Sisters Inspiring Change

Opportunity Knocks, Will She Answer: Dispositions and Participation of Girls of Color in STEM Enrichment

Defying Cultural Norms Launching Women’s Studies in the High School Setting
JELO Editorial Board Members

Jeff Davis
Executive Director
California Afterschool Network
Foundation for California Community Colleges

Michael Funk
Director, Expanded Learning Division
California Department of Education

Helen Janc Malone, Ed.D.
Director of Institutional Advancement
Institute for Educational Leadership

Milbrey McLaughlin, Ph.D.
David Jacks Professor of Education and Public Policy, Emerita
Stanford University

Gil Noam, Ed.D.
Founder and Director
Program in Education, Afterschool and Resiliency (PEAR)
Harvard University

Pedro Noguera, Ph.D.
Distinguished Professor
Graduate School of Education and Information Sciences Director,
Center for the Study of School Transformation
University of California, Los Angeles

Maria del Pilar O’Cadiz, Ph.D.
Education Director
NSF Nanosystems Engineering Research Center for Translational Applications of Nanoscale Multiferroic Systems (TANMS)
University of California, Los Angeles

Sam Piha, M.S.W.
Founder and Principal
Temescal Associates

Tia Quinn
Founder and Executive Director
BOOST Collaborative

Nikki Yamashiro
Research Associate
Afterschool Alliance

Nicole Yohalem
Director, Road Map Project
Opportunity Youth Initiative
Community Center for Education Results

The JELO is a peer-reviewed, online, open-access publication of the Central Valley Afterschool Foundation.

The editors of the Journal of Expanded Learning Opportunities (JELO) are thrilled to be collaborating with Sisters Inspiring Change for our Spring 2017 Special Issue! The White House Council on Women and Girls’ initiative called, “Advancing Equity for Women and Girls of Color” inspired this issue. The Initiative identifies key obstacles facing marginalized girls, including girls of color, and highlights innovative solutions to those obstacles. One key challenge that girls from marginalized communities often face is access to expanded learning programs that allow them to become stronger students, leaders, and citizens.

A recent visit to the White House in September 2017 to attend the “Champions of Change: Extracurricular Enrichment for Marginalized Girls” event further motivated us to create this special issue.

Rooted in the work of the White House Council on Women and Girls, Sisters Inspiring Change was founded in 2014 by a group of women of color who hold positions of leadership and influence in the expanded learning field in California. Their mission is to change systems and cultures in expanded learning programs to allow opportunities for women and girls of color to grow and develop and realize their full potential professionally and personally. This special issue showcases the perspective of some of the women involved in Sisters Inspiring Change as well as a dialogue between Annie Delgado, a teacher at Merced Union High School who leads the “Lift While You Lead” empowerment project and Dr. Maria del Pilar O’Cadiz the Education Director of the Center for Translational Applications of Nanoscale Multiferroic Systems (TANMS) at the University of California, Los Angeles. This issue also includes a research article from Drs. Jemimah Young and Jamaal Young at the University of North Texas on Girls of Color and STEM learning and a chapter excerpt from the book, Feminist Pedagogy, Practice and Activism: Improving Lives of Girls and Women. The book contains chapters authored by various women including Annie Delgado who lends her voice to this issue’s Researcher and Practitioner Dialogue. The title of her chapter is, “Defying Cultural Norms: Launching Women’s Studies in the High School Setting.”

Special thanks to the supporters who have helped with the publication of this issue. The excitement about the JELO keeps growing and we know that resources such as the JELO are vital to the longevity of our field. We are grateful for your ongoing support as we continue to bridge the gap between research and practice. For more information about the JELO and/or how to submit an article please go to www.centralvalley afterschool.org.

Kimberley Boyer, Ed.D
Chief Editor
Central Valley Afterschool Foundation

Logan Robertson, Ph.D
Associate Editor

Matilda Soria, Ed.D
Associate Editor
Fresno County Superintendent of Schools
Contents

01  Sisters Inspiring Change
    Our mission and our work

02  Researcher and Practitioner Dialogue
    with Maria del Pilar O’Cadiz, Ph.D – University of California, Los Angeles
    and Annie Delgado, M.Ed, J.D – Merced Union High School District

10  The Sisters’ Voices
    Stories from the field

12  Opportunity Knocks, Will She Answer:
    Dispositions and Participation of Girls of Color in STEM Enrichment
    with Jemimah L. Young, Ph.D. – University of North Texas
    and Jamaal R. Young, Ph.D. – University of North Texas

26  Defying Cultural Norms Launching Women’s Studies
    in the High School Setting
    Annie Delgado, M.Ed, J.D – Merced Union High School District
Sisters Inspiring Change

Sisters Inspiring Change was founded in the spring of 2014 when a group of women came together and realized that although we were an incredibly diverse group, we shared a common experience and passion. Through a variety of leadership paths we all ended up at the same table, we are all leaders in the expanded learning field and we wanted to give back to make a difference for other women in the field. The challenges and opportunities of being a female leader of color in the expanded learning field had shaped our personal and professional lives in incredible ways.

Sisters Inspiring Change is a collection of 13 women representing the various regions of California. Collectively, we bring a vast amount of expertise in K-12 education, expanded learning, youth development, leadership, social services, and advocacy work. We are a dedicated group of women of color who hold positions of leadership and influence in the K-12 and expanded learning field in California. We recognize that our positions afford us with many opportunities to create change and we do not take that for granted. We look to the women who blazed trails before us to make sure we could get here, and we work for the women and girls who have roads still to travel to find their voice and place.

We stand together because our sisters still face many disparities and inequities. We strive to close those gaps, and stand together to uplift and create the solutions that will help those coming up behind us. We share a desire to build an agency as a vehicle to guide our choices, and to create opportunities for growth and change in expanded learning.

We believe that expanded learning programs can serve as a platform to combat inequities such as: the opportunity gap, chronic absenteeism, literacy disparity, educational opportunities, and school discipline and access concerns. This can be done through mentorship and leadership coaching for young girls of color, as well as for the women that are leading such efforts at the systems level. To that end, we are working collaboratively to plan a statewide strategy to advocate for and advance leadership opportunities for women and girls of color in the expanded learning field.

The work of Sisters Inspiring Change focuses on the overall issue of the advancement of women and girls of color. Our specific focus is on mentoring. We envision a time when the expanded learning field is a place where women and girls of color are not only empowered to lead and learn, but they also have the opportunities to lead and learn. Through the power of mentorship and sponsorship, we are working toward a time when there are more women of color in leadership roles and more opportunities for girls of color to gain the skills to be a successful female professional. Our mentorship focus is on continuous improvement of self, goal setting, life skills, decision-making, leadership development and social capital. Based on best practice in mentorship and tied to existing leadership initiatives in the expanded learning field, we have designed a mentoring system that is unique and scalable. This dream is important because there are so few opportunities for leadership that we need to engage potential leaders and existing leaders in something bigger to reach our goal.

For more information on Sisters Inspiring Change:
https://www.ccscenter.org/Sisters_Inspiring_Change

https://www.facebook.com/sistersinspiringchange/
Follow us on Twitter: @sisters_inspire
In keeping with the theme of “Sisters Inspiring Change,” the researcher and practitioner dialogue focuses on two extraordinary women in leadership positions. In this fourth issue of the JELO, we talk to Maria del Pilar O’Cadiz, Ph.D and Annie Delgado, M.Ed, J.D. Dr. O’Cadiz is education director of the NSF Nanosystems Engineering Research Center for Translational Applications of Nanoscale Multiferroic Systems (TANMS) at the University of California, Los Angeles (UCLA). Annie leads the Lift While You Lead (LWYL) program at Merced Union High School District and was honored at the White House in September 2017 as a “Champion of Change” in the area of extracurricular enrichment for marginalized girls.

Dr. O’Cadiz will be representing the researcher perspective and Ms. Delgado will be representing the practitioner perspective.

What motivates you in your work and what keeps you motivated?

Annie: The absence of women in leadership positions played a critical role in the creation of the Lift While You Lead- Empowerment Project. I consistently asked myself to consider the ways in which we, as a society, could inspire and motivate young women to see themselves in a different light. I believe that once young women and girls begin to identify the strength that exists within them, it will require those who often dismiss females to recognize them as formidable individuals who have the capacity to make significant contributions that will benefit our society. More importantly, my hope is that the Empowerment Project will change the choices made by these young women as they redefine that which is acceptable to them.

One of the biggest challenges facing our society is that we are reactive rather than proactive. Each day we face the opportunity to be a part of the problem or actively contribute to the solution. I believe my work,
and the work of others engaged in expanded learning opportunities, is proactive work. We consistently work to engage young people, thereby increasing the likelihood of breaking unhealthy cycles and patterns.

The young women who currently participate in the program, as well as those who will someday be part of the program, motivate me. I am consistently focused on working with the young women achieving outcomes that will ensure more opportunities for them, and in the end we break barriers.

One of the young women in the program recently emailed me and stated:

I have earned a 4.0. I would like to thank you for all the support you have given me. Words can’t explain how much you and your guidance means to me. I know I will get through anything that comes my way. I just really wanted to thank you for having LWYL and letting me be a part of it. The program has helped me realize that I have a voice and I will forever be grateful that you have made me realize that.

Additional motivating factors are the statistics for my community. As a resident of Merced County, I am aware that we have the 10th highest teen pregnancy rate in the state of California. Additionally, we currently rank last in all of California’s counties for women holding leadership positions. While these statistics highlight that the challenges are formidable, I believe the teen pregnancy rate can be reduced and women holding leadership positions can be increased.

**Pilar:** My commitment and motivation for my work are grounded in my own educational journey and daily life experience as a first-generation college graduate and the daughter of Mexican immigrants, and as a mother of a child with severe disabilities. Back in the day when affirmative action efforts were in full force, I was recruited by a small liberal arts college in the middle of Ohio: Oberlin. I was wooed by its legacy as the first coed college to graduate an African American woman in 1862 [100 years before my birth]. Having attended a predominately white high school—I transferred there after being jumped into a gang in my barrio in middle school—I was used to being in a cultural milieu different from my own background. But I was not prepared for the culture shock of the extreme social class difference I encountered at Oberlin. My first day there my posh New Yorker college dorm roommate queried me, “However ever did you learn to speak English so well having gone to public school?” Within the first semester I moved into Third World House, next to the Africa House and Spanish House dorms. Connecting with other students of color—many of whom also were receiving work study and financial aid—played a critical role in my ability to cope with the social and academic challenges I faced in that stage of my journey.

