



CONFERENCE PROCEEDINGS

The Eighteenth Annual Diversity Challenge

**Making Race and Culture Work in the STEM Era: Bringing all
People to the Forefront**

October 19-20, 2018

Boston College, Chestnut Hill, Massachusetts

Diversity Challenge Committee:

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Sponsored by: The Institute for the Study and Promotion of Race and Culture
Carolyn A. and Peter S. Lynch School of Education

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Invited Speakers / Keynote Workshops

Moving beyond Dehumanizing Practices to Teaching toward Equity in Mathematics

Lillie Albert, Ph.D.
Boston College

STEM Education as a Strategy for Urban Renewal

Erika Bullock, Ph.D.
University of Wisconsin- Madison

Good Medicine: Training Physicians in a Climate Committed to Equity and Social Justice

Patricia Poitevien, MD, MSC
Brown University Medical School

Bullying and Other Barriers to Diversity in STEM

Darren Ranco, Ph.D.
University of Maine

Racial Bullying and Intervention in the Workplace

Ivan Wu
University of Texas MD Anderson Cancer Center

How Race Matters in Organizations: What You Do Affects Recruitment, Retention, and Productivity

Carlton Green, Ph.D.
University of Maryland

Janet E. Helms, Ph.D.
Boston College

Addressing Mental Health and Systemic Barriers: Accompanying Students of Color Along their Educational Journey

Kevin Henze, Ph.D.
Regis College and US Dept. of Veteran Affairs

Marcia Liu, Ph.D.
CUNY – Hunter College

Vanessa Prosper, Ph.D.
Boston Latin School

Anmol Satiani, Ph.D.
DePaul University

INDIVIDUAL PRESENTATIONS

Youth Success STEM-ing from the Arts: A Case for Urban Arts Programs

Organized activities are critical contexts for positive youth development, affording youth opportunities to build assets, skills, and social capital. Research suggests that arts-based programs may be particularly beneficial for racial/ethnic minority youth in urban communities, providing opportunities to engage in prosocial activities, develop identity, and forge strong ties with adults (Stinson, 2008). In addition to teaching art-related competencies, program staff may provide mentorship, especially in economically-disadvantaged districts with high teacher burnout and scarce program funding. This presentation will highlight the relationship between arts and STEM, and explore how arts programs can serve as unique contexts for youth to cultivate skills that facilitate educational and career advancement. Considerations for how specific programs can promote skills relevant to STEM careers will be presented.

Kirsten Christensen
University of Massachusetts Lowell

Building STEM Literacy: Using the living laboratory to bridge culture, context, and STEM in the USVI community

After two unprecedented Category 5 hurricanes in September 2017 in the USVI, educational outreach initiatives must incorporate the lived experiences of students and community members whose lives have been altered by these disasters (Redden, 2017), and who need high levels of science literacy as their communities rebuild. The UVI-EPSCOR Educational Outreach (EO) component engages the community through activities to educate the public on STEM content indigenous to the islands and/or relevant to its preservation. The current proposal unpacks programmatic processes in developing both culturally relevant community efforts that meld culture, context, and STEM content, and our challenges in measuring success. Emergent themes and lessons learned will be discussed as culturally relevant pedagogy is translated from the classroom to the community.

Lawanda Cummings
Resa Berkeley
Nicolas Drayton
University of the Virgin Islands

Competent but Confused: The Unclear Path to STEM Success for Black Female Students

Research suggests that the underrepresentation of women and students of color in STEM careers is the product of contextual and psychological factors that shape academic and career choices before college (Perry et al., 2012). Gender disparities in STEM careers are driven by socio-cultural factors rather than a lack of capacity or intellect among women (Hill et al., 2010). Using comparative analysis, STEM and Non-STEM African American women's within-group differences associated with general academic and domain specific self-efficacy. T-test analysis of baseline data revealed significant differences between STEM and NonSTEM majors in domain specific self- efficacies (Math: $t(76) = 2.12, p < .05$ and Science: $t(76) = 2.17, p < .05$). Additional analysis of focus groups elucidates some challenges within students 'paths for success' pursuing STEM degrees.

Lawanda Cummings
University of the Virgin Islands

Tantiana Burns
Claflin University

Utilizing STEM Funding to Develop Graduate Counseling Students

Graduate counseling degrees can benefit from funding previously reserved for traditional STEM degrees. This presentation discusses a model that has been utilized by the State University of New York (SUNY) College at Old Westbury to access STEM funding for the development of counseling students. The utilization of STEM funding and the bridge between the undergraduate psychology program and the graduate mental health counseling program are discussed. Student outcomes are integrated into the discussion to provide concrete examples of utilization and results. Finally, considering counseling as a science that firmly belongs in the STEM fields are discussed.

