MINDSET SCHOLARS NETWORK

Funder Briefing: Is my voice heard? Does my voice matter?

October 15, 2019

student experience RESEARCH NETWORK

MINDSET SCHOLARS NETWORK

Greetings,

On behalf of everyone at the Mindset Scholars Network, I want to thank you for making time to participate in our fourth annual funder briefing.

These events are designed to engage the funding community in a dialogue about important insights from research that speak to students' psychological experiences of school and the application of those insights in practice. Each year, we hone in on an aspect of students' psychological experience of school and how it is shaped by school environments and structures in society. Last year we focused on students' sense of belonging broadly: why is it important to feel a sense of belonging in school and how do we create places of belonging for all students? This year, we are focused on a theme that emerged as part of that conversation: *"Is my voice heard? Does my voice matter?"*

Knowing that your voice is heard and matters—at an individual and a collective level—is related to core ideas of belonging. It is also connected to ideas of purpose, relevance, inclusion, and identity. These experiences are critical to people's sense of efficacy, competency, and motivation; their well-being and outcomes; and their development as contributors to their community and broader society.

We have a full agenda for October 15th. To help make the most of our time together, please review this briefing book prior to the event. In it, you will find background information about the network, MSN projects related to the event theme, and our speakers. It also includes explanations of relevant concepts from research and suggested readings for those who would like to begin diving deeper into topics that will be covered at the event.

A Brief History

Founded in 2015, the Mindset Scholars Network is a group of leading social scientists devoted to improving learning and expanding educational opportunity by advancing our understanding of how students' psychological experience of learning and school influences their educational outcomes. We accomplish this by launching novel interdisciplinary research, providing leadership to the scientific community, and conducting outreach to policymakers, practitioners, and intermediaries on insights and approaches from research that can change students' experience of school.

A central tenet from decades of research in psychology is that how people *make meaning* of themselves, others, and their situations shapes their motivation, behaviors, and outcomes. For example, if a student interprets challenges at school as an indication that they don't belong or can't "cut it," then they may begin to disengage from academic and social behaviors that are important to success in that environment.

Researchers have identified a number of beliefs that shape this meaning-making; these beliefs are the lenses through which people construe their experiences. They include beliefs about belonging, the nature of intelligence, and the relevance and larger purpose of one's work: Am I someone who is respected and valued in this environment? Is my ability fixed? Is the work I am doing meaningful?

These questions arise from social, cultural, and historical contexts, and the interaction of people's identities with those contexts. The answers people generate to these pressing questions are shaped by cues they perceive in the environment, such as: are the experiences and stories of people like me represented with dignity in this space? Do the practices and policies of this institution reflect my culture? Are the decisions that are made responsive to my needs and ideas? Will I have opportunities to apply what I am learning to make a difference in the lives of others?

When students can answer these questions affirmatively, they are more likely to engage in learning and experience well-being in school. When students are unable to do so, they are more likely to withdraw and disidentify from that context. For this reason, students' answers to such questions are foundational to their success in school.

Students' perspectives have often been neglected in the daily practice of education (what is taught and how) and also in broader discussions about our education system—both in understanding the current system and how it needs to change to achieve better outcomes for the students it serves. The voices and experiences of students from minoritized groups in particular have been excluded as a result of long-standing oppressive structures and practices in society and education.

For our education system to transform to meet the needs of all students with excellence, it must listen to all students, families, and communities, and co-construct with them a system that is responsive to their priorities and experiences. This entails significant changes to system-wide policies, curriculum and pedagogy, who is teaching and how they are prepared, and the social, cultural, and political context in which this teaching and learning takes place. The experts speaking at this year's event are on the cutting edge of efforts to promote and study student voice—and the conditions that need to be in place to support it—in a variety of settings inside and outside of school.

What Comes Next

Please bring this briefing book with you on October 15th. To save trees, we will not have hardcopies available at the event. Please also bring your questions and your curiosity. We anticipate a lively discussion of research and its applications in practice and policy. I look forward to seeing you in Seattle!

Lisa Quay
Executive Director

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MEETING AGENDA

8:00 a.m. Breakfast available

8:30 a.m. Welcome and opening discussion with student leaders
Lake Union + Lake Washington Room
Moderator: Lisa Quay

- Ana De Almeida Amaral, Stanford University
- Enoch Jemmott, Queens College
- Izadora McGawley, University of California, Santa Cruz
- Christine Rodriguez, The New School

9:30 a.m. Introducing core ideas from research
Lake Union + Lake Washington Room
Moderator: Lisa Quay

- Adriana Galván, University of California Los Angeles
- Linda Tropp, University of Massachusetts Amherst
- DeLeon Gray, Michigan State University

10:45 a.m. Transition

10:50 a.m. Morning breakout sessions *(select one session to attend)*

Civic engagement: New directions and impact *(Student voice in research and practice)*
Lake Union + Lake Washington Room
Moderator: Jessica Marshall

- Elan Hope, North Carolina State University
- Ben Kirshner, University of Colorado Boulder
- Michelle Morales, Mikva Challenge
- Jessica Vargas, University of Chicago

Building educators' ability to be responsive to students and draw on their assets
(Creating supportive conditions in schools and postsecondary institutions)
Elliott Bay Room
Moderator: Nicole Williams Beechum

- Francesca López, University of Arizona
- Rachel Godsil, Perception Institute
- Micia Mosely, Black Teacher Project

12:05 p.m. Lunch and office hours with morning speakers
Lake Union + Lake Washington Room

1:00 p.m. Student voice in mathematics instruction

Lake Union + Lake Washington Room

Moderator: Shanette Porter

- Nathan Alexander, Morehouse College
- Elham Kazemi, University of Washington
- Dan Meyer, Desmos
- Na'ilah Suad Nasir, Spencer Foundation

2:00 p.m. Transition

2:05 p.m. Afternoon breakout sessions *(select one session to attend)*

Ethnic studies in California: Connecting practice, research, advocacy, and policy
(Student voice in research and practice)
Elliott Bay Room

Moderator: Nicole Williams Beechum

- Allyson Tintiangco-Cubales, San Francisco State University & Pin@y Educational Partnerships
- Thomas Dee, Stanford University
- Ana De Almeida Amaral, Stanford University, and Izadora McGawley, University of California, Santa Cruz

Providing new forms of feedback to educators on students' classroom experience
(Creating supportive conditions in schools and postsecondary institutions)
Lake Union + Lake Washington Room

Moderator: Jessica Marshall

- Niral Shah, University of Washington
- Sidney D'Mello, University of Colorado Boulder
- Carrie Straub, Mursion, and Patricia Alvarez McHatton, University of Texas Rio Grande Valley

3:20 p.m. Transition

3:25 p.m. Supporting student voice at a systems level

Lake Union + Lake Washington Room

Moderator: Kaleen Healey

- Heather Van Benthuysen, Alejandra Frausto, and Emma Kornfeld, Chicago Public Schools
- Tina Hike-Hubbard, Christina Ross, and Rashad Staton, Baltimore City Public Schools

4:25 p.m. Discussion and closing

5:00 p.m. Office hours with afternoon speakers

5:30 – 7:00 p.m. Reception (on site)

REFLECTIONS ON STUDENT VOICE

We asked the featured speakers at this event why it is important that students feel their voices matter and what they have learned about student voice. Here is what they told us.

Nathan Alexander

When students feel their voices and perspectives matter, **the real communication begins.**

Based on my perspective as a teacher, the most important thing I've learned about student voice is **listening.**

Ana De Almeida Amaral

When students feel their voices and perspectives matter, **their education becomes a transformative experience.**

Based on my perspective as a student activist, the most important thing I've learned about student voice is that in order to create empowering educational experiences, **student voice needs to not only be ingrained in the curriculum but students also need a platform to take ownership of and guide their learning.**

Thomas Dee

Based on my perspective as a researcher, the most important thing I've learned about student voice is its **capacity to promote school engagement.**

Sidney D'Mello

When students feel their voices and perspectives matter, **learning is more engaging, enjoyable, efficient, and effective.**

Based on my perspective as a researcher, the most important thing I've learned about student voice is their **excitement and enthusiasm when they engage in authentic discussion - one where their opinions matter.**

Adriana Galván

When students feel their voices and perspectives matter, **they thrive.**

Based on my perspective as a developmental neuroscientist, the most important thing I've learned about student voice is **the unique perspective.**

Rachel Godsil

When students feel their voices and perspectives matter, **they are far more likely to feel a sense of belonging within their school and to achieve to their potential.**

Based on my own perspective as a teacher - as well as working with hundreds of teachers in professional development workshops, the most important thing I've learned about student voice is that **students will only genuinely feel heard if teachers are able to over-ride the stereotyping and anxiety that can get in the way of genuine listening.**

DeLeon Gray

When students feel their voices and perspectives matter, **they value the settings, contexts, or environments that make them feel that way.**

Based on my perspective as a researcher who partners with predominantly Black and Latinx schools, the most important thing I've learned about student voice is that their **rich perspectives can be silenced or distorted when researchers do not employ culturally sensitive research approaches.**

Elan Hope

When students feel their voices and perspectives matter, **radical change happens.**

Based on my perspective as a researcher and teacher, the most important thing I've learned about student voice is to **actually listen to it.**

Elham Kazemi

When students feel their voices and perspectives matter, **school becomes a place where they flourish.**

Based on my perspective as a teacher and teacher educator, the most important thing I've learned about student voice is to **invite students to share their experiences with us. We are often wrong about what may be happening for students in the classroom.**

Ben Kirshner

When students feel their voices and perspectives matter, **they become more excited to share their ideas and participate in the hard work of improving their schools and communities.**

Based on my perspective as a researcher, the most important thing I've learned about student voice is that **it is most impactful when adults show up ready to learn from and engage with students as legitimate stakeholders.**

Francesca López

When students feel their voices and perspectives matter, **the roles of learner and educator become one.**

Based on my perspective as a parent, educator, and researcher, the most important thing I've learned about student voice is that **students will find ways to have their voice heard. Learning to understand what students are trying to tell us is the key to promoting sound educational practice.**

Jessica Marshall

When students feel their voices and perspectives matter, **they bring their "A" game and we all benefit from the power of their solutions, their creative approaches to addressing issues that matter to them, and the thoughtfulness with which they approach their work.**

Based on my perspective as a former youth activist, civics educator and now student of civic and political learning, the most important thing I've learned about student voice is **the power of support, infrastructure, mentorship and resources for youth to develop and learn to engage civically and politically. This also means adults need the necessary learning opportunities, resources and permissive policies that allow for them to best support students.**

Patricia McHatton

When students feel their voices and perspectives matter, **they rise to the occasion and become vested in their learning and in addressing pertinent issues within and beyond their community.**

Based on my perspective as Executive Vice President for Academic Affairs, Student Success, and P-16 Integration, the most important thing I've learned about student voice is **the need to attend to it.**

Dan Meyer

When students feel their voices and perspectives matter, **they offer more of themselves, they feel like they belong, and they learn.**

Based on my perspective as a former math teacher, the most important thing I've learned about student voice is that **it is just as important, and much harder, to elicit in math classes than in the humanities.**

Michelle Morales

When students feel their voices and perspectives matter, the results are incredible. **Students engage more with the world around them, see how they fit into their community and city, feel ownership of their surroundings and act on that ownership, and truly blossom into the awesome potential that all young people possess.**

Based on my perspective as the leader of a civic leadership non-profit (and a parent!), the most important thing I've learned about student voice is **how much student voice is repressed - particularly with youth of color - and how if we adults create the space for youth/student voice to be honored, listened to and respected, how truly transformative that is for our youth, their development, their sense of identity and sense of belonging.**

Micia Mosely

When students feel their voices and perspectives matter, **they are able to generate creative ideas that move us forward.**

Based on my perspective as teacher educator focused on racial equity, the most important thing I've learned about student voice is **it requires adults listening with empathy, openness and humility. We must check our assumptions about students' identities including age.**

Na'ilah Suad Nasir

When students feel their voices and perspectives matter, **learning happens.**

Based on my perspective as a scholar and leader, the most important thing I've learned about student voice is that **being seen and heard is a basic human need and fundamental precursor to learning.**

Christine Rodriguez

When students feel their voices and perspectives matter, **they develop a sense of belonging. It empowers scholars to take up space, ask questions, and challenge the structure at hand. We must acknowledge our stakeholders and be willing to be transparent to build healthier relationships.**

Based on my perspective as a young activist, the most important thing I've learned about students' voices is **the necessity of providing a space that is validating, transparent and supportive.**

Niral Shah

When students feel their voices and perspectives matter, **students feel humanized and engage more deeply in the learning process.**

Based on my perspective as a researcher and former teacher, the most important thing I've learned about student voice is that **race and racism shape the stories that students tell.**

Carrie Straub

When students feel their voices and perspectives matter, **they take ownership in their community.**

Based on my perspective as a teacher and researcher, the most important thing I've learned about student voice is that **students gain momentum when they practice and see their own improvement.**

Linda Tropp

When students feel their voices and perspectives matter, **they are more motivated to learn, and to trust the educators who listen to them.**

Based on my perspective as an educator, the most important thing I've learned about student voice is that **when students feel their voice is valued, the more actively they engage with the material to be learned.**

Heather Van Benthuysen

When students feel their voices and perspectives matter, then **schools and communities are stronger, and youth are committed and invested stakeholders in the community and in their own learning.**

As a teacher, my relationships with students were paramount. **Student voice made my lessons and instruction stronger, my students were committed and invested in our classroom community, and they helped me learn more about myself as an educator and as a human.** As a school/district leader, I've learning the only way we can achieve transformative, continuous, and sustainable growth is if **student voice is at the center of all school systems, structures, and decision-making.**

Nicole Williams Beechum

When students feel their voices and perspectives matter, **they make connections between school and their lives.**

Based on my perspective as a Black woman/former counselor/mother, the most important thing I've learned about student voice is that **when adults listen they often learn more from young people than young people learn from them.**

Leveraging Mindset Science to Design Educational Environments that Nurture People's Natural Drive to Learn

BY LISA QUAY

RESEARCH SYNTHESIS | OCTOBER 2017

MOTIVATION IS A KEY DETERMINANT OF LEARNING

Human beings are born to be learners and doers. People are naturally curious.[i] Motivation is the psychological process that *propels* learning; its function is to mobilize the brain to engage in learning and development.[ii] When people's basic physiological needs are satisfied, motivation is a critical driver of how much, and how deeply people learn.[iii]

This natural desire to learn is sustained when a few core psychological needs are met. People need to feel competent. They need to feel connected to others. They need to feel capable of expressing their authentic self and taking action.[iv]

Because of these core needs, people feel an emotional pull to participate in tasks at which they feel capable of succeeding, that engage them in a collective endeavor, and that they perceive as valuable (e.g., that are interesting or relevant to realizing meaningful goals or a valued identity). People need to want to do a task, feel safe and connected to others in doing the task, and believe they can do the task with the right support. When these conditions are met, people are more likely to choose challenging tasks, persist in the face of difficulty, learn more deeply, and achieve at higher levels.[v]

Many external factors affect the motivation to learn. Students need a safe, healthy environment and enriching experiences outside of school. They need to be free from the fear of being

HIGHLIGHTS

- People are born to learn and motivation is the fuel that propels learning
- How people make meaning of their experiences in school (their 'mindsets') is one important factor that affects their motivation to learn and their ability to learn effectively
- The mindsets students develop about learning and school are reasonable inferences from their social environment and are shaped by systemic inequities in society
- Students' mindsets are malleable and can change when we change the messages we send them: from society, in school, and through targeted psychological interventions
- Retooling schools and postsecondary institutions to align with insights from mindset science has the potential to nurture the inherent drive to learn with which people are born and enhance learning outcomes and educational equity

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The Mindset Scholars Network is a group of leading social scientists dedicated to improving student outcomes and expanding educational opportunity by advancing our scientific understanding of students' mindsets about learning and school.

harassed or bullied. Additional in-school factors affect the opportunity to learn, from the presence of trained educators to cognitively-rich instruction in learning strategies and content knowledge. An absence of these factors serves as a headwind to motivation and learning.

PEOPLE NEED TO WANT TO DO A TASK, FEEL SAFE AND CONNECTED TO OTHERS IN DOING THE TASK, AND BELIEVE THEY CAN DO THE TASK WITH THE RIGHT SUPPORT. WHEN THESE CONDITIONS ARE MET, PEOPLE ARE MORE LIKELY TO CHOOSE CHALLENGING TASKS, PERSIST IN THE FACE OF DIFFICULTY, LEARN MORE DEEPLY, AND ACHIEVE AT HIGHER LEVELS.

Yet even if these foundational elements are in place, students will not be motivated to engage in the learning behaviors that are necessary to master academic content unless they are confident they are cared about, feel connected to teachers and peers with shared intentions for learning, see the value of what they are being asked to learn, and believe they have a real chance to succeed.[vi]

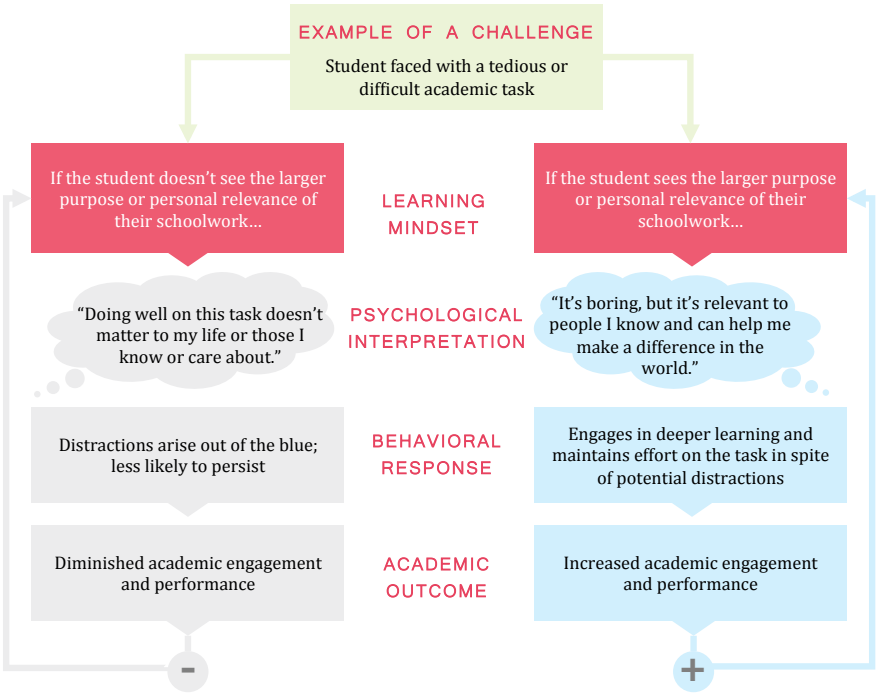
The current structure of the American education system comes from a time when we had less scientific understanding about the factors that shape people's motivation to learn and how motivational processes affect cognition. Focusing on how we can design schools and classrooms that nurture people's natural desire to learn is critical when considering many pressing challenges in education, from implementing more rigorous academic standards and increasing college completion to addressing persistent disparities in school discipline and STEM participation.

How people make meaning of their experiences in school is a key factor that affects their motivation to learn and their ability to learn effectively

Myriad factors shape students' motivation to learn. But one key determinant of motivation is the beliefs that students come to hold about themselves, their relationship to others, and the work they are asked to do in school. These beliefs are shaped by students' observations of the world around them; they are reasonable inferences that reflect students' reality. They represent "working hypotheses" about who students are, the way the world works, and their place in it.[vii] These beliefs (or 'mindsets') are the lenses through which students make meaning of, or *construe* their experiences in school. These interpretations, in turn, shape their responses.

As Walton and Wilson note, "virtually every situation is open to interpretation… and it is the interpretation people draw that guides behavior."[viii] Certain mindsets make it reasonable from students' point of view to disengage

Figure 1. Mindsets shape behavior by affecting how people make meaning of their experiences, particularly challenges (mindset featured in this example: whether or not students believe the work they are asked to do is relevant to their life or connected to a larger purpose)



when they struggle, while other mindsets make it reasonable to seek out and persist in the face of challenges (see Figure 1, previous page). It is logical that students will not be motivated to persist at tasks they find tedious or difficult if they see their schoolwork as lacking in meaning. But if they see what they are learning in school as something that will help them make a difference in the world or connect to a valued identity, they are more likely to be motivated to stick with those tasks. For example, a college student who sees the connection between memorizing legal cases and her goal of going to law school to become a public defender will be more willing to repeatedly revisit such cases, even if it feels laborious or difficult.

In other words, students' mindsets *sustain* or *undermine* their sense of competence, their connection to others, and their perception that what they are doing is valuable when faced with challenges, uncertainty, or tedium.[1] Mindsets are thus key determinants of how people respond to the struggles and setbacks that are essential to the learning process and can be valuable opportunities for growth.

STUDENTS' MINDSETS SUSTAIN OR UNDERMINE THEIR SENSE OF COMPETENCE, THEIR CONNECTION TO OTHERS, AND THEIR PERCEPTION THAT WHAT THEY ARE DOING IS VALUABLE WHEN FACED WITH CHALLENGES, UNCERTAINTY, OR TEDIUM.

Scientists have repeatedly shown that students' mindsets *causally affect* their motivation to engage in sustained learning behaviors, the quality of their learning strategies, and their learning outcomes, including grades, test scores, and persistence to graduation (see Figure 2).[ix]

What are the key mindsets about learning and school?

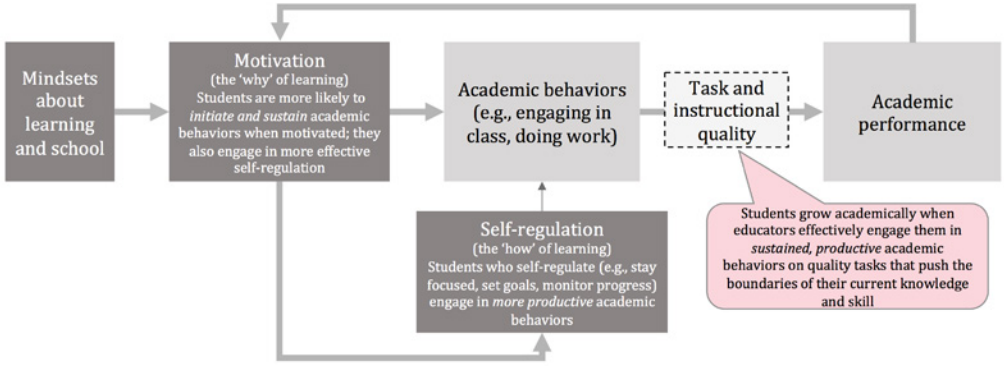
The key mindsets about learning and school relate to beliefs about belonging, intelligence, and the value of schoolwork.

Mindsets that undermine motivation: When students are aware that they may be judged negatively based on who they are, they are more likely to exert mental capacity looking for cues that people don't think they 'belong' in that environment. When students perceive that the people around them believe ability is a fixed trait, like eye color, they are more likely to worry about proving they are 'smart' (or avoiding looking 'dumb'). When the value of their schoolwork isn't clear, students are less likely to engage.

Mindsets that sustain motivation: By contrast, when students feel confident their instructors and peers value and respect them (belonging), they can focus attention on the work at hand.[xi] When students' environment conveys to them that they can improve their ability if they apply effort and effective strategies (a "growth" mindset about intelligence), students are more likely to interpret new challenges as intrinsically rewarding opportunities to grow and experience competency.[xii] When students see the connection between their schoolwork and their lives or a larger purpose (relevance and purpose), they are more likely to perceive tasks that are hard or tedious as worthwhile.[xiii]

These adaptive behavioral responses set in motion positive, recursive processes between the individual and their environment that can lead to productive learning. People invest more in their own efforts when they believe they are capable; similarly, people invest more in others whom they perceive

Figure 2. Mindsets affect students' motivation, which influences the quality and persistence of students' learning behaviors and, in turn, their learning outcomes[x]



Farrington et al., 2012

[1] To be clear, this is not an endorsement of boring schoolwork; however, many foundational skills require sustained, deliberate practice (e.g., becoming a musician requires practicing scales and etudes).

as capable.[xiv] When students appear more engaged, instructors respond to them more positively; when students show greater proficiency over time, they are more likely to receive rigorous work and higher course placements.[2] When students sense they are respected by their peers and instructors, they are more likely to reach out and form relationships, which in turn strengthen their sense of belonging and engagement at school.[xv]

Conversely, beliefs that lead students to disengage from productive learning behaviors spark negative, self-reinforcing cycles that lead to poorer learning and increased disidentification with school over time. When students worry that asking questions in class will make them look 'dumb,' they are less likely to seek help from their instructors or peers, which leads them to do worse and withdraw further; others perceive them as 'unmotivated' or 'not caring about their education' and withhold investment.