Also it was at Oberlin, in a Sociology of Latin America class, that I first encountered the work of internationally renowned Brazilian educator and philosopher, Paulo Freire, which had profound influence on my theoretical lens as a developing scholar. Freire’s insistence on recognizing learners as active subjects of their educational processes [not passive objects to be educated], on validating their cultural and experiential knowledge base while adopting a critical transformational educational praxis within the historical possibility of a given social-economic-political context, immediately resonated with me. This encounter set me on an academic trajectory leading to my dissertation research on an educational reform initiative in São Paulo, Brazil, under then, Municipal Secretary of Education, Freire. At this same time, during the early 1990s, I was putting into practice these ideas while directing an afterschool program serving a Latino immigrant community of East Los Angeles. This lead to two decades of professional work and research in the expanded learning field, including most recently carrying out qualitative research of STEM learning at K-12 program sites in diverse communities throughout California.

My role as a mother of a child with severe disability also has put the fire in my belly as an advocate for the rights of all children to educational services that meet their needs. While doing my early community-based educational work and completing my Ph.D. in Social Sciences and Comparative Education at UCLA, my youngest daughter was diagnosed with autism. I vividly recall taking my child to the UCLA Neuropsychiatric Institute for diagnosis as a cash-strapped full-time working grad student and being asked by a medical professional if I had a rich relative who could pay the
10K price tag for a thorough 1-week assessment of my daughter’s condition and development of a therapeutic intervention plan. We could barely afford the $250 quick and dirty 30-minute diagnosis: the required ticket to access public support services. When advocating for early intensive behavioral intervention for my 2-year old daughter I was told by the regional center psychologist: “Not everyone can have the Mercedes Benz.” As a parent attending an IEP (individualized educational plan) for my daughter in a public school serving special needs children I was chastised for speaking to her in both Spanish and English as it may confuse her given her neurological disability. I responded, “Where is the research that says so?”, to which I received startled looks. I ignored the “experts” and maintained a bilingual environment in my home. Consequently, my nonverbal adult daughter today responds to verbal and written communication in both languages and loves listening to both Enrique Iglesias and Katie Perry on her iPad. These and many other experiences navigating the educational system as a Latina woman have shaped the prism through which I view the problematics and possibilities of educational equity, ability and access, and have fueled my passion for education research. I remain motivated by these same ideals and pedagogic principles in my current work creating and understanding effective pathways for underrepresented groups in engineering.

What’s unique about the work you do in this field?

Annie: Having been a high-school teacher for over 16 years, I recognize that challenges exist in working with teenagers as they struggle to navigate and find themselves within the structures confining them. While my glimpse of my students is often limited to their senior year of high school, the Lift While You Lead- Empowerment Project affords me the opportunity to see the growth of these young women as individuals, as students, and as members of society over at least a five-year period.

I think that what is unique about my work in this field is that there is no clock. I have promised the parents and guardians as well as the young women entrusting themselves to this program that I am available to them. This is more than tracking their grades, attendance, and discipline issues. For me, this is about understanding the root of the issues that affect the performance of one of my girls. Whether I am sitting in on IEPs, 504s, attendance or discipline meetings, I am always focused on how I can help the young woman learn and grow from the situation.

This could be checking in with a family when a member is ill. There have been phone calls at 1 a.m. to assess the safety of one of the young women who made the decision to run away. We did not rest until we knew she was safe. We engaged in follow-up conversations to identify what contributed to the choice, and we crafted a plan to reduce the likelihood of a repeat. The growth of the young women is ongoing, and the challenges they face are unending. These young women need to know that there is someone checking in on them, someone who cares and someone who believes they are more than the statistics or labels that have been attached to them.

Just as we are present for the struggles, we also come together to celebrate accomplishments. Students are recognized each quarter for their academic achievements and growth. Additionally, students are in the process of developing a monthly newsletter to keep current on ways in which they can provide emotional support and academic support to each other. In order for this to be a truly empowering experience, the young women must actively take the lead in creating a network of support and encouragement so that my role is not at the center of the program, but serves as an ancillary.

Pilar: Over the past 25 years of work as an educator and researcher I have sought to uncover the quality of learning conditions and day-to-day interactions between educators, students, parents and communities in an array of educational settings both in school and out-of-school. As a qualitative researcher that brings a critical pedagogical perspective to the task, I hope that what has been unique about my work is my ability to add a social-cultural context to understanding the experiences of children and youth engaged in expanded learning activities, bringing to light in a more textured and nuanced form, the contradictory realities that exist and real-life challenges that persist along with the many positive ways students and families
benefit from access to quality expanded learning opportunities. What I have observed and heard from dozens of informants over the years—from the parent who has seen their child go from hating school to not wanting to miss a day, to the teen who has discovered that they are actually really good at science, from the newly minted site coordinator full of passion for serving their community but dismayed by the limited resources and institutional barriers they face, to the seasoned administrator who is equality committed and burdened—is that the nature and quality of relationships within and across all levels of a program really matter. But we need to think deeply about what we mean by this assertion, it is not merely a matter of faithfully following a series of youth development tenets or creating a climate of collaboration among students and staff. The context in which those relationships evolve, and hence the curriculum being enacted matters too. The curriculum, its contents and pedagogical approach, needs to take into account the social-cultural reality of the students, making the invitation to investigate their reality and the world outside that familiar realm relevant and purposeful. When that happens, a world of possibilities opens up.

What is the most important advancement or discovery you have been a part of in your work with expanded learning programs?

Annie: Rather than discovering something new, the idea that young people want to be held accountable has been reaffirmed for me. Young people want to know that someone cares. They want to know that someone sees them both literally and figuratively. All young people, as they make their way through middle school and high school, are seeking to establish their identity and assert their independence. Oftentimes, I believe our society mistakes this period of time as one in which we should remove ourselves from serving as role models and mentors. Many adults apply this approach because they do not believe that the young people will listen to them or be open to their guidance. This is flawed thinking. If anything, I have found that if I respect a young person’s journey, I am able to maintain open lines of communication while holding them to high standards and expectations.

Pilar: I do not pretend I have made any important “discovery” or contributed in a significant way to advancing the knowledge base of the field of expanded learning programs. What I can say is that I have been fortunate to be part of the team at UC Irvine, led by Deborah Lowe Vandell, that worked to develop a significant statewide initiative to collect student outcome data from the state’s publicly funded afterschool programs. As part of that team I also carried out qualitative observational and interview data collection and analysis for a three-year study of a large-scale afterschool STEM learning initiative. Early results from this study were recently published in the article, in the Spring 2016 issue of JELO.

Currently, I am working on developing programming and assessing outcomes that point to effective practices and address the institutional structures and normative contexts that persist in shutting and pushing out students from K-20 STEM learning and career opportunities. In this work I hope to contribute to understanding the role that student identity, funds of knowledge, and grit play in the development of STEM efficacy and persistence in overcoming roadblocks on the engineering educational pathway for students from underrepresented groups in the field.

Did/Do you have mentors in your life? How did mentors influence you personally and professionally?

Annie: The two most significant mentors in my life have been my godmother and my 2nd grade teacher. At the age of 8, my godmother provided me access to Ms. Magazine. While I may not have fully comprehended what I was reading, I saw women in a way that I did not see in any other aspect of my life. My second grade teacher has been a constant presence in my life, even today as we currently share a classroom at the alternative education site where I spend part of my day. Both women chose different paths for their lives, but each found happiness and I think that is what stands out for me the most. We do not need to put women
into boxes and tell them what they have to do, but we can show them that an education will empower them to make the very decisions that can lead to the happiness they are seeking. Feminists can come from diverse backgrounds and experiences, but still seek to achieve a level of economic, political and social equity.

Personally, each of these women encouraged me to find my voice and use it to move people forward. Professionally, they have modeled that there is nothing wrong with having my voice heard, and that it does not make me bossy or pushy. Instead my desire to have my voice heard is about being the voice for others who are working to find theirs or who need someone upon whom they can model forward thinking and action.

While these two women have significantly contributed to my growth as an individual, I have also surrounded myself with a group of strong women. As we all seek to balance our roles as providers, mothers, wives, sisters, and daughters, we support each other with understanding and without judgment.

Pilar: I have had many mentors, but to begin with my father, an artist and architectural designer, who taught me the power of aesthetic forms of expression, instilling my belief in the central role of the arts in education. My mother, a school social worker and foster parent taught me compassion and the belief that there is potential for growth in every person. I would be remiss not to mention the intellectual mentoring I had from my doctoral advisor, Carlos Alberto Torres, Distinguished Professor of Education and UNESCO Chair in Global Learning and Global Citizenship Education at the UCLA Graduate School of Education & Information Studies, who instilled in me a critical theoretical framework that persists to this day. And of course Antonia Darder, the Leavey Presidential Endowed Chair in Ethics and Moral Leadership in the School of Education at Loyola Marymount University, whose intellectual power and audacity to love never fail to inspire and push me forward. But there are several women in the arena of expanded learning whom I am honored to recognize as my mentors throughout various phases of my professional life in the field; these women are Madeline Hall and Sue Schatz of the LACOE Regional Support Team, Andi Fletcher of the Center for Collaborative Solutions, and Deborah Vandell at UC Irvine. Each in their own way taught me integrity, coherence and rigor in the practice, research and advocacy for the future of expanded learning.

Thinking about your work and the current state of our nation, where do you see this field in terms of women leaders in the next five years?

Annie: There are many unknowns as we look at the state of our nation for the next five years. Under the Obama Administration, there was a rejection of ideas which marginalized females and support for programs which enriched their lives. As the father of two daughters and the husband of a strong woman, President Obama embraced the role of women in leadership positions and consistently highlighted the work of those who were seeking equity in our society.

To date, the incoming administration’s position on the advancement of women and girls remains unclear, and often contradictory. On one hand, this is disheartening as it appears the strides that have been made may very well be lost. On the other hand, this uncertainty and the frustration, even indignation it causes may prove motivation for many women to use their voices, and voices loud enough are difficult to ignore. My hope is that ultimately the uncertainty will lead to young women rising up to create positive change, thereby building on past progress.

We are fortunate, as residents of the state of California, to have access to forward thinking leaders who value equity, diversity, and a continuation of the positive social justice trajectory upon which we have found ourselves over the past eight years. If anything, those of us who have the ongoing support of our state governments must be prepared to reach out and lift the others who may not be similarly situated.