Marty Cooper
Seojung Jung
SUNY Old Westbury

Japanese College Students' Assumptions about Race and Racial Categories: Implications for Teaching

To teach the subject of prejudice and discrimination effectively, it is important to first understand what kind of assumptions students have about racism and racial categories. Over 400 reaction papers by Japanese college students at a mid-sized private university in Japan that responded to the question "Indicate whether you agree with the statement 'The category of White is necessary in the United States'" were analyzed using content and thematic analyses. Results showed that Japanese college students revealed that students incorrectly assumed that the existence of "racial categories" was the main culprit of racism, tended to only

imagine “affective” impact of oppression, and lacked the analysis of institutional and cultural oppression. Implication for teaching based on these findings were discussed.

Makiko Deguchi
Sophia University
Rie Mizuki
Fukushima Medical University

Power, Identity and Parental Involvement for Black Girls in STEM: An Autoethnographic Perspective

An autoethnographic perspective as a tool within the phenomenological framework on parental involvement/advocacy for Black girls in STEM (Science, Technology, Engineering, and Mathematics) invites us to examine the intersectionality between talent, underrepresentation and parental involvement/advocacy. The autoethnographic account will encapsulate frustrating and vulnerable moments as a parent of two Black daughters in a Midwestern school. The story of complexities facing a parent of color in a predominantly White school district will produce an undeniable story of the need for parental involvement and advocacy for children of color in a system that upholds underrepresentation of Black girls in STEM courses and related activities. Understanding that each journey is specialized, this study will explore historical perspectives from two parents (i.e., a mother and daughter) with varying college education and their lived experiences. The study will ruminate on the social and historical culture of Black girls interested in STEM, and evaluate how parental involvement and advocacy assist with combatting the social injustices preventing these students from considering and entering STEM fields. It will seek to answer the questions: How do we as parental units get involved and advocate for equity and access for Black girls in a leaking STEM pipeline?

Nneka Greene
Regent University

Experiences of racialized emotional socialization for WOC in STEM at a PWI

Asian and Asian-American women in their undergraduate studies at a PWI in the Midwest in STEM fields inspired this investigation into their the perceptions and experiences of discrimination and the ways in which their emotions have been socialized in discriminatory encounters in the presence of their White counterparts. Fifteen in-depth interviews by volunteers were transcribed verbatim, and the transcriptions were analyzed using conventional content analysis (Hsieh & Shannon, 2005) to identify frequent and notable themes. The following major themes emerged from the data analysis: (a) racialized emotional regulation in coping (b) nationality and its effects on coping, (c) development as a WOC in STEM, and (d) avoidance/numbing for success.

J.Y.Cindy Kim
University of Iowa

Challenging Anti-Buraku Discrimination: Examining the Effects of a Human Rights Education Course

Discrimination against the Buraku is one of the most persistent social problems in Japan. Despite change in legal status and government programs to redress past discrimination, Buraku continue to suffer from discrimination in areas such as education, employment, and marriage. The Buraku Liberation and Human Rights Research Institute has been offering an intensive educational program on discrimination and human rights issues since 1974. To examine the effects of the program, a survey was administered to participants before and after the program and their scores were compared for analysis. Results showed that the participants' knowledge on discrimination was increased, prejudicial attitude was decreased, as expected by the program organizers, while discriminating behavior was increased. Future research implications were discussed.

Rie Mizuki
Fukushima Medical University

Makiko Deguchi
Sophia University

Engagement in STEM and Exercise to Promote Learning for Minority Youth

A different perspective is needed to answer the diversity challenge of making race and culture work in the STEM era. This proposal will utilize a structured discussion in the interest of generating a conversation on this multifactorial piece. The overarching theme of this presentation is inquiring how best to involve school aged children in STEM learning. Engagement in STEM and physical activity interestingly decline at around the same age. The presentation will first discuss the benefits of physical activity on cognitive development in this specific age group and an exploration of the benefits of a STEM and PA integrated curriculum will follow. Finally, a dialogue on engaging youths of diverse backgrounds in STEM learning through involvement in physical activity is introduced.