Education is one of the ultimate recursive processes. Past experiences shape future outcomes, and the mindsets through which students interpret their daily experiences at school are a powerful mechanism by which this dynamic plays out.[xvi] Similarly, the lenses through which educators interpret students' behavior are an important determinant of how they respond to students, too.[xvii]

KEY MINDSETS

Belonging: Whether you believe you are valued and respected by your peers and instructors

Intelligence: Whether you believe you can grow your intelligence

Relevance and purpose: Whether you believe the work you are asked to do at school is relevant to your life or connected to a larger purpose beyond the self

Mindsets are reasonable inferences from the social environment and are shaped by systemic inequities in society

How do students develop the lenses through which they interpret what happens to them at school? From a young age, children begin to develop mindsets from countless observations of the world around them: from society, their families and other important adults in their lives, their peers, and the policies and practices they see enacted around them.

As natural learners, children are constantly reading between the lines to understand how the world sees them. This affects the identities and goals they come to adopt, and the beliefs they develop. When we send children messages that we believe they belong in school, that they can excel, and that schoolwork is meaningful, they are more likely to develop mindsets about learning and school that sustain the inherent drive to learn with which they were born.

All children need to receive these positive messages. But some children are more likely to receive them because of long-standing inequities in our society that privilege certain groups. Students from wealthier communities, for instance, are more likely to attend well-resourced schools that provide a richer curriculum. White students, particularly white boys and men, are more likely to see people who look like them in instructional materials and positions of power.[xviii]

WHEN WE SEND CHILDREN MESSAGES THAT WE BELIEVE THEY BELONG IN SCHOOL, THAT THEY CAN EXCEL, AND THAT SCHOOLWORK IS MEANINGFUL, THEY ARE MORE LIKELY TO DEVELOP MINDSETS ABOUT LEARNING AND SCHOOL THAT SUSTAIN THE INHERENT DRIVE TO LEARN WITH WHICH THEY WERE BORN.

Other children perceive a contrasting set of messages because they experience a different social reality as a member of a stigmatized group, or because they lack financial resources. These students are keenly aware of negative stereotypes in society and that they may be judged or evaluated as less capable.[xix] A scarcity of people from their background in certain positions or a lack of economic opportunity convey that they have fewer options for the future.[xx] Teachers may hold lower expectations for them and interact with them differently as a result (e.g., providing less feedback to incorrect responses).[xxi] The curriculum and instruction to which they are exposed are less likely to reflect their community and cultural models, and may be more "rote-oriented" and less demanding.[xxii]

The residue of these messages accrues over time, shaping the mindsets students come to hold, and influencing how they interpret future experiences. Some students have received messages for years that people like them have less intellectual aptitude. They must always contend with the worry that people might judge them negatively because of who they are, or that they don't have what it takes. Other students have the privilege to learn free of this additional weight.[xxiii] These are the respective lenses through which students interpret challenges and setbacks, whether it is critical feedback on an essay or being stopped in the hallway by a teacher. A white student may see these experiences as innocuous, for instance, while

[2] It is important to note that students of color are less likely than white students of similar academic qualifications to be recommended by teachers for 'gifted and talented' placements (e.g., Grissom & Redding, 2016).

an African American student may reasonably worry about whether they are being evaluated differently. These divergent interpretations shape their responses and their experiences of school.

Students' mindsets can change when we change the messages we send them

Research has demonstrated that mindsets are malleable—they are not fixed traits.[xxiv] This is crucial because when people experience challenges and setbacks differently, they respond differently in turn. This can set off a self-reinforcing cycle of adaptive beliefs, behaviors, and outcomes that can put them on a new learning trajectory.

Over the past several years, scientists have shown that it is possible for students to develop different mindsets when they participate in exercises that can be delivered with fidelity to massive numbers of students online.[xxv] These psychological interventions are precisely targeted to spark positive recursive cycles that encourage different mindsets to take hold over time.[3] Studies have shown that carefully-designed mindset interventions can reduce achievement gaps by improving the performance of students who have struggled academically or who face negative stereotypes about their group's intellectual ability.[xxvi] Critically, the academic environment must afford the possibility of improvement: sufficient resources (e.g., quality instruction) must be in place for these intervention effects to bear out over time.[xxvii]

Such interventions are important because many students are faced with learning environments in which the messages they receive may not support adaptive mindsets. The interventions can thus trigger a critical 'buffer' for low-performing students and those who contend with negative stereotypes about their ability. These interventions do not eliminate the need to make changes to learning environments that send harmful messages to students but they are an important resource today for students who must face such environments on a daily basis. Moreover, such interventions can provide insights as to how environments can be changed to greatest effect.

Scientists also hypothesize that interventions that target students' mindsets can make students more attuned to positive messages in the environment where they do exist. For example, if students have been primed through a psychological intervention to understand that one's intellect can grow, they may be more likely to pick up on growth-aligned instructional practices (e.g., encouraging revisions).[xxviii]

But interventions designed by scientists aimed at students' mindsets are just the tip of the iceberg. Everything we do in schools conveys explicit and implicit messages to students that shape the mindsets they hold. The environments educators create in schools in collaboration with families and integrated community partners can be 'motivating' or 'demotivating' in their design. We can sustain people's natural drive to learn—or we can undermine it.

THE ENVIRONMENTS EDUCATORS CREATE IN SCHOOLS IN COLLABORATION WITH FAMILIES AND INTEGRATED COMMUNITY PARTNERS CAN BE 'MOTIVATING' OR 'DEMOTIVATING' IN THEIR DESIGN. WE CAN SUSTAIN PEOPLE'S NATURAL DRIVE TO LEARN—OR WE CAN UNDERMINE IT.

Students develop more adaptive mindsets when we intentionally craft learning environments that reinforce the messages that students belong, that they can get smarter, and that their schoolwork is personally meaningful. Such messages leave behind layers of positive psychological residue that contribute to the mindsets students develop. Creating such environments is critical for all students, but particularly for those from groups that have been marginalized and negatively stereotyped in academic contexts, including students of color, English language learners, students with learning differences, first-generation college students, and women and girls in STEM.

Such messages are relevant beyond their contribution to the beliefs that students come to acquire over time. These cues can also trigger in students more (or less) adaptive mindsets in a particular school or classroom context. Consider, for example, a woman taking an advanced chemistry course in college. She is likely to be aware of negative stereotypes about women's ability in the physical sciences and will be vigilant for signs that her peers or instructor think she doesn't belong or can't succeed. If her instructor conveys that all students are capable of exceling in the course with the right strategies and support, she will be less likely to question whether she belongs in the course and can master the material. When she comes up against a challenging problem or gets a low exam grade, she will feel capable of bouncing back and be more likely to reach out for help. In contrast, if the instructor begins the semester saying that "half of you will earn Ds or Fs" and imploring students not to ask "dumb questions," this will likely dissuade her from seeking the support she needs to succeed.[xxix]

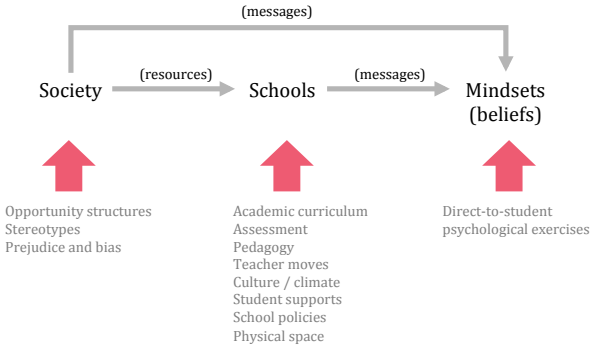
In sum, it is possible to intervene at three points to change the messages students perceive and the mindsets they come

[3] Social psychological interventions target beliefs that shape how people interpret their experiences. This can set off a "snowball" effect: the new interpretation changes their response to subsequent experiences, the outcomes of which then reinforce the new belief; this recursive cycle picks up steam over time (Walton, 2014, p. 79). For example, as students become more confident they belong in school, they build stronger relationships with their peers and instructors, who become ongoing sources of support and bolster students' success over time (Yeager & Walton, 2011). Importantly, this snowball effect depends on the extent to which certain educational resources are present in the environment. While similarly brief in duration, 'nudge' interventions often operate via a somewhat different mechanism: they change the structure of situations (e.g., changing the default option, sending a timely reminder) to make certain behaviors in that specific context more likely. These changes may not generalize to other situations (Walton & Wilson, under review).

to hold (see Figure 3). We can change the opportunity structures, stereotypes, prejudice, and bias students experience in society. We can modify our educational practices and policies to change the messages students receive in school. [4] And we can intervene at the student level with precise interventions designed by scientists to reorient students to more adaptive mindsets. These options are not mutually exclusive but complementary opportunities to help remedy educational and societal inequity.

It is important to emphasize that this is not an 'either/or' choice. It is necessary to make long-term, systemic changes to aspects of schools and society that perpetuate unequal educational outcomes in part by sending disparate messages to students that shape their motivation in school. It is also imperative today to use scientific knowledge about how interventions can change students' mindsets responsibly and reliably to improve the experience of current students who might benefit from such immediate supports. Failing to do so would be akin to denying individuals who face significant adversity access to effective services that could help them lead healthier lives until all sources of adversity are eradicated—the ultimate societal goal.

Figure 3. There are multiple points of intervention to change the messages students receive and the mindsets students hold



Retooling education to align with insights from mindset science has the potential to nurture the inherent drive to learn with which people are born

Motivation is a critical determinant of how much and how deeply people learn.[5] But the typical design of schooling reflects a time when we had less scientific understanding about how motivational processes shape cognition and where the motivation to learn comes from. Some of this knowledge has validated popular notions about motivation (e.g., tasks that are novel and varied spark greater interest), while other insights run counter to widespread beliefs and practices (e.g., rewards, evaluations, and punishments can undermine deeper learning because they imply that people must require bribery or threats to engage in the task, and they focus people on achieving the outcome rather than the process).[xxx]

For example, developmental scientists have observed that as students age, the typical design of schooling becomes increasingly out of sync with our understanding of adolescents' motivational needs.[xxi] Adolescents become more sensitive to social comparison and signals of respect, more capable of taking on abstract, conceptual thinking, and need different kinds of relationships with caring adults.[xxxii] Yet secondary schools increasingly rely on summative evaluation and ranking, apply zero-tolerance policies that undermine respect, assign less challenging work, and become more impersonal as students rotate through multiple teachers each day.[xxxiii] Perhaps unsurprisingly, students report declining levels of intrinsic motivation beginning in middle school and continuing into high school.[xxxiv]

THE TYPICAL DESIGN OF SCHOOLING REFLECTS A TIME WHEN WE HAD LESS SCIENTIFIC UNDERSTANDING ABOUT HOW MOTIVATIONAL PROCESSES SHAPE COGNITION AND WHERE THE MOTIVATION TO LEARN COMES FROM.

Guiding principles gleaned from scientific research on motivation can help practitioners and policymakers adjust educational policies, school designs, instructional practices, and academic tasks to enhance student engagement in learning.[6]

Research suggests that learning environments that are inclusive, growth-oriented, and meaningful are more likely to sustain the inherent curiosity and desire to learn with which we are born. Table 1 summarizes design principles extracted from four decades of behavioral and social science research about the features of such learning environments. These principles speak to what is taught, how it is taught, who teaches it, and the context in which it is taught. Notably, similar principles are also likely to sustain educators' professional motivation to continuously improve their instructional practice and build their collective capacity to create collaborative, purposeful environments for teaching and learning.

[4] In this brief, we are focused primarily on educational institutions but families and other actors in students' lives outside of school are also important sources of these messages (e.g., Haimovitz & Dweck, 2016; Moorman & Pomerantz, 2010; Gunderson et al., 2013).

[5] It is important to note that motivation is critical to becoming an effective, self-directed learner, but it is insufficient on its own. Students can be motivated to learn but not have the knowledge, metacognitive skills, or learning strategies necessary to put that motivation 'to work.'

[6] Leading practitioners and R&D organizations are already engaged in this work in K-12 and higher education. R&D organizations like the Carnegie Foundation for the Advancement of Teaching, College Transition Collaborative, Motivate Lab, Perception Institute, PERTS Lab, University of Chicago Consortium on School Research, and others are working with practitioners to create tools and practices that draw on mindset science to design learning environments that nurture people's motivation to learn.

Table 1. Design characteristics of K-16 learning environments that nurture people's motivation to learn

LEARNING ENVIRONMENTS THAT ARE INCLUSIVE ARE…

Relationship-centered: They adopt routines and practices that foster trust and encourage sustained, developmentally-supportive relationships among students and educators inside and outside the classroom[xxxvi]

Cue-conscious: They ensure visual cues convey to students that people like them belong and are expected to excel:[xxxvii]

- They attend to issues of representation: Students see peers and role models of similar backgrounds and identities in all advanced courses, disciplines, and instructional positions
- They pay attention to the images present in the physical environment: They consider what images (e.g., posters, artwork) in the classroom and school convey about who belongs and is successful
- They are safe and well-resourced: The physical setting conveys to students their education is valued

Transition-supportive: They signal that integrating into a new learning community is a process and that 'difference' is a valued asset that can contribute to students' success (e.g., transition programming foreshadows potential challenges and strengths students bring)[xxxviii]

Pedagogically-inclusive: They ensure curriculum and instruction value students' identities and reflect their cultural models, and include all students in academic work and discourse in meaningful ways[xxxix]

Exclusion-mindful: These environments remedy policies and practices that undermine students' sense of inclusion and situations that create barriers to belonging:[xl]

- They remedy policies and practices that exclude, stigmatize and shame, preserve racial / ethnic and cultural dominance, perpetuate stereotypes, and undermine perceived fairness and due process (e.g., many forms of tracking; discipline policies; messaging surrounding academic probation and remediation)
- They attend to exclusionary language (e.g., language used to describe families, gender identity, sexuality, ability status, race, ethnicity, and immigration status; mispronunciations of students' names)
- They address barriers to participation that could undermine students' sense of belonging in the learning environment (e.g., lack of access to food, shelter, safety, and healthcare; inability to pay for school supplies; financial or academic barriers to participate in extracurricular activities; family time, language barriers, or administrative hassles that make it difficult for families to be involved in school)

LEARNING ENVIRONMENTS THAT ARE GROWTH-ORIENTED ARE…

Conceptually-focused: They focus curriculum and instruction on conceptual understanding and prioritize depth over breadth in coverage[xli]

Challenge-supportive: They create conditions for optimal challenge (difficult but not impossible given the student's skill level) and enable all students to experience meaningful growth in a challenging curriculum:[xlii]

- They hold all students to high standards and design challenging, open-ended tasks that students at different levels of mastery can all access
- They provide differentiated supports that equip students to meet challenges and maintain a sense of efficacy and competence—positioning learning as a collaborative enterprise with collective responsibility among students, their peers, and educators
- They do not give "comfort-oriented feedback" (e.g., consoling students that people may struggle in this domain but can succeed in others or that "not everyone is a math person," or assigning less work)

Mastery-oriented: They normalize mistakes as central to learning, make it safe to take risks, focus on competency over seat-time, encourage feedback and revision, and reframe assessments as resources for improvement and development of mastery[xliii]

Process-focused: They focus feedback (responses, criticism, and praise) and assessment on process over accuracy or speed, and make explicit the connections between students' process and their outcomes[xliv]

Comparison-mindful: They consider the messages that competition, ranking, grouping, grading, or labeling practices and policies could send students about their ability to grow intellectually[xlv]

LEARNING ENVIRONMENTS THAT ARE MEANINGFUL ARE…

Future-oriented: They engage in practices that convey to students that a range of personally motivating future goals and "possible selves" are available and that students will be supported in achieving them[xlvi]

Agency-supportive: They provide students with regular opportunities to have voice and agency (express their authentic self, make choices that are meaningful to them, and be a source of action), collectively or individually[xlvii]

Engagement-driven: They provide schoolwork designed to sustain interest and engagement:[xlviii]

- Tasks and assessments are engaging (authentic, collaborative, problem-oriented, challenging, novel, varied, open-ended, sensory, cooperative, requiring active meaning-making, prosocial, and utilizing resources outside school) and perceived as valuable (relevant to students' interests and goals)
- They consider the potential negative effects of extrinsic motivators (evaluation, reward, punishment) and controlling / autonomy-undermining behaviors (e.g., instructors monopolizing discourse, focusing on commands and compliance, telling students the right answer instead of giving time to discover it) on students' engagement and their desire to learn

Connection-themed: They provide curriculum, tasks, and leadership opportunities that encourage students to connect what they are learning with their lives, identities, communities, and a self-transcendent purpose

Motivation is core to learning—not an add on—and we can create environments that foster it

Rigorous scientific evidence shows that motivation is a vital psychological process that makes possible humans' evolutionary predisposition to learn and develop. It drives people to seek out new knowledge and skills. The environments we create in schools and classrooms can support or weaken this natural desire to learn.

A key insight from the science of motivation is that how students make meaning of their experiences at school can sustain or undermine their sense of competence, their connection to others, and the perceived value of tasks when encountering challenges and setbacks that are inherent to the learning process. These mindsets are thus critical determinants of students' motivation and their ability to successfully master rigorous academic content and become life-long learners. This is especially true for students from underrepresented and marginalized groups who have disproportionately received messages that they are less capable.

A robust and growing body of research provides scientific warrant to a set of principles that can help educators and practitioners design environments that nurture people's natural desire to learn—and it can help the field know what to look for in surfacing promising innovations from practice. Cultivating schools and classrooms aligned with insights from mindset science is essential to realizing an equitable educational system that provides an engaging, enriching experience for all students and educators.

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[i] Silvia, 2008.
[ii] Larson & Rusk, 2011.
[iii] Immordino-Yang, 2016.
[iv] Deci & Ryan, 2000; Furrer, Skinner, & Pitzer, 2014; Baumeister & Leary, 1995.
[v] Wigfield et al., 2015; Carr & Walton, 2014; Master, Cheryan, & Meltzoff, 2017; Butler & Walton, 2013.
[vi] Dittman & Stephens, in press; Yeager & Walton, 2011.
[vii] Walton & Wilson, under review.
[viii] Walton & Wilson, under review.
[ix] Aronson, Fried, & Good, 2002; Blackwell, Trzesniewski, & Dweck, 2007; Good, Aronson, & Inzlicht, 2003; Jamieson et al., 2010; Murphy & Zirkel, 2015; Sherman et al., 2013; Walton & Cohen, 2011; Yeager et al., 2014.
[x] Farrington et al., 2012.
[xi] Walton & Cohen, 2011.
[xii] Blackwell, Trzesniewski, & Dweck, 2007.
[xiii] Hulleman & Harackiewicz, 2009; Yeager et al., 2014.
[xiv] Walton & Wilson, under review.
[xv] Walton & Wilson, under review.
[xvi] Walton, 2014.
[xvii] Okonofua, Paunesku, & Walton, 2016.
[xviii] Banks et al., 2005.
[xix] Steele & Aronson, 1995; Reyna, 2000.
[xx] Zirkel, 2002; Oyserman & Fryberg, 2006.
[xxi] Gershenson, Holt, & Papageorge, 2016; Brophy & Good, 1970; Ferguson, 2003; Tenenbaum & Ruck, 2007.
[xxii] Paris, 2012; Fryberg & Markus, 2007; Banks et al., 2005, p. 239.
[xxiii] Notably, dramatic reductions in achievement gaps have been observed in both K-12 and postsecondary contexts when researchers have alleviated these disparately experienced psychological burdens in randomized controlled trials. See for example, Yeager, Purdie-Vaughns et al., 2014; Walton & Cohen, 2011; Yeager, Walton, et al., 2016; Walton, Logel, et al., 2015.
[xxiv] Walton & Wilson, under review.
[xxv] Paunesku et al., 2015.
[xxvi] Cohen et al., 2009; Paunesku et al., 2015; Stephens et al., 2014; Yeager, Walton, et al., 2016; Walton & Cohen, 2007; Walton & Cohen, 2011.
[xxvii] Walton, 2014.
[xxviii] Yeager et al., in prep.
[xxix] Murphy, 2015.
[xxx] Ames, 1992; Lepper, Corpus, & Iyengar, 2005; Larson & Rusk, 2011; Deci, Koestner, & Ryan, 1999.
[xxxi] Eccles et al., 1993.
[xxxii] Yeager, Dahl, & Dweck, 2017; Eccles et al., 1993.
[xxxiii] Yeager, 2017; Yeager, Dahl, & Dweck, 2017; Eccles et al., 1993.
[xxxiv] Wigfield et al., 2015.
[xxxv] Fullan, 2011; Fullan & Quinn, 2016.
[xxxvi] Goodenow, 1993; Gehlbach et al., 2016; Eccles & Roeser, 2009; Furrer, Skinner, & Pitzer, 2014; Lee, Smith, Perry, & Smylie, 1999; Reeve, 2006.
[xxxvii] Murphy, Steele, & Gross, 2007; Dee, 2004, 2005; Gershenson et al., 2016, 2017; Cheryan et al., 2009.
[xxxviii] Stephens, Hamedani, & Destin, 2014; Walton & Brady, 2017; Walton & Cohen, 2011; Yeager et al., 2016; Walton et al., 2015.
[xxxix] Dee & Penner, 2016; Carr & Walton, 2014; Cohen & Lotan, 2014; Paris, 2012; Boaler & Staples, 2008; Fryberg & Markus, 2007; Stephens et al., 2012.
[xl] Brady, Fotuhi et al., in prep.; Okonofua, Paunesku, & Walton, 2016; Marks, 2000; Newmann, 1992; Kohli & Solórzano, 2012.
[xli] Ames, 1992; Sun, 2015.
[xlii] Ames, 1992; Yeager, Purdie-Vaughns et al., 2014, 2017; Ferguson et al., 2015; Cohen & Lotan, 2014; Boaler & Staples, 2008; Lepper & Woolverton, 2002; Rattan, Good, & Dweck, 2012.
[xliii] Ames, 1992; Smeding et al., 2013; Linnenbrink, 2005; Haimovitz & Dweck, 2016; Sansone & Harackiewicz, 2000; Brophy, 2014.
[xliv] Mueller & Dweck, 1998; Yang-Hooper et al., 2016; Park et al., 2016; Cimpian et al., 2007.
[xlv] Maehr & Midgley, 1996; Sun, 2015; Eccles & Roeser, 2009; Boaler, William, & Brown, 2000; Ames, 1992.
[xlvi] Destin, 2017; Destin & Oyserman, 2009; Oyserman & Fryberg, 2006; Browman, Destin, Carswell, & Svoboda, 2017.
[xlvii] Ryan & Deci, 2000; Ames, 1992. Note: Students who possess more interdependent cultural models of the self may be more motivated when someone important to them makes choices for them, see Iyengar & Lepper, 1999.
[xlviii] Ames, 1992; Larson & Rusk, 2011; Csikszentmihalyi, 1990; Eccles, 2005; Newmann, 1992; Marks, 2000; Hidi & Renninger, 2006; Sansone & Harackiewicz, 2000; Shernoff, Csikszentmihalyi, Schneider, & Shernoff, 2003; Hulleman, Durik, Schwiegert, & Harackiewicz, 2008; Grant, 2007; Grant, 2008; Master, Cheryan, & Meltzoff, 2017; Carr & Walton, 2014; Silvia, 2008; Reeve, 2006; Reeve & Jang, 2006.
[xlix] Dee & Penner, 2016; Diekman et al., 2010, 2011; Hulleman & Harackiewicz, 2009; Yeager et al., 2014; Cohen et al., 2009; Miyake et al., 2010. Note: As explained in Yeager et al., 2014, adults should not *tell* students (particularly adolescents) what their purpose for learning should be. Also, students from cultures that hold interdependent norms have been found to endorse more "interdependent motives" for pursuing education (e.g., giving back to their community, being a role model, helping their family, showing that people with their background can do well), see Stephens et al., 2012.

What We Know About Belonging from Scientific Research

BY CARISSA ROMERO

October 2018

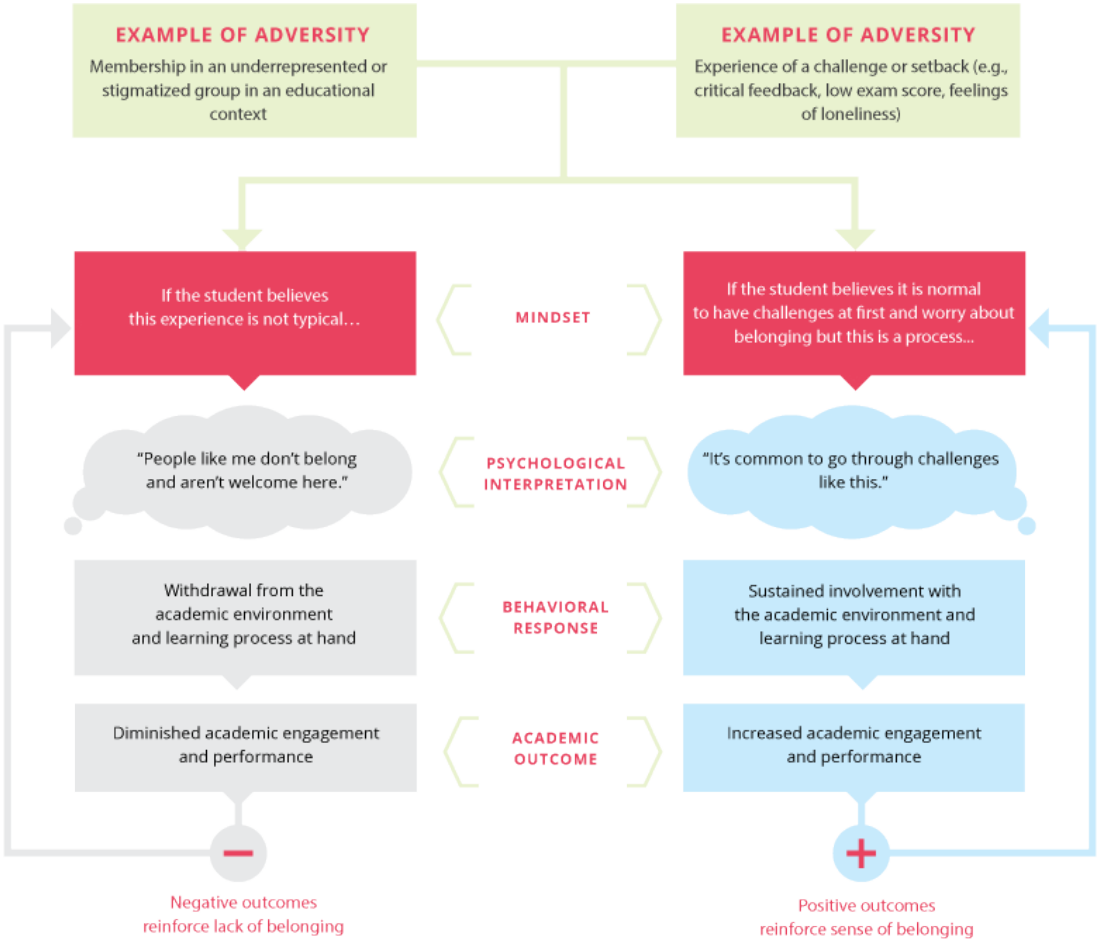
Belonging: What is It?