Clearly, as the number of women serving in leadership positions on a global level declined in 2016, to the same levels as women holding leadership positions in 2009, there is still much work to be done. There is no time to mourn that which we have lost, but instead we need to focus on developing effective strategies for overcoming any obstacles that challenge us.
Pilar: Women have lead the expanded learning field for decades and will continue to do so if not with an even greater sense of urgency given “the current state of our nation.” Recently I was astounded when viewing a photo on a social media news feed of a governmental meeting on Woman’s Health where not one woman was depicted. It reminded me of when viewing a newspaper photo of a meeting of NATO leaders my then 8-year old son noted, “Something is wrong with this picture.” I asked what was wrong and he replied, “There are no women in it.” That was 1997. My mind reels with a latent sense of indignation to think that 20 years later the same disenfranchisement of women from decision making positions persists even in so-called “advanced” industrial nations like our own.

I participated in the 2017 Woman’s March and have no doubt that women, and the men willing to stand on equal ground with them, are not about to allow patriarchy and racialized bigotry to persist in our educational areas, from every day enactments of micro-aggressions and marginalization, to large scale exclusionary policies that limit and derail the futures of the majority of our nation’s children and youth. I have argued that the culture, history, and contemporary outlook of students from marginalized and oppressed groups need to be an intentional part of an expanded learning curriculum that emphasizes our shared humanity and the vast intersectionality of identities that comprise our global society. The representation of this diversity in the leadership of the field is an imperative for expanded learning to be part of the solution to the seemingly dystopian future we face. Recent initiatives such as the Sisters Inspiring Change group of women representing diverse leadership in the expanded learning field, and long standing programs like Girls Inc., WriteGirl and BE Wise, along with countless other mentoring and enrichment initiatives point to the fields’ commitment to creating the conditions for the development of articulate, competent and fearless women leaders of this not so new century.

Annie: I believe my gender has greatly influenced my work, just as it has greatly influenced the lens through which I view issues affecting our society. Various research looks to the role of women in the family structure to serve as indicators of a family’s health, well-being and potential for economic prosperity. With more homes headed by a single mother and a wage gap that varies depending on one’s ethnicity, I am mindful of the ways in which the very structure of our society can adversely affect women.

I do not assert these truths as an excuse, but instead as something that needs to be analyzed and addressed in a lasting and effective manner. When I developed the Lift While You Lead- Empowerment Project, I looked to risk factors that could increase a young girl’s likelihood of repeating a cycle of poverty and identified a link to poverty from one or more of the following factors: having teen parents or a parent who was incarcerated; enduring domestic violence; or living at (or below) the poverty level, as a ward of the state, or in a single parent household.

I then considered the impact of eliminating one or more of these factors from repeating in the participants’ own lives. And so, the structure of the program evolved to meet the needs of the young women. In addition to meeting with me on a regular basis, program participants must be enrolled in Advancement Via Individual Determination (AVID), a program designed to prepare students for acceptance into and success in college; they must be participants in an extracurricular activity of their choice; and they must complete 250 community service hours throughout their four years of high school.

Early results have been positive for the young women. I have observed a shift in their mindset wherein they are focused upon academics, activities, community service and college. Conversations center upon what college they will be attending, what professions they will be pursuing, and how they can mentor others to see their futures in a different light.

A multitude of opportunities exist for my Lift While You Lead girls to grow. Because of the young ladies in the program, I am constantly reflecting upon the tools and resources that I had access to when I was their age, and I wonder what resources would have more greatly benefited me, what insights I would have benefited from, and who I could have looked to as mentors. It is...
this reflection along with my frequent communications with program participants that move me into action. I understand that resources are available to the girls; however, a lack of resources is not the issue.

Clearly the internet has increased the girls’ access to more resources, but I cannot assume that they know how to utilize that which has been provided. Thus, as we continue to grow, we will work on navigating the tools available on the internet, developing question and answer support sessions for students, parents, and guardians alike, as well as fostering the growth of mentoring among the young women of Lift While You Lead. As the young women develop a sisterhood of support among each other, they will learn to provide the support that they have discovered and enjoyed through the program and create an enduring legacy.

I think that is one of the critical things that comes to mind for me when I work with the young women of Lift While You Lead and their parents or guardians. As the young women and many of their families are accessing this information for the very first time, I am consistently reminded that access alone is insufficient. Instead, we must work as a society to not only ascertain whether we are providing the tools for success, but more importantly providing guidance on how to use the very tools we are providing.

Pilar: My gender identity is necessarily shaped by my geographic location and social position and very much, I would say by my cultural/ethnic background. In this respect, I have had the good fortune to be a Latina woman doing research in the afterschool field primarily in Southern California, the region where I was born and raised. Being a Mexican-American woman carrying out qualitative research in communities where the majority of the afterschool program workers, the students and families reflect my own background, served to deepen my commitment to the integrity of the work and fueled my desire to bring forth the voice of the women with whom I interacted, the site coordinators, the mothers and community leaders and the young girls, all full of hope and promise. This goal was facilitated by the fact that I easily gained entré and trust from my interviewees with whom I shared intersecting identities. I could relate to the immigrant mother working tirelessly to do the best by her children in this new country and in whom I could see my own mother, or the passionate Chicana site coordinator dedicated to serving her community while finishing her studies so that she can gain the necessary knowledge, technical skill and cultural capital to make the changes she sees are so urgently needed for her people. I was able to readily connect and therefore, in many instances, collect valuable insightful data that helped to provide a more complete picture of what students, staff and families experience afterschool and what they perceive the purpose and benefits of afterschool programs to be, sometimes but not necessarily always aligned with what others define them to be.

What have been your greatest challenges as a woman in your field?

Annie: The most interesting challenge has been convincing individuals that I am not the only female in my community who believes in equity on a social, political, and economic level. In other words, I am not the only feminist in Merced County. But, because the word often strikes a chord of fear in people, there are many who are anxious about my intentions with the Lift While You Lead- Empowerment Project. This can present an initial challenge, but once people meet the young women, they hear the stories of the young women, and how they have re-envisioned their futures, a calm settles over part of the challenge.

Having addressed the societal challenges faced with implementation of Lift While You Lead, there are other challenges that emerge on a professional level, as I work for the program to gain momentum in our community and beyond. According to the National Center for Education Statistics, 76% of public school teachers are female. Despite being in a field dominated by females, the number of women in education who hold superintendent positions is disproportionately low. A 2012 survey conducted by the U.S. Department of Education on Schools and Staffing found that women hold only 23% of superintendent positions. Clearly, there are a number of factors that can yield this outcome, but the one that most directly affects my work is the absence of women in leadership positions.
There is something to be said for being able to see, relate to, and identify with the very people who lead us. School is the one place where our children spend a great deal of time and begin to see women in a consistent leadership capacity. And while they might regard their individual female teachers as being strong and independent leaders, they do not see many at the next level. Another obstacle is that classroom examples of leaders, as well as textbook highlights, often focus on males. The accomplishments of women are typically relegated to Women's History Month.

The greatest challenge that I believe I have faced in this field is conveying the message that there is a strength to educating and empowering young girls in our society. We need to recognize that the strength of women as trailblazers in our history is not limited to one month, but should instead be a natural part of the daily dialogue. Leaders around the world consistently talk about the fact that if a country wants to improve its economy, it must invest in women and girls. And yet, even when provided with this information and data there seems to be an ongoing struggle in finding sustaining support for programs such as Lift While You Lead.

Pilar: Again, I cannot help but respond to this question from the perspective of a Latina woman as I firmly believe that my physical, linguistic and cultural representation shape the way I perceive the world and the way I am perceived by others. Throughout my academic and professional career, I have had to constantly fight to have my voice heard and perspective validated, to overcome the implicit biases of others and my own self-doubt that these experiences produce. I know I am surely not alone. My personal testimony joins that of the many sisters of color in academia and in the field. La lucha continua...
The JELO asked Sisters Inspiring Change to speak about their hopes and fears for girls and women of color in our country today, about influential women in their lives, and about their own work mentoring girls and women of color. Their stirring words invoke the passion and bravery that has sustained their journeys and now stirs them to empower others.

My hope for girls and women of color is that OPPORTUNITIES for them to succeed are afforded to them. Equal does not mean equal in this country and it is about time it does!

My second grade teacher, Mrs. Henderson, was a big influence for me. She was the first African-American woman teacher I had who was bilingual. The fact that she could communicate with my parents and understood my culture made me feel important. Seeing a professional woman who carried herself with such grace at all times encouraged me to be like her. I loved that she was smart, kind, giving, and hardworking. Most importantly, she treated all students and parents with dignity and respect, which is something I strive to do.

– Gabriela Delgado, San Diego County Office of Education

I think the core issues facing women of color right now include the lack of advancement and growth mindset in our communities and schools. There isn’t enough awareness about how educational and health disparities affect our populations, and even with the data being “black and white,” we continually fail to help them achieve their potential, as demonstrated by the numbers of female leaders of color entering the STEM fields, for example, or the numbers of minority women suffering from obesity, hypertension, diabetes, and other disorders affecting us in greater proportions. As long as we continue to be shocked, but not mobilized by the statistics, we are setting ourselves up for continued failure.

My hope is that years of strong models, resiliency, and advancement will inspire current and future generations of girls and women of color to resist
misogyny and racism. In particular, I hope that they understand their worth and use their voice to fight injustice and inequality with intelligence, grace, and enough strength to garner support from unlikely sources. I believe that the “Age of Political Cynicism” is unintentionally being replaced by a revival of political activism, on which they will be lead actresses. It is our duty to prepare them to take that stage and own it. We must help them to build agency and advocate for their hard-earned rights. Our country and the entire world depends on them.

– Nora Zamora, Region 4 Expanded Learning Programs, Alameda County Office of Education

My grandmother was my rock and my hero. She was the one who held our entire family together. She endured many things to give her family everything. Her strength is something I miss, and I hope that one day I will have it in me. She was fearless and stood proudly in all her convictions. I owe it to my grandmother and others to give back to my community and help women and girls of color. We have a lot of work to do and a lot more young women to help. We are not alone. They are not alone. I am proud to be a mentor and a support to women of color. I know I will only go as far as I can. The more I give and support, the further women of color will go past my reach.

– Frances Vasquez, arc

My hope is that girls and women of color are seen and valued as the courageous leaders we are while protecting our families, communities and ourselves from the injustices around us. Girls and women of color can and must define our own futures and identities, and must be able to do so being our full, powerful, angry, scared, unapologetic, joyful, loving full selves. I have deep sadness and rage for what girls and women of color are experiencing now, and I also have hope. More hope than fear, because of how resilient our mothers and sisters have been before us. They have paved paths for us to rise up despite the forces working against us. A real concern, however, is that as we continue to resist, that we become isolated from one another. We must continuously defend, restore, and nurture our collective brilliance and power.

