that build from their students. However, there are few professional learning opportunities in mathematics that address student's multidimensional identities. TODOS is unique. This will be my first TODOS Conference. I am excited to learn new skills that will help my students deepen their understanding and application of mathematics. TODOS en comunidad, is exactly how I like to learn and teach.

In recent years, I have participated in several professional development experiences, and while I have learned much from each one of them, none of these experiences compares to the DREAM Project—based in Austin, TX.- where I am currently a proud starting member. This project brings TODOS, La Comunidad, parents, teachers, and students across bilingual education, special education, and mathematics education together in monthly meetings where we engage in different mathematics practices that are traditionally taught without conceptual understanding: division, fractions, and decimal concepts. We learn UDL strategies and get to problem solve, connect to context, and learn from each other. Then, our job is to share with others. However, because our school is a predominantly immigrant community, many of our parents do not feel safe gathering publicly. So, we started creating short YouTube mini-video clips with other parents from the DREAM Project in English and Spanish, so others can learn as well.

Teachers and parents both feel empowered to dispel the myth that math is hard and that only certain kids can do mathematics, thereby reinforcing collaborative, equitable learning for ALL. This is one of my favorite quotes, “Tell me and I forget, teach me and I may remember, involve me and I learn. En nuestro DREAM Project, TODOS aprendemos juntos!”

Luckily, as I stated earlier, I am a member of the DREAM Project in which we work TODOS en Comunidad, collaborating to center students’ strengths and identities in mathematics learning. The conference theme, “TODOS en Comunidad: Rooting Mathematics in Humanity” resonates with what I believe as a teacher. It reflects the work I strive to do daily to create learning environments that recognize and celebrate the linguistic, cultural, and cognitive assets of all students.

The theme embodies the power of collective support, identity and justice in mathematics education. TODOS, only five letters, and yet, it evokes feelings of hope, belonging, and possibility, and when paired with Comunidad, it brings dreams closer. In my daily work, I see students navigating systems that are particularly hard for emergent bilinguals and students with disabilities, and I know we can all do better.

Being able to attend this conference in California and learn from educators across the country is particularly inspiring. Our context in East Austin, Texas, where immigration, language, and identity deeply affect students’ access to education TODOS en Comunidad offers a rare space to exchange strategies, envision transformative practices, and strengthen my ability to cultivate classrooms where my students can feel safer and feel that they are seen.

Kwesi Yankey’s Statement

Attending the TODOS conference will help address key challenges students face in learning mathematics by strengthening instruction that is both rigorous and human-centered. If students are disengaged or feel math is “not for them,” the conference focus on rooting mathematics in humanity will provide strategies for building belonging through culturally relevant tasks, student voice, and community-connected contexts. If students struggle to explain their thinking, sessions and resources on discourse routines and language support can improve how lessons promote reasoning, justification, and productive collaboration. If gaps show up in foundational skills, the conference will support stronger planning for just-in-time scaffolds that preserve grade-level complexity instead of lowering the cognitive demand. If students experience math anxiety or fear

of being wrong, learning equity-centered facilitation moves will help create norms where mistakes are treated as data for learning, increasing persistence and confidence. Overall, the conference will strengthen the ability to respond to academic and identity-based barriers at the same time, so more students can access, make sense of, and succeed in meaningful mathematics. One professional development experience that significantly impacted my students was learning and implementing Student-Centered Coaching in my role as a Multi-Classroom Leader (MCL) and Gifted Math Leader. The PD emphasized using clear learning targets, collecting quick evidence of student thinking, and adjusting instruction in real time based on what students actually understood. After applying these strategies, I redesigned lessons to include stronger number talks and structured discourse routines, which increased student participation and reduced “answer-only” responses. This also strengthened how I support ESOL students and the teachers I coach by planning language supports such as sentence frames, visuals, and structured partner talk so students can communicate mathematical thinking with confidence. As a result, ESOL students participated more consistently in discussion, and teachers became more intentional about integrating language development with rigorous math instruction.

“*TODOS en Comunidad (ALL in Community): Rooting Mathematics in Humanity*” means mathematics should be taught as a way to make sense of real life, honor students’ identities, and strengthen relationships, not just as a set of procedures to memorize. In my work as a Multi-Classroom Leader (MCL) and Gifted Math Leader, this theme reinforces that strong math instruction and equity go together. It impacts my teaching by pushing me to design lessons where students talk, justify, and collaborate, and where tasks connect to meaningful contexts that reflect students’ experiences and communities. It also shapes how I coach teachers by focusing on classroom routines that build belonging, protect student thinking, and keep rigorous expectations for every learner.

The theme inspires me because it centers both excellence and care. It is exciting to learn from educators and community partners who are building math spaces where students feel seen, valued, and capable, especially students who have been underserved or marginalized. I am most inspired by the opportunity to bring back strategies that deepen discourse, strengthen culturally responsive teaching, and support ESOL students through language-rich math instruction so more students can access grade-level mathematics with confidence and purpose.

As a Multi-Classroom Leader (MCL) and Gifted Math Leader, I am committed to strengthening equitable, high-impact math instruction across classrooms. Attending TODOS will directly support my work coaching teachers through planning, co-teaching, observation, and feedback cycles, and will help me expand language-rich routines that improve access for ESOL students while maintaining grade-level rigor. I am especially interested in learning practical tools for building student discourse, belonging, and culturally responsive tasks that connect mathematics to students' lived experiences and community contexts.