Students with a sense of belonging in school feel socially connected, supported, and respected. They trust their teachers and their peers, and they feel a sense of fit at school. They are not worried about being treated as a stereotype and are confident that they are seen as a person of value.

Why Does It Matter?

Students who are confident they belong and are valued by their teachers and peers are able to engage more fully in learning. They have fewer behavior problems, are more open to critical feedback, take greater advantage of learning opportunities, build important relationships, and generally have more positive attitudes about their classwork and teachers. In turn, they are more likely to persevere in the face of difficulty and do better in school.

An example of how students' sense of belonging can shape their responses to adversity in school



MINDSET SCHOLARS NETWORK

The Mindset Scholars Network is a group of leading social scientists dedicated to improving student outcomes and expanding educational opportunity by advancing our scientific understanding of students' mindsets about learning and school.

When students are uncertain about whether they belong, they are vigilant for cues in the environment that signal whether or not they belong, fit in, or are welcome there. They may also be concerned about confirming a negative stereotype about their group. This hypervigilance and extra stress uses up cognitive resources that are essential for learning, diminishing their performance and discouraging them from building valuable relationships.

Students from underrepresented or negatively stereotyped groups may worry about whether people like them are accepted by their peers and teachers

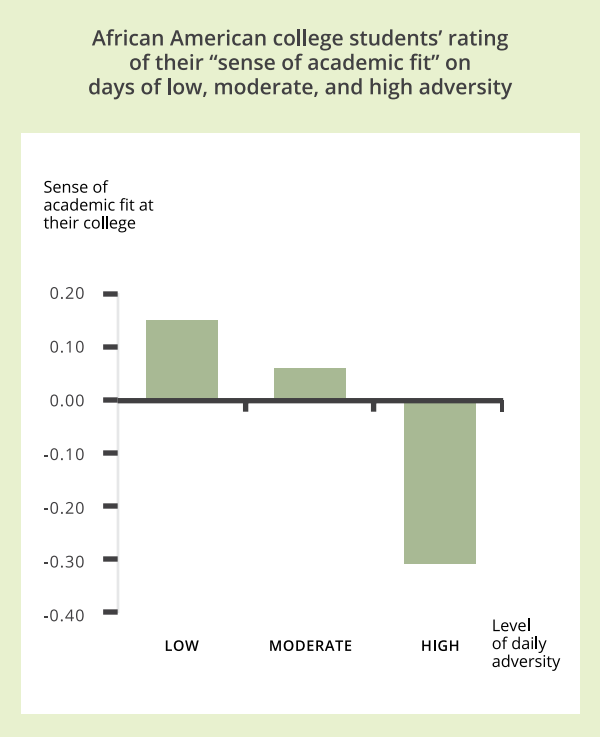
Sometimes, students may question whether or not they belong in their classroom or school. These questions about belonging are most common among students from negatively stigmatized groups. These students are aware that they are underrepresented in a particular environment and recognize that negative stereotypes exist about their group. Claude Steele has compared this to the feeling of being told there is a snake in your house. It could be anywhere and it could harm you, but it also might not; regardless, you are constantly on the lookout.

These students are forced to split their attention between assessing their belonging and focusing on the learning task at hand

When students have questions about their belonging, they search for cues in their environment to signal whether or not they fit in and are valued by others at school. When things are going well in school, they feel like they do belong. But when they experience adversity, their sense of belonging can decrease.

This vigilance to cues of whether or not they belong can become distracting and undermine performance. Cognitive resources that would otherwise be used to focus on learning are instead used to figure out if they belong. Because questions about belonging undermine performance and are more pervasive and persistent for students from underrepresented and stigmatized groups, they contribute to achievement gaps.

FIGURE 1. Unlike white students, African American students' sense of belonging in college was tied to the amount of adversity they experience on a given day



SOURCE: WALTON & COHEN, 2007

What We've Learned About How to Alleviate Questions About Belonging

Studies show that brief programs can help alleviate students' worries about fit and belonging. In recent years, researchers have also learned more about the instructional and institutional practices that make students confident they are accepted members of their school community.

> Students who are confident they belong and are valued by their teachers and peers are able to engage more fully in learning.

Direct-to-student programs and changes in instructional and institutional practices have been linked to long-term gains in academic performance and reductions in achievement gaps on the basis of race, ethnicity, gender, and being the first in one's family to go to college.

When students have questions about their belonging, they search for cues in their environment to signal whether or not they fit in and are valued by others at school.

Effective programs help students understand and normalize questions about belonging

Programs that help reduce concerns about belonging have been particularly effective at reducing achievement gaps.[1]

In some of these programs, students read findings from a survey of more senior students. The findings that are presented show that everyone questions their belonging during academic transitions, but that these concerns typically lessen over time. They also include quotes from more senior students that specifically address their worries, such as:

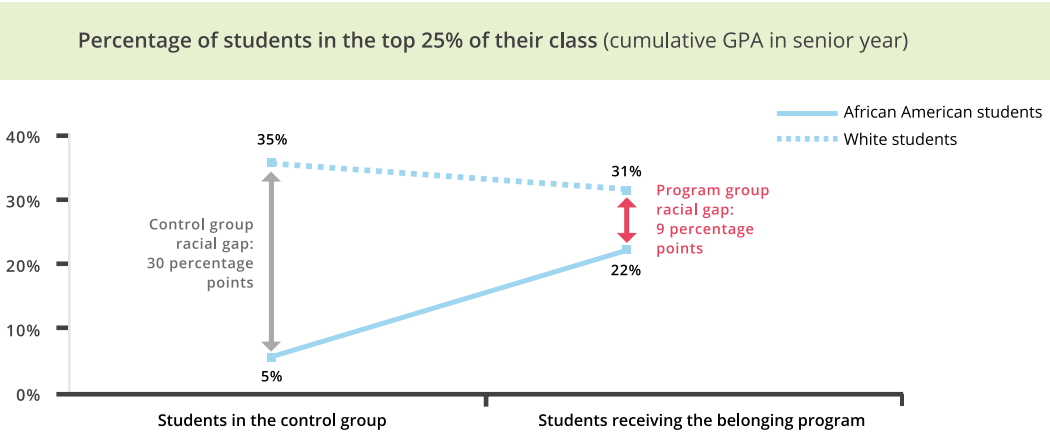
> "As excited as I was to come here, I must admit that part of me thought I had been accepted due to a stroke of luck, and that I would not measure up to the other students. Early on, I bombed a test. It was the worst grade I'd ever received, and I felt terrible and isolated. But then, I found out I wasn't the only one. No one did well on that test. It was really hard—the professor was trying to set a high standard. He knew it'd be tough, but he knew that if we worked hard we could get to that level. It wasn't for some time that I believed that I was up to par and could totally hold my own. But eventually I did, and this place started to feel more like home. Though I still have doubts about myself sometimes, I know they're the kinds of things everybody feels on occasion."

After students read the survey results and student quotes, they write about how their own experience is similar to those of the students they read about. They are told that their experiences will be shared with future students making a similar transition. Similar to other mindset interventions, this writing exercise helps students internalize the key message of the program and makes participation an honor rather than a remediation.

Other programs educate students from underrepresented groups (e.g., first-generation college students) about how their backgrounds may affect their experiences in school. The "difference-education" program emphasizes how students' social-class backgrounds can be sources of challenge and strength—and provides students with strategies for how to navigate the transition to college successfully, and how these strategies might differ depending on their social-class background. For example, incoming students heard a first-generation college student respond to the question, "Can you provide an example of an obstacle that you faced when you came to [this university] and how you resolved it?" in the following way:

> "Because my parents didn't go to college, they weren't always able to provide me the advice I needed. So it was sometimes hard to figure out which classes to take and what I wanted to do in the future. But there are other people who can provide that advice, and I learned that I

FIGURE 2. When African American college students received a belonging program in their sophomore year, the proportion who were in the top 25% of their class by senior year more than quadrupled



SOURCE: WALTON & COHEN, 2011

Direct-to-student programs and changes in instructional practices have been linked to long-term gains in academic performance and reductions in achievement gaps on the basis of race/ethnicity, gender, and being the first in one's family to go to college.

needed to rely on my adviser more than other students."

Belonging programs have reduced achievement gaps significantly

Programs that mitigate questions of belonging have reduced racial achievement gaps in college grade point average (for example, see Figure 2), decreased gaps between first- and continuing-generation college students' achievement, reduced gender gaps in STEM courses, reduced disciplinary citations in middle school, and even improved African American college students' health and happiness in college and their life and career satisfaction years later.[2]

Instructional practices that promote trust and enhance belonging also have long-lasting effects on student outcomes

Researchers have also tested certain instructional practices that improve belonging among students from negatively stereotyped groups. One study examined the effect of teachers' critical feedback on 7th graders' academic behaviors. When the teacher's criticism on an essay was accompanied by a message that conveyed high standards and assurances that they were confident the student could meet those standards, African American students were over four times as likely to revise and resubmit the essay than if they received the criticism alone; this type of feedback also improved the quality of students' revisions.[3]

Re-building trust during a critical developmental window can have long-lasting effects. Follow-up on these same students showed that students who received a personal note that built trust with a teacher in 7th grade were more likely to enroll in a 4-year college immediately after graduating from high school compared to those who did not receive the note.[4]

Institutional actions also affect students' sense of belonging

Researchers are exploring how institutional policies and practices can shape students' sense of belonging—and how they can be modified to support students' sense of belonging. One area of recent study is students' experience of being placed on academic probation, which can provoke feelings of shame and stigma that can lead students to disengage from the academic environment. Changing the content of academic probation letters to clearly signal the institution's ongoing respect for and valuing of the student, acknowledge the real challenges students may face, and emphasize probation as a process and the potential to return to good academic standing has been found to reduce students' feelings of shame and stigma. This modified communication increased the likelihood that students took advantage of academic supports available on campus. In one sample, the revised letter raised students' likelihood of returning to good academic standing from 26% to 43%.[5]

[1] Yeager, D. S. & Walton, G. (2011). Social-psychological interventions in education: They're not magic. *Review of Educational Research, 81*, 267-301. Walton, G. M., & Cohen, G. L. (2007). A question of belonging: race, social fit, and achievement. *Journal of Personality and Social Psychology, 92,* 82. Walton, G. M., & Cohen, G. L. (2011). A brief social-belonging intervention improves academic and health outcomes of minority students. *Science, 331,* 1447-1451. Stephens, N. M., Hamedani, M. G., & Destin, M. (2014). Closing the social-class achievement gap: A difference-education intervention improves first-generation students' academic performance and all students' college transition. *Psychological Science, 25*, 943-953.

[2] Walton & Cohen, 2011. Stephens, Hamedani, & Destin, 2014. Yeager, D. S., Purdie-Vaughns, V., Garcia, J., Apfel, N., Brzustoski, P., Master, A., Hessert, W. T., Williams, M. E., & Cohen, G. L. (2014) Breaking the cycle of mistrust: Wise interventions to provide critical feedback across the racial divide. *Journal of Experimental Psychology: General, 143,* 804-824. Yeager, D. S., Purdie-Vaughns, V., Hooper, S. Y., & Cohen, G. L. (2017). Loss of institutional trust among racial and ethnic minority adolescents: a consequence of procedural injustice and a cause of life-span outcomes. *Child Development, 88,* 658-676. Walton, G. M., Logel, C., Peach, J. M., Spencer, S. J., & Zanna, M. P. (2015). Two brief interventions to mitigate a "chilly climate" transform women's experience, relationships, and achievement in engineering. *Journal of Educational Psychology, 107,* 468. Goyer, J. P., Cohen, G. L., Cook, J. E., Master, A., Okonofua, J. A., Apfel, N., & Walton, G. M. (under review). Brady, S. T., Walton, G. M., Cohen, G. L., Jarvis, S. (in prep). Downstream consequences of a social-belonging intervention in the transition to college.

[3] Yeager et al., (2014).

[4] Yeager, D. S., Purdie-Vaughns, V., Hooper, S. Y., & Cohen, G. L. (2017).

[5] Brady, S. T., Walton, G. M., Cohen, G. L., Fotuhi, O., Gomez, E., & Urstein, R. (in prep). Revising the scarlet letter of academic probation: Reframing institutional messages to increase student success and reduce shame and stigma.

What We Know About Purpose & Relevance from Scientific Research

BY CARISSA ROMERO

September 2019

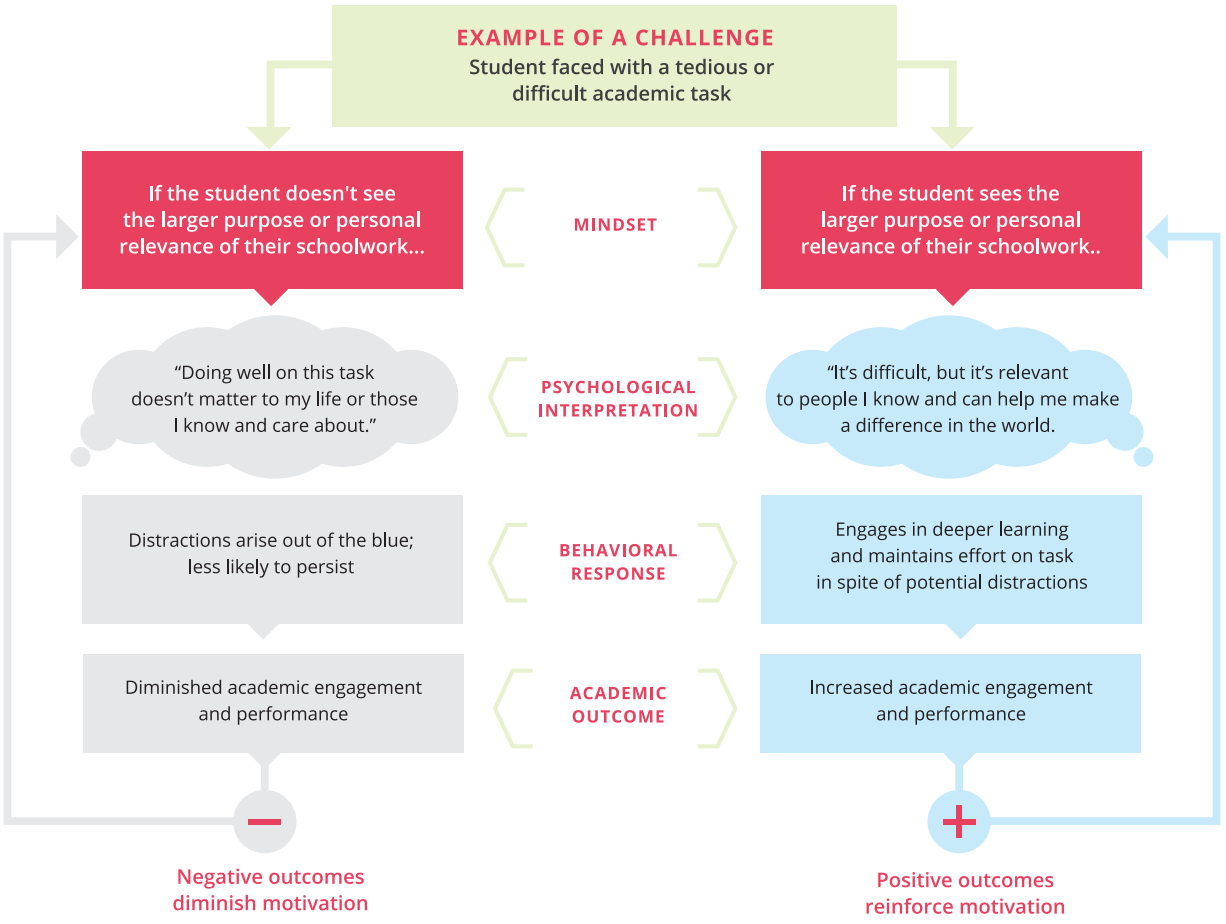
Purpose & Relevance: What is It?

Students value school when they understand how it is related to things they care about and how it can help them reach their long-term goals. Students value their schoolwork when they believe it is relevant to their lives and experiences and/or will help them connect to a purpose that is bigger than themselves—whether it is a contribution to their family, their community, society at large, or something else.

Why Does It Matter?

Students see greater value in their schoolwork when they understand its **relevance** to their own lives and experiences and when it connects to something they personally value, such as a **purpose** that is bigger than themselves. When students find learning meaningful and valuable, they show greater interest in their schoolwork, and are better able to "learn deeply."

Students' perception of the purpose or relevance of their schoolwork shapes their responses to challenges in school



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The Mindset Scholars Network is a group of leading social scientists dedicated to improving student outcomes and expanding educational opportunity by advancing our scientific understanding of students' mindsets about learning and school.

When students find learning meaningful and valuable, they show greater interest in their schoolwork, and are better able to "learn deeply."

Students who see their schoolwork as connected to a larger purpose or relevant to their lives maintain focus in the face of challenges or frustration and learn more deeply

Mastering new content and skills often presents challenges to students or asks them to engage in sustained, deliberate practice, which can sometimes lead to unpleasant emotions like frustration and boredom. When feeling those emotions, students may ask themselves, "Why am I doing this?" If students have a hard time answering this question, they are less likely to spend the time necessary to try to learn deeply from the material. Research from psychology shows that if a student sees how their schoolwork can help them understand something personally meaningful, they may be more motivated to persist and remain focused despite distractions.

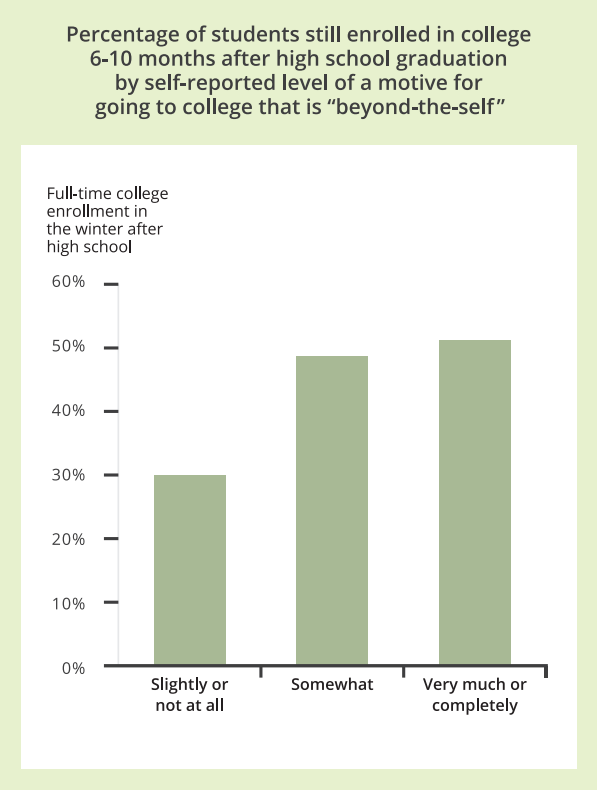
Students who see their cultures reflected in both the course content and the learning process are more likely to be engaged in school

Research on culturally-responsive and -relevant education tells us that learning should reflect the norms, values, social thoughts, and reality of diverse cultures, rather than only legitimizing upper- and middle-class, Eurocentric cultural knowledge.[1] This research underscores the importance of creating cultural continuities in school for all students through curriculum and pedagogy. Latinx adolescents, for example reported feeling more efficacious when their cultural heritage was woven into class content and when Spanish was used in instruction.[2]

Students who hold goals that are larger than themselves are more likely to persist in school

Research shows that *self-transcendent goals*—goals that are connected to some aspect of the world beyond the self—may be particularly motivating to students in the face of difficulties or frustration. In one study, researchers examined the relationship between self-transcendent goals (e.g., "I want to gain skills that I can use in a job that helps others") and college enrollment. The more high school seniors endorsed self-transcendent motives for going to college, the more likely they were to remain enrolled full-time in a 4-year college the following winter, controlling for factors like IQ (see Figure 1).[3]

FIGURE 1. The more high school seniors endorsed self-transcendent motives for attending college, the more likely they were to remain enrolled full-time in college



SOURCE: YEAGER ET AL., 2014

What We've Learned about How to Promote Greater Purpose & Relevance

Research across psychology, education, and other disciplines have tested an array of strategies for promoting purpose and relevance in school, ranging from brief psychological exercises to changes to curriculum and pedagogy.

Psychologists have conducted studies with exercises that encourage students to connect schoolwork

Psychologists have conducted studies with exercises that encourage students to connect schoolwork to their everyday lives or to their long-term goals, especially a larger purpose.

to their everyday lives or to their long-term goals, especially a larger purpose. These exercises often ask students to generate their *own* explanations of how it is connected to a larger purpose or relevant to their own lives rather than *telling* students why school is important.

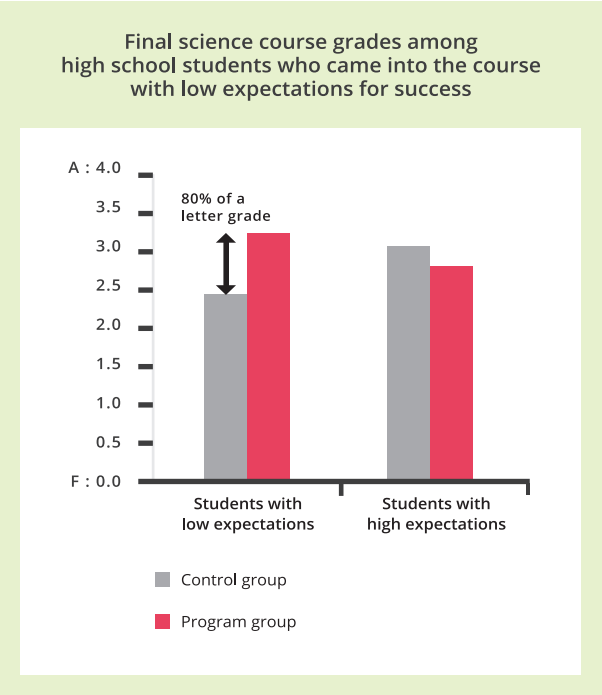
Help students identify the usefulness of coursework in their own lives

In a study aimed at helping high school students see the relevance of what they were learning in their science courses, researchers randomly assigned some students to write in a journal about the usefulness of the course material in their own lives over the course of a semester. Students in the control group simply summarized the material they were studying. Among students who had lower expectations for success in their science courses—who may have a harder time seeing the value of their schoolwork—those who received the treatment exercise earned higher grades in their science courses than those in the control group (see Figure 2).[4] There was no statistically significant difference for students who had high expectations for success in science.

Build on students' desire to "matter" in life by tapping into a larger purpose for learning that motivates them

Another type of psychological exercise that has improved students' academic achievement in research studies focuses on what researchers call a "purpose for learning." These exercises use survey data and quotes from more senior students to help younger students understand how school can help them reach long-term goals that benefit both themselves and others. Students then write about how school can help them reach their own long-term goals. In a study with high school students, students randomized to the purpose for learning exercise earned significantly higher mathematics and science grades than students in the control group.[5] A similar exercise had a positive effect on community college students' accumulation of credits.[6]

FIGURE 2. Students who held low expectations for success in science courses earned higher course grades when they participated in a program that asked them to articulate the usefulness of the material in their own lives



SOURCE: HULLEMAN & HARACKIEWICZ, 2009

Design learning environments that support students' sense of purpose and relevance school

Many schools have adopted models and curricula that are designed to help students see the bigger purpose and relevance of school. Some K-12 models emphasize project-based learning, personalization, and connections to the world beyond school, such as High Tech High and EL Education.