– Aleah Rosario, California School-Age Consortium

I talk with the young women of color in my life very openly about the challenges we face but then move on to the “how to deal with it” and be successful. Tears are fine momentarily, but after that process, there must be movement to a better place—educationally, financially, socially or spiritually. Being a mentor keeps you honest about your own growth—sometimes we get a little lost in “others,” so mentoring keeps my own growth progress front and center.

– Monica Gonzalez Williams, Expanded Learning Programs Regional Lead

Mentoring women of color provides me purpose. I am clear in my understanding that it is my responsibility to help uplift those who come behind me. I struggled in my youth to navigate higher education and then the workforce. I lacked the social capital to understand how the systems worked. Now that I have successfully navigated these systems, I must share my social capital with young women of color.

– Angelica Ramsey, Superintendent, Pleasant Valley School District

Are you a woman of color who is interested in sharing your thoughts with the JELO? Access our online survey at: https://goo.gl/forms/k3DwnEau5b8nL8qB3
Opportunity Knocks, Will She Answer: Dispositions and Participation of Girls of Color in STEM Enrichment

Research-based Article
Jemimah L. Young, Ph.D. University of North Texas
Jamaal R. Young, Ph.D. University of North Texas

Abstract
Historically, women of color have faced dual marginalization in STEM environments due to gender and racial stereotypes. Dual Marginalization refers to the “double” or extended marginalization that occurs when a person is negatively affected by their existence in two marginalized populations. These racial and gender stereotypes can influence student participation in STEM enrichment activities. STEM enrichment activities in turn, can increase student achievement, interest, and participation in STEM related fields for traditionally underrepresented populations, particularly girls and students of color. The purpose of this study was to assess the ability of STEM dispositions to differentiate enrichment participation in a sample of female students of color. The mathematics and science dispositions of a representative sample of (N = 253) girls of color were drawn from the School Longitudinal Study of 2009/2012 (HSLS:09/12). The data were subdivided into positive and negative STEM disposition groups by K-means cluster analysis. A subsequent analysis of variance was used to assess differentiation in STEM enrichment participation. The results of the cluster analysis indicate that the observed girls of color had relatively positive mathematics and science dispositions. The results of the study suggest that mathematics dispositions differentiate participation in enrichment activities. However, science dispositions did not statistically significantly differentiate participation in enrichment activities. Findings also indicate that race had a statistically significant main effect on participation in science enrichment activities. This study further substantiates the argument that dispositions toward mathematics and science vary across racial groups, and that these dispositions can differentiate STEM participation especially in mathematics related enrichment. This has important implications for the
preparation, recruitment, and retention of diverse STEM professionals. Keywords: STEM, Out-of-school time, enrichment, girls, students of color, dispositions.

Introduction

Examining the factors that influence the participation of girls of color in Science Technology Engineering and Mathematics (STEM) enrichment has substantial practical and empirical import. First, participation in authentic applications of science and mathematics through projects promotes interest in science and mathematics careers (Rukavina, Zuvic-Butorac, Ladic, Milotic, & Jurdana-Sepic, 2012). Promoting STEM career interests for a more diverse population of learners is a major goal of U.S. educational policy (National Research Council, 2011). Increasing access to and participation in STEM enrichment is one way to increase STEM career interest. Second, inequitable educational outcomes suggest that educational settings vary in their ability to leverage learner's existing interest and resources (Bell, Bricker, Reeve, Zimmerman, & Tzou, 2012). As such, enrichment activities can serve as a means to address persistent gaps in opportunities to learn.

To redress these inequities, it is important to provide diverse learners with access to STEM enrichment early and often. However, when opportunities are provided, many students may not choose to participate. One plausible explanation is that STEM dispositions differentiate student participation in mathematics and science enrichment activities (Young, Young, & Pauller, 2017). The purpose of this article is to examine how mathematics and science dispositions differentiate participation in STEM enrichment activities. Special attention was placed on girls of color to provide suggestions to address their dual marginalization in STEM professions.

Background

It is imperative that the U.S. recruit, train, and retain a more diverse STEM workforce. Due to issues of workforce development in the U.S., thousands of STEM related positions remain unfilled for lack of quality workers every year (Atkinson, 2013). Many students enter colleges and universities seeking STEM degrees, but fail to complete their degree programs. Only 40% of declared STEM majors earn a degree in STEM, accounting for only 300,000 of the 1 million STEM workers necessary to meet U.S. demands (Holdren & Lander, 2012); other projections suggest that the number of culturally and linguistically diverse STEM professionals would need to triple to be representative of U.S. population trends (Schneider et al., 2012). Women of color represent a unique subpopulation of learners and potential STEM professionals who are dually marginalized (Charleston, Adserias, Lang, & Jackson, 2014; DeCuir-Gunby, Grant, & Gregory, 2013). Dual Marginalization refers to the “double” or extended marginalization that occurs when a person is negatively effected by their existence in two marginalized populations. Feelings of marginality are magnified for women of color, women with a disability, and women that are English Language Learners. Addressing factors that perpetuate the dual marginalization of women of color is one way to increase STEM participation.

Women of color represent a proportion of diverse learners who remain underrepresented in STEM professions. The dearth in the representation of women of color in STEM fields is a prevalent and persistent problem (National Academy of Sciences, 2010; Larke, Webb-Hasan, & Young, 2017a). Women represent 50% of the U.S. population and more than 50% of the college-bound student population (NCES, 2013). Moreover, women are equally well represented in the U.S. workforce. Despite holding 50% of the U.S. jobs, women hold less than 25% of STEM jobs (Bean et al., 2014). The challenges for women of color are even more pronounced.

When data is disaggregated by race and gender, it becomes apparent that women of color are especially underrepresented (Larke, Webb-Hasan, & Young, 2017b). Jobs in STEM remain 75% White, with women of color comprising only 10% of the professional STEM workforce (Feller, 2012). This suggests that women have experienced advances in STEM access; however, women of color remain particularly underrepresented in STEM professions. Historically, women of color have unique perspectives and experiences concerning access and acceptance in the STEM community. Although STEM professions are becoming arguably more progressive as a field, emotional and psychological
remnants remain as constant reminders of less progressive times.

Girls of color face multiple levels of STEM marginalization that are exacerbated by challenges of dual stereotypes and power inequities (Chinn, 2002; Moss-Racusin, Molenda, & Cramer, 2015). For example, historical gender bias and institutionalized sexism within K-12 and higher education settings were part of our nation's STEM culture (McGrayne, 2005). Black and Latino students are are often perceived as incapable of achievement in science and mathematics based on common educational stereotypes (Aschbacher & Roth, 2011). These barriers and stereotypes can imprint on the emotions and thoughts of girls of color and thereby influence their dispositions towards STEM. Specifically, the challenges girls of color face impacts their ability to fully identify as STEM learners (Polman & Miller, 2010). As a result, female STEM dispositions vary by ethnicity (Hanson, 2009). According to Heilbroner (2011), one of the most discerning determinants of STEM career interest is having positive psychosocial factors. For example, having a positive STEM utility or view of STEM as positive and useful. Understanding the psychosocial factors or dispositions on participation in STEM is important because such factors influence career choices. This study posits that examining the dispositions of potentially untapped female STEM talent can help curb the trend of underrepresentation.

STEM Dispositions

STEM dispositions are defined here as intrapersonal correlates that relate to a student’s capacity to succeed as a STEM learner and professional. Common traits include STEM interest, identity, and self-efficacy. According to Sahin (2013), interest in STEM can be described as one’s positive inclination toward science, technology, engineering, and mathematics content. Empirical evidence consistently suggests that interest within formal classrooms and other educational settings correlate to career choice (Kuechler, McLeod, & Simkin, 2009; Tai, Liu, Maltese, & Fan, 2006). STEM identity can be defined as the concept of fitting within STEM fields, and specifically, an individual’s ability to see themselves as the kind of person who could participate in STEM through their interest, abilities, race, gender, and culture (Ong, Wright, Espinosa, & Orfield, 2011). Examining the relationship between multiple STEM dispositions is therefore necessary to better understand the STEM career choices of diverse populations.

Consequently, interest in STEM and STEM identity development are also impacted by one’s perception of abilities in the domain of mathematics and science—or self-efficacy (Bandura, 1977; Hughes, Nzekwe, & Molyneaux, 2013). Self-efficacy or one’s beliefs concerning personal ability as a predictor of academic performance and retention in STEM disciplines, specifically for traditionally under-represented groups, such as women and people of color (Marra & Bogue, 2006). Together these intrapersonal correlates represent the psychosocial factors that support resilience in STEM activities.

Promoting and sustaining positive STEM dispositions supports the preparation of diverse STEM learners. STEM competence is a significant predictor of student persistence. Thus, interest and competence in STEM are necessary to recruit and retain STEM professionals. According to Beier and Rittmayer (2008), achievement in STEM must be recognized and rewarded to foster positive STEM dispositions. Students who are STEM proficient and active in advanced courses are more likely to pursue STEM degrees (Sahin, Erdogan, Morgan, Capraro, & Capraro, 2013; Wang, 2012). However, STEM interest and competence varies across race and gender based on experiences. These experiences influence the dispositions of women of color and require further examination.

The Relationship between Gender and Race on STEM Dispositions

The intersection of race and gender makes the dispositions of women of color uniquely diverse. Gender disparities in STEM interest and achievement are well researched and many posit that gender achievement parity is eminent (Choi & Chang, 2009; Freeman, 2004). Trends suggest that achievement disparities have narrowed across course taking and content knowledge. Research suggests girls attempt a similar number of rigorous mathematics courses and exhibit similar mathematics ability on observed
assessments (Hyde, Lindberg, Linn, Ellis, & Williams, 2008; Lee, Grigg, & Dion, 2007). A similar pattern is present in science gender gaps. Quinn and Lyons (2011) found no difference in science engagement between boys and girls. Knezek, Christensen, and Tyler-Wood (2011) add that the science gender gap is more or less a reflection of perceptions rather than ability. Contrarily, racial achievement disparities remain present and can influence the dispositions of women of color. Specifically, the persistence of the achievement gap tends to mediate results for some women of color (Young & Young, 2016b). Thus, the perceptions and experiences of one group cannot be utilized as a proxy for all groups.

Due to the persistence of achievement and opportunity gaps, sustaining positive STEM dispositions in girls of color is critical to diversifying the STEM pipeline. Many students of color receive less than adequate STEM instruction. Therefore, students of color are more likely to exhibit strong interest in STEM, but lack sufficient preparation in mathematics and science (Business-Higher Education Forum, 2011). For example, large populations of students of color lack opportunities to explore advanced mathematics and science courses in high school (Tyson, Lee, Borman, & Hanson, 2007; Woolley, Strutchens, Gilbert, & Martin, 2010). Appropriately, the National Research Council (2013) recommends going beyond academic achievement to assess STEM capacity. Therefore, it is important that researchers and educators assess STEM capacity based on performance, promise, and participation.