Patrice Faith Olivar
Christina E. Nikitopoulos
Ivy K. Ho
University of Massachusetts Lowell

Putting STEM into Racially/Culturally Diverse Classroom Cultures through Culturally Responsive Approaches

Culturally-situated STEM instruction (Gay, 2000) is an entry point for meaningful instruction that meets the perspectives of racially diverse students because STEM is situated in cultural realities of students. This research answers, how do we effectively impact the instructional practice of White educators so that they employ the tenets of culturally responsive teaching with their racially diverse students? Over a two year

period, analysis of teachers' reactions to leading research on culturally responsive teaching (Gay, 2000, Ladson-Billings, 1994) was conducted. As a professional learning community, we identified practical ways in which teachers might "empower" and "validate" the cultural realities of their students and thus "transform" (Gay, 2000) their own thoughts & challenge the status quo of the faces of STEM.

Tiffany Powell
Kelly Grindstaff
Sybillyn Jennings
Rensselaer Polytechnic Institute

Busting up Bias: Quantifying Implicit Bias in the Springfield College Community

Implicit bias is an automatic preference for one group of people over another without conscious thought. Understanding that subconscious bias exists is important as it may affect interpersonal relationships. Our goal was to educate ourselves and our fellow students about implicit bias. In an attempt to quantify and pinpoint implicit bias on the Springfield College campus, the SEED Club administered the Project Implicit test that was developed by Harvard University. Participants took the Race Implicit Association Test as well as the Gender-Science Implicit Association Test. Participants were given a debriefing form with information regarding implicit bias and sources of additional support and information. We summarized and analyzed the data for relationships between implicit bias patterns and demographic variables.

Gillian Power
Megan Klein
Lauren Szczesny
Alex Cobb
Marissa Moquin
Elsie Hernandez
Springfield College

Research Skills Boot Camp: Community College to STEM Career & Beyond for Underserved Minorities

The lack of research skills disadvantages community college students of color in STEM when they compete for summer research opportunities as compared to their counterparts at four-year institutions. These students are at continued disadvantage when accepted because much of their time is spent training in basic research techniques. To mitigate the impact of these realities, STEM students at Richland College received research skills training prior to applying to summer research programs. Acceptance rates increased for students from the research boot camp. This outcome suggests that STEM students of color who participated in the Research Skills Boot Camp achieved competitive parity for summer research positions.

Dwight Randle
Jill Buettner
Richland College

Urban Ecosystem Project: Promoting Authentic Science Among Diverse Youth Through Mosquito Biology

The Urban Ecosystem Project serves two urban neighborhoods in Des Moines, Iowa, through an after-school program and a summer camp that integrates an inquiry-based curriculum focused around mosquito biology, public health, and diversity. The project trains pre-service and in-service teachers on how to create culturally responsive, inquiry-based science lessons. The after-school program and summer camp has not only provided opportunities for students to increase their self-efficacy in science by using authentic inquiry and resources, but has also provided a safe, positive space for students to build cross-cultural relationships. The preservice teachers will use their experiences with student-centered science methods and culturally-responsive teaching in classrooms of their own to make race and culture work in their future STEM education efforts.

Stephanie Schneider
Iowa State University

Science Identity Beliefs of Students Who Are Underrepresented in STEM, Assessed Two Ways

The Visual Test of Science Identity provides a way to assess the stereotypes that people of all ages hold as to who can (and by contrast who cannot) be a scientist, considering the variables of gender and ethnicity/race. Alongside the VTSI a new assessment of students' science identity was administered. This study contains three samples, adults (n=162, VTSI only), children (n=42, VTSI only) – for whom we found a bias: males chose images of men more than females chose women – and middle-school students (n=115, VTSI & verbal) for whom the relationship between the VTSI and a new verbal assessment of science identity will be presented here for the first time, with a particular concentration the beliefs of students of color.

Amy Semerjian
Boston College

Passion Academy: Empowering Middle School Students of Color in Predominately White Schools

As a result of significant achievement gaps, lack of diversity in teachers and staff, and lack of programming for students of color in predominately white school districts, the Passion Academy was developed. Administered by Iowa State University faculty and staff of color (n=41), it is a volunteer-based program, provided to 6th and 7th grade students of color (n=50). Students meet once a week during their lunch periods. Faculty/staff share their career journey, offer tips on navigating “white space”, and provide a professional skill lesson. Because of the program, students exhibited better professional skills, more confidence in the classroom, and greater passion for academics and careers. The school district and university developed new partnerships to provide more programming options.