Other models seek to also create cultural continuities for students whose cultures have often been marginalized or excluded in American schools. These include holistic programs like Oakland Unified School District's African American Male Achievement Initiative, as well as specific curricula and coursework. For example, a 9th grade ethnic studies curriculum in San Francisco Unified School District, designed to build students' critical understanding of society and

their place in society, increased 9th grade student attendance by 21% and GPA by 1.4 grade points.[7] In postsecondary education, programs such as Washington State's I-BEST program help community college students see the connections between the academic skills they're learning and the jobs to which they aspire. A recent evaluation found that the program increased participation in college level courses, the number of credits earned, and credential attainment.[8]

Research suggests that institutions' efforts to address issues of relevance should also bear in mind the broader social, cultural, and historical context of education and the messages educators and institutions send students implicitly and explicitly about who belongs in school and to whom school is relevant. For example, disproportionate exclusionary discipline; curricula and instruction that privilege white, middle and upper-class cultural knowledge and legacies while excluding or mischaracterizing the cultural knowledge and legacies of other groups; and practices and policies that fail to meet the needs of or discriminate against students and their families—among other factors—can undermine students' sense of belonging and relevance, diminishing their connection to school and schoolwork.[9]

In addition to holistic, system-wide initiatives like Oakland's African American Male Achievement Initiative that seek to address such issues at multiple levels, research suggests institutions should support changes at the classroom level, too. A study of Latinx children in grades 3-5 found that when teachers had a *critical awareness* of the structural barriers faced by students of color and students from families facing economic disadvantage, they were more likely to integrate content from students' cultures into their classes, and in turn were more likely to use Spanish in class, which was positively associated with students' year-end mathematics performance.[10]

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MINDSET SCHOLARS NETWORK OVERVIEW

The Mindset Scholars Network is an interdisciplinary community devoted to improving learning and expanding educational opportunity by advancing our understanding of how students' psychological experience of learning and school influences their academic outcomes.

The 43 scholars who comprise the Mindset Scholars Network represent 24 institutions across the United States. In addition to conducting original research, most scholars teach graduate and undergraduate courses and many have taught in K-12 classrooms. The scholars are experts in a wide range of disciplines, including computer science, economics, education, neuroscience, psychology, sociology, and statistics. Together, their diverse theoretical and methodological perspectives uniquely position this community to study how students' perceptions of themselves and their experiences are shaped by their identities and contexts, and how those perceptions matter for their academic motivation, behaviors, and outcomes.

WHAT ARE LEARNING MINDSETS?

Mindsets are the lenses through which students interpret their experiences in school. These interpretations, in turn, shape their responses to those experiences, particularly to challenges. Mindsets are thus key determinants of how people respond to struggles and setbacks that are essential to the learning process. When students believe that they belong at school (**belonging**), that they can get smarter (**growth mindset**), and that their schoolwork is connected to their lives and a larger purpose (**relevance & purpose**), they are more likely to choose challenging tasks, persist in the face of difficulty, learn more deeply, and achieve at higher levels.

Decades of research has shown that the environment plays a critical role in shaping students' mindsets. Beginning at a young age, children develop mindsets about learning and school from countless observations of the world around them: from social structures, from peers, from important adults in their lives, and from institutional policies and practices they see enacted. As natural learners, children constantly read between the lines to understand how the world sees them. Mindsets are reasonable inferences that reflect students' reality.

When students perceive messages that they belong in school, that they can grow their ability and excel, and that their schoolwork is meaningful, they are more likely to develop mindsets that bolster their drive to learn in the face of challenges that have the potential to sap motivation. Everyone needs to receive these positive messages. But some students are more (or less) likely to receive them because of social structures and inequalities in our society that advantage certain groups and disadvantage others.

WHAT DOES THE MINDSET SCHOLARS NETWORK DO?

The Mindset Scholars Network was incubated at Stanford University's Center for Advanced Study in the Behavioral Sciences in 2015 and is now an independent project of New Venture Fund, a 501(c)(3) public charity. The network was founded with four key aims: (1) to advance interdisciplinary mindset science in ways that are useful to research, practice, and policy; (2) to communicate useful scientific knowledge that quickly reaches stakeholders and helps improve the outcomes of today's students; (3) to refine a new model for interdisciplinary scholarly collaborations in the social sciences that are rigorous, transparent, and practically relevant; and,

(4) to establish mindset science as an important, permanent element of education research and systemic change.

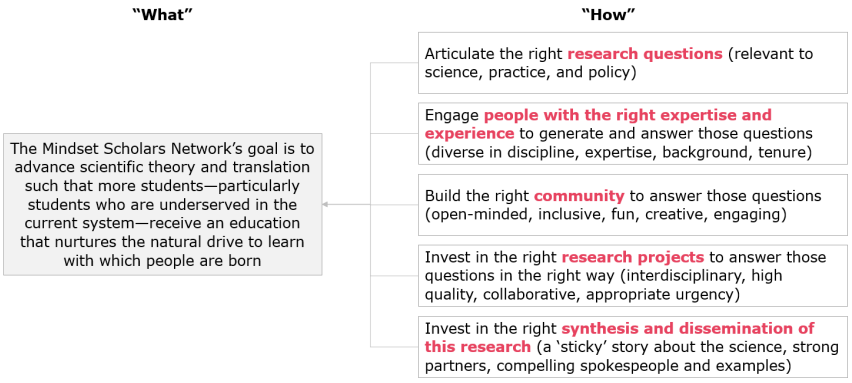
The network accomplishes these aims by:

- **Investing in cross-disciplinary research projects that are timely and relevant:** issuing RFPs that advance the network's interdisciplinary research agenda; providing support to launch large-scale studies; and bringing questions from practitioners to the research community.
    - *Examples: Mindsets and the Learning Environment Research Portfolio of 14 projects; K-12 Teachers and Classrooms Research Portfolio of 7 projects; National Study of Learning Mindsets (NSLM); College Transition Collaborative*

- **Providing leadership to the scientific community:** making data and other research assets available for broader use; issuing consensus statements; and cultivating the next generation of scholars committed to interdisciplinary scholarship on mindsets.
    - *Examples: Collaborating with the University of Texas at Austin's Population Research Center to host the NSLM Early Career Fellowship and create a permanent, public home for the NSLM data; hosting the Inclusive Mathematics Environments Early Career Fellowship; curating a searchable online library of mindset publications; creating data and measurement resources for the broader scientific community*

- **Conducting outreach to education stakeholders:** synthesizing the latest research and its implications for practice and policy, and advising organizations (e.g., sector media, intermediaries, funders) and thought leaders on issues related to mindset science.
    - *Examples: Issuing briefs and other research summaries for lay audiences; maintaining a social media presence and blog on developments in mindset science; hosting events that convene researchers and education stakeholders; advising intermediary organizations, funders, journalists, product developers, and others on mindset science; conducting research projects on how education stakeholders are using this body of research in practice*

The figure below depicts the Mindset Scholars Network's working hypothesis about how its activities further its overarching goal of advancing scientific theory and translation such that more students—particularly those who are underserved in the current system—receive an education that nurtures the natural drive to learn with which people are born.



The MSN has received funding from the Bezos Family Foundation, Bill & Melinda Gates Foundation, Chan Zuckerberg Initiative, Joyce Foundation, Overdeck Family Foundation, and Raikes Foundation.

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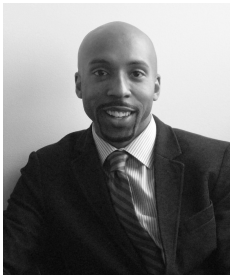

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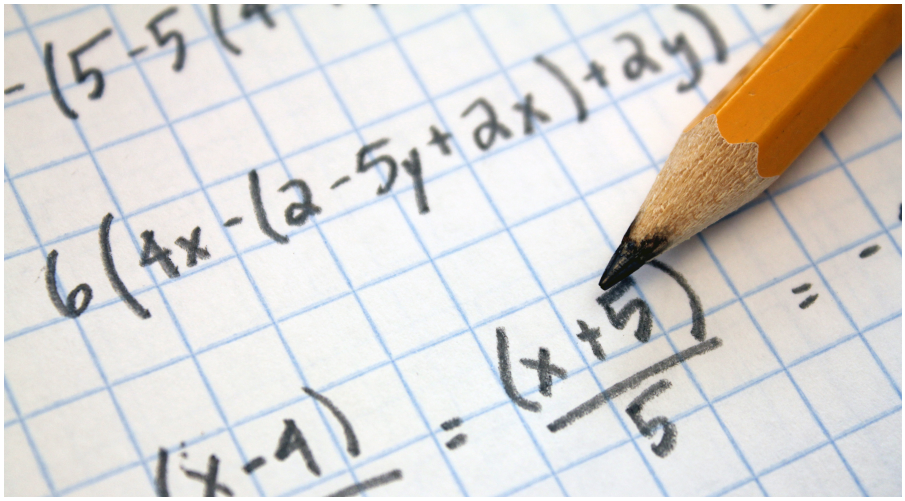


GUIDING QUESTIONS FOR THE INCLUSIVE MATHEMATICS ENVIRONMENTS EARLY CAREER FELLOWS

Chloe Stroman, October 2019

This summer, the recipients of the Mindset Scholars Network Inclusive Mathematics Environments (IME) Early Career Fellowship have been exploring a range of questions related to mathematics learning environments. Fellowships were awarded to 11 outstanding emerging scholars in the fields of education, mathematics, psychology, social work, and sociology.

In collaboration with content-area mentors, ten fellows are synthesizing research on inclusive mathematics classrooms for minoritized students in middle childhood through mid-adolescence for scientific audiences, and one fellow is producing an interpretive summary of their work, drawing out insights for practice and policy audiences. Through this fellowship, they will promote understanding of learning-mindset supportive and inclusive mathematics environments while building a community of interdisciplinary colleagues who are collectively advancing knowledge in this area.
Their guiding questions are as follows:

Priyanka Agarwal, *University of California, Irvine:* How do young girls and sexually minoritized youth come to resist (or actively disrupt) epistemic bias influenced by genderism and sexism during mathematics classes?
Mentor: Tesha Sengupta-Irving, Vanderbilt University

Grace Chen, *Vanderbilt University:* By what processes do marginalization and exclusion happen in mathematics classrooms, and what does that suggest about how to not only mitigate or resist/challenge marginalization and exclusion but to imagine something new?
Mentor: Ilana Horn, Vanderbilt University

Jessica Gladstone, *New York University:* What factors shape the effectiveness of role models in supporting the development of positive identity and psychological experiences in mathematics, particularly for students who have been minoritized in mathematics?
Mentor: Andrei Cimpian, New York University

Anthony Johnson, *Harvard University:* How does the culture of STEM environments—as expressed through norms and practices—facilitate or impede inclusion based in social class, race or ethnicity, and gender?
Mentor: Jennifer Langer-Osuna, Stanford University

Katie Kroeper, *Indiana University:* What strategies can teachers use to foster identity safe mathematics classrooms for their students that belong to groups typically devalued and/or underrepresented in mathematics contexts?
Mentor: Mary Murphy, Indiana University

Dana Miller-Cotto, *University of California, San Francisco:* How can we leverage classroom opportunities to affirm Black and Brown students' identities in mathematics?
Mentor: Neil Lewis, Jr., Cornell University

Nickolaus A. Ortiz, *Georgia State University:* What forms of capital do Black students possess that could be advantageous to the learning of mathematics?
Mentor: Nathan N. Alexander, Morehouse College

Stacy Priniski, *Michigan State University:* What strategies can teachers use to create content and spaces that are responsive to all of the learners in their classrooms?
Mentor: Dustin Thoman, San Diego State University

Matt Voigt, *San Diego State University:* What are the experiences of queer and trans-spectrum students in mathematics and STEM environments and what are the factors that contribute to inclusive mathematics environments for queer spectrum students?
Mentor: Daniel Lee Reinholz, San Diego State University

Charles Wilkes, *University of Michigan:* What features of mathematics environments nurture positive mathematical identities for Black learners?
Mentor: Deborah Loewenberg Ball, University of Michigan

Nicole Williams Beechum, *the University of Chicago:* [Interpretive Summary] What is student success in mathematics and what matters for the success of minoritized student learners in mathematics environments?
Mentor: Camille Farrington, University of Chicago

IME Early Career Fellowship directors include MSN Director of Research, Shanette Porter, and MSN scholar and University of Pittsburgh professor, Tanner LeBaron Wallace. Together, they provide substantive writing and professional support to fellows. The IME Early Career Fellowship advisory team includes experts in the areas of learning-mindset supportive and inclusive mathematics classrooms, including Deborah Ball (University of Michigan), Maisie Gholson (University of Michigan), DeLeon Gray (North Carolina State University), Luis Leyva (Vanderbilt University), and Jamaal Matthews (Montclair State University).

The Mindset Scholars Network will continue to publicize the fellows' important work.

K-12 TEACHERS AND CLASSROOMS RESEARCH PORTFOLIO

The Mindset Scholars Network recently launched an interdisciplinary initiative to yield new knowledge about K-12 learning environments that foster inclusion and learning mindsets. Projects fall under one of two topic areas. The first topic focuses on identifying and codifying teacher practices and behaviors that facilitate a sense of belonging and positive academic identity development, particularly in mathematics contexts among students from groups that are minoritized in mathematics. These groups include, for example, black, Latinx, and Native American students; students from families facing economic disadvantage; students who are emerging multilingual learners; and girls. The second topic focuses on advancing knowledge on measurement of classroom environments related to learning mindsets and inclusion.

A total of more than one million dollars has been awarded to the seven projects in this portfolio. Funding for the initiative was provided through grants from the Bill & Melinda Gates Foundation.

OVERVIEW OF PROJECTS & TEAM MEMBERS

The projects include 11 Mindset Scholars working alongside 28 external collaborators. Additionally, three projects leverage direct partnerships with school and district stakeholders. Each project team includes at least one emerging scholar in order to continue developing a strong pipeline of scientists skilled in novel interdisciplinary, practically-relevant research.

Projects will explore Advanced Placement mathematics, computer science, and ethnic studies classrooms, among others. They will shed light on how teacher practices and beliefs, curricula and instruction, and school practices and policies related to discipline and course enrollment shape students' experiences in K-12 classrooms.

PROJECT ABSTRACTS

The Longer-term Effects of Cultural Relevance: Evidence from an Ethnic-studies Curriculum

PRINCIPAL INVESTIGATOR: Thomas Dee
CO-PI: Sade Bonilla
OTHER TEAM MEMBERS: Neil Lewis, Jr. (Co-I), Emily Penner

TEAM DISCIPLINES: Economics, Psychology, Education

PROJECT ABSTRACT: An extensive body of research, largely from the field of social psychology, has provided leading evidence on the promise of interventions that seek to increase students' engagement and performance through the promotion of positive academic identities and belongingness in schools. However, as yet, we know comparatively little about how to incorporate these scientific insights into the diverse, everyday professional practices of teachers. One prominent counter-example is the grade-9 ethnic-studies curriculum developed

in the San Francisco Unified School District (SFUSD). A recent study by Dee and Penner (2017) conducted in partnership with SFUSD examined the causal effects of this curriculum by leveraging the discontinuous assignment rule used to encourage students to take this social studies class. They found that taking this course led to dramatic increases in several proximate grade-9 outcomes (i.e., attendance, GPA, and credits earned). Conceptually, they also argue that, in its design and delivery, the culturally relevant pedagogy (CRP) exemplified by this course resembles an unusual combination of intensive and sustained social-psychological interventions. The one-year results of the SFUSD study have influenced both the adoption of similar curricula elsewhere and contributed to emerging discussions about incorporating social-psychological insights into everyday educational practice. However, we do not yet know whether the promising short-term effects of taking this curriculum were sustained beyond one year. This study will examine the longer-term causal effects of the ethnic-studies curriculum using the original study's regression-discontinuity (RD) design. In particular, we will study, in partnership with SFUSD, the effects of grade-9 ethnic-studies curriculum on key outcomes: high-school persistence, graduation, and college matriculation. The cohorts in the Dee and Penner (2017) study have now aged enough that these important longer-term educational outcomes are captured in SFUSD's administrative data. Understanding whether the promising early student gains are sustained is critical for educational policy and practice. In particular, if we were to find that participation in this one course led to student gains that were largely sustained, it would underscore the power of one well-designed and targeted course. However, if the initial gains were not sustained, the proposed research would raise important new questions about how best to scaffold and sustain the promising short term effects of the course.

Analytic and Computational Approaches to Uncover Teacher Practices that Foster Positive Identity and Equity in Engagement and Learning for Middle School Mathematics Students

PRINCIPAL INVESTIGATOR: Sidney D'Mello
OTHER TEAM MEMBERS: Sean Kelly (Co-I), Stephanie Wormington (Co-I), Joshua Davis, Emily Jensen, Hadassah Muthokah, Mary Rose Philipoom, Catherine Riegle-Crumb, James Stigler, Baeksan Yu

TEAM DISCIPLINES: Computer Science, Sociology, Psychology, Mathematics Education

PROJECT ABSTRACT: From carefully crafted messages to flippant remarks, warm expressions to unfriendly tones, teachers' behaviors set the tone, expectations, and attitudes of the classroom. Importantly, teacher behaviors are not perceived in the same way by all students; rather, students' background plays a key role in how these behaviors are interpreted. Though not always intentional, certain teacher behaviors risk marginalizing students with stigmatized identities, especially with respect to gender, race/ethnicity, and socioeconomic status (SES). Other teachers create a normative environment of inclusion and widespread engagement through effective discourse practices, among other strategies. Because measurement is a precursor to change, it is prudent that we identify the ways in which teachers foster motivation, positive identity, and a strong sense of belonging through inclusive messaging and other interactions. Using videos from 6th to 9th grade mathematics classes, student self-report questionnaires, and achievement data from the Measures of Effective Teaching (MET) project, we aim to use human coding as well as automated speech and language processing to identify teacher verbal and nonverbal behaviors that are related to students' psychological and academic outcomes, particularly for students with stigmatized identities. Our interdisciplinary team blends expertise in cognitive and computer science, developmental and educational

psychology, and sociology of education. We are positioned to make theoretical and methodological advances on how teacher practices relate to students' psychological and academic outcomes, while also providing actionable information to help teachers improve their own practices, which should have positive downstream consequences for students.

What Makes a Classroom a Community? Teacher Mindsets and Student Sense of Belonging in Middle School Mathematics Classes

PRINCIPAL INVESTIGATOR: Eric Grodsky
OTHER TEAM MEMBERS: Jessica Calarco (Co-I), Mesmin Destin (Co-I), Patricia Schaefer (Co-I), Jaymes Pyne, Elizabeth Vaade, Alex Viegut, Jake Wertz
TEAM DISCIPLINES: Sociology, Psychology, Education

PROJECT ABSTRACT: Students' sense of belonging in school is both an important reflection of personal and structural forces that shape their educational careers and a key determinant of their educational investments and success. We propose a collaboration between a multidisciplinary team of researchers and practitioners in a diverse, midsized urban school district to understand if and how teacher beliefs about learning, sense of belonging, and trust influence student sense of belonging and academic performance in mathematics. In the proposed study, we ask the following research questions: (1) How is student sense of belonging distributed within and between middle schools? (2) How is teacher mindset related to student sense of belonging, academic identity, and student success in middle school in general and mathematics classes in particular?; how if at all does the relationship vary by student race and ethnicity? (3) What sorts of practices, behaviors, and instructional environments are associated with stronger student sense of belonging and mathematics identity for middle school students in general and students of color in particular?

Placing Equity in Context: High School Mathematics Teachers' Beliefs and Practices in Racialized Learning Environments

PRINCIPAL INVESTIGATOR: Yasmiyn Irizarry
CO-PI: Tia Madkins
OTHER TEAM MEMBERS: Melanie Gonzalez, L'Heureux Lewis-McCoy, Dixie Ross

TEAM DISCIPLINES: Sociology, Mathematics Education, Psychology

PROJECT ABSTRACT: Race operates in nuanced ways to influence students' opportunities to learn mathematics and shape how minoritized students experience mathematics classrooms across schooling settings. Thus, understanding how students experience racialized mathematics learning environments, especially in high schools with advanced mathematics course offerings, is imperative for promoting equity and student success. In this study, we will explore mathematics teachers' beliefs and practices related to inclusive teaching and learning environments using both secondary data analysis and primary data collection. We will analyze school, teacher, and student-level data from the High School Longitudinal Study of 2009, in combination with Civil Rights Data Collection from the U.S. Education Department, to identify and describe the racialized learning environment of mathematics classrooms by measuring the presence and prevalence of equity-focused, inclusive beliefs and practices among mathematics teachers working in public high schools, and examining whether and to what extent these beliefs and practices are associated with the magnitude of racialized tracking in advanced mathematics. We will also identify mathematics teachers' beliefs and practices that are

associated with high inclusion ratings in 9th grade and either consistently positive or improved mathematics mindsets between 9th and 11th grade, particularly among minoritized students. Because of the lack of race-oriented measures of mathematics teachers' beliefs and practices in publicly available survey data programs, we will also survey public high school mathematics teachers about their racialized, equity-focused, and culturally relevant beliefs and practices.

Learning Environments and the Mindsets and Performance of Students Within Them

PRINCIPAL INVESTIGATOR: Neil Lewis, Jr.
CO-PI: Rene Kizilcec
OTHER TEAM MEMBERS: Ji Yong Cho, Bharathy Premachandra

TEAM DISCIPLINES: Psychology, Communication, Information Science

PROJECT ABSTRACT: Previous research in mindset science has documented that there is often heterogeneity in the effects of mindsets on performance. The goal of the current project is to get a better handle on that heterogeneity to examine how differences in high school learning environments shape student mindsets, motivation, and performance. Leveraging a large data set, we will examine how 3,000 different school contexts interact with 6,000 teachers to influence outcomes for over 83,000 students enrolled in an Advanced Placement computer science course taught across the United States. This project will advance our understanding of mindset theory and provide actionable insights to improve academic outcomes and reduce educational disparities.

Belonging-Centered Instruction: An Approach to Establishing Inclusive Mathematics Classrooms

PRINCIPAL INVESTIGATOR: Jamaal Matthews
CO-PI: DeLeon Gray
OTHER TEAM MEMBERS: Thomas Dee (Co-I), Qiana Lachaud, Tamika McElveen, Aris Winger

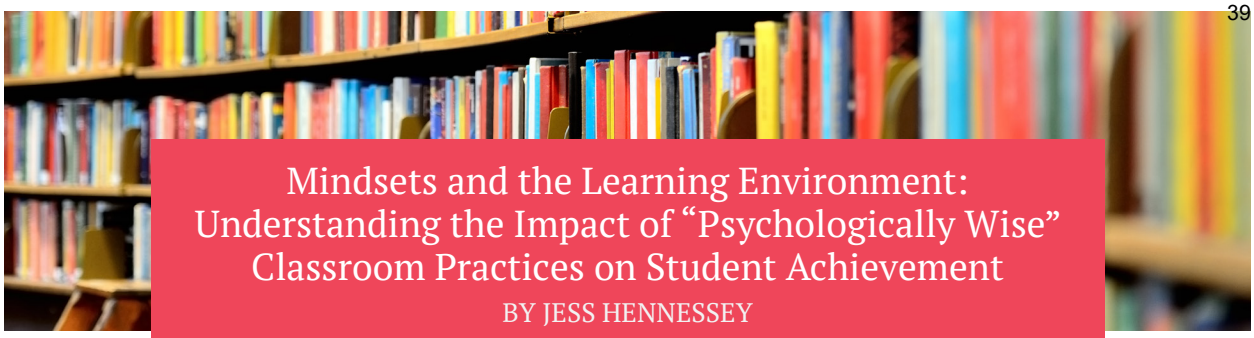
TEAM DISCIPLINES: Psychology, Economics, Education, Mathematics Education

PROJECT ABSTRACT: This project is a secondary data analysis of the Measures of Effective Teaching (MET) Collection to examine the dimensions and predictive power of Belonging-Centered Instruction in middle grades mathematics classrooms. To challenge and extend previous discussions of belonging in secondary school settings, we argue that both interpersonal and instructional supports for belonging are pivotal, particularly for historically marginalized adolescents who are often attempting to negotiate their sense of self in light of societal and academic stigma. We will pursue two major analytic phases of the MET video observations: a qualitative and descriptive phase, followed by a quantitative scoring phase with prediction of student outcomes, including mathematics assessment scores, engagement, and perceptions of the classroom environment. This project addresses a practically-relevant knowledge gap at the intersection of mathematics education, belonging, and equity: the identification of vivid examples that highlight ways of supporting belongingness needs within the context of a fundamental but often threatening subject area, mathematics.