### STEM Enrichment

Participation in STEM enrichment helps increase STEM achievement and supports positive STEM dispositions (Young, Ortiz, & Young, 2017). The supports for informal learning opportunities focused on STEM enrichment are widespread (Decoitio, 2014; Fenichel & Schweingruber, 2010). Today, STEM enrichment is primarily offered in the form of Out-of-School Time (OST) activities. Theses OST activities offer time, tolerance, safety, choice, and the ability to incorporate emotional, aesthetic, and social elements into learning activities (Bevan & Michalchik, 2013). Typical STEM OST activities include after school programs and summer camps. The dispositions and experiences of boys and girls do have similarities, but are often different. Thus, specific after school and summer programs exist to encourage girls and young women to study and pursue STEM careers (Hein, 2009). These programs are beneficial to girls of color because they are designed to consider factors directly related to developing the STEM capacity of young women. Benefits of STEM enrichment through OST activities are numerous.

When appropriately executed, STEM enrichment during OST engages youth in rigorous, high-quality, and purposeful activities (Gupta, Adams, & Dierking, 2011; Vandell, Simzar, O’Cadiz, & Hall, 2016). This form of STEM enrichment supports student achievement in mathematics and science content. Enrichment programs provide valuable experiences that foster interest and help students realize how STEM connects to everyday experiences (Thomasian, 2011). These activities allow students to expand their content knowledge. Finally, STEM enrichment provides traditionally marginalized populations with instructional opportunities which are otherwise not offered in traditional school settings.

Opportunities to pursue STEM interests are not readily available in many schools (Bell, Lewenstein, Shouse, & Feder, 2009). STEM enrichment provides exposure to learning experiences that can be impractical in many traditional school settings. For example, STEM enrichment affords students opportunities to reinforce practical connections by visiting museums and STEM-related businesses (Morana, Bombardier, Ippolito, & Wyndrum, 2012). Studies show that decreased STEM-related interests and aspirations for girls and culturally and linguistically diverse adolescents emerge early (Watt & Eccles, 2008). Hence, exposure to high quality STEM instruction and enrichment early is pivotal to developing and sustaining positive STEM dispositions amongst girls of color.

Girls of color were selected as the population of interest based on their dual marginalization in STEM. This examination provides information to support increases in STEM career interest in diverse populations. Additionally, the results of this study offer researchers a deeper understanding of the influence of STEM dispositions on participation patterns among diverse learners. The current study was guided by the following research question. How do
the STEM dispositions of girls of color influence their participation in STEM enrichment activities?

Method

The participants in the present study were girls of color (N = 253) who participated in the High School Longitudinal Study of 2009/2012 (HSLS:09/12). The majority of the participants were Latina (N = 122), followed by Black girls (N = 91), and then Asian girls (N = 40). Students were randomly selected from a pool of over 21,000 students from 944 public, charter, and private schools in the United States. The base year data collection included online surveys administered to students, parents, teachers, and administrators. In subsequent administrations, similar online surveys were administered to parents and students. These variables represent the independent and dependent variables examined in the present study.

To assess the construct validity of the HSLS:09/12, researchers conducted a principle components factor analysis (Ingles et al., 2010; Ingles et al., 2011). In the present study, we examined the following scales: (a) self-efficacy, (b) interest, (c) identity, and (d) utility. Similar adaptations of these scales were used to assess mathematics and science dispositions. The aforementioned scales were standardized to have a mean of 0 and standard deviation of 1. Each scale’s properties and characteristics are presented in the subsequent sections.

Mathematics Disposition Scales

The mathematics self-efficacy items capture each student’s perceived ability to perform in mathematics courses. The Mathematics Efficacy Scale (X1MTHEFF) consisted of four items on the survey. These items asked students to agree or disagree with statements related to high school mathematics courses. For example, “You are confident that you can do an excellent job on tests in this course”. The four items were all likert scaled from “strongly agree” to “strongly disagree”. The Mathematics Interest Scale (X1MTHINT) followed a similar analytic structure. Three items were used to assess the students’ overall interest in mathematics courses. These items were likert scaled.

One sample item read as follows “You are enjoying this class very much.” Mathematics identity is characterized as the individual’s view of himself or herself as mathematically inclined. The Mathematics Identity Scale (X1MTHINT) is composed of two items. An example item from the identity scale is “You see yourself as a math person.” The final scale was the Mathematics Utility Scale (X1MTHUTI) composed of likert scaled items that asked students whether they “strongly agree” to “strongly disagree” that mathematics is “Useful for everyday life”. These four scales together represent student mathematical dispositions.

Science Disposition Scales

The science self-efficacy items examined each student’s perceived ability to perform well in science courses. The Science Efficacy Scale (X1SCIEFF) consisted of four items. These items mirrored the mathematics scale items. The four items were used to assess the students’ overall interest in science courses on the Science Interest Scale (X1SCIINT). One sample item read as follows “You are enjoying this class very much.” The Science Identity Scale (X1SCIID) is composed of two items. An example item from the identity scale is “You see yourself as a science person.” The final scale was the Science Utility Scale (X1SCIUTI) which asked student whether they “strongly agree” to “strongly disagree” that Science is “Useful for everyday life”. The dependent variables in this study measure the student’s OST participation in mathematics and science related STEM activities. The reliability analysis results of the student disposition scales are presented in Table 1.
Table 1: Reliability analysis scores of student disposition scales.

<table>
<thead>
<tr>
<th>t</th>
<th>Number of Items</th>
<th>Reliability (alpha)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mathematic Identity</strong></td>
<td>2</td>
<td>.83</td>
</tr>
<tr>
<td>1. You see yourself as a math person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Others see you as a math person</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Science Identity</strong></td>
<td>2</td>
<td>.89</td>
</tr>
<tr>
<td>1. You see yourself as a science person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Others see you as a science person</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mathematics Utility</strong></td>
<td>3</td>
<td>.74</td>
</tr>
<tr>
<td>1. What students learn in this course is useful for everyday life [fall 2009 math course]?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. What students learn in this course will be useful for college [fall 2009 math course]?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. What students learn in this course will be useful for a future career [fall 2009 math course]?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Science Utility</strong></td>
<td>3</td>
<td>.77</td>
</tr>
<tr>
<td>1. What students learn in this course is useful for everyday life [fall 2009 science course]?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. What students learn in this course will be useful for college [fall 2009 science course]?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. What students learn in this course will be useful for a future career [fall 2009 science course]?</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mathematics Self-efficacy</strong></td>
<td>4</td>
<td>.87</td>
</tr>
<tr>
<td>1. You are confident that you can do an excellent job on tests in this course [fall 2009 math course]?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. You are certain that you can understand the most difficult material presented in the textbook used in this course [fall 2009 math course]?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. You are certain that you can master the skills being taught in this course [fall 2009 math course]?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. You are confident that you can do an excellent job on assignments in this course [fall 2009 math course]?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Measures of Participation in STEM OST Activities

Six items, three for each content area—mathematics and science, were used to measure student participation in STEM enrichment activities. Students were asked: “Since the beginning of the last school year, which of the following activities have you participated in?” The student was then given the option to select all that apply from a list that included: (1) Math Club (S1MCLUB), (2) Math Competition (S1MCOMPETE), (3) Math Camp (S1MCAMP), (4) Science Club (S1SCLB), (5) Science Competition (S1SCOMPETE), or (6) Science Camp (S1SCAMP). Two composite outcome measures were generated from these items. Each measure was scaled from 0-3, with “0” representing “no participation” and “3” representing complete participation. The composite measures were identified as MATHENRICH and SCIENCEENRICH.

Analysis

The data were analyzed in a three-step process. First, the data were cleaned and weighted to adjust the error variances to account for the complex sampling procedures. The HSLS:09/12, like most NCES sample designs, was non-random and incorporated stratification and clustering that should be accounted for in the analy-
Statistical methods such as multilevel structural equation modeling and hierarchical linear modeling (HLM) incorporate clustering, which alleviate the need to adjust for design effects (Thomas & Heck, 2001). The current analysis requires the use of an average design effect based in WISTUDENT Weight. Student weights were normalized and then adjusted to account for design effects. This procedure was conducted to maintain the integrity of the data and to assure that the final error variances were correctly calculated (Hahs, 2003). Next, the data were subjected to a K-means cluster analysis to establish natural groups based on negative or positive mathematics and science dispositions.

The purpose of clustering was to create groups that are structurally similar and practically relevant. Cluster analysis creates internally similar groups that differ distinctly and meaningfully from one another (Tan, Steinbach, & Kumar, 2006). The intention was to create groups based on positive and negative dispositions toward mathematics and science. Therefore, the groups are uniquely different on an attribute that is theoretically associated with participation in STEM OST activities. K-means cluster analysis is a statistical procedure that partitions participants into a researcher-identified number of natural clusters. In the present study, students were partitioned based on mathematics and science data into two disposition groups per STEM content area. A total of four groups were formed: (1) positive mathematics disposition, (2) negative mathematics dispositions, (3) positive science disposition, and (4) negative science dispositions.

Each group forms a cluster with the centroid located at the center of the cluster. The centroid is the mean of all the data points in the cluster. Thus, for the positive dispositions the mean was positive and for negative dispositions the cluster mean was negative. Membership is based on the distance between each data point and the centroid. Consequently, the negative points cluster around their centroid and the positive points cluster around their centroid. Finally, after the two distinct sets of clusters were established, the identified clusters were used as factors along with student race in the subsequent analyses of variance.

### Results

The mathematical cluster analysis results are presented in Table 2. Statistically significant differences were observed between all measures of mathematics dispositions, which are indicative of good cluster fit. The data in Table 1 indicate that the groups differ most in terms of their mathematics identity, while the groups differ the least in perceptions of mathematics utility. Approximately 63% of the participants were classified in the positive mathematics disposition group, with the remaining partitioned group members represented in the negative mathematics disposition group. The race representation across the positive and negative disposition clusters was as follows: the positive disposition group was comprised of Asian (n = 32 or 20%), Black (n = 68 or 42.5%) and Latina (n = 60 or 37.5%), while the negative disposition group included Asian (n = 8 or 8.6%), Black (n = 23 or 24.7%), and Latina (n = 62 or 66.6%). Table 3 presents the results of the science disposition cluster analysis.