Angela Shaw
Ellen Johnsen
Iowa State University

Using MI (Multiple Intelligence) to Teach Minority Students

A child's educational experiences are shaped by the communities in which they live and schools, alone, cannot correct the historic realities that have left boys of color underserved and vulnerable. Before we can work towards closing the achievement gap for our students, we need to think outside of the box and work together as adults. In this workshop model, we are going to use the MI theories to help teachers, students, and parents understand their abilities. MI help minorities students build up confidence and self-esteem to use their strengths to address their weakness, also, it motivates students to find out where their interest and strength lies and push their abilities further. MI theories help shape and reinforce what and how a child is taught in a classroom. We cannot continue to work and teach minorities students in isolation, the MI theories will help to impact these learners. This workshop will offer concrete ideas for increasing teacher, student, and family engagement, and tips for building collaborations between school and home. Conclusions Participants will join in a lively solution-focused dialogue.

Carlos Swaby
Michael Batt
Cambridge Public Schools

WORKSHOPS

Fostering Culturally Affirming Clinical Supervision in the Workplace: Enhancing Transformative Dialogue in the Supervisory Dyad

This presentation will provide a framework for clinical supervisors to use in the workplace when supervising people with varying intersectional identities (i.e. race, culture, gender, gender identity, etc). Because of these nuances in diversity, power and privilege, isolation is one of the most challenging aspects of being a woman and/or a minority in STEM. Identification and removal of systemic bias from our processes as clinical supervisors ensures we can drive inclusion and equality in our workplace environments. In addition, the presentation will utilize empirical research (i.e. conducted by the researchers/presenters) on clinical supervision in the workplace with underrepresented groups combined with the latest electronic polling service system to teach participants how to incorporate electronic surveys/apps to enhance critical discussion during and following clinical supervision in the workplace.

Wendy Ashley
Allen Lipscomb
California State University, Northridge

It's a Family Affair: Using Family Book Clubs as Spaces of Literacy and Liberation

The purpose of this workshop is to introduce participants to a family book club model being offered in the Boston area. This book club has several objectives:

- To offer powerful counternarratives to prevailing stereotypes about African descended people
- To expose youth and families to a wide variety of literature written by African American authors
- To encourage reading as a family activity and to activate important discussions around topics such as identity, race, and social justice
- To promote reading as a pleasurable activity in addition to improving literacy skills
- To create a community space for African American families to safely gather to discuss literature that touches upon issues relevant to the community
- To provide literacy support to families

In this workshop, we will discuss how we plan for and facilitate a typical book club. This will include activation activities, discussion questions, and how to use wraparound texts for all ages. Participants will be given an opportunity to create their own wraparound list from their favorite text.

Nicholl Montgomery
Boston College

Monique Harris
Cambridge Public Schools

Cultural Sensitivity in Recruiting and Supporting Minority STEM Students

As of the 2016 United States Census, the African American and Hispanic communities continue to represent the largest minority groups in the United States. Nevertheless, research continues to suggest that students from these minority groups remain underrepresented in many fields of academia, including STEM. The goal of this workshop is to expose the audience to the cultural factors that affect the recruitment and retention of African American and Hispanic students. Specifically, this workshop includes topics such as mental illness among students of color, cultural factors involved in mentoring, and how these students experience ethnic discrimination. Through this presentation, participants will learn to identify racial discrimination, strategies for engaging students from minority backgrounds, and the opportunity to reflect on their own cultural awareness.

Jan Owens-Lane
Sita Nadathur
University of Hartford

Digital Narratives and Storytelling: Engaging Technology, Culture, and Content

Students of color (Black/Latinx in this case) are underrepresented in STEAM fields for myriad reasons. One of the central reasons may coincide with why these students also suffer unequal outcomes in other areas of education. Black and Latinx students often cite disconnects between the cultures of their teachers and themselves as a barrier to their educational success. This is compounded when those disconnects foster latent biases towards these students that may result in lowered expectations and not being encouraged to pursue a future in highly rigorous and competitive STEAM fields. In this session, we will explore one particular method that has the potential to benefit students technologically, culturally, and in the broader educational context. Integrating content and Digital Storytelling/Personal Narratives.