Measuring Empathic-Mindset Effects Based on Educators and Learning Environments

PRINCIPAL INVESTIGATOR: Jason Okonofua
OTHER TEAM MEMBERS: Constance Lindsay (Co-I), Gregory Walton (Co-I), Parker Goyer

TEAM DISCIPLINES: Psychology, Economics
PROJECT ABSTRACT: There is increasing interest in means to reduce rising discipline citations in middle school, especially inequity in the distribution of those citations. Predominant theories and policies characterize this problem as the result of punitive discipline policies (e.g., zero-tolerance policies), teachers' lack of interpersonal skills, or students' lack of self-control or social-emotional skills. If teachers convey this respect while disciplining students, this may improve students' behavior. An empathic-mindset response – one that values students' perspectives and maintains high-quality relationships in disciplinary interactions – may improve outcomes. The PI conducted a preliminary test of this theory in an intervention aimed at encouraging an empathic mindset about discipline among all mathematics teachers and found that K-12 teachers were more likely to label a black middle school student who was perceived as misbehaving as a troublemaker, as compared to a white middle school student. In turn, teachers reported feeling more troubled by the black student and wanted more punitive discipline action for them. The experiment found that this inequity escalated over the course of multiple incidents, igniting a vicious cycle that ultimately resulted in deteriorated teacher-student relationships and high rates of suspensions. This study will expand upon the prior work and adds to the national dialogue by examining the role of the learning environment and teacher characteristics. School settings can support or hinder the success of interventions in ways that often go unexamined, but are important for understanding how and when effective interventions are efficacious for minoritized students – that is, work in the real world. The study also seeks to understand whether the effects of the empathic intervention are modulated by teachers' feelings of burnout or job satisfaction, which prior literature has shown can negatively predict teachers' ability to create supportive environments in which students feel they belong and can be successful.



Mindsets and the Learning Environment: Understanding the Impact of "Psychologically Wise" Classroom Practices on Student Achievement

BY JESS HENNESSEY

RESEARCH SNAPSHOT | SUMMER 2018

An ideal learning environment develops students' feelings of competence, connectedness, and purpose. When these conditions are met, students are more likely to choose challenging tasks, persist in the face of difficulty, learn more deeply, and achieve at higher levels.[1]

Within this project, the researchers examined how teachers create these kinds of classrooms through their verbal messaging. In particular, the researchers were interested in taking a magnifying glass to the classroom to see how teachers weave messages of growth, belonging, purpose, and affirmation (or their opposite) into their day-to-day practice, as well as whether creating learning environments that may support adaptive learning mindsets through these verbal messages is related to teachers' ability to promote gains in students' math achievement.

Study Design

The researchers leveraged prior empirical work to focus on an important yet understudied topic: how teachers create cultures of growth and other adaptive learning mindsets in their classroom. While a single intervention can have positive effects, a teacher who embeds inclusive messages of growth and potential into their daily practices should have larger and more consistent benefits.

The research team used middle school math classrooms as their sample because student perceptions of teacher support generally deteriorate during this time, particularly in math classrooms, as mistrust grows between students and school adults.[2,3]

Within this study, the team analyzed 20 videos of middle school math classrooms from the Measures of Effective Teaching (MET) dataset. The research team developed a literature-based coding scheme to identify teacher-generated messages along four psychological dimensions—growth, belonging, purpose, and affirmation (see Table 1).

Using insights from the literature and outside experts, the team developed a preliminary list of teacher actions that should promote learning mindsets (such as process praise), along with a list of teacher actions that could potentially undermine learning mindsets (such as ability praise). The messages that promoted learning mindsets were labeled as psychologically "wise" messages, while those that could undermine them were labeled as psychologically "inattentive" messages.

The researchers then used a sophisticated coding scheme they developed to calculate a value for the overall psychological wisdom conveyed by the teacher in each classroom. This score was created by observing the frequencies of each type of message teachers conveyed to students during the observational period.

Key Findings

- Observational tools were important for understanding how teachers shaped the psychological experiences of students in their classrooms in ways that mattered for student achievement
- In-depth video analysis of middle school math classrooms revealed that teachers who conveyed messages of growth, belonging, purpose, and affirmation saw greater gains in their students' standardized math test scores than did other teachers
- The measure of psychologically wise teaching correlated with other established classroom inventories but explained additional variance in students' growth in test scores
- Students with higher incoming achievement received more psychologically wise messages than students with lower incoming achievement

Research Team

- Geoffrey Cohen (PI), Stanford University
- Tanner LeBaron Wallace (Co-PI), University of Pittsburgh
- Ronald Ferguson, Harvard University
- Qiana Lachaud, University of Pittsburgh
- Hannah Sung, University of Pittsburgh

Areas of Expertise: Psychology, Education, Observational Methods, and Policy

MINDSET SCHOLARS NETWORK

The Mindset Scholars Network is a group of leading social scientists dedicated to improving student outcomes and expanding educational opportunity by advancing our scientific understanding of students' mindsets about learning and school.

Table 1. Examples and descriptive features of wise and inattentive teacher practices

Message Category	*Descriptive Features*	*Classroom Example*
Growth wise	• Multiple solution paths welcomed and encouraged • Mistakes understood as valuable learning opportunities	• Teacher slows students down and says she wants "good explanations," seeming to want to provide more challenge and to focus on process rather than quick, effortless answers as well as to encourage broader participation in the lesson.
Growth inattentive	• Goals framed as obtaining a correct answer • Public assessments made about difficultly level	• Teacher has students use white boards to report answers to practice problems. When all students hold up the correct answer, teacher says, "Good, everybody came to a consensus," seeming to suggest that the important goal is getting to the correct answer quickly.
Belonging wise	• Classmates and teacher positioned on same team • Shared humanity recognized	• When a student tries to ask an individual question, the teacher stops the student and says, "Check in with your table first," seeming to suggest peers are resources for learning. Teacher then says if the "table has a question, raise their hand so I can check it," seeming to suggest the question should come from the collective rather than the individual.
Belonging inattentive	• Students positioned as on their own • Increased probability for public embarrassment	• While students are talking, teacher says, "Excuse me, my time. Excuse me, it's my time," seeming to suggest a 'teacher versus student' attitude, and only what the teacher needs or wants really matters.
Affirmation wise	• Students feel supported and valued • Student contributions encouraged	• Teacher has a private word with a student who has his head down and seems to be ill; teacher starts by asking, "What's going on?" after which the teacher allows the student to leave the classroom to go get a drink of water, seeming to suggest a respect for student's basic needs for respect and dignity.
Affirmation inattentive	• Lack of transparency displayed • Students 'othered'	• When a student says he left his notebook in another classroom, the teacher responds, "Not today. That's two days in a row you would have had to leave to get something. Not today," seeming to suggest that she does not trust the student and that she is keeping track of when students do things that do not earn her approval.
Purpose wise	• Lesson or task connected to bigger picture or real life	• Teacher reads aloud a box in the textbook that states, "When will I use this?" seeming to suggest it is worth taking some instructional time in the lesson to highlight why what students are learning may be useful.
Purpose inattentive	• Academic goals framed as test prep goal without context • Practice framed as not meaningful	• During a review session, a teacher says, "This is what tests are going to do. They are going to make it look like it's not correct," seeming to suggest to students that they should remember this problem because they will encounter it again on a test indicating a goal of test preparation.

Key Findings

Observational tools were important for understanding how teachers shaped the psychological experiences of students in their classrooms in ways that mattered for student achievement

In using the videos, the research team was able to get clear insight into real-time teacher actions that influence students' psychological experiences at school.

In-depth video analysis of classrooms revealed that teachers who conveyed messages of growth, belonging, purpose, and affirmation saw greater gains in their students' standardized math test scores than did other teachers

These psychologically wise teaching practices predicted roughly 29% of the variance in student growth, exceeding the predictive power of established classroom inventories (e.g., the Classroom Assessment Scoring System) measuring the quality of classroom instruction and emotional climate. When considered simultaneously, psychologically wise teaching and the quality of the mathematical content instruction explained one-third of the variability in students' growth in standardized math test scores.

The measure of psychologically wise teaching correlated with other established classroom inventories but explained additional variance in students' growth in test scores

The psychologically wise teaching measure developed in this study correlated with the Danielson Framework for Teaching: Creating an Environment of Respect and Rapport, as well as the Classroom Assessment Scoring System (CLASS): Emotional Support, (r = .59, .52, respectively) yet it still explained variance in student growth in standardized math test scores on top of these measures.

Students with higher incoming achievement received more psychologically wise messages than students with lower incoming achievement

There was a significant relationship between students' prior achievement entering the classroom and the psychological messages they received from teachers, $t(18) = 2.99$, $p < .001$, with higher prior achieving students receiving more psychologically wise messages than lower prior achieving students. This relationship was not significant for psychologically inattentive messages.

Insights & Future Directions

The use of the MET data expanded the mindset measurement toolkit by coding and analyzing videos of middle school math classrooms, offering insights into teacher actions that would not be possible through survey instruments alone. This methodology allowed the researchers to shine a light into the "black box" of effective teaching.

Teachers play a key role in creating psychologically supportive environments for students and this study offers a first look at the relationships between specific teacher actions that either encourage or undermine messages of growth, belonging, purpose, and affirmation and how these messages relate to students' academic achievement.

The study also suggests that classrooms are multifaceted spaces with countless interactions between students and teachers throughout the day. This adds a layer of complexity to the understanding of classroom dynamics and creates a need for further research to be mindful of instructional, institutional, and societal contextual layers that may influence these interactions and perceptions.

While this initial study examined a small sample of classrooms to establish the coding plan and to observe initial trends, future research could expand the coding system to a larger group of classrooms within the MET dataset and explore whether psychologically wise teaching scores predict students' self-reported learning mindsets.

Additionally, the researchers plan to explore how these teacher messages may differentially influence certain groups of students. Because the decline in trust between teachers and students tends to be steeper for students of color as they contend with the reality of racial bias, discrimination, and stereotyping,[4,5,6] teacher support may be especially important for cultivating growth and learning among members of historically marginalized groups.[7,8] These studies would require new data sources focused on student perceptions of particular instructional interactions.

Sample

Videos of 20 middle school math classrooms came from the Measures of Effective Teaching (MET) dataset, the largest and most comprehensive dataset linking student psychological variables and classroom instructional practice to student achievement. The sampled classrooms were all from a single district. The researchers restricted the sample to class sections with racial diversity by dropping class sections outside the interquartile range (i.e., below the 25th and above the 75th percentile) for percentage of students of color in the class.

For the first 20 minutes of each video, the research team identified when teachers conveyed the following psychologically "wise" messages: that students' intelligence can grow (growth mindset), that students belong in the academic classroom (belonging), that the work students engage in matters (purpose), and confirmation that students can adequately meet the demands of their classroom (affirmation). They also identified when teachers conveyed psychologically inattentive messages, such as the idea that intelligence is a fixed trait or when teachers used extrinsic rewards to motivate students.

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About the Mindsets & the Learning Environment Initiative

The Mindset Scholars Network launched a new interdisciplinary initiative in Fall 2016 to explore how learning environments shape the mindsets students develop about learning and school. The project's aim is to generate scientific evidence about how educators, school systems, and structures can convey messages to students that they belong and are valued at school, that their intellectual abilities can be developed, and that what they are doing in school matters.

Fourteen projects were awarded over two rounds of this initiative. Funding for the initiative was generously provided by the Bill & Melinda Gates Foundation, Joyce Foundation, Overdeck Family Foundation, and Raikes Foundation.

ADDITIONAL RESOURCES ON STUDENT VOICE & RELATED TOPICS

These resources are intended to be a starting point for digging deeper into the topics explored in sessions at the funder briefing; they do not comprise an exhaustive list. You can also find resources recommended by speakers in their profiles in the next section of the briefing book.

Please note that all documents can be accessed in Google Drive at www.tinyurl.com/MSNStudentVoice.

CORE IDEAS FROM RESEARCH

Realizing the Potential of Learning in Middle Adolescence
Robert Halpern, Paul Heckman, & Reed Larson, 2013.

In this report, the authors summarize research about the design and conditions for productive learning experiences during high school based on the cognitive and social development that occurs during these years. They offer ten principles of effective learning for adolescents.

Re-weaving the Social Fabric through Integrated Schools: How Intergroup Contact Prepares Youth to Thrive in a Multicultural Society
Linda Tropp & Suchi Saxena, 2018.

Abstract: Schools remain one of the few social institutions that have the potential to bring youth together across racial and ethnic lines. New social science research demonstrates the importance of fostering sustained interracial contact between youth in order to prepare them to thrive in a multiracial society. This brief aims to summarize much of this new evidence, with special attention to its practical implications for the social relations and contexts within schools.

Black and Belonging at School: A Case for Interpersonal, Instructional, and Institutional Opportunity Structures
DeLeon Gray, Elan Hope, & Jamaal Matthews, 2018.

Abstract: This article is guided by two goals: (a) to consider how race-based perspectives can serve as theoretical tools for investigating Black adolescents' opportunities to belong at school, and (b) to describe cultural and political aspects of schooling that can support a sense of belongingness among Black adolescents. The authors discuss support for the belonging of Black adolescents in terms of interpersonal, instructional, and institutional opportunity structures. They provide a set of guiding questions for scholars seeking to advance educational psychology research at the intersection of race, belonging, and motivation. They end by describing specific research directions for an inclusive examination of school belonging, along with strategies to accomplish this goal.

The Impact of Implicit Bias, Racial Anxiety, and Stereotype Threat on Student Outcomes
Rachel Godsil, Linda Tropp, Phillip Atiba Goff, john powell, & Jessica MacFarlane, 2017.

This report summarizes research from psychology, neuroscience, and other disciplines to help illuminate some of the sources of inequality in education, with a specific focus on inequality in disciplinary practices. The authors include examples of strategies that can be used to reduce bias, racial anxiety, and stereotype threat.

The Significance of Students: Can Increasing "Student Voice" in Schools Lead to Gains in Youth Development?
Dana Mitra, 2004.

Abstract: The notion of ''student voice,'' or a student role in the decision making and change efforts of schools, has emerged in the new millennium as a potential strategy for improving the success of school reform efforts. Yet few studies have examined this construct either theoretically or empirically. Grounded in a sociocultural perspective, this article provides some of the first empirical data on youth participation in student voice efforts by identifying how student voice opportunities appear to contribute to ''youth development'' outcomes in young people. The article finds that student voice activities can create meaningful experiences for youth that help to meet fundamental developmental needs – especially for students who otherwise do not find meaning in their school experiences. Specifically, this research finds a marked consistency in the growth of agency, belonging and competence – three assets that are central to youth development. While these outcomes were consistent across the students in this study, the data demonstrate how the structure of student voice efforts and nature of adult/student relations fundamentally influence the forms of youth development outcomes that emerge.

The Role of Intermediary Organizations in Sustaining Student Voice Initiatives
Dana Mitra, 2009.

***Abstract*:** By examining 13 programs aimed at increasing student voice in school reform, this article examines conditions that enable and constrain the sustainability of this challenging form of educational change. The 13 high schools in this study all received grant funding from a local foundation in the San Francisco Bay Area to work on building a student voice initiative in their school. The communities in the study shared several characteristics, including an ethnically diverse population comprising students of Asian, Latin, African, and European descent, insufficiently funded public schools, and high concentrations of poverty. Semi-structured telephone interviews served as the primary data source for this article. Observations, documents, and external evaluations served as validity checks and sources of triangulation. The data indicate that the persistence of a student-voice effort after the initial influx of funds and support disappeared requires support from an intermediary Organization (IO)-an organization located outside the auspices of school walls. IOs can help with fostering a clear and long-term vision, providing a more stable source of leadership, identifying ongoing financial and collaborative resources, and building a network for knowledge generation and sharing. Although they are a part of many reform initiatives, partnerships with IOs are usually considered to be short-term relationships during the

implementation phase of an initiative. This research instead suggests that IOs might be better suited as long-term partners in many change efforts. An awareness of the important roles that IOs can play in the long-term work toward change could help researchers, practitioners, and policy makers think more intentionally about how to plan for stabilizing such partnerships as an avenue toward sustaining reform initiatives.

CIVIC ENGAGEMENT

Let's Go There: Making a Case for Race, Ethnicity, and a Lived Civics Approach to Civic Education
Cathy Cohen, Joseph Kahne, and Jessica Marshall, 2018.

In this report, the authors explain why civics education should center race, ethnicity, and the lived experiences of youth and use these as a starting place for exploration of power structures and social change. The report also offers key principles and reflection questions related to Lived Civics for educators seeking to implement this approach.

ETHNIC STUDIES

Toward an Ethnic Studies Pedagogy: Implications for K-12 Schools from the Research
Allyson Tintiangco-Cubales, Rita Kohli, Jocyl Sacramento, Nick Henning, Rachi Agarwal-Rangnath, & Christine Sleeter, 2014.

Abstract: In direct contrast to Arizona's criminalization of Ethnic Studies in Arizona, the San Francisco Unified School District's Board of Education unanimously adopted a resolution to support Ethnic Studies in their schools. As schools across the country begin to place Ethnic Studies courses on their master schedules, the lack of preparation and education to support effective Ethnic Studies teaching has emerged as a problem. Therefore, the central questions addressed in this paper are: *What is Ethnic Studies pedagogy?* and *What are its implications for hiring and preparing K-12 teachers?* This is a conceptual article that builds upon existing research studies to investigate the pedagogy of effective K-12 teachers of Ethnic Studies. From this literature, the authors identify several patterns in effective teachers' pedagogy: culturally responsive pedagogy, community responsive pedagogy and teacher racial identity development. They then tease out these components, briefly reviewing the literature for each, leading to a synthesized definition of Ethnic Studies pedagogy. The paper concludes with recommendations for practice and research in the interest of preparing and supporting effective Ethnic Studies teaching in K-12 classrooms.

MATHEMATICS INSTRUCTION

On Mindset and Practices for Re-Integrating "Belonging" into Mathematics Instruction
Jamaal Matthews, 2018.

Abstract: Restoring and protecting a sense of belonging for Black, Brown, and poor youth remains at the heart of social justice in U.S. schools. Drawing on research and lived experiences as an educator, the author discusses mindsets and practices teachers can develop to assuage the assault against belonging and become proactive in restoring equity and opportunity in mathematics classrooms that serve historically disenfranchised students. This paper highlights the critical mindsets necessary for enacting and sustaining equity-based teaching practices. Next, it provides instructional strategies embedded within two high-leverage practices (i.e., coordinating and adjusting instruction for connection to students' lives and analyzing instruction for the purpose of improving it) aimed at supporting teachers in understanding the significance of belonging beyond simply building classroom community, and in becoming aware of their power to promote belonging through their instructional choices and practices.

BUILDING EDUCATOR ABILITY

The **Building Equitable Learning Environments Library** (www.equitablelearning.org), **Students at the Center Hub** (www.studentsatthecenterhub.org), and **Teaching Tolerance** (www.tolerance.org) offer resources to support educators in being responsive to students and drawing on students' assets.

NEW FORMS OF FEEDBACK FOR EDUCATORS

Detecting and Reducing Bias in Questioning Patterns
Beth Herbel-Eisenmann & Niral Shah, 2019.

This article discusses how educators can track their questioning patterns to examine how they may be influenced by implicit bias, especially in mathematics contexts. The authors also offer strategies to shift classroom discourse in ways that encourage equitable student participation.

Abigail Echo-Hawk on the Art and Science of 'Decolonizing Data'
Manola Secaira, 2019.

In this article, Abigail Echo-Hawk, the chief research officer of the Seattle Indian Health Board and the director of the Urban Indian Health Institute, describes how programs and databases that are not based on Western concepts can better serve indigenous communities.

STUDENT VOICE AT A SYSTEMS LEVEL

University of Southern California Race and Equity Center

The website for the USC Race and Equity Center (www.race.usc.edu) offers research, tools, and a virtual professional learning series designed to help educational institutions, particularly postsecondary institutions, and other organizations build cultures of inclusion and respect.

Condition of Education in the Commonwealth: Student Voice
Rennie Center for Education Research & Policy, 2019.

This report explores how focusing on student voice, agency, and leadership can serve as a necessary lever for equity and effectiveness, and describes what this looks like in action at the school, classroom, community, district, and state levels. The report spotlights examples of this work in Massachusetts.

The #WeBelongInCollege Campaign

#WeBelongInCollege is an interactive social media campaign that was inspired by the research by David Yeager and Greg Walton.

The #WeBelongInCollege campaign will encourage students to watch engaging videos about how other students questioned whether they belonged but managed to persist, and then will create and share their own stories.

The stories they share will help others by explaining that even though we all struggle, we belong in college. A beta version of the campaign website can be found here: www.jemmottenoch.wixsite.com/mysite

The #WeBelongInCollege campaign is a part of the PERSONAL STATEMENT impact campaign. More information about the documentary film, PERSONAL STATEMENT, can be found here: www.PersonalStatementFilm.com

#WeBelongInCollege dissemination strategy

The campaign will be launched on social media, the web, on Get Schooled (to reach students directly), and through the Teacher to Teacher (T2T) network of the Gates Foundation (to reach educators).

The goal is to maximize reach and to engage students on the platforms they use and in their classrooms. Students will be encouraged to share their stories on any social media platform and to use the campaign hashtag to enable other students to find and benefit from the stories shared.

We will spur engagement by providing $1,000 scholarships to 25 students who produce the most inspiring videos through Get Schooled.

We will also distribute, in collaboration with our educational distributor, GOOD DOCS, free copies of the complete film to up to 1,500 schools through the T2T network. Schools will be prioritized that educate low-income students of color and commit to:
- using the #WeBelongInCollege lesson plans to engage students in the campaign; and
- having students and educators complete short, digital pre- and post-impact surveys so that we can track and assess the impact of this element of the campaign.

Presenter Bios

Enoch Jemmott

While in High School, Enoch Jemmott worked as a peer college counselor, helping his peers apply to college and for financial aid. His experience working as a peer college counselor is chronicled in the Emmy-nominated documentary film, PERSONAL STATEMENT. After graduating from the Brooklyn Generation School, he worked as an intern for College Access: Research & Action (CARA), helping other high school students prepare to work as peer college counselors in their schools. Enoch enrolled in SUNY Cortland in the fall of 2015 where he played football. He then transferred to Queens College in his junior year, where he has run track and is majoring in Media Production. He has been helping to lead the PERSONAL STATEMENT impact campaign, traveling with the film throughout the country. He is currently designing and preparing to launch an interactive social media campaign for the impact campaign called #WeBelongInCollege.

Christine Rodriguez

During her junior and senior years in high school, Christine Rodriguez worked as a peer college counselor. Her experience helping her peers navigate the college and financial aid application process was chronicled in the Emmy-nominated film, PERSONAL STATEMENT. Since 9th grade, she worked as a youth organizer with Make The Road New York and the Urban Youth Collaborative. During her senior year in high school she was appointed to serve on a Mayoral task force for school reform. Christine enrolled at the Eugene Lang College at the New School in the fall of 2015 after graduating from the Bushwick School for Social Justice. She continued to work in her high school as a college bridge counselor throughout college, only taking a brief break to study abroad in Cuba. Christine graduated with a bachelor's degree in Urban Studies in 2019. Since the release of the film, PERSONAL STATEMENT, Christine has helped to lead the film's impact campaign, travelling and speaking to audiences throughout the country.

The Guidance Gap

Only 9 percent of people in the lowest income quartile attain a bachelor's degree by the time they turn 24, compared to 77 percent from the highest income quartile.*

One major cause of the achievement gap is the guidance gap.

Most public high schools don't have a single staff member dedicated to college and career counseling. Instead, school counselors are often responsible for providing college and career counseling.

But more than one-fifth of public high schools in the nation don't have a school counselor.**

Nationwide, the typical school counselor to student ratio is 1 to 464.***

And school counselors report that they can only spend 20 percent of their time on college guidance.***

And yet, we know that college counseling works:

One study found that in high schools, adding one counselor predicted a 10-percentage-point increase in the number of students who enrolled in four-year colleges.****

Another study showed that after meeting one-on-one with a counselor to discuss financial aid or college, the chances of the student going to college triples and they are seven times more likely to apply for financial aid.***

SOURCES:
*U.S. Department of Education
**Office for Civil Rights, U.S. Department of Education
***National Association for College Admission Counseling
****College Board

PERSONAL STATEMENT is a feature-length documentary about three seniors who are working as peer college counselors because their high schools, like so many around the country, don't have enough college counseling support. The film sheds light on the need to close the college guidance gap in order to increase access to college for low-income students.

PERSONAL STATEMENT
Impact Campaign

The PERSONAL STATEMENT engagement and impact campaign is using the film to inspire young people to persist to college and to spark a national conversation about the college guidance gap.

Target audience:

- Low-income students and first-generation-to-college students
- Adults who support and work with low-income students (teachers, school counselors, college access professionals & parents)
- National, state and city leaders, education administrators & funders

To bring PERSONAL STATEMENT to your campus or community,

and to request a free preview link of the film, contact GOOD DOCS:

www.GOODDOCS.net/personal-statement

For more information, including discussion guides and other resources, go to:

www.PersonalStatementFilm.com

There are many ways you can take action to close the guidance gap, including:

- Take our audience survey and let us know how you want to get involved – you can find the survey on the homepage of the film's website: www.PersonalStatementFilm.com
- Join the conversation - you can follow us on social media and tag us when you post about the need to fill the guidance gap:

 PersonalStatement  PersonalStatmnt  PersonalStatementFilm

- Organize an impact screening and/or a series of educational screenings in schools
- Get in touch if you want to collaborate: email jdressner@gmail.com

JESSICA GUADALUPE VARGAS

BIO

Jessica is a local from Chicago's South side. Her passion for youth voice began while attending her neighborhood school, Washington High School, where she focused on issues such as educational inequalities. She continues her passion for youth civic empowerment, educational equity, and immigration as a junior at the University of Chicago.