The science cluster analysis results are presented in Table 3. Statistically significant differences exist between all measures of science dispositions, which are indicative of good cluster fit. The data in Table 3 indicate that the groups differ most in terms of their perceptions of the utility of science. While the groups differ the least in perceptions of science interest, approximately 83% of the participants were classified in the positive science disposition group, with the remaining partition comprised of the negative science disposition group. The race representation across the positive and negative disposition clusters was as follows. The positive disposition group was comprised of Asian (n = 40 or 19%), Black (n = 71 or 33.8%), and Latina (n = 99 or 47.2%). The negative disposition group included Asian (n = 0 or 0%), Black (n = 20 or 46.5%), and Latina (n = 23 or 53.5%). Table 3 presents the results of the science disposition cluster analysis.

Participation in mathematics STEM enrichment activities was analyzed by a two-way ANOVA for racial group and disposition type. Results showed a statistically significant main effect of disposition type, \(F(1, 252) = 10.06, p = .002\), with a statistically significant racial interaction effect \(F(2, 252) = 3.88, p = .02\). There was a statistically significant difference between participation in mathematics enrichment activities.
activities based on student mathematics dispositions as seen in Figure 1. The results suggest that there were no statistically significant differences between racial groups in terms of mathematics activity participation, but there was a large statistically significant difference observed from the within group participation of Black girls based on mathematics dispositions (d = .89 [.40, 1.38]) as suggested by Figure 2. A lack of overlap between confident intervals indicates statistically significant differences (Young & Young, 2016a; Young, Young, & Hamilton, 2013; Cumming, 2007; Cumming & Finch, 2005). Likewise, the substantial overlap between the error bars for Asian and Latina girls suggest a lack of statistically significant differences.

A similar two-way ANOVA for science enrichment participation revealed a main effect of race, F(2, 252) = 8.99, p < .001. Post hoc Scheffe tests showed that Asian girls participated in statistically significantly more science enrichment activities than Black (d = .47 [.18, .75]) and Latina (d = .38 [.11, .66]) girls. However, this was not the case for mathematics enrichment activity participation.

Discussion

The results of this study have important implications for diversifying the STEM pipeline and for future empirical studies. First, the results suggest that girls of color generally hold positive mathematics dispositions. Among participants only Latina’s had more observed negative mathematics dispositions, but this difference was marginal. Furthermore, based on the results, mathematics dispositions differentiate enrichment participation among girls of color. This suggests that if girls of color have positive mathematics dispositions, they will participate in more mathematics enrichment activities.

Additionally, the statistically significant interaction effect indicates that racial differences influence these outcomes. Subsequent analysis revealed that mathematics dispositions only had a statistically significant within group effect on Black girls. This indicates that Black girls with positive mathematics dispositions on average participate in more mathematics enrichment activities than 81% of Black girls with negative mathematics dispositions. This result resounds the call to increase scholarship examining the mathematics dispositions of Black girls (Varelas, Martin & Kane, 2013). The results from the analysis of science dispositions have practical and empirical merit as well.

The observed data suggest that more girls of color exhibit a positive science disposition than a positive mathematics disposition. Approximately, 83% of girls of color had a positive science disposition compared to the 63% observed for mathematics. This 20% difference could be indicative of the many national and state initiatives to increase girl’s science interest (Cavanagh, 2007; Farland-Smith, 2009; Gonsalves,

Table 2. Positive and Negative Mathematics Disposition Clusters

<table>
<thead>
<tr>
<th>Mathematics Disposition Scales</th>
<th>Negative Dispositions (n = 93)</th>
<th>Positive Dispositions (n = 160)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics Identity&lt;sup&gt;1&lt;/sup&gt;</td>
<td>-0.51</td>
<td>0.82</td>
</tr>
<tr>
<td>Mathematics Utility&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-0.28</td>
<td>0.39</td>
</tr>
<tr>
<td>Mathematics Self-efficacy&lt;sup&gt;3&lt;/sup&gt;</td>
<td>-0.52</td>
<td>0.66</td>
</tr>
<tr>
<td>Mathematics Interest&lt;sup&gt;4&lt;/sup&gt;</td>
<td>-0.35</td>
<td>0.6</td>
</tr>
</tbody>
</table>

<sup>1</sup>F = 210.04, p = .000; <sup>2</sup>F = 41.34, p = .000; <sup>3</sup>F = 151.16, p = .000; <sup>4</sup>F = 88.46, p< .001;

Table 3. Positive and Negative Science Disposition Clusters

<table>
<thead>
<tr>
<th>Science Disposition Scales</th>
<th>Negative Dispositions (n = 43)</th>
<th>Positive Dispositions (n = 210)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Identity&lt;sup&gt;1&lt;/sup&gt;</td>
<td>-0.79</td>
<td>0.45</td>
</tr>
<tr>
<td>Science Utility&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-0.91</td>
<td>0.39</td>
</tr>
<tr>
<td>Science Self-efficacy&lt;sup&gt;3&lt;/sup&gt;</td>
<td>-0.80</td>
<td>0.33</td>
</tr>
<tr>
<td>Science Interest&lt;sup&gt;4&lt;/sup&gt;</td>
<td>-0.52</td>
<td>0.30</td>
</tr>
</tbody>
</table>

<sup>1</sup>F = 82.50, p = .000; <sup>2</sup>F = 99.36, p = .000; <sup>3</sup>F = 98.79, p = .000; <sup>4</sup>F = 50.73, p< .001;
Rahm, & Carvalho, 2013). The data also suggests that across racial groups the difference between clusters favored positive science dispositions. All Asian girls were clustered in the positive science disposition group, while only 20 Black girls and 23 Latinas where assigned to the negative disposition group. Despite having a large number of positive science dispositions, the results denote that science dispositions did not statistically significantly differentiate participation in science enrichment activities. This indicates that it is likely that a girl with a positive science disposition may not participate in more enrichment activities. However, there was a statistically significant effect based on racial group. Further analysis indicated that Asian girls participated in statistically significantly more science enrichment activities than Latinas and Black girls. The data indicate that Asian girls are 65% and 68% more likely to participate in more science enrichment activities than Black girls and Latinas respectively.

Implications

Mathematics and science dispositions are considerable factors in the participation of girls of color in STEM enrichment activities. Based on our results, mathematics dispositions have a stronger effect on enrichment participation for girls of color, than science dispositions. Therefore, teachers, parents, and researchers should place particular attention on the development of mathematics identity, interest, self-efficacy, and utility among girls of color. Based on these data special attention should be placed on Black girls and Latinas. Increasing positive mathematics dispositions in Black girls can increase participation in mathematics enrichment activities. Thus, more provisions are necessary to increase and maintain these dispositions to support initiatives toward more equitable STEM participation.

Latinas were the only group to exhibit more negative dispositions toward mathematics. Although the difference was not statistically significant, it has practical significance. Teachers, parents, and other stakeholders must continue to work towards minimizing cultural discontinuity in instruction. One way to accomplish this is to utilize the unique cultural funds of knowledge Latina's bring to the classroom. The results of the science analysis provide important implications as well.

Science dispositions matter despite the lack of statistically significant differentiation in enrichment participation. One of the explanations for the lack of differentiation was the overwhelmingly large percentage of girls with positive dispositions. Given that the majority of girls had a positive science disposition, it is possible that there was a lack of variation between the groups. Furthermore, more work...
is needed to better ascertain why science enrichment activities are more appealing to Asian girls compared to Latina and Black girls. This information would help facilitate the development of more culturally responsive science enrichment activities.

**Conclusion**

The results of this study further substantiate the argument that dispositions toward both mathematics and science vary across racial groups, however, this is more apparent in the science content area. Although the majority of girls observed had positive dispositions toward science, this did not tend to statistically significantly differentiate participation in science enrichment activities for all groups. Because dispositions did not differentiate science enrichment participation, it is recommended that further research examine other factors that may differentiate science enrichment participation.

In conclusion, to redress the years of systemic and systematic marginalization of women of color in STEM, it is imperative that parents, teachers, scholars, and STEM professionals accept the challenge and lead the charge to recruit, retain, and sustain girls of color through the STEM pipeline. A concerted effort to promote positive dispositions toward STEM and increase participation in available enrichment activities is necessary. This study provides STEM educational and professional stakeholders with more information to ascertain why some girls of color answer the call, while others do not.

**References**


A socio-economically depressed area, Merced County, California is plagued with high unemployment, high teen pregnancy rates, as well as high free and reduced lunch rates (Frohlich & Lieberman, 2015). Located in the Central Valley of California, Merced County is not known for many positive outcomes. The rare Major League Baseball star or National Football League player highlights the perceived strengths of our community and thus the focus of many parents. Merced County is often referred to as the center of poverty and poverty-related issues, not only in California, but also the nation (Merced County Community Action Agency, n.d).

In my community, males are regaled for their physical prowess and the role of females is largely that of supporting cast members to the story, and thus the community. Lost in this narrative are the young women who seek to break their community’s limited expectations and the cycle of poverty they have known for generations. Also lost are the young men who strive to be more than the aforementioned male stereotype. For those who do achieve academic success, they are quick to leave the community and contribute to the “brain drain” that often afflicts rural communities. According to Petrin, Schafft, and Meece (2014), the greatest focus and energy is placed upon the highest achieving. In Merced County, this is either in the academic realm or the athletic realm.

A Hispanic female born and raised in Merced County, I fit the stereotypes and limited expectations of my community. Chances were great that I would be a teen parent, rely upon the welfare system, and entrench myself and my children in a life of poverty. I was an ideal candidate for an impoverished life yet, through the support of my godmother Marylou Villa, a strong feminist figure, I changed my path, my future, and my long-term goals. Whether it was providing me access to Ms. Magazine at the age of eight, or endless discussions through my teens about inequities facing women, Marylou offered me glimpses of a limitless future. By sharing women’s achievements, she showed me the
world. Ultimately, her ongoing life lessons instilled in me a strong desire to never return to my hometown.

My journey back to Merced County was a long one. I spent 10 years in Washington, D.C., which afforded me diverse opportunities to study and develop as a young woman and professional. I attended Trinity College, an all-women's college, in the D.C. metropolitan area. As a political science major I interned on Capitol Hill for the Senate Committee on Banking, Housing and Urban Affairs. This inspired me to attend law school at the Catholic University of America's Columbus School of Law. During this time, I had opportunities to work on issues of civil rights and social justice. In retrospect, my most enjoyable experiences during that decade occurred when I visited high school classrooms and worked with teens to develop their advocacy skills, identify healthy relationships, and take active steps to address concerns within Washington, D.C. I moved throughout my days, ignorant of the fact that greater changes could be made in the community that I once believed had offered me nothing.