Don Siler
University of Saint Joseph

STRUCTURED DISCUSSIONS

Educating, Enlivening and Encouraging Urban Minority Youth in STEM

Cultivating a vibrant and diverse future STEM workforce will require educators, researchers and policy makers to join in efforts to boost math and science preparation for urban minority youth, increase STEM programming in K-12 schools to attract urban minority students to STEM fields and pathways, and also strengthen educational supports so these students continue to be successful in STEM education. In this structured discussion, we briefly highlight the research that focuses on enhancing STEM education and increasing STEM pathways and persistence. We will then lead a dialogue about best practices with the goal of developing innovative ways to support urban minority youth to pursue and be successful in STEM.

Meera Aladin
Erin Burke
James Park
Fordham University

Yanilssa Taveras
Boston College

Jill Roche
Hunts Point Alliance for Children

Busted: The Model Minority Myth and Mental Health- Understanding Asian and Asian American College Students

The STEM field is well-represented by Asian and Asian American students eager for stable careers impervious to bias. However, this population is not without significant mental health challenges, including one of the highest suicide rates among minorities. Despite this, the Model Minority Myth pervades how AAPI students are seen, particularly in STEM, where they are stereotyped as successful, even as their cultural expectations and hard work are pathologized or resented. This workshop synthesizes current literature, revealing nuanced, complex, mental health and identity struggles in response to negative stereotyping, exploring the impact emasculation, exoticification, invisibility, and the Model Minority Myth itself has on the mental health challenges facing these students.

Aleta Bok Johnson
Private Practice

Heather Wong-Bailey
Brown University

Rethinking Diversity in STEM: Taking an Intersectional Approach

The incorporation of underrepresented minorities (URMs) in STEM is critical to a diverse and inclusive future. For example, the National Science Foundation's ADVANCE grants seek to address diversity and inclusion issues within STEM fields. While some steps have been taken to include minorities in STEM, most of these approaches have focused on individual aspects of a URM person (solely gender, race/ethnicity, etc.), rather than taking an intersectional approach to the issues and addressing each person as a combination of minority identities. The goal of this roundtable discussion is to gather individuals interested in creating diverse STEM environments. Ideas generated in this discussion can be implemented by participants to better include URM persons in STEM fields.

Emma Botelho
Merve Armagan
Ivy K. Ho
University of Massachusetts Lowell

Sexual Health, Minorities and STEM

Although STEM research has benefited many, racial minorities are grossly underrepresented. This is especially the case in the field of sexual health. Barriers to sexual health care among racial minorities include lack of health insurance and perceived discrimination. This can lead to significant disparities in sexual wellbeing. One possible technological solution to the lack of access to healthcare is at-home sexually transmitted infection (STI) testing. Examples of at-home testing products include... However, these products are costly and may be unaffordable to those of low income, of whom a disproportionate number are racial minorities.

Megan Grant
University of Massachusetts Lowell

Counter Spaces: Examining After-school Educational Structures Fostering Students of Color STEM Success

This study examined the educational structures of a university-led, after-school STEM education development program for students of color. Eleven years of quantitative data indicate the program has been effective in preparing students of color to pursue degrees in technical disciplines. A critical race analysis of the educational structures of the program was conducted to contextualize the significance of student outcome data. The findings indicate the educational structures of the pre-college STEM program created counter space. In the counter space program participants (students, teachers, and parents/families) developed counternarratives about who could attend to college and become scientists and engineers. Counter stories of students and teachers are presented.

Connie Hargrave
Iowa State University

Student Perceptions of Major Life Stressors, Discrimination, and Coping Mechanisms

As a final writing assignment in a Theories of Crime and Justice course, students reflect upon, and write about the trajectory of their lives while applying various theories that are discussed throughout the course. Students also discuss the major life stressors and ways that they have coped with these challenges. A thematic analyses of 58 student papers was conducted. Our preliminary findings indicate that the relative life stressors for students of color are significantly different in both number and nature. Specifically, students of color are much more likely to discuss the experience of discrimination, poverty, and also early childhood trauma and/or neglect. Relative coping mechanisms are also discussed.

Amanda Howerton-Orcutt
Jennifer Robinson
Salem State University

Reframing What a Scientist Looks Like: Empowering Queer Women of Color in STEM

This discussion will aim to increase participant's knowledge of the ways in which racial identity and sexual orientation intersect and influence queer women of color's career success in STEM. These individuals face unique dilemmas as they enter potentially unwelcoming or hostile work environments within STEM, such as mental health implications, lower job satisfaction rates, and hindered career success within the field (Moran, 2017). The presenters will introduce two relevant theories/perspectives to serve as the underpinnings for the discussion - intersectionality theory and the psychology of working perspective. These two theories will guide the discussion towards identifying potential solutions or interventions that support queer women of color in STEM, as well as identifying sources of strength and resiliency in this community.