WHY STUDENT VOICE MATTERS

For too long there has been a notion that youth are apathetic and disconnected in the civic world. But recently this long-embedded notion has been challenged with youth led protests, campaigns and movements. Youth have been seen at the forefront of social justice movements proving that they are agents of change, not subject to change. Adults, especially those in positions of power, must not only be willing to listen to young people's voices but to collaborate with their ideas and passions. If we support and cultivate their visions it will offer youth the opportunity to imagine a brighter future for themselves and for their communities as well.

LEADERSHIP RELATED TO STUDENT VOICE

In 2016 when Chicago Public Schools (CPS) conducted its second round of budget cuts during the school year, we the students organized a "study-in" in front of CPS headquarters. We sat outside in the cold October weather and did our homework on the sidewalk, hoping to send a message across to CPS to end the budget cuts. In between our chants, screams and cries to be heard, however, I always wondered if the people in power, who were probably on the highest floor of the building wearing business formal attire, could hear. Could they hear our chants, coming from us, the students sitting outside in our bulging coats trying to chant and stay warm? Even with the doubt in my mind, I chanted. We chanted because we could not stay silent, and we knew our schools were worth fighting for.

Since then, I continue my passion for youth voice at The University of Chicago. I am currently a program coordinator for Chicago Bound, a program focused to promote community awareness and civic engagement, and the Co-Chair to the Women in Public Service Engage Program where I help cultivate women's passion for public service through community action. I am also working on starting a youth organization focused on empowering High School youth from the South Side with advocacy and organizing skills they can take back to their communities.

ADDITIONAL RESOURCES

Website of I Grow Chicago, a peace house based in Chicago where I interned my freshman year which helped me learn about what community healing and justice looks like:

I Grow Chicago: https://www.igrowchicago.org/

Video of the Urban Education institute panel I was part of where I shared my perspective on the college journey as a low-income and first-college generation student:

To and Through 2018: https://youtu.be/dcOYx5FhUu4?t=4895

Press coverage of a sit-in I organized at Washington High School to protest the non-renewal of our principal's contract:

Article: https://www.dnainfo.com/chicago/20151218/east-side/washington-high-students-stage-sit-in-fight-ouster-of-beloved-principal

Center for the Developing Adolescent

The Center for the Developing Adolescent

The Center for the Developing Adolescent collaborates with leading researchers, practitioners, and other innovators in the field of adolescent development to drive better, bolder ideas on how to harness the enormous potential of adolescents. We distill and share the most up-to-date developmental science and shine a light on leading voices in the field to transform how society views, serves, and values young people.

Our Mission

We champion science-based, equity-driven innovations that positively impact the lives and futures of all young people.

What We Do

Adolescence is a developmental period alive with opportunities along with vulnerabilities, offering a window of dynamic learning that can shape a lifetime. But institutional and societal inequities put these opportunities out of reach for many. Systemic change is needed now.

By making science accessible to those who support adolescents in the U.S.—and advocating for equitable policies, programs, and practices based on that science—we seek to lift up all young people and the world they'll come to lead.

Who We Are

Inspired by Harvard's Center on the Developing Child and their groundbreaking work to reframe the narrative about early childhood (ages 0 to 5), in 2015 a group of scientists set out to do the same for adolescence as a critical developmental life stage and window of opportunity. We secured financing from the Funders for Adolescent Science Translation (FAST) in 2018 and hired our first Executive Director, Deb Levine, in early 2019. Our current advisory board includes six of those founding scientists: Nick Allen and Jennifer Pfeifer at University of Oregon, Linda Wilbrecht and Ron Dahl at UC Berkeley, and Andrew Fuligni and Adriana Galván at UCLA.

Our Current Priorities

The Center is currently building the National Scientific Council for the Developing Adolescent, a multidisciplinary, multi-university collaboration committed to closing the gap between what we know and what we do to promote successful learning, adaptive behavior, and sound physical and mental health for all adolescents.

Forming this year, the Council will use science to build public will that transcends political partisanship and recognizes the complementary responsibilities of community, family, workplace, and government to promote equitable adolescent development and well-being.

Our Focus on Student Voice

We are prioritizing youth voices as we incubate the Center for the Developing Adolescent under the leadership of Dr. Ron Dahl at UC Berkeley. This is happening via partnerships with on-the-ground youth organizations including First Exposures, a photography mentorship program, and Alliance for Girls, an ecosystem of adult allies, girls' organizations, schools, and others dedicated to helping girls and young women reach their full potential. Let us know if you'd like to join our expanding network by emailing us at info@developingadolescent.org.

Additional Resources

For more information about and from the Center for the Developing Adolescent, visit our website at developingadolescent.org.

From there, you can access our growing library of research, news, and original content summarizing the science of adolescent development, including:

- **6 Fast Facts About Adolescent Development**
  developingadolescent.org/topics/item/6-fast-facts-about-adolescent-development
- **What the Science Tells Us About Adolescent Sleep**
  developingadolescent.org/topics/item/science-of-adolescent-sleep
- **What the Science Tells Us About Parenting an Adolescent**
  developingadolescent.org/topics/item/science-about-parenting-adolescent

Center for
the Developing
Adolescent

LINDA R. TROPP

Professor of Social Psychology
University of Massachusetts Amherst

AREAS OF EXPERTISE

- processes and outcomes of intergroup contact
- anxiety and empathy in cross-group relations
- bias reduction strategies and interventions
- social inequality and motivations for collective action, protest, and social change
- social cohesion and prospects for reconciliation in divided communities and societies

BIO

Linda R. Tropp, Ph.D., is Professor of Social Psychology and Faculty Associate in the School of Public Policy at the University of Massachusetts Amherst. For more than two decades she has studied how members of different social groups perceive and experience contact with each other, and how social inequality and group differences in status affect cross-group relations. She has worked on national initiatives to promote racial integration and equity in public schools and other social institutions in the United States, and with nongovernmental organizations to evaluate interventions that seek to bridge differences and tensions between groups in divided societies around the world.

WHY STUDENT VOICE MATTERS

A key indicator of positive teacher-student relations involves the extent to which students feel like their teachers truly care about them and are invested in their education. Students who do not feel like their voice and potential are valued by their teachers may become less inclined to see or value their own potential; this not only carries the potential to undermine students' motivation and engagement, but it may put a strain on teacher-student relations. Moreover, when filtered through racial bias or anxiety, students' lack of motivation may be viewed simply as a problem of the student, rather than being recognized as an outgrowth of challenges posed by bridging racial differences between teachers and students.

FEATURED PROJECT(S)

Racial anxiety involves stress and uncertainty when interacting across racial lines, which can disrupt the development of trusting relationships between teachers and students. Our research examines whether white teachers who experience greater racial anxiety may inadvertently pursue harsher disciplinary options in relation to students of color (than in relation to white students), as a means of minimizing their own direct engagement with students from other racial backgrounds. Racial anxiety may also result in less frequent guidance regarding desirable student behaviors, since that, too, would require greater teacher-student interaction.

Our first study in this line of work was a national survey of more than 1000 K-12 teachers, conducted in collaboration with Perception Institute and Teaching Tolerance (a project of the Southern Poverty Law Center, www.tolerance.org). We found that white teachers who reported greater racial anxiety also reported less confidence in their ability to develop meaningful relationships with students from other racial backgrounds, and less confidence that they treat all students in their classrooms equally. We have replicated these findings in a single school district, with participation from 84% of the mostly white educational staff in the district, which helps us to address potential concerns about self-selection among survey respondents. Across both studies, we also find that the significant effects of racial anxiety on teachers' confidence working with diverse learners are independent of a wide range of school, classroom, and teacher characteristics that could potentially play a role.

Ongoing analysis from the school district study also suggests that teachers' racial anxiety may predict more severe disciplinary outcomes for students of color, but not for white students, in response to acts of defiance. We are now in the process of conducting a vignette-based field experiment with 1000 K-12 teachers in a larger metropolitan school district, to test how racial anxiety may shape teachers' recommendations for discipline in response to students' disruptive classroom behaviors, depending on the race and gender of the students in question. In collaboration with Perception Institute, we also continue to work with school districts to design and evaluate teacher-focused interventions that can both alleviate anxiety and enhance a sense of efficacy about navigating racial differences in the classroom, to improve teacher-student relations and minimize teachers' reliance on harsh disciplinary practices. We also seek to conduct future studies that would allow us to incorporate student voices by testing how teacher-focused interventions shift students' perceptions of the extent to which teachers are available and open to engaging students from varied racial and ethnic backgrounds.

ADDITIONAL RESOURCES

Tropp, L. R., & Barlow, F. K. (2018). Making advantaged racial groups care about racial inequality: Intergroup contact as a route to psychological investment. *Current Directions in Psychological Science*, 27, 194-199 https://www.psychologicalscience.org/publications/observer/obsonline/how-to-get-people-to-care-about-inequality.html

Tropp, L. R., & Saxena, S. (2018). *Re-Weaving the Social Fabric through Integrated Schools: How Intergroup Contact Prepares Youth to Thrive in a Multiracial Society*. Research brief published by the National Coalition on School Diversity. http://school-diversity.org/wp-content/uploads/2018/05/NCSD_Brief13.pdf

Godsil, R., Tropp, L. R., Goff, P. A., powell, j., & MacFarlane, J. (2017). *The Science of Equality in Education: The Impact of Implicit Bias, Racial Anxiety, and Stereotype Threat on Student Outcomes*. Report published by Perception Institute and produced in partnership with the Haas Institute for a Fair and Inclusive Society (UC Berkeley) and the Center for Policing Equity (John Jay College of Criminal Justice). https://perception.org/wp-content/uploads/2017/05/Science-of-Equality-Education.pdf

DELEON L. GRAY

Scholar in Residence
Michigan State University

AREAS OF EXPERTISE

Belonging
Culturally Sensitive Approaches to Motivation Research

BIO

DeLeon Gray's program of research has been recognized by receipt of prestigious honors including a 2018 Best Article Award for his collaborative publication in Educational Psychologist entitled, "Black and Belonging at School: A Case for Interpersonal, Instructional, and Institutional Opportunity Structures." A key initiative during the 2019-2020 academic year is to work jointly with education stakeholders to disrupt structural aspects of schooling environments that leave students of color vulnerable to anxieties about belonging. His efforts involve (1) developing culturally sensitive observation and survey tools to assess students' opportunities to belong in the classroom, (2) disseminating user-friendly resources the can inform public discourse on ways of honoring and affirming students in academic settings, (3) educating funders and school administrators as they make strategic investments in research designed to shape students' sense of psychological membership at school and (4) establishing a networked community of educators and researchers who are firmly committed to making schools places where students are accepted, respected, included and supported.

WHY STUDENT VOICE MATTERS

Students have perspectives that are not only legitimate, but necessary for making schools places where their peers want to be and want to learn.

FEATURED PROJECT

The goal of *iScholar* is to develop a coherent set of instructional practices with teachers. These practices target motivational needs specific to economically disadvantaged adolescents in predominantly Black and Latino middle schools. This project is distinctive in that our work will help teachers, community members, school administrators, district-level administrators, and caregivers to unpack the concept of achievement motivation—thereby equipping them with strategies essential for fostering a motivationally supportive climate.

ADDITIONAL RESOURCES

Gray, D. L., Hope, E., Matthews, J. S. (2018). Black and Belonging at School: A Case for Interpersonal, Instructional, and Institutional Opportunity Structures. *Educational Psychologist, 53*(2), 97-113. doi: 10.1080/00461520.2017.1421466

SADE BONILLA

Assistant Professor of Education Policy
University of Massachusetts Amherst

AREAS OF EXPERTISE

- College and Career Readiness
- High School to College Transitions
- Career and Technical Education

BIO

Sade Bonilla is interested in educational inequality and understanding how reform efforts in public education affect students from underserved backgrounds, particularly high school students. She engages in research-practitioner partnerships with school districts and state agencies to examine the effects of contemporary policies on student outcomes. In particular, her work examines issues of social reproduction and the trade-offs involved in altering educational resources. Her dissertation work, funded by a Spencer/National Academy of Education Dissertation Fellowship, explored how the scale-up of a new generation of Career and Technical Education (CTE) programs in California decreased high school dropout rates. These CTE program provided high school students with articulated career pathways via school, community college and business partnerships. Career pathways may have effectively increased student engagement amongst students at-risk of leaving high school by promoting their engagement with school through job-training curricula.

THE IMPORTANCE OF VOICE IN POLICY DESIGN

Schools and districts serving marginalized student populations struggle with consistently low student performance. However, students and their families are often not involved with the policy design process. Furthermore, students and their families often lack the time, political, and social capital to hold district leaders and other policymakers accountable. The lack of participation can lead to unintended consequences when externally determined policies are implemented.

FEATURED PROJECT

In response to the national College Readiness movement and commitment to equity, many districts have sought to address gaps in college preparation and attendance by aligning high school graduation course standards with college entrance requirements. In this project, I examine policy changes in Los Angeles and San Francisco that introduced a College Readiness requirement for all students. Both districts implemented credit recovery programming targeted at students who struggled with course preparation. One district created a robust menu of credit recovery options (i.e., online, face-to-face, evening, Saturday etc.) to meet the diverse needs of learners. This project is unique because I have partnered with the school district to address a research question that is important for practitioners and researchers alike. We will examine the effectiveness of the different credit recovery options and potential mechanisms (i.e., design, timing) to understand how these programs improve student learning and outcomes.

DR. ELAN C. HOPE

Assistant Professor of Psychology
North Carolina State University

AREAS OF EXPERTISE

Critical Consciousness & Civic Engagement
Racial Identity
Racism & Racial Discrimination

BIO

Elan Hope is a Community Psychologist who takes an assets-based approach to investigate individual and community factors that promote well-being for adolescents and emerging adults who face racism and racial discrimination. Dr. Hope's research is deeply rooted in the belief that while there are common developmental experiences among racially marginalized youth, individual differences and contextual variation require a deep exploration of diverse pathways to success and well-being. Well-being includes psychological and physical health, academic success, and civic engagement. In her most recent work, she uses both qualitative and quantitative methods to examine racial identity, critical consciousness, and racial socialization, in relation to youth activism and health.

WHY STUDENT VOICE MATTERS

As womanist poet and civil rights activist Audre Lorde said, "When we speak, we are afraid our words will not be heard or welcomed. But when we are silent, we are still afraid. So, it is better to speak." This is why students voice matters.

FEATURED PROJECT(S)

In my research, I consider what civic engagement means for youth who are members of racial groups that have been historically and contemporarily disenfranchised socio-culturally, politically, and economically. I contend that civic engagement is an adaptive coping strategy for racially marginalized youth, which functions as a source of support and avenue for change amid oppression. Civic engagement provides an active form of resistance to protest inequitable conditions and to promote positive well-being for self and community. In a quest for positive development, minoritized youth move beyond the altruistic nature of community service and democratic purpose of political participation towards *critical civic engagement*— civic engagement as a revolutionary act of self-preservation in direct response to broadly under-acknowledged conditions of sociopolitical inequality.

In recent studies I find that for Black and Latino youth, experiencing interpersonal racial discrimination and recognizing institutional and cultural racism relates to civic engagement

and political activism. Further, parental messages about race and politics predict youth political attitudes and behavior. We also find that youth civic development is supported in education spaces that center youth leadership, love and acceptance, and deep critical analysis of structural inequality and identity exploration. The next step is to help more schools and out-of-school spaces foster youth critical analysis of inequality and support youth leaders in *critical* civic engagement and systems change.

ADDITIONAL RESOURCES

Hope, E.C., & Spencer, M.B. (2017). Civic Engagement as an Adaptive Coping Response to Conditions of Inequality: An Application of Phenomenological Variant of Ecological Systems Theory (PVEST). In N. Cabrera & B. Leyendecker (Eds.), *Handbook on Positive Development of Minority Children and Youth*. Netherlands: Springer.

Interview with Dr. Hope on Youth Activism: http://measureradio.libsyn.com/predicting-youth-activism

BEN KIRSHNER

Professor of Learning Sciences and Human Development and Faculty Director of CU Engage: Center for Community-Based Learning and Research
University of Colorado, Boulder

AREAS OF EXPERTISE

Youth Development
Youth Activism and Student Voice
Learning Sciences/Learning Environments
Community-Based Participatory Research
Research Practice Partnerships

BIO

Ben's work with young people at a community center in San Francisco's Mission District motivated him to study learning in out-of-school spaces and how to support youth voice in social change. His research agenda challenges deficit-based discourses about youth of color and documents the kinds of learning environments where youth experience dignity and belonging, engage in critical conversations about their social worlds, and work collaboratively with each other and adults to improve their schools and communities. Recent projects include design-based research in action civics classrooms, critical participatory action research, and ethnographies of community-based youth organizing groups. His 2015 book, *Youth Activism in an Era of Education Inequality,* received the social policy award for best authored book from the Society of Research on Adolescence.

WHY STUDENT VOICE MATTERS

Student voice, when organized well, enables a virtuous feedback loop between student learning and equity-centered school improvement. Students become more engaged, their schools become more developmentally and culturally responsive, and civil society becomes stronger when students have a voice in decision-making about their schools and communities.

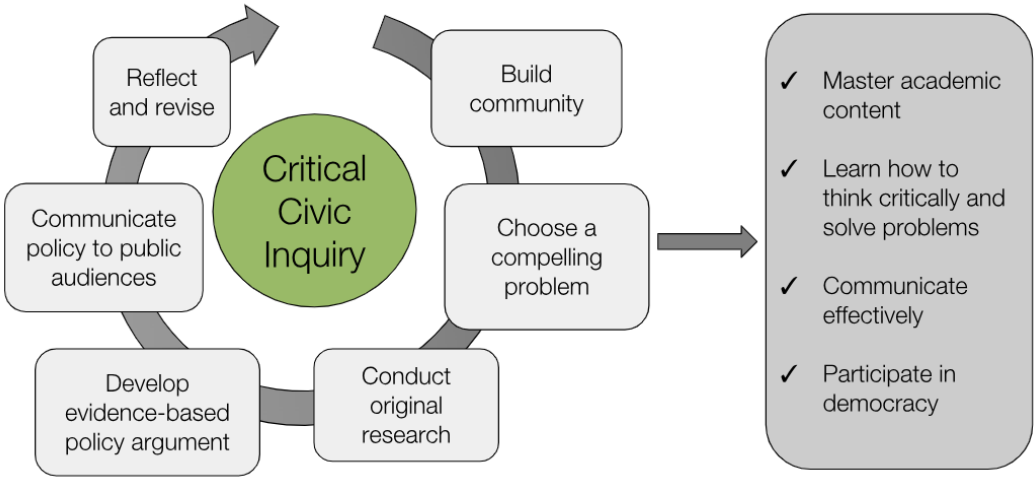
FEATURED PROJECT: CRITICAL CIVIC INQUIRY

Educators tend to endorse student voice in the abstract, but in practice we fall short. Too often schools limit access to A students or limit student roles to planning dances. How can schools incubate learning environments where students challenge business-as-usual? What structures enable students and teachers to imagine, develop, and sustain more engaging, culturally-responsive policies and practices?

The Critical Civic Inquiry (CCI) research group, co-led with Shelley Zion and Carlos Hipolito-Delgado, collaborates with Denver Public Schools' Student Voice and Leadership (SVL) to

explore these questions. SVL, led by Solicia Lopez, offers multiple pathways for students to engage in reflection, critique, and collective action to improve their schools. Students in SVL's Challenge 5280, for example, work in school-based teams, supported by adult coaches, to identify an issue that needs to change, gather and analyze data through original research, formulate policy proposals that address root causes, and communicate their policy arguments to key decision-makers. This cycle is a close variant of what some call Youth Participatory Action Research or Action Civics. Earlier iterations of CCI with classroom teachers identified features of learning environments that engaged youth from marginalized backgrounds in school-level change and contributed to increased academic engagement, civic efficacy and commitment to ethnic identity (Kirshner, 2015; Hipolito-Delgado & Zion, 2015). The current work aims to sustain and scale transformative student voice opportunities. This calls for learning at all levels of the system, most importantly among adults as we develop new ways of listening to and collaborating with students.

Figure 1. Critical Civic Inquiry Cycle



ADDITIONAL RESOURCES

Article: Hipolito-Delgado, C. P., & Zion, S. (2017). Igniting the fire within marginalized youth: The role of Critical Civic Inquiry in fostering ethnic identity and civic self-efficacy. *Urban Education*, *52*(6), 699–717.

Book: Kirshner, B. (2015). *Youth activism in an era of education inequality*. New York: New York University Press.

Blogs: *Critical Civic Inquiry: Students Master Academic Content through Action Research Projects (Ben Kirshner) https://studentsatthecenterhub.org/blog
*Student Voice: Transformative or Symbolic? (Ginnie Logan) https://transformativestudentvoice.net

Video: Measuring the Quality of Civic Engagement (Ben Kirshner & Carlos Hipolito-Delgado: https://www.youtube.com (search "Spencer civics Kirshner Hipolito-Delgado")

Website: https://transformativestudentvoice.net/

YPAR lessons (University of California Berkeley): http://yparhub.berkeley.edu

ALLYSON TINTIANGCO-CUBALES

Professor
College of Ethnic Studies
San Francisco State University

Founder and Director
Community Responsive Education

Founder and Director
Pin@y Educational Partnerships

Pronouns: she, her, hers, siya, sila, ako, tayo

AREAS OF EXPERTISE

Ethnic Studies, Education, Youth Wellness and Development, Women of Color Studies, Filipina/o/x American Studies, Motherscholarship, Participatory Action Research, Community Responsive Pedagogy

BIO

Dr. Allyson Tintiangco-Cubales is professor of Asian American Studies in the College of Ethnic Studies at San Francisco State University. She is also a faculty member in the doctorate program for Educational Leadership. She has published several books and a wide array of articles that focus on the development of Ethnic Studies curriculum and community responsive pedagogy. In addition to her responsibilities as a faculty member at SFSU, Tintiangco-Cubales has been extremely dedicated to the Filipina/o American community. To respond to the social, academic, and emotional challenges that Filipina/o American youth face, in 2001 she founded Pin@y Educational Partnerships (PEP), an Ethnic Studies educational pipeline that creates partnerships and projects that work toward social justice. Related to her work with PEP, one of her major accomplishments was working with community organizations and educators to get Ethnic Studies instituted in high schools in the San Francisco Unified School District. Since 2007, she has served as a consultant with the San Francisco Unified School District on the development of Ethnic Studies curriculum for elementary, middle, and high school students. Along with SFUSD, she also supports the development of community responsive schools, teachers, students, and curriculum throughout the nation.

WHY STUDENT VOICE MATTERS

Student voice is the measurement for our work. Our job is not to speak for them, it is to create spaces where their voice is valued, heard, and seen.

FEATURED PROJECTS

CRE

Community Responsive Education (CRE) was founded by Dr. Jeff Duncan-Andrade and Dr. Allyson Tintiangco-Cubales. CRE provides services for educators to begin and/or sustain the journey of becoming community responsive to their students, their students' families, themselves, and their colleagues. CRE has provided teacher development to nearly 60 districts across the nation. We have supported teachers, schools, and district leaders to use the lens of Ethnic Studies to grow their capacity and agency to become more responsive to the needs of students.

CRE is an organization that supports schools to close "knowing-doing" gaps in the areas of cultural and community responsiveness. We work to combine leading edge research across key fields (education, neuroscience, public health,

social epidemiology, child development, psychology) to make sure that teachers and school leaders are tapping into the best of the research that should be influencing practice. This part of our work helps to close the "knowing" gaps that remain in schools, particularly in those schools serving the nation's most vulnerable youth. However, what makes us particularly sought after in this work is that in addition to producing some of the most respected research in the field of education, our team is comprised of highly accomplished veteran classroom practitioners and school leaders. Our proven ability to blur the lines between research and practice positions us well to work closely with schools to move theory into practice--to close the "doing" gap. This is the crux of our work: making sure that schools have access to the best knowledge *and* the infrastructure and support to implement that knowledge in the best interests of children and families.

PIN@Y EDUCATIONAL PARTNERSHIPS

The Pin@y (Pinay/Pinoy) Educational Partnerships (PEP) is a service learning program that has created a "partnership triangle" between the university, public schools, and the community to develop this counter-pipeline that produces critical educators and curriculum at all levels of education and in the community. PEP's partnership triangle includes: Bay Area universities/colleges, San Francisco public schools, and the Filipino American Development Foundation (FADF). Uniquely, our counter-pipeline implements a transformative decolonizing curriculum and pedagogy, incorporating all grade levels including primary, middle, secondary, post-secondary, and graduate students. As volunteer teachers of the program, graduate and undergraduate students, from San Francisco State University and surrounding universities who are pursuing careers in education or community service, receive a unique opportunity to teach critical Filipina/o American studies. They gain skills in the practice of critical pedagogy, curriculum development, lesson planning, and teaching.