Gabriela Zuniga's Statement

I currently teach mathematics at a secondary Title I school whose student body is predominantly Latine. I am continuously working to not only learn more about equitable mathematics pedagogical practices but also working to advocate for their equitable attainment of mathematics education. I have been teaching mathematics for almost 8 years and for a long time, I believed I was alone in this fight of centering students' thoughts, culture, and community within mathematics education. Attending the TODOS conference will allow me to learn more from educators and researchers about the equity-oriented practices they are researching or implementing that resist the traditional mathematics instruction in favor of mathematics instruction that is culturally sustaining.

I was recently part of a Social Justice Mathematics (SJM) projects as a SJM facilitator in which I began learning more about SJM and began implementing it in my classroom through provided curriculum though tasks from High School Mathematics Lessons to Explore, Understand, and Respond to Social Injustice. Additionally, we worked together as a cohort in this 2 year long professional development to create our own SJM tasks and implement them in our classrooms. I created two different tasks from scratch for my students and modified two others from existing tasks to serve the needs of my students' dominant and critical needs. This professional development experience was the first time I realized I was not alone in this fight towards equitable mathematics. It allowed me to empower my students to ask questions that went deeper than just a simple mathematics word problem that allowed them see that math literacy was crucial to understand the inequities that their community was experiencing (the task I created centered around the relationship of the housing prices over the last 40 years in Las

Vegas compared to the average household income during our unit of systems of equations) in order to empower them and help them develop their critical consciousness.

This theme speaks deeply and directly to my work as a secondary mathematics teacher at a Title I school and mathematics education PhD students centering my work on equitable mathematics education opportunities for Latine students. Every day I navigate the institutional constraints that push me to teach mathematics in a traditional way, centering procedural tasks, test scores, and data-driven ability labeling. Everyday I refuse to marginalize my students' culture and identity and reject the idea that mathematics is only for certain students or that politics or culture have no place within mathematics. Coming to a conference where humanizing mathematics is the focus and having the opportunity to speak with other people about how and why creating a space for marginalized students to thrive within mathematics is something I really look forward to. Additionally, getting to discuss and share different ways that our teaching centers their culture, community, and language is so crucial to continue this work and encourage others that they are not alone in this work. I am a first-generation Mexican-American secondary mathematics teacher and doctoral student. I currently teach at a Title I school while also preparing to conduct dissertation research on how Mexican-American mathematics teachers navigate racialized institutional contexts. As a newer member of TODOS, attending the conference would deepen my engagement with the organization and connect me with scholars and practitioners doing similar equity-focused work.

TODOS Membership

TODOS: Mathematics for ALL is a professional mathematics equity organization. An affiliate of NCTM, TODOS was founded in 2003 by educators committed to excellence and equity in mathematics education. We currently have over 700 members.

Benefits of Being a TODOS Member

- Network with an active mathematics equity organization
- Access TODOS publications
- Participate in TODOS member discussion boards
- Apply to speak at local, state, regional, and National Conferences as part of a TODOS strand
- Participate in TODOS listservs
- Attend TODOS Live! sessions
- Compete for professional development awards
- Nominate students and colleagues for awards

Contact membership@todos-math.org with any questions you may have.



TEACHING FOR EXCELLENCE AND EQUITY IN MATHEMATICS

¡Atención, TODOS!

About *TEEM*

Teaching for Excellence and Equity in Mathematics (TEEM) is a refereed, Open Access journal published by **TODOS: Mathematics for ALL**. The intended audience of *TEEM* includes mathematics teachers, leaders, administrators, and mathematics teacher educators. The articles in *TEEM* must align with the mission of TODOS:

“To advocate for equity and high quality mathematics education for all students—in particular, Latina/o/x students.”

The journal aims to address topics involving excellence and equity (simultaneously) in the teaching and learning of mathematics, in a way that connects research to classroom practice and can directly inform practice. To this end, manuscripts are welcomed that relate to:

- ALL students learning mathematics as problem solvers beyond computational abilities;
- A vision of exemplary practices in the K-12 classroom and professional development;
- Attention to the roles that language and culture have in teaching and learning mathematics.

The journal defines equity broadly, including (but not limited to) issues of language, gender, ethnicity, and culture. *TEEM* welcomes manuscripts on issues of language, culture, access, equity, and quality from diverse viewpoints.

Call for Reviewers

Reviewing manuscripts for a journal is not only a valuable experience and service to the profession, but it is also an essential means to ensure that articles of high quality and relevance are published in a timely manner. Please consider becoming a reviewer for *TEEM* (*Teaching for Excellence and Equity in Mathematics*) (<https://www.todos-math.org/teem>), the official journal of **TODOS: Mathematics for All** (<http://www.todos-math.org/>). To be eligible to review (normally, only 1-2 manuscripts per year), we invite you to complete the New User/Role Request form (see QR code below) to be enrolled in our online journal system (OJS). Please add any relevant areas of expertise or interest to help guide our manuscript assignments.

Call for Papers

We encourage the submission of manuscripts, including applied or action research, literature surveys, thematic bibliographies, commentary on critical issues in the field, professional development strategies, and classroom activities and resources. Submissions are accepted in English or Spanish. *TEEM* Editors welcome query emails to teem@todos-math.org about the suitability of proposed topics or approaches.

For more detailed guidelines: <http://www.todos-math.org/teem>

To submit a paper, please complete the New User/Role Request form to be enrolled in our online journal system (OJS) using the QR code provided below.



New User & Role Request Form
Click or Scan!