Kiara Manosalvas
Teacher's College

Courtney Dunne
Boston College

Fostering Science Identity of Underrepresented Groups in STEM through Student Involvement

According to Carlone (2004), science identity is one's recognition of themselves as competent of learning, understanding and applying scientific concepts, and being recognized by others as a science learner (Carlone & Johnson, 2007). The perceptions of of undergraduate female STEM majors involved as mentors in a STEM mentoring program for girls, provides a description of how mentoring reinforces science identity and encourages retention in STEM programs. A discussion of the mentors' experiences can identify involvement opportunities which have the potential of fostering science identity, increasing retention and encouraging the pursuit of careers in STEM and STEM education for undergraduate female STEM majors,

and other underrepresented groups in STEM, among them African Americans, Hispanics and American Indians (National Science Board, n.d.).

Erin McQuaid
Regis College

STEM Based Education: The Great Equalizer?

This presentation will discuss the national trends for STEM-based schools and the impact that these schools are having on post-secondary enrollment in STEM related majors. Discussion of the benefits of STEM-based programming for students with special needs and gender and ethnic minority students will be a focus. Educational and social/emotional benefits from STEM-based programming will be addressed. A discussion on the goals of STEM-based schools and the ways that the structure compares and contrasts with traditional schools will be conducted. Additionally, information about Texas and the current public and charter school focus on STEM-based education will be presented. A shared dialogue will be created through an invitation of discussion participants to share their own knowledge about implementation of STEM curriculum in their state.

Kristin O'Donnell
Deborah Healy
Kathryn Dunne
Adela DeHoyos
Our Lady of the Lake University

Increasing Urban High Schoolers' STEM Persistence through Project-Based, Work-Based Learning

Increasing Urban High Schoolers' STEM Persistence Through Project-Based, Work-Based Learning: This workshop introduces employer and post-secondary partnership strategies employed by the STEAM Scholars Healthcare Workforce Diversity Pipeline Program, which aims to stimulate a culture of collaborative, experiential science learning at a comprehensive, neighborhood, public high school in Philadelphia. The focus is practical – for educators and researchers – sharing techniques developed through three years of successful program implementation. Attendees will participate in small-group, collaborative breakout sessions to map out the degree to which interdisciplinary, technology-enriched project-based learning program elements are present in their own schools, and the degree to which these elements can be built-out using the “STEAM Scholars” model.

Sarah Robbins
District 1199C Training & Upgrading Fund

Roosevelt Tucker
Philadelphia Academies, Inc.

Mutedness in STEM: Broaching Fugitive Topics That Perpetuate Exclusion

Preliminary qualitative research conducted with adult biracial millennials suggests a trend toward muted or silenced conversation from parents about race, difference, and discrimination. We argue that a similar phenomenon occurs in STEM education. More specifically, we maintain that conversation about the challenges inherent in navigating the preparation for and success within STEM careers is lacking and can leave STEM candidates vulnerable to attrition, isolation, and potentially marginalization. Our discussion highlights the relevance of transparent communication strategies for navigating terrain that has historically benefitted those with social and fiscal capital. This discussion aims to convey the significance of mentors across race who can competently broach topics about discrimination equipping diverse STEM candidates with tools to prepare, enter, and persevere within STEM.

Tracy Robinson-Wood
Celsea Tibbitt
Laura Fischer
Northeastern University

“Do I Belong Here?”: A Critical Review of Implications of Ethnoviolence towards Black Women in STEM”

The purpose of this structured discussion is to engage in critical discourse regarding the experience of Black women in STEM within the context of racial and gendered oppression. Given that African Americans and women are generally underrepresented in STEM fields, this presentation aims to explore the various unique racial and gendered barriers that Black women face and how these encounters can impact the workplace. A review of the literature elucidates that Black women in STEM are more likely than any other racial group to experience racial discrimination within the workplace (David, Farro, Silvia & Canetto, 2013). Through the evaluation of research and the current experiences of Black female graduate students in predominantly White fields, this discourse aims to challenging misconceptions regarding Black women in STEM, and explore new, creative solutions for addressing the barriers, as well as critically examining the implications of this phenomenon.