ETHNIC STUDIES CURRICULUM

Recent research studies reveal that Ethnic Studies classes in high schools have the potential to provide unprecedented results in the academic achievement of students of color. In 2016, a study conducted by researchers at Stanford University revealed that an Ethnic Studies pilot program at three San Francisco high schools produced remarkable academic benefits for "at-risk" students of color in the program. For example, the youth enrolled in the course improved their attendance improved by 21 percent, their grade-point averages jumped 1.4 points, and the credits earned increased by 23 for those who participated in the course.

Tintiangco-Cubales has been instrumental in the nationwide growth of Ethnic Studies by providing support for pre-service and credentialed teachers in curriculum and lesson plan development. She was also at the frontlines of activism and advocacy for the institutionalization of Ethnic Studies in SFUSD that have now resulted in the support for all schools in San Francisco to have Ethnic Studies courses and curriculum. PEP's courses that are offered K-12 provided a model for Ethnic Studies curriculum development.

PARTICIPATORY ACTION RESEARCH (PAR): YPAR, TPAR, LPAR

Participatory Action Research (PAR) has been a growing trend in social justice education (Cammarota, J. & Fine, 2009; Morell, 2008; Poon & Cohen, 2011). Youth Participatory Action Research (YPAR) "provides young people with opportunities to study social problems affecting their lives and then determine actions to rectify these problems" (Dimitriadis, 2008). Inspired by the framework and methods employed in PAR/YPAR, Tintiangco-Cubales has helped to develop LPAR- Leadership Participatory Action Research and TPAR- Teacher Participatory Action Research and while continuing to implement Youth Participatory Action Research (YPAR) in PEP. PEP's PAR practices provide educational leaders, teachers, and students opportunities to study and address social and educational issues they are confronted with and assist in the development of curriculum and pedagogies to improve teaching and learning.

ADDITIONAL RESOURCES

TFCU Talks: https://www.youtube.com/watch?v=2gbXr4diMjU
PEP Books: http://www.phoenixpublishinghouseintl.com/
Toward an Ethnic Studies Pedagogy: Implications for K-12 Schools from the Research: https://tinyurl.com/y64gc9wm
Into our hoods: where critical performance pedagogy births resistance: https://tinyurl.com/y2wfmeyf
Praxis and Power in the Intersections of Education: https://tinyurl.com/yxghcwf9

THOMAS S. DEE

Barnett Family Professor of Education
Stanford University

AREAS OF EXPERTISE

Education policy, quasi-experimental methods, economics of education

BIO

Thomas S. Dee, Ph.D., is the Barnett Family Professor at Stanford University's Graduate School of Education (GSE), a Research Associate in the Programs on Economics of Education, Health Economics and Children at the National Bureau of Economic Research (NBER), and a Senior Fellow at the Stanford Institute for Economic Policy Research (SIEPR). His research focuses largely on the use of quantitative methods (e.g., panel-data techniques, natural experiments, and random assignment) to examine innovative local practices and to inform contemporary policy debates. He currently serves as Faculty Director of the John W. Gardner Center for Youth and Their Communities. His recent studies have examined varied topics such as the effects of local immigration enforcement on students and schools, gender and racial equity in online learning spaces, and curricular reforms in the San Francisco and Oakland Unified School Districts.

WHY STUDENT VOICE MATTERS

Students' capacity to have voice in the classroom matters both because it promotes the capacity for critical reasoning and because it can catalyze belongingness, engagement, and motivation.

FEATURED PROJECT

Practitioners have long advocated culturally relevant pedagogy (CRP) as a solution to under-performance of students from underrepresented racial and ethnic groups. But the body of evidence on CRP has been almost entirely qualitative, making conventionally causal claims of its effect on student outcomes impossible, and divorced from consideration of the underlying psychological mechanisms. Tom posits that CRP uses many of the "active ingredients" that scientists have found to be particularly beneficial for students from underrepresented, marginalized social groups. For example, CRP may signal belongingness in the academic setting by affirming students' cultural identity in school and forewarning them about the pejorative effects of stereotype threat.

Dee and Penner (2017) report the first-ever study examining the causal effect of CRP (in this case, ethnic-studies classes) on ninth-grade academic outcomes. The researchers found large, positive effects of a ninth-grade ethnic-studies course targeted at academically at-risk students in San Francisco Unified School District. The program substantially improved key

predictors of graduation, including attendance, grades, and credit accumulation in ninth grade. Specifically, they found that credibly random assignment to this course increased ninth-grade student attendance by 21 percentage points, raised GPA by 1.4 grade points (the equivalent of moving from a C- to a B), and increased credits earned in ninth grade by the equivalent of roughly four courses.

In an early-stage project, Dee and colleagues are examining the *longer-run* impact of the ethnic-studies course on outcomes that include high-school completion and college readiness. Examining the longer-run effects of this innovative curriculum and pedagogy is critical for understanding the challenges of sustaining and building upon the near-term success of the program. Dee and Penner are also studying another innovative, culturally relevant program, the African American Male Achievement (AAMA) program in the Oakland Unified School District (OUSD). Within the context of a conventional course and a culturally relevant curriculum and pedagogy, the AAMA emphasizes broad academic mentoring including leadership and character development activities, peer-based supports, personalized guidance (e.g., transcript evaluation, college and career counseling), and field trips that emphasize culture and awareness of colleges and careers.

ADDITIONAL RESOURCES

Dee, T. S., & Domingue, B. (2019, September 4). Did a "Traumatic" Test Question Create Racial Bias?. https://doi.org/10.35542/osf.io/nx2cj

Dee T.S. and Murphy, M. (2018). "Vanished Classmates: The Effects of Local Immigration Enforcement on Student Enrollment," *American Educational Research Journal*, forthcoming.

Dee, T.S. "When police team up with ICE, it ripples into classrooms," *Los Angeles Times*, November 1, 2018. http://www.latimes.com/opinion/op-ed/la-oe-dee-ice-287g-schools-20181101-story.html

Baker, R., Dee, T.S., Evans, B., & John, J. (2018). "Bias in Online Classes: Evidence from a Field Experiment," with R. Baker, B. Evans, and J. John. CEPA Working Paper No. 18-03.

Dee, T.S. (2005). "A Teacher Like Me: Does Race, Ethnicity or Gender Matter?" *American Economic Review* 95(2), pages 158-165.

Dee, T.S. & Gershenson, S. (2017). "The insidiousness of unconscious bias in schools," Brown Center Chalkboard, Brookings Institution, March 20, 2017. https://www.brookings.edu/blog/brown-center-chalkboard/2017/03/20/the-insidiousness-of-unconscious-bias-in-schools/

Dee, T.S. & Penner, E. (2017). "The Causal Effects of Cultural Relevance: Evidence from an Ethnic Studies Curriculum," with Emily Penner, *American Educational Research Journal*, 54(1), 127-166.

DESMOS

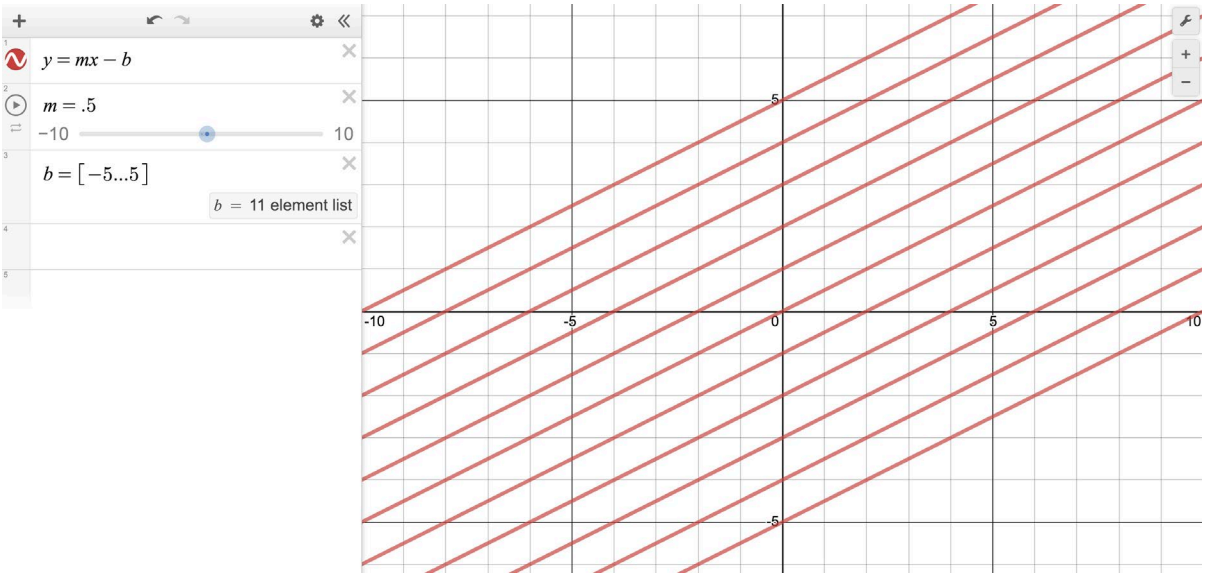
Desmos is a math education technology company headquartered in San Francisco, CA. We create tools and curriculum for students and teachers that connect them to each other and to mathematical ideas.

OUR MISSION

At Desmos, we're on a mission to help every student learn math and love learning math. We accomplish this goal by building delightful products used by tens of millions of students around the world.

WHAT WE DO

Tools. We create tools for exploring mathematical ideas like our graphing, scientific, and four-function calculators. These tools are all browser-based, mobile-optimized, accessible to students who are blind or vision-impaired, and cost nothing for students and teachers. We sustain our work through partnerships with assessment consortia, curriculum publishers, and other math education organizations.



Curriculum. We build supplemental and comprehensive math curriculum using digital media. We prioritize *creative* math experiences over *auto-graded* math experiences, and *socialized* learning over *personalized* learning. Computers allow us to elicit mathematical ideas from students and share them with classmates and teachers.

Our team is composed of technologists, designers, and former teachers, all working to change how students perceive mathematics and themselves as mathematicians.

OUR CURRENT PRIORITIES

Our highest priorities are:

- Creating a comprehensive middle school math curriculum.
- Supporting teachers in their professional learning.
- Decreasing financial barriers to learning math.

We are early in our production of a comprehensive middle school curriculum, one that is delivered using a mix of print and digital media, all emphasizing problem-based learning, all focused on creative and social experiences for students in math class.

Those experiences rely on strong teacher facilitation, on a teacher's ability to elicit, celebrate, and build on student voice. So we are also focused on the development of scalable teacher professional learning resources that support teachers in developing new capacities.

Simultaneously, we're working to decrease the high cost of secondary mathematics learning in the United States. We're developing partnerships with major assessment consortia to embed our tools in their digital exams, all so students won't have to buy plastic graphing calculators in order to participate in their math classes and achieve at the highest level.

OUR FOCUS ON STUDENT VOICE

In many math classes, students complete work that doesn't have any use for their brilliance or their voice. (A sheet of exercises, for example, isn't much of a conversation starter.) These experiences communicate to students that they are only valuable insofar as they can reproduce their *teacher's* voice and their *teacher's* ideas.

So we create experiences using computers that activate student wonder and curiosity, their impulse to question and predict, their desire to express themselves. Then we create tools and professional learning to help teachers celebrate and build on those expressions of student voice.

ADDITIONAL RESOURCES

Desmos.com	That's us!
Desmos.com/calculator	Our most popular tool.
Teacher.desmos.com	Our supplemental digital activities.
Learn.desmos.com	Tutorials and more information about our work.
Blog.desmos.com	Our writing about math, education, and technology.

NATHAN N. ALEXANDER

James King, Jr. Institute Visiting Professor
Division of Mathematics and Computational Sciences
Morehouse College

State Director
Georgia STEM Teaching Fellowship
Woodrow Wilson National Fellowship Foundation

Website: ProfessorNaite.com

AREAS OF EXPERTISE

Mathematics Education
Statistical and Mathematical Modeling
Social Networks and Graph Theory

BIO

Nathan Alexander, PhD, is the James King, Jr. Institute Visiting Professor at Morehouse College and the State Director for the Georgia STEM Teaching Fellowship. His primary research focuses on the cultural and psycho-social impacts of social networks and academic communities in mathematics teaching and learning. At Morehouse, Nathan teaches and studies the effective communication of mathematical ideas and concepts with the Communicating TEAMs Initiative (*Communicating* by **T**hinking **E**ffectively **A**bout **M**athematics). He is also a Mathematics Pathways Fellow with the Charles A. Dana Center at the University of Texas at Austin where he studies the transition students experience between secondary and post-secondary mathematics. He completed his PhD at Columbia University and he holds a bachelor's degree in pure mathematics, with a double major in sociology, at the University of North Carolina at Chapel Hill. He has taught mathematics in K-12, post-secondary, and adult education settings in the U.S. and with schools in Central America and the Caribbean. He enjoys backpacking and playing tennis.

WHY STUDENT VOICE MATTERS

We do not give students voice; we help them find their voice. When they find their voice in mathematics specifically, and education broadly, we expand the values of community.

FEATURED PROJECTS

Communicating TEAMs (Communicating by Thinking Effectively About Mathematics)
Nathan is the faculty leader of the Communicating TEAMs Initiative at Morehouse College. Communicating TEAMs is a campus-wide leadership opportunity for Morehouse students from every major across the College. TEAM leaders work collaboratively to generate innovative tools for communicating mathematical ideas, and they translate these ideas into

written, visual, verbal, & nonverbal forms for their peers. In doing so, leaders develop important professional skills and expand mathematical literacy across campus. TEAMs help prepare student leaders for a wide variety of professional careers and graduate study.

The Mathematics Teacher Project (MTP)
The Mathematics Teacher Project is an initiative that examines the social and political worlds of teaching and learning, with a focus on historical movements for literacy in the face of inequitable practices. In particular, the project connects Black men who teach mathematics across all grades, institutions and organizations. The Network engages Black men who teach mathematics in K-12, two-year and four-year colleges and universities, community-based programs, and in alternative and adult education programs, while also examining U.S. national data on Black teachers and studying their experiences.

ADDITIONAL RESOURCES

Alexander, N. N. (2019). Daija's awakening: Critical race theory and afrofuturism in mathematics education. In J. Davis & C. C. Jett (Eds.), Critical Race Theory in Mathematics Education, pp. 56-74, New York: Routledge.

Leong, K. E., Alexander, N. N. (2014). College students' attitude and mathematics achievement using web-based homework. Eurasia Journal of Mathematics, Science and Technology Education, *10*(6), 609-615.

Alexander, N. N. (2012). Choosing a college: Mathematical modeling using preference matrices. In H. Gould, D. Murray, & A. Sanfratello (Eds.), Mathematical Modeling Handbook: Vol. 1, pp. 39-48. New York: COMAP.

FRANCESCA LÓPEZ

Professor, Educational Policy Studies and Practice
University of Arizona

AREAS OF EXPERTISE

Asset-based pedagogy
Fostering critical awareness among educators
Latinx identity and motivation

BIO

Francesca López began her career in education as a bilingual (Spanish/English) elementary teacher, and later as an at-risk high school counselor, in El Paso, Texas. Her research is focused on examining how asset-based pedagogies promote identity and achievement for Latinx youth and has been funded by the American Educational Research Association Grants Program, the Division 15 American Psychological Association Early Career Award, and the National Academy of Education/Spencer Postdoctoral Fellowship. She is the founder and Director of the Education Policy Center at the University of Arizona, and one of the inaugural co-editors of the integrated *American Educational Research Journal.* López has collaborated with practitioners to develop practice-based professional development to foster asset-based pedagogy in K-12 settings.

WHY STUDENT VOICE MATTERS

"What I love most about my school is that it's really connected around here. It really brings out, like, the culture of anyone who's here." -- 5th grade student.

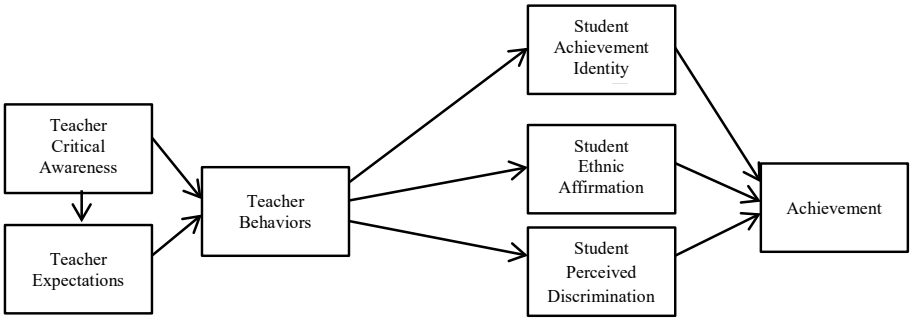
Students—particularly those from marginalized communities—often experience a lifetime of socially transmitted messages that reflect deficit-based assumptions about them and their communities. These deficit views of youth are perpetuated in instruction that ignores the depth of their insight and intellect. When educators become learners who ensure students' voices, perspectives, and experiences are heard and matter, they can build on students' assets in path-breaking ways.

FEATURED PROJECTS

Most educators have heard of self-fulfilling prophecies and can describe what they are. One of the reasons for this is that there is an extensive body of research that has added to our understanding about the ways teachers communicate their beliefs to students, how students perceive differential teacher behaviors, and the effects of teachers' beliefs and behaviors on students' identity and achievement. Despite the established presence of this

research in teacher preparation programs and licensure standards, marginalized students who face particularly onerous obstacles associated with poverty and prejudice continue to be underrepresented in a vast array of achievement outcomes.

In a separate body of literature, scholars have argued that there are unique competencies that are essential to the effective teaching of historically marginalized students. Among these competencies is asset-based pedagogy that views students' lived experiences as a strength, countering the more widespread view that inordinate achievement disparities stem from deficiencies in the child. Cumulatively, this research has demonstrated that teachers who have specialized knowledge (critical awareness—knowledge about sociohistorical/political influences on historically marginalized students) mitigate biased beliefs that inhibit their expectations, which in turn allow them to incorporate student voice in ways that promote students' identities and achievement outcomes.



Over the last 6 years, López has worked collaboratively with the Tucson Unified School District to carry out training on asset-based pedagogy across the district. Using a "train-the-trainers" model, she worked with district leaders and 20 expert teachers to help them learn more about asset-based pedagogy and develop the training. These coaches then went back to their schools and delivered the professional development and provided support to teachers. Consistent with her earlier research findings, student beliefs and achievement outcomes have markedly improved.

The next step is to examine how teachers (un)learn deficits and develop asset-based pedagogy in ways that emphasize student voice, and how teacher practices inform students' agency, curiosity, and self-direction.

ADDITIONAL RESOURCES

https://player.fm/series/leading-equity/asset-based-pedagogy-with-dr-francesca-lopez

Lopez, F. A. (2017). *Asset Pedagogies in Latino Youth Identity and Achievement: Nurturing Confianza*. Taylor and Francis. https://doi.org/10.4324/9781315692715

RACHEL D. GODSIL

Co-Director & Professor of Law
Perception Institute
Rutgers Law School

AREAS OF EXPERTISE

Identifying Interventions to Address Implicit Bias, Identity Anxiety, and Stereotype Threat

BIO

Rachel Godsil is Co-Founder and Co-Director of Perception Institute and Professor of Law and Chancellor's Scholar at Rutgers Law School. Rachel collaborates with social scientists on empirical research to identify the efficacy of interventions to address implicit bias, racial anxiety, and stereotype threat. She regularly leads workshops and presentations addressing the role of bias and anxiety associated with race, ethnicity, religion, and gender, focusing on education, criminal justice, health care, and the workplace.

OVERCOMING EDUCATOR SHUT DOWN WHEN TALKING ABOUT RACE

Determining how to address problematic instructor behavior and attitudes from k-12 to higher education and prevent them from undermining educational equity has long been a goal for educational institutions and researchers. A critical first step is for educators to be able to grapple with the role they may play in these outcomes for students of color – despite their belief in their own egalitarian attitudes and desire to support all students.

FEATURED PROJECT

The pursuit of educational equity for students of color has proven elusive. Data consistently confirms that in k-12, students of color are subject to harsher discipline and are less likely to achieve to their capacity. Similarly, in higher education, academic success as measured by grades and graduation rates differ along lines of racial and ethnic identity.

In the k-12 landscape, the racially inequitable outcomes lead many to conclude that teacher bias has been an important contributing factor – and as a result, school districts are beginning to require "anti-bias" trainings. Universities are also under pressure to engage in anti-bias work to address the race- and ethnicity-based obstacles experienced by students of color. A primary challenge for any workshop or training seeking to address the role of educator bias in student outcomes is that educators may become defensive and be resistant to engaging in the work.

For the past five years, Rachel and her colleagues at the Perception Institute have been conducting workshops with educators in k-12 and in higher education addressing the role that implicit bias, racial anxiety, and stereotype threat play in educational environments. The goal of these workshops is to share the many interventions that have been identified in the social

science literature as effective and to trigger internal motivation for instructors and institutions to apply these interventions in educational settings.

Contrary to the general perception that "anti-bias trainings" are experienced as either useless or incendiary, Perception's experience has been that schools and universities have been eager to engage in initial workshops. More importantly, we are frequently invited back to continue the work with the goal of translating the interventions into practices that are consistent with individual institutional culture and that teachers/professors can meaningfully incorporate into interactions with students.

The workshops are divided into four segments.

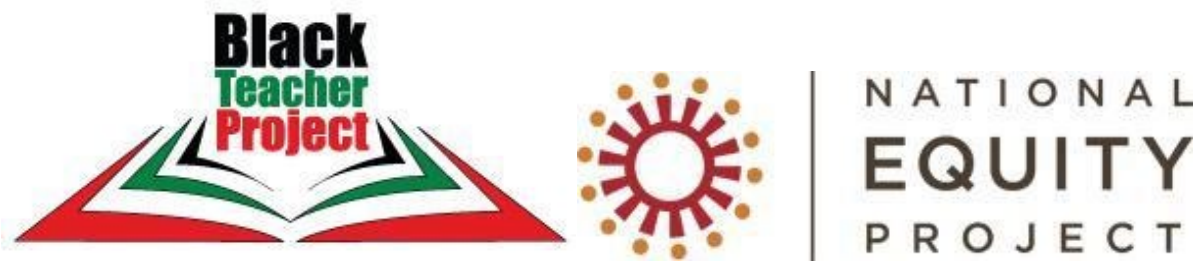
1. Affirming the goal of effective instruction and egalitarian mindset of participants and setting forth the argument that a combination of implicit bias, identity/racial anxiety, and stereotype threat are obstacles to achieving the goal and aligning behavior to values.
2. Engaging the group in an interactive experience of the "unconscious brain" at work with the express goal of addressing the skepticism participants may have that their behavior or decisions are at risk of deviating from their conscious beliefs and attitudes. We then engage in a discussion of the underpinning cultural stereotypes linked to identity groups and invite participants to examine the race/ethnicity/class composition of their own personal and professional networks. Because the vast majority of participants will have homogenous networks, they are able to recognize the potential power of cultural stereotypes.
3. Introduce the social science concepts of implicit bias, racial/identity anxiety, and stereotype threat and the studies supporting their effects in education – but also in healthcare, law, and other contexts to make clear that these obstacles/challenges are not unique to education. We also use personal stories and humor to ensure that the material is accessible.
4. Share interventions to "over-ride" implicit biases, and reduce/ameliorate the effects of identity anxiety and stereotype threat in educational settings with the opportunities to discuss and ideally practice applying the science. "Wise feedback" (Cohen, Steele & Ross, 1999; Yeager et. al, 2014) has been a particularly helpful intervention in workshops because it can immediately be put into practice by instructors.

We recognize that the positive reception of these workshops is not sufficient to establish efficacy. In related research, we are engaging in a multi-district analysis of the underlying mechanisms leading to racially-disparate outcomes in discipline and academic achievement with the goal of tailoring professional development and then testing the efficacy of the interventions using the baselines that have been developed in the original research.

ADDITIONAL RESOURCES

Godsil, R.D., Tropp, L.R., Goff, P.A., powell, j.a., & McFarlane, J., The Science of Equality in Education: The Impact of Implicit Bias, Racial Anxiety, and Stereotype Threat on Student Outcomes (2017) https://perception.org/publications/soe-education/

McFarlane, J., Godsil, R.D., McGill Johnson, A., Our Brains & Difference: Implicit Bias, Racial Anxiety, and Stereotype Threat in Education, CSEE Connections Quarterly, Summer 2016 https://perception.org/publications/our-brains-and-difference/



Every Child Deserves A Black Teacher

The Black Teacher Project is a program of the National Equity Project that is developing a Black teaching force to lead school transformation across the United States.

OUR MISSION

The Black Teacher Project (BTP) works to ensure that all children will have access to a well-prepared, well-supported Black teaching force. BTP sustains, recruits, and develops Black teachers for schools in the United States. Our goal is to create an effective teaching force that reflects the diversity of Black people in this country. We believe that Black educators offer indispensable insights into the lived realities of navigating schooling institutions, as well as the social structures of the United States. Therefore, every young person, regardless of racial or ethnic identity, can benefit from the influence of highly effective Black teachers in their life.

WHAT WE DO

We work nationally to offer racial affinity-based professional development for Black teachers in the areas of leadership, instruction, racial identity development and wellness. We also work with schools, districts and educational networks to shift their systems, structures and practices to retain and lift of the leadership of Black teachers. Much of our work has taken place in the San Francisco Bay Area and New York City.