An opening at a high school in my hometown paved the way for me to leave the legal profession. I had unearthed a passion and desire to teach in a community that I believed was antiquated in its mindset. During my first five years, I enthusiastically taught high school seniors government and economics, educating my students about their rights, inequities in the world, and the means to effect change. It was not until 2007 that I realized how naive I was and that while I was addressing the challenges students faced, my curriculum virtually ignored the feminist perspective. Change was hindered by No Child Left Behind strategies and testing requirements set by the State of California. Under these prescribed formats, there were limited opportunities to expand information to students beyond the textbook’s written word.

In the winter of 2007, Buhach Colony Principal Ernie Sopp asked me to develop a course that addressed issues affecting young women in our community. Since the school opened in 2001, he noticed repeated patterns among the young women on campus. Teen pregnancies were a problem, as was the apparent willingness of young women to subject themselves to verbal abuse by their boyfriends. He wanted the young women to see possibilities that existed for them (E. Sopp, personal communication, February 2007). Whether young women live in the rural Central Valley of California or Washington, D.C., the means by which girls are confined appears to know no geographic boundary. In my mind, the development of a progressive course that tackled social issues our students encounter benefited not only them, but also the community. By going against the traditional structure of education, which emphasizes “his” story and overlooks “her” story, I developed a comprehensive course so students would achieve a clear picture of women’s accomplishments and issues. I decided students would be presented with examples that highlighted change as a result of women’s actions. This construct not only altered the ways in which students perceived the role of women, but also and more importantly, the ways in which they perceived their ability to change their own paths.

My vision was a course that empowered students to defy cultural norms and community expectations, placing them on a trajectory toward academic and professional success. I believed launching a women's studies course in the high school setting afforded students an integrated approach to history. This was an opportunity to discover whether or not young girls, when consistently presented with strong female role models, would begin to see a potential within them. By extending the focus on women beyond the 31 days of Women’s History Month, high school students taking a women's studies course could challenge social norms.

Achieving Approval and Launching the Course

In the winter of 2007, I developed a course that created a forum for feminist discourse, and highlighted significant female figures in United States history. I conducted Internet searches which yielded no findings of a similar course at the secondary level. I sought a balance between the historical representations of women and the students’ reflections of themselves, but there was no guide for presenting such content to high school students. My initial course outline assumed my students were equipped with the skills needed to not only identify personal cycles of oppression, but also draw connections to existing inequities within society.
on a micro level so they could create a lens to examine society on a macro level.

I submitted the course outline and curriculum to the Merced Union High School District (MUHSD) School Board. On the first submission, the course was approved. I now felt the responsibility to prove the relevancy and necessity of the course. Unbeknownst to me at the time were the lessons the students would soon impart and the revelations we would each take away from this educational experience.

Officially launched in January 2008, the elective history course titled The Role of Women in Society and U.S. History had an enrollment of 23 students: 21 females and two males. Cultures represented included: students whose families have assimilated to the United States, Hispanic, Portuguese, and Southeast Asian. Driven in part by curiosity, peer pressure, or blind trust in a friend's recommendation, students enrolled and committed to the yearlong course, thereby opening themselves to the learning process. The absence of public discourse on feminist pedagogy at the secondary level forced my students and me to navigate this unknown terrain and create a class firm in its feminist roots that could withstand the questioning of our conservative community, and prove to be flexible enough to adjust to the needs of the students' initial exposure to feminism.

During the first semester, students analyzed traditional views about women as individuals, members of family structures, and members of society. The second semester focused upon females in the United States who advanced women's status. What emerged in the course development was not only recognition of female trailblazers, but also the impact and conflicts that existed within the impoverished and diverse community of Merced County. Throughout the course, students attempted to reconcile their personal experiences with how feminist perspectives fit into their lives.

Discussions of gender relations within their cultures and family led these young women to believe that the ability to cook and clean were the only skills needed to "catch" a husband. Additionally, the students' reflections on their body types revealed a self-loathing of inherited characteristics. The 5-foot-3-inch Hmong girl and the size 12 Latina struggled with the comparison of the body type promoted by social media. Constant conversations in the home regarding diets and a fear of fat prevented my students from understanding the difference between healthy choices, body acceptance, and physical well-being. The discontent with students' bodies stemmed not only from social media, but also the older females within their home. Whether direct or indirect, these conversations impacted the manner in which they viewed themselves, interacted with their peers, and made decisions affecting their physical health. The interactions in the classroom were unexpected and amazing. In a high school classroom students were coming with questions, ideas for discussion, and a desire to talk about their personal lives. Capable of examining such macro institutions as the educational system and the workforce, it was the impact of the micro institutions that yielded the greatest impact on students' day-to-day lives.

As the students assumed a leadership role in their own education, I listened and pondered along with them. What unfolded was a realization that the macro structures of our society were clashing with the micro structure of their families. The atmosphere was electric and the analyses deep. The class became a community in itself, ready not only to identify problems, but also actively develop solutions. As a group, students asserted that society could not advance toward equity if neither sex understood what unites people when the focus is often on what divides us.

According to Natalia Daily (personal communication, November 9, 2015), now 26:

> As one of the first students to take the course of Women's Studies at my high school, I was eager to put in motion everything I was feeling about who I was as an individual. This course solidified my thoughts and notions that women are equal to men. Essentially the quote that 'feminism is the radical notion that women are people' really defined me.

Students urged me to expand the curriculum and allow them to tackle issues directly affecting them. The revised format of the first semester now targeted risk factors associated with teen pregnancy, drug and alcohol abuse, abusive relationships, body image, and
Bullying. At this critical juncture students used their newfound voices to guide the class. They now had the capacity to identify problems and the obstacles to be overcome. I found their request to be valid, on point, and necessary. To support their personal growth, I took their insights and recommendations and developed a curriculum that would meet them where they were and guide them through discussions and activities to see where this new path could take them.

The early introduction of the feminist lens is essential because of the stresses and demands faced by today’s teens. We assume that young people have the ability to identify oppression and express opposition to it. Today’s young people demand an approach that examines root causes, not simply external factors and institutions that have historically oppressed females. To ignore the teens’ development leaves them vulnerable and isolated in coping with difficulties they encounter.

Polygamy, Pregnancies, and Princesses

A no judgment policy in the class encourages dialogue where participants shared their concerns about established norms. Young men voiced that they also struggled with issues relating to body image and bullying that leaves lasting scars upon them. The young women accepted this knowledge, but questioned why young men often appeared outwardly unaffected. Sparked by this dialogue was a heightened awareness that gender stereotypes place restrictions on both sexes. Women’s issues are men’s issues too and ignoring them has led to adverse implications for society as a whole.

When considered from the cultural lens through which they look at the world, as well as the lens through which the world sees them, students effectively analyzed the impact and degree of influence wielded by the media, family, schools and the work environment. Now proficient in recognizing the social consequences of gender stratification, students gained further insight into the social realities affecting all.

An examination of their school highlighted the impact it had on our students’ sense of self. Students examined the school’s dress code policies and consequences, which yielded inequitable applications and outcomes (Giwargis, 2015). Female students were regularly cited for dress code violations including tank tops, shorts higher than mid-thigh or shirts that showed a girl’s stomach when she raised her hand. Dress-coded girls were either sent to a room or sat in an office waiting for clothes to be delivered. If a parent or guardian’s schedule prevented the clothes from being delivered, access to instructional time was lost for the day. Male students received warnings, the opportunity to lift up their sagging pants or turn their shirts inside out if it was considered gang attire. They were not, however, cited for wearing clothing that displayed women in a sexually provocative pose or conveyed a sexual innuendo.

Polygamy, abhorred in many parts of our country, made its way into the homes of many of my Southeast Asian students. Discussions elicited experiences by my students wherein it was not unusual for their fathers to bring a second “wife” into their home, through a mail-order bride service. The struggle that existed for my affected students was reconciling their ideas about marriage and partnerships, with the introduction of an individual who brought chaos into the family structure they had known. Assigned the role of subservient female, many of my female students found it unsettling to question their father’s actions, let alone challenge them.

If the addition of a second wife was not a pressing issue in their homes, the push for early marriage was. My students shared stories of the Hmong New Year and tossing of the ball: a ritual of a courtship, with a staged kidnapping and a dowry, which serves as one’s commitment to marriage. Refusal to follow this established norm was to bring shame upon the family and was therefore deemed unacceptable.

One young woman told of how her talking with a young man resulted in an elder in her clan advocating for an engagement between the two 17-year-olds. When questioned about her clan’s engagement ritual, she spoke of the presentation of a live chicken. Part lighthearted and part serious, my students and I developed a mantra and escape plan for her: run from the chicken! For two years, she successfully dodged the chicken. By the age of 19, she became engaged, married, and the mother of a little girl.
Students agreed that though traditions are changing, young women are raised by mothers who learned to tolerate their own plights. In addition to struggling with a changing family structure and constricting gender roles, many began to question their place within their cultures. As former student Brianna Lee (personal communication, January 23, 2016), now 23, shared:

I feel there are some conflicts between the culture I was raised in and the content of the class. Coming from a traditional Hmong culture background, my parents encouraged me to become educated and further my knowledge, but they don’t ever want me to leave their nest. My parents wanted me to go to a great college, but didn’t want me to go far.

The sentiment Brianna expressed was common among many of my female Southeast Asian students: become educated, recognize opportunities exist, and then return to your place in the home. Such messages were simultaneously encouraging and restrictive, thereby highlighting the daily conflicts encountered by my students. While parents took pride in the academic accomplishments of their daughters, they failed to recognize the next appropriate step of their daughter was applying the knowledge she gained. Brianna saw the emphasis was first and foremost on the woman’s role in serving her family and preparing to care for her husband’s family. Until she took the women’s studies class, she accepted this to be true. Brianna (personal communication, January 23, 2016) stated:

The content of the class taught me that it is okay to leave the nest, explore, experience, and get inspired. Not only to get inspired, but to gain experiences so I can share my story with other people who are like me. The Role of Women in Society Class taught me that in order to achieve what I want in life, I have to break the glass ceiling that is blocking me.

Feeling a different pressure within her Southeast clan, former student June Lis (personal communication, January 23, 2016), and now 22, recalled:

Being raised in the traditional Hmong culture, I was always taught to do better than the rest of my Hmong peers because my success is the most important thing. The content of the class taught me how to become supportive, not judge, and not criticize others… to share what I have learned and help others grow as I am on my way to success.