Kia Watkins
Michelle Pigott
Eddie Burke
Jessica Gottlieb
Adler University

SYMPOSIA

Infusing the Psychology of Working into STEM: Creating Opportunity for All

Education and training programs in science, technology, engineering and mathematics (STEM) have been known to increase job opportunities for our nation's youth. However, youth who face social and economic marginalization, such as youth of color and young women, have historically been underrepresented in STEM. This symposium offers three presentations that use a psychology of working perspective for understanding STEM education initiatives targeting youth within the context of the 21st century world of work. Further, we will discuss the future of STEM-related careers more broadly, with a particular focus on how the changing world of work will affect young people who have been historically marginalized.

David Blustein
Maureen Kenny
Ellen Gutowski
Whitney Erby
Sarita Pillai
Boston College

Inventing the Future: Leveraging Cultural Assets to Create Young STEM Inventors

This symposium aims to share and reflect on how invention curriculum that leverages youth's cultural backgrounds can impact youth, particularly those who are recent immigrants and non-native English speakers. Learning experiences with an inventive spirit have demonstrated success in lowering the barrier to participation and promoting youth's self-driven inquiry in STEM learning. Culturally responsive invention curriculum that builds on youth's cultural backgrounds and unique needs of their communities can potentially be more powerful in exciting and sustaining students' interest in STEM. The papers report the design, implementation, and outcomes of culturally responsive invention curriculum in in-school and out-of-school settings, with the goal of revealing successes and challenges involved in the approach of linking youth's cultural assets with inventive STEM projects.

Stephanie Couch
Leigh B. Estabrooks
MIT

Mike Barnett
Deoksoon Kim
Eunhye Cho
So Lim Kim
David Jackson
Helen Zhang
Boston College

Science-Theatre as a Site of Transformation: The Research and Design of a Cross-Disciplinary Project for Middle School

This symposium includes four presentations that share findings from the creation and implementation of a science-focused play for middle school youth. The first and second presentations explore the effectiveness of the science-theatre partnership's first intervention: an original play about earthquakes written for middle school audiences, through quantitative and qualitative methods, respectively. The third presentation presents an ethnographic analysis of the collaborative efforts between the science and theatre education team, with the goal of sharing the successes and tensions that emerged through the creative production processes. The fourth presentation discusses parallels between professional theatre production processes and engineering processes, which will lay the framework for future work around student-generated science plays.

Ariella Suchow
Megan McKinley
Amy Semerjian
Boston College

POSTERS

Linkage to Care Module for Achieving Equitable Outcomes in Institutional Sexual Misconduct Cases

Sexual harassment in the STEM fields is a primary reason why women leave their professions. A landmark study recently published details the epicenter of mishandling sexual harassment claims are due to institutional culture. We provide a sexual misconduct reporting platform that has the propensity to service both students and their institutions alike to increase transparency, trust, and accountability.

Veronica Andrews
Kim Bullock
Georgetown University School of Medicine

Addressing Barriers to Success for African American Boys in STEM Fields

Ethnic minorities are underrepresented in science, technology, engineering, and math (STEM) fields (Landivar, 2013). Furthermore, African American males are underrepresented in gifted and talented programs (Bonner & Jennings, 2007). The purpose of this proposal is to discuss barriers to inclusion and success in STEM fields for African American boys and offer recommendations for counselors. Student-teacher disconnect, within culture behaviors, and stereotype threat (Steele, 1997) are discussed as barriers. Recommendations for counselors include teacher training and direct work with students. Direct work with students can be individually or group based. A group approach may prove beneficial for these students given African American's focus on community (Boyd-Franklin, 1991). It is hoped that these recommendations can lead to increased numbers of African American boys STEM programs.

Tyronn Bell
University of Indianapolis

The Influence of Psychosocial Mechanisms on Academic Outcomes Among Ethnic-Racial Minority Students in STEM

This literature review examines the effect of self-efficacy, social support, and sense of belonging to STEM on intended persistence among Historically Underrepresented (HU) racial/ethnic students in STEM disciplines. The objective of this presentation is to address the psychosocial barriers that influence intended persistence among HU racial/ethnic undergraduates in STEM disciplines. The results of this literature review will demonstrate that psychosocial mechanisms are factors for intended persistence among HU racial/ethnic undergraduates. The results may provide research and clinical professionals a foundation from which they can continue to establish interventions that focus on self-efficacy, social support, and sense of

belonging as factors that influence intended persistence among HU racial/ethnic students within the STEM disciplines.