Black teachers are essential. The gifts that Black teachers offer are not simply strategies; they go beyond a set of buzzwords that can be implemented. Instead, the empathy and vulnerability that Black teachers embody, in concert with culturally responsive teaching, push students in the direction of excellence. Research bears this out—Black teachers have higher expectations for Black students, who thereby perform better[1], and white students benefit from Black teachers by having a role model to form an affinity with[2]. Additionally, all students prefer Black and Hispanic teachers[3]—and

[1] https://www.educationnext.org/the-race-connection/
[2] https://tinyurl.com/y6ha4fsl
[3] https://journals.sagepub.com/doi/full/10.3102/0013189X16671718

with that sense of connection, Black teachers can take all students further down the road of learning.

Black people comprise approximately 12 percent of the population in the United States. However, Black people comprise only 7 percent of all teachers. In ten years, we aim to assist in significantly raising the number of Black teachers in the classroom from 7 percent to 11 percent. We believe that the first step to having more Black teachers is not only recruitment but retention of existing teachers and the development of school sites that are welcoming to Black teachers.

OUR CURRENT PRIORITIES

Since its inception in 2017, The Black Teacher Project has served over 500 educators across the country. We are currently expanding our work to support teachers in the Midwest as well as deepening our systemic partnerships across the nation.

OUR FOCUS ON STUDENT VOICE

A core practice in our racial affinity based professional development includes Black teachers engaging in learning partnerships with students. This involves students co-constructing what teacher success looks like. Teachers lift up student voice by making this work public and naming the feedback that students give them during their ongoing reflection with them.

ADDITIONAL RESOURCES

The Black Teacher Project: How Racial Affinity Professional Development Sustains Black Teachers https://link.springer.com/article/10.1007/s11256-018-0450-4 or https://tinyurl.com/y66x5p5m

SoBEO Black Educator Appreciation 2018 | Impact Award - The Black Teacher Project https://vimeo.com/277532761

To learn more, contact The Black Teacher Project's Director Dr. Micia Mosely at micia@blackteacherproject.org

www.blackteacherproject.org |1720 Broadway, Fourth Floor, Oakland CA 94612 | 510-318-3650

EQUIP www.equip.ninja

EMPOWERED TEACHERS, EQUITABLE CLASSROOMS

WHAT IS EQUIP?

EQUIP is a research-based, **customizable** classroom observation tool for tracking equity patterns in student participation.

We aim to **empower teachers with data** to build more equitable classrooms.

HOW DOES EQUIP WORK?

The EQUIP web app can be used in real-time or with videos of classroom teaching. After completing an observation, EQUIP generates instant analytics that teachers can use to improve their practice.

OUR CURRENT PRIORITIES

- **Professional Development**: Supporting K-16 instructors to reflect on and address implicit bias using cycles of action research
- **Pre-Service Teacher Preparation:** Building awareness among novice teachers of how implicit bias affects classroom teaching
- **Research in K-12 & Higher Ed:** Documenting patterns of equity and inequity at scale

TESTIMONIAL

It's really amazing to have a tool that you can use to measure things that you try. Homing in on my Latinx students has developed habits that I'll continue to apply beyond this research. And I don't think that, without the data, I would have developed those ideas as clearly as I have.

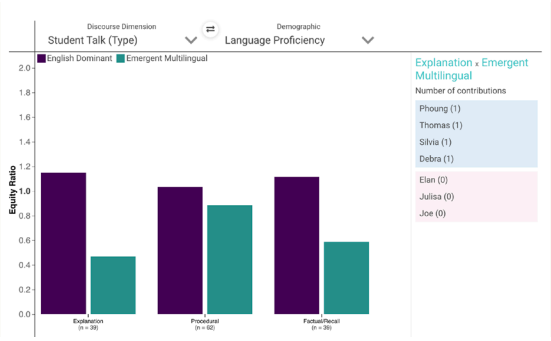
- 7th Grade Math Teacher

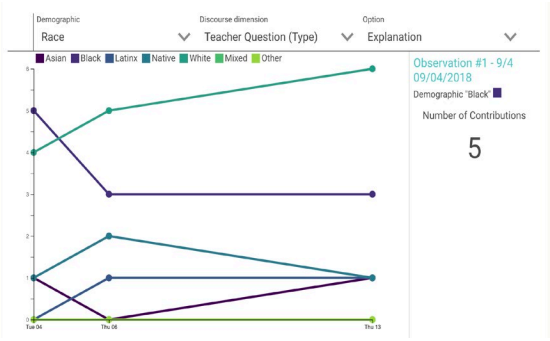
EQUIP

https://www.equip.ninja

OUR FOCUS ON STUDENT EXPERIENCE

The EQUIP web app generates dynamic, interactive analytics that provide insight into students' experiences in the classroom. Specifically: 1) the **quality** of students' learning opportunities; 2) **who** gets access to learning opportunities. EQUIP is **customizable** so coaches, administrators, teachers, and researchers can tailor EQUIP to their local contexts.





ABOUT THE EQUIP TEAM

niral@uw.edu

Dr. Niral Shah is an Assistant Professor in the College of Education at the University of Washington. His research has been funded by the National Science Foundation, Spencer Foundation, and the Institute of Education Sciences.

daniel.reinholz@sdsu.edu

Dr. Daniel Reinholz is an Assistant Professor in the Department of Mathematics and Statistics at San Diego State University. His research has been funded by the National Science Foundation and the Institute of Education Sciences.

SIDNEY D'MELLO

Associate Professor at the Institute of Cognitive Science and the Department of Computer Science

University of Colorado Boulder

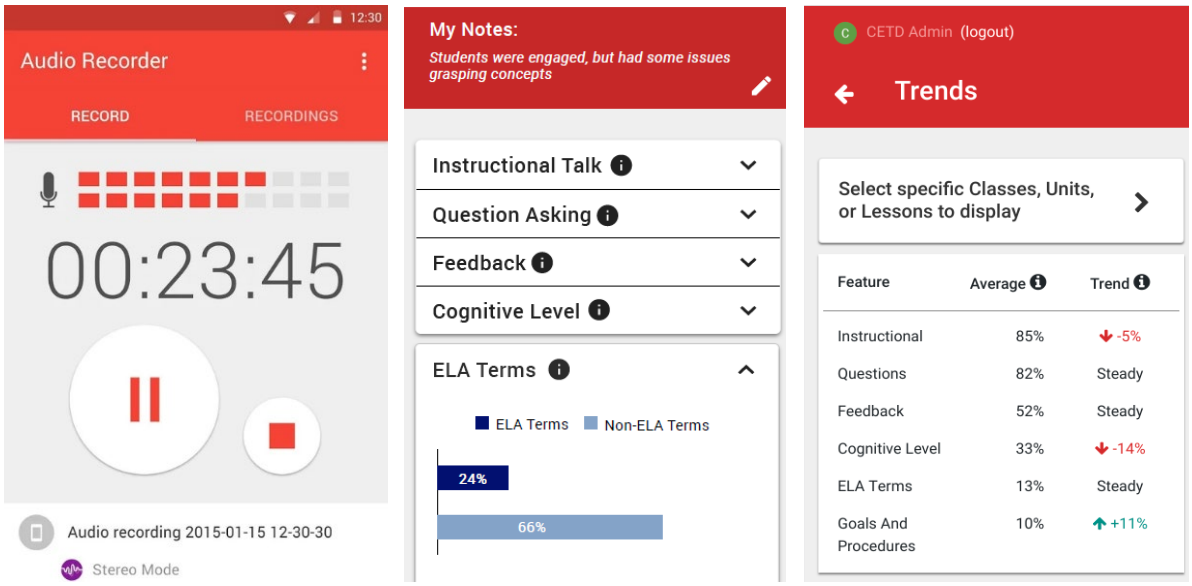
The Teacher Talk Project: Enhancing Teacher Practice by Providing Automated Feedback on Classroom Discourse

Like anyone, teachers need feedback to improve their practice. However, due to the high cost of human classroom observation, teachers receive infrequent feedback, which is often focused on evaluating performance rather than improving practice. The lack of frequent, objective feedback is a critical barrier to innovating teacher learning. Our goal is to provide teachers with detailed and actionable feedback at a fraction of the cost ($1.50 per one-hour class session compared to $16 to $126 for human observers), so they can improve their teaching via reflective practice, defined as thoughtfully considering one's own actions and experiences to refine one's skill.

Over the past six years, with funding from the IES and NSF, we have developed software tools that provide teachers with fully-automated feedback on multiple dimensions of teacher discourse (e.g., dialogic instruction, disciplinary concepts, challenge, connection) linked to student achievement growth in English and Language Arts classes. Our work includes the design of efficient, flexible, and scalable approaches for teachers to collect their own audio, which is analyzed using artificial intelligence techniques, including automatic speech recognition, natural language understanding, and machine learning. The end result is computer-scored estimates of key dimensions of teacher discourse, validated against expert human coders[1]. We have incorporated this automated feedback into an interactive visualization application, called the **Teacher Talk** app, which we co-designed with teachers. The app allows teachers to received detailed feedback as frequently as they choose, includes improvement tips, and a mechanism to track progress towards goals.

[1] Kelly, S., Olney, A. M., Donnelly, P., Nystrand, M., & D'Mello, S. K. (2018). Automatically Measuring Question Authenticity in Real-World Classrooms. *Educational Researcher*, 47(7), 451-464.

We are currently studying the impact of our automated approach on instructional improvement and student literacy outcomes. Our hypothesis is that frequent, immediate, and automated feedback on core dimensions of effective discourse will enhance the quality of teacher reflection, leading to improvements in practice, ultimately increasing student engagement and achievement.



Screenshots of Teacher Talk feedback app which allows teachers to record a lesson, receive automatic feedback, and track progress

We exist to improve human interactions.

We believe that targeted immersive practice in virtual reality unlocks human potential. Powered by a blend of artificial intelligence and live human interaction, Mursion provides immersive VR training for essential human skills. By using trained professionals who orchestrate interactions between learners and avatar-based characters, Mursion simulations achieve the realism needed to deliver measurable, high-impact results. Drawing upon research in domains such as learning science, artificial intelligence, and psychology, Mursion harnesses the best in technology and human interaction to deliver outcomes. Since 2014, Mursion has delivered over 50,000 simulations to learners across the United States. We partner with over 80 universities and districts to prepare pre-service K-12 teachers for the challenges of today's classrooms.

A wide range of techniques can be rehearsed in Mursion's VR simulator, including managing classrooms, working with children with special needs, practicing specific instructional routines relevant to a particular subject area, and leading difficult conversations. In VR scenarios, learners are immersed in realistic interactions that develop and reinforce neural pathways critical for turning new behaviors into habits.[1] VR simulations provide a safe place to practice interpersonal behaviors at an accelerated pace, receive rapid corrective feedback, and assess behavior.[2] Research indicates that learners can change interpersonal skills behavior after engaging in as few as four 10-minute sessions of VR simulation.[3]

We create spaces for supporting student voice.

When teachers learn how to provide opportunities for students to engage in a supportive setting, they carve out new opportunities for students to express themselves. We believe that immersive practice in simulation unlocks human potential, and educators can learn how to create inclusive environments that support belonging. Mursion scenarios provide opportunities for *approximation of practice,* giving candidates opportunities to "try out" parts of teaching in lower-stakes, supportive settings[4], so they can recognize and create inclusive learning environments. For example, in partnership with Educational Testing Service and funding from the National Science Foundation, Mursion has created a series of simulations for elementary mathematics and science teachers to practice supporting classroom discussion by stepping back to listen, moderate and facilitate students' interactions, while ensuring that the content under discussion is represented accurately.[5]

Our partners identify and share best practices.

Our goal is to help academic institutions adopt best-in-class practices for integrating simulation into coursework, so candidates have varied opportunities for applied learning. We are currently seeking partners interested in developing, field testing, and delivering scenarios that allow educators to practice a growth mindset and inclusive practices for all students. Our network of 80+ teacher education institutions uniquely situates Mursion to be a knowledge broker by disseminating research-based, high-quality simulations to our partners.

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[1] B. Andreatta. Wired to Grow: Harness the Power of Brain Science to Master Any Skill. (2016). Santa Barbara, CA: 7th Mind Publishing.
[2] L. Dieker, C. Straub, C. Hughes, M. Hynes, and S. Hardin, "Learning from Virtual Students," *Educational Leadership* 71, no. 8 (2014): 54-58.
[3] L. Dieker, C. Hughes, M. Hynes, and C. Straub, "Using Simulated Virtual Environments to Improve Teacher Performance," *School-University Partnerships: Technology to Enhance PDS* 10, no. 3 (2017): 62-81.
[4] Grossman, P., Hammerness, K., & McDonald, M. (2009). Redefining teaching, re-imagining teacher education. *Teachers and Teaching: Theory and Practice, 15*(2), 273-289.
[5] Mikeska, J., Howell, H., & Straub, C. (Under review). Designing and Using Performance Tasks within Simulated Environments to Assess Teachers' Ability to Engage in Coordinated, Accumulated, and Dynamic (CAD) Competencies. *International Journal of Testing*.

Mursion's targeted simulations change performance.

In a seminal research study funded by a leading foundation, researchers found that after four 10-minute professional learning sessions in the simulator, teachers significantly outperformed their colleagues in targeted teaching behaviors in the classroom[6]. When surveyed about the authenticity of the VR simulations, over 90% of the teachers agreed that the avatars accurately represented the kinds of students that existed in their classrooms. In addition, research conducted at Duke University using Mursion VR simulations compared interactions with avatars to those of professionally trained, live actors in a randomized controlled trial with 60 learners.[7] Researchers found no significant differences between groups on a biological measure of stress reaction, indicating that avatars can evoke similar emotional responses to humans. Results from these studies suggest that professional learning in VR simulations can successfully impact professional practice.

Lifelike avatars operated by humans combine the engaging features of face to face communication with the anonymity of online environments. Research suggests that interacting with other humans via avatars provides a level of privacy which results in increased self-disclosure.[8,9] This phenomenon has long been evidenced online on email, chat, and message boards, where it is theorized that people are less inhibited using technology-mediated communication, because they are removed from face to face social interactions.[10] In a groundbreaking study investigating how humans interacted based on varying technology-mediated communication channels, Bailenson investigated three different conditions: a) audio only, b) audio and videoconference, and c) audio and avatar. The results demonstrated that people disclosed more information to avatars than with humans in the video conference, both verbally and nonverbally.[11] Further, people in the videoconference were perceived as less revealing, honest, and friendly than avatars. Researchers indicated "…Avatars may be extremely useful for introverted students talking in front of a class in a distance learning scenario, patients interacting with a virtual therapist, and many other applications in which people interact with avatars in highly self-relevant and personal situations" (p. 370).

In partnership with Educational Testing Service, Mursion designed and delivered a series of VR simulations to pilot a new assessment for teacher licensure. Scenarios focused on leading a classroom discussion and eliciting student thinking related to content. The pilot was administered at 26 test centers across 9 states over a period of 13 weeks, and over 4,380 simulations were delivered. Of particular interest to researchers was the extent to which the simulation delivery was affected by the specialist orchestrating the moves of the avatar. In the case of assessment, the goal is to have consistent avatar performance so that a test taker does not receive more or fewer opportunities to respond, biasing the test taker and invalidating test results. Researchers found that simulation specialist performance was not a significant contributor to variance in participant scores, suggesting that in potentially high stakes assessment, VR simulations can be delivered consistently at scale.

Mursion's modern learning experiences harness today's technology to create real behavior change. We believe that immersive practice in VR simulations unlocks human potential, and a new era is emerging in which learners can rehearse and perfect the manner in which they interact, resulting in educators who deliberately create inclusive environments.

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[6] L. Dieker, (2017). *Ibid.*
[7] S. Compton, A. Nagendran, et.al., "Delivering Bad News".
[8] Bailenson et al. (2006). The effect of behavioral realism and form realism of real-time avatar faces on verbal disclosure, nonverbal disclosure, emotion recognition, and copresence in dyadic interaction. *Journal of Presence: Teleoperators and Virtual Environments, 15*, 4, August 2006, 359 - 372
[9] Kang, S. & Gratch, J. (2010). *Ibid.*
[10] Dubrovksy, V. (1985). Realtime computer conferencing versus electronic mail. Proceedings of the Human Factors Society, 29, 380-384.
[11] Bailenson, (2006). *Ibid.*

UNIVERSITY OF TEXAS RIO GRANDE VALLEY

The University of Texas is a Hispanic Serving Institution (HSI) in Deep South Texas with an R2 Carnegie classification (Doctoral Institution – High Research Activity).

OUR MISSION

The University of Texas Rio Grande Valley's (UTRGV) mission is to transform the Rio Grande Valley, the Americas, and the world through an innovative and accessible educational environment that promotes student success, research, creative works, health and well-being, community engagement, and sustainable development.

OUR CONTEXT

UTRGV is a distributed campus spanning approximately 150 miles from Brownsville to Rio Grande City in Deep South Texas. We are ranked as one of the Top America's Best Value Colleges by Forbes and ranked first in Texas (17th nationally) for social mobility by U.S. News & World Report. In addition, we were ranked first nationally in affordability and first among Texas universities for the performance of our first-generation students and 2nd for the performance of our Pell Grant students by Washington Monthly 2018.

Our geographic location has fostered a vibrant bond, rich in history and culture, with Mexico, particularly along the border. Through reciprocal relationships with our close neighbor, we provide an educational experience that is responsive to the strengths and needs of a diverse group of learners, many of whom have ties on both sides of the border. We benefit from the opportunities available to communities with permeable borders that allow for the exchange of ideas and individuals. As a result, we serve as a model for other communities and institutions that seek to provide equitable educational opportunities for our growing Hispanic population as well as binational collaborations in research and creative works.

WHO WE SERVE

UTRGV is one of the largest HSIs in the nation, serving over 29,000 students, 89% of whom identify as Latinx.

OUR CURRENT PRIORITIES

UTRGV is guided by five core values:

- Student Success
- Educational Opportunities
- Research Impacting the Rio Grande Valley & Beyond
- Health & Medical Education
- Community Engagement

Student Success is central to all we do and is focused on what it means to be an HSI beyond simply enrolling and/or graduating large percentages of Latinx learners. We believe an HSI designation demands attention to the whole student from an ecological perspective that examines and attends to the student within his or her immediate environment, recognizes family as a partner in the education of the child, and utilizes social and cultural values and diverse ways of knowing to inform instruction.

OUR FOCUS ON STUDENT VOICE

The College of Education and P-16 Integration began a research initiative focused on what it means to be a Hispanic Serving College of Education (HSCOE)—one in which most pre-service teachers identify as Latinx and the majority of whom will be teaching in Hispanic Serving School Districts. Through collaborative, interdisciplinary special interest research groups faculty, students, and community members have explored what it means to be an HSCOE. This work has yielded four cross-cutting themes that permeate the essence of serving Latinx learners: an ethic of care; an ethic of community; an ethic of inquiry; and an ethic of agency. Each acknowledges the assets of our students and the community we serve. More importantly our work engages students in meaningful, relevant work that fosters student input and leadership in issues pertinent to their own learning and our community leading to social change.

ADDITIONAL RESOURCES

UTRGV Tuition Advantage https://www.utrgv.edu/newsroom/2019/09/13-utrgv-program-offers-help-for-students-struggling-with-addiction.htm

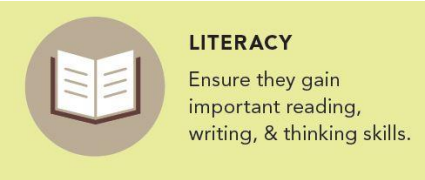
Transforming Our World funded Projects https://www.utrgv.edu/strategic-plan/resources/17-18-awarded-proposals/index.htm

Project Based Learning https://www.utrgv.edu/cte/resources/project-based-learning/index.htm

Opinion: These 10 solid U.S. colleges prove you don't need Harvard or Yale to achieve the American Dream https://www.marketwatch.com/story/these-10-solid-us-colleges-prove-you-dont-need-harvard-or-yale-to-achieve-the-american-dream-2019-09-20?mod=opinion

Baltimore City Public Schools

At Baltimore City Public Schools, we believe that if our students are recognized as **whole people**; gain important **reading, writing, and thinking skills**; and are supported by **strong teachers and leaders**, they can succeed in school and beyond. One of our top priorities is to collaborate with families and make them engaged partners in learning and informed advocates for our students. These three strands make up our Blueprint for Success – how we will accomplish our goal that every student succeeds.



Baltimore City Student Voice

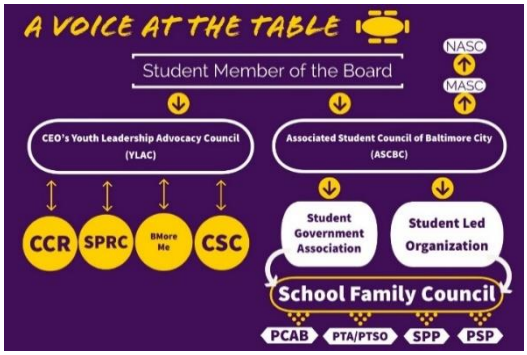
Student voice is rooted squarely in City Schools' Blueprint for Success. We know that students who are engaged and have a sense of belonging are more likely to succeed in school, and that having a voice and choice in the school is essential to being engaged. At Baltimore City Public Schools, we are working to ensure that student voice is infused in our curriculum and in learning opportunities for students. We also recognize that students are the most important stakeholder we serve in the district. All too often, students' voices aren't part of critical decisions that directly impact their lives, and we lose the valuable perspective that they bring to the table. We have created several opportunities for students to engage in the district and to influence policy decisions at every level. Lastly, we are working to break down the walls that separate the classroom and the city. We have created a variety of opportunities for students to learn from the city and to lend their voice to influence policy and highlight the power and greatness of Baltimore.

Youth Up Next (YUN)

Youth Up Next is the district's engagement strategy to highlight and support student voice, literacy, and leadership in schools, the district, and city. Some key initiatives include:

<u>YUN Pop Ups</u>: YUN Pop Ups focuses on one of the three Blueprint for Success core principles. YUN programmatic initiatives involve educating, engagement, discussion, and student recognition, which are tailored specifically to each schools' priority around climate, culture and most importantly student population's voices and needs. After each YUN Pop Up, student participants are charged with understanding the roles and responsibilities of embodying the #YOUthUpNext mantra.

<u>Power of Youth Voice Summit:</u> This summit focused on highlighting and uplifting existing spaces, programs, and opportunities for young people to voice their ideas and concerns. Held in conjunction with the district's annual Back to School night, the summit provided a platform that values student voice, shared perspectives, and encouraged youth leadership and decision-making



power. There will be culminating youth summits and convening to further raise awareness and prompt student and youth decision making power.

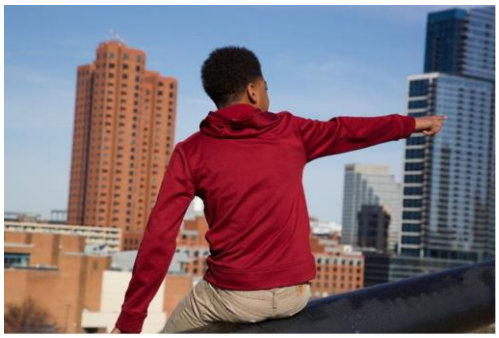
CEO's Youth Leadership Advisory Council (YLAC): The CEO's YLAC is a youth advisory council that twice a month and meets bi-monthly with the CEO. The Council has four subcommittees that provide strategic advice and feedback on College and Career Readiness, BMore Me engagement, School Police Report Card and Community Schools, and much more.

BMore Me

BMore Me is a dynamic student engagement and enrichment initiative connects student learning to the rich history, legacy, and realities of Baltimore – and to students' own identity and futures. Some key features include:

BMore Me Curriculum: BMore Me curriculum lives in social studies classes grades 6-11. The BMore Me units, which is about 15 lessons, are grounded in both social studies and literacy standards and use inquiry-based learning around a compelling question to bring Baltimore squarely into the social studies content. The units' content builds off each other, as students evolve from exploring ideas about their own values and identity to examining the identity of Baltimore and the city's impact on the nation and world. Additionally, each project has an arts-integrated extension that teachers can use to enhance student learning and offer an artistic way to express their learning.

BMore Me Speaker Series: The BMore Me Speaker Series are a series of three or four panel discussions over the course of the school year, held at schools in different regions of the city and open to students beyond the host school, and streamed so that all students can watch and participate virtually. The panels will feature expert Baltimoreans who can enhance students' exploration during the BMore Me unit. The panels will focus on topics related to the BMore Me curriculum.



BMore Me Student Showcase: The BMore Me Convening will bring students from various schools to share their talents and learning work with families, community members, and experts in our community. This is an opportunity to empower students and amplify their voice in our city, and to highlight the incredible talent and accomplishment that Baltimore youth possess.

BMore Me Club: The BMore Me Club will be piloted in a small number of middle schools. The club will pair a mentor or mentors, depending on the size of the group, with students who opt-in the club. We will leverage partnerships with the community so that students and their mentors can meet experts in various interest areas to explore ideas of identity and expression in the Baltimore context.