Eryn Delaney
Virginia Commonwealth University

Diamond Bravo
Harvard Graduate School of Education

Navigating Power: Domestic Violence Advocates' Roles as Empowerment Facilitators versus Mandated Reporters

Intimate partner violence survivors seek help from domestic violence (DV) programs that utilize a “survivor-defined” approach, which centers restoring power to survivors. DV program staff (i.e., advocates) are also mandated reporters who must monitor, evaluate, and report parenting they deem to be abusive or neglectful. Thus, one aspect of the advocate role foregrounds “power-with” while the other foregrounds “power-over” survivors. Utilizing qualitative focus groups with DV advocates, we explored how DV advocates think about and navigate these dual roles, especially in the context of work with low-income survivors of color who have endured historical and ongoing unequal oppressive treatment. Results suggest that both advocates’ and survivors’ racial and cultural backgrounds influence how advocates perceive and navigate their dual roles.

Laura Gonzalez
Helen Hailes
Boston College

Using Social Psychology to Increase the Presence of Women of Color in STEM

Businesses are starting to become increasingly more aware that unconscious bias is impacting their future success. The way a company markets itself, the words used in a job description, and recruitment locations all include implicit gender bias, but what if we could start increasing awareness earlier on before kids even begin thinking about jobs? Parents, teachers, and society as a whole, place unconscious gender bias on children from before they are even born. From the way toys are marketed in commercials to the way teachers speak to students in the classroom, implicit gender bias is unescapable. Using principles of social psychology, this presentation will explore how we can intervene earlier to increase the female population in the STEM fields.

Kayla Meyer
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Risks of Use of American Standardized Psychological Assessment Tools with Minorities

There is increasing motivation among psychologists to understand culture and linguistic factors in order to provide appropriate psychological services. However, there still are multiple issues with psychological assessments with minorities (Marcella, 2011, [Reynolds C. R.](#), Suzuki, [L.A., 2012](#)). Although there have been culturally appropriated versions of testing batteries, which are also culturally normed, there is a question as to how frequently and appropriately those by used by professionals who have proper awareness of each culture and linguistic issues. This presentation informs multiple issues of before, during, and after the applications of “regular” assessments to individuals whose main culture and the first language are not those in the U.S., and how those individuals are guided to getting no or improper services. This set of case studies first compares the scores of individuals, who were new to the U.S. from Japan –between when each was tested with -WISC-IV-English and when each was tested with WISC-IV- Japanese. It then indicates how different scores can leads to different guidance, and how easily non-American born individuals can be left with proper services. This presentation seconds attempts to identify multiple factors that prevents such marginalized group from getting proper services – including issues in referral process and applications of assessment results. Finally, how to minimize such problems of people, who are not in the mainstream of the U.S. culture, being improperly served, will be discussed.

Mika Nitta
Private Practice

How Families, Peers and Teachers Influence Underrepresented Minority Students Engagement and Success in STEM

Minority youth represent an under-tapped pool of potential STEM professionals. Although research suggests that advanced math and science classes promote interest, enrollment, and success in STEM, many minority youth have limited access to high quality STEM education. In order to diversify the future STEM workforce, it is important for educators and researchers to better understand the factors that may influence underrepresented minority students’ success in STEM. In this grounded theory study, we explored the academic, social and psychological experiences of a group of urban minority youth and examine how these experiences relate to their preparation, pathways, and persistence along STEM trajectories.

James Park
Meera Aladin
Erin Burke
Fordham University

The Real Cost Of Dropping Out of School

I was driving my car once and noticed the bumper sticker from the car in front of me that had the following message: “If you think that education is too expensive; then try ignorance”. The truth is that we have tried ignorance in this country for way too long when it comes to educating Blacks and Latinx students. Our

former president Barack Obama addressing the nation in regards to dropouts he called it an “epidemic”. Research has shown that every 56 minutes a new high school student decides to drop out of school. Anytime a student decides to call it quit and do not finish high school he/she also makes the decision to earn less money in the job market, dropouts earn less money than the average person with a degree. It is estimated that 75% of inmates in Federal prison are high school dropouts. You do not have to be rocket scientists to figure out that we save money when students finish school versus going to prison. One year of college tuition is cheaper than one year in prison, the message is, “stay in school and out of prison”. In order to stay competitive with the other industrialized countries like India, Mexico and China just to mention a few, we need our students to be equip with skills that these technology jobs demands, by dropping out of school we are not going to be able to keep up with the other industrialized countries; thus, jobs will continue to be shipped overseas. It is time for us to take a real stance and come up with real solutions that will help reduce the dropout rate among Latinx students and develop strategies to increase the number of them in the STEM carriers.

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