Though seemingly different from my Southeast Asian students, my Hispanic students encountered similar struggles between the old world culture of their home life and the new world culture encountered with peers, school, and social media. Accepting women as leaders proved challenging for the Hispanic students in my class, as it unsettled the foundation upon which they had been raised. For them, women’s abilities were entwined: childbearing, cooking, and cleaning. Religion, the hearth, and the home encompassed a woman’s purpose. And so, when a Hispanic girl became pregnant in my community, there was no sense of surprise, outrage, or concern. Instead, the young Hispanic girl was merely fulfilling the expectations of her family, perhaps a bit early. Still, the family remained firm in their religious beliefs: the child is a gift from God.

For young women whose families have been in the United States for multiple generations, the “princess” complex appears to guide them, while simultaneously plaguing them (Forman-Brunel & Eaton, 2009). The princess is raised to believe that she will be taken care of, and overprotection by a parent or guardian creates a false sense of security not owned by the princess, but felt by the protector. Young women struggled with the princess complex promoted by families, the media, and society, which was in direct conflict with their path toward self-discovery and independence.

Natalia Daily (personal communication, November 9, 2015) reflected:

Shortly after graduating from high school, I found myself pregnant with a decision to make. Because of learning about women historically, feminism, and identifying who I was because of this course, I decided to keep my baby. I was a strong and independent young woman who decided that with or without the help from my child’s father, I would raise him.

Though Natalia repeated the cycle of teen pregnancy, she consciously avoided repeating other statistics associated with teen moms. She (personal communication, November 9, 2015) added:
Because of this course, I had the confidence to break through the barriers and statistics of being a teen mom. I now hold my Bachelors of Arts degree completing all of my schooling before my son entered kindergarten. I truly believe this course started a revolution within me to strive for more and break down barriers and the glass ceiling. I truly cannot imagine my life without being one of the original trailblazers, as it has truly impacted every part of my life.

Natalia did not stand alone in her experiences or desire to overcome the challenges that many believed lay ahead of her as a teen mom. I have seen many of my students struggle with the idea that the princesses they were encouraged to become required them to wait and be rescued by a male. The value these young women placed on their physical attributes fostered conflict, animosity, and competition with female peers. They were not competing for high academic grades, but instead for high levels of attention from their male classmates. To achieve the outcome of being rescued by the prince and securing a ring at any cost, my female students were willing to sacrifice friendships, self-identity, and self-confidence.

Researchers Montazeri, Gharacheh, Mohammadi, Rad, and Ardabili (2016) noted the challenges that afflict young women who marry at a young age. And while their focus was on young girls in Iran, the realities know no geographic boundaries. Despite my students seeing unhealthy patterns repeated in their homes, parental and familial encouragement wielded greater influence than any established research.

The acknowledgement of this struggle emerged in class discussions and reflective writings. The focus for many of my female students was seeing their parents link their success as a daughter to a partner’s financial success. Many parents did not see their daughters as capable of achieving independent economic success, and believed delivery from poverty could only come in the form of a man.

This reduced expectation for academic achievement for their daughters has long-reaching implications. Beattie (2015) found a correlation between parental expectations of their daughter’s academic achievement and high-risk sexual behavior. She found that when expectations did not match a student’s actual ability, unprotected sex was likely to occur. This creates a point of consideration for the teen pregnancy rate that exists within Merced County, which ranks as the 10th highest in California (Ibarra, 2014). The simple step of parents encouraging and better preparing their daughters to attain a college degree and supporting their enrollment in challenging courses can decrease the likelihood of a teen pregnancy. This cyclical break begins to undo the pattern of poverty and better position young women to achieve economic independence.

While my female students struggled with presenting themselves as worthy of being rescued by a prince, my male students experienced their own challenges. Raised in cultures that placed women in an ancillary capacity, the young men sought to reconcile how they were raised with what they wanted. The Hispanic and Southeast Asian cultures placed the financial burden solely on the male, and yet many of my male students questioned this approach. The idea of being able to provide for their loved ones contrasted with their welcoming the idea of a partner with shared professional aspirations and familial goals.

For the young men, this included expressing to their partner that they desired to be an active parent rather than disengaged or absent as were many of their fathers. They worried though that by expressing this goal of assuming parenting responsibilities that they would be shamed by their older male relatives as being subservient in the relationship, and that their sexuality would be questioned.

As second-and third-generation citizens of the United States, many of my students sought to put off marriage and children, thereby placing an emphasis on their education and economic prosperity. Depending upon their family’s time in the United States, this was either a simple conversation or a matter for their clan’s elders. The focus of the elders remained: marriage, procreation to sustain their culture, and providing for one’s family. Clearly, just as women were tied to expectations that limit their potential, males were similarly burdened.

Interrupting years of ingrained stereotypes and beliefs is a daunting task. A first day of school pre-assessment showed throughout the course’s history that 56%
of students recognized equal rights for women and men do not exist in the United States. And yet, approximately one of every two students believed women were protected under the United States Constitution. Former Associate Justice Antonin Scalia’s assertion that women were not protected against discrimination under the Constitution challenged how my students viewed the world (Terkel, 2011). When students analyzed the pay gap that exists in the United States, and the lack of female representation in the public and private sectors, they realized the amount of work that remains if equity is to be achieved.

For former student Sarai Herrera (personal communication, November 2, 2015), now 20, the experience was not about finding her voice, but having it supported without judgment:

I am not shy to speak up and have my voice heard. I stand up for that I believe in, and I know my worth as a college student and as a young woman. We accomplished so much within the little time we were enrolled in the class, but the knowledge and experiences we encountered will last a lifetime. In a short sentence what the Role of Women in Society Class has done for me, is opened my eyes to the true value of women as well as men. We are all equal and deserve to stand up for what we believe in.

Embracing Female Trailblazers

Utilizing gained insights from the first semester of the yearlong course, students expanded their social critique of the position of women as it related to labor, politics, and violence. Equipped with a stronger sense of self, students forged into the second semester with the necessary tools to identify and apply in real-world settings. A brief highlighting of women in the early world history set forth the foundation upon which students built their understanding of how women’s contributions, though significant, were often overlooked. While students explored the early history of women from the mid-1800s to the present, a strong emphasis was placed on the period of 1945 to the present. Students examined the second and third waves of feminism, from the women’s movement of the 1960s and 1970s, to the failure of the Equal Rights Amendment, and ongoing issues relating to the pay gap.

Excerpts from Gail Collins’ book, When Everything Changed and Dee Dee Myers’ Why Women Should Rule the World, as well as articles from Ms. Magazine, provided starting points for discussions on these topics and these times. Students utilized this information in a collaborative “Decades” project, which highlighted women’s accomplishments in politics, science, math, literature, music, television, film, and fashion. Students evaluated legislation passed to consider the laws as either limiting or advancing women.

As their research progressed, students became frustrated and indignant at their findings. They questioned the absence of women in the textbooks of their traditional classes. Unclear on the gaps in their education, they considered why so many remarkable women, such as the Black female mathematicians who calculated the trajectory of the moon landing, remained unknown (Dunbar, 2008). When presented with information in core curriculum classes, students now had the confidence to educate their teachers and peers about the women who contributed to the manner in which our nation and our rights were shaped. Applying their new knowledge, students saw women as active participants in history, rather than passive observers. They promoted discussions that drew women out of the shadows and into the forefront of the discussion.

Piece by piece, the information gathered and shared fostered the potential to cast females in a light that is capable and enduring. In doing this, students educated not only their peers but also the teachers who clung to a history that traditionally highlighted only males. While some teachers and peers have not wholly supported the insights offered and knowledge gained, the majority have embraced the students’ enthusiasm to facilitate greater depth in their class discussions. And though many of my peers are surprised to learn that women are not specifically protected under the Constitution of the United States and that feminists are not limited to the female sex, I utilize their questions to break down the fear many seem to have regarding feminism. Minor success emerges in the articles placed in my staff mailbox that benefit my women’s studies students. Major success occurs when teachers revise their own curriculum to include women. I have become a mentor in this area and welcome the collaboration with my colleagues.
Defying Cultural Norms Launching Women’s Studies in the High School Setting

Watching my students undertake research, apply their knowledge, and synthesize their findings highlights the importance of feminism as a journey. Invested in the process of uncovering the unknown aspects of history, students recognized the methods by which women utilized music to voice discontent with established norms, and saw fashion as a means of showing one’s body as more than an object. In analyzing the manner in which music and fashion have historically been utilized as political tools, students view the expanding role of social media as adversely affecting them and contributing to the decline of the political representation of women in the United States. They see social media as establishing an inextricable link between a woman’s clothing, or lack thereof, and an ability to create lyrics that emphasize her physical abilities over her intellectual capabilities. Messages of independence, personal strength, and empowerment are the exception, rather than the norm. In their analyses, students believe that the role of social media has devalued and therefore diminished how women are viewed in the United States, the seriousness afforded to them, and their ability to effectuate change.

The Role of Social Media

In an effort to reach a multitude of modalities, the use of films, photographs, books, and music allowed students to study women’s achievements and struggles in both the public and private realms of their lives. They gained insight into the means by which women conveyed social and political messages. By observing the various methods utilized by women for expressing themselves, students expanded their awareness of the means by which they themselves could wield influence. The role of social media impacted the manner in which students developed their sense of self. Whether it was a discipline warning or school suspension because of bullying on site or online, many students found that they were unprepared to navigate the unfiltered worldwide web. Compounding the challenges were the images and messages they saw with each alert, update, or response to a posting.

Social media forced students to acknowledge they lacked the tools to combat the expectations of becoming or dating the “perfect woman.” An intense analysis of television, advertisements, and social media emboldened students to question images, challenge previously held notions, and debunk myths related to a narrowly confined definition of beauty. By acquiring the tools needed to deconstruct unrealistic images, the students identified ways to combat the negative effects of the media.

Maintaining Relevancy

With the departure of Principal Sopp from Buhach Colony at the end of the 2008 academic school year, I sought support for the continuation of the class. A new focus and hence new chapter for the program emerged as I was solely responsible for not only teaching but also funding and justifying the class as an ongoing necessity in our community. While our class could have functioned within our school, its value needed to be recognized beyond the classroom. I saw it as imperative to call upon outside nationally and internationally renowned feminists to validate this critical course and its pedagogy. The call to action was answered by Gloria Steinem, Dee Dee Myers, Maria Shriver, and others who believed in lifting up our young women.

The course launched in January 2008, just as the economy experienced a downturn. Over the next seven years, California budget cuts would impact the class and the sections allotted for it. Money was not available to support demand for what was simply viewed as an elective and the class had the potential to be deemed irrelevant and unnecessary. Yet, it was the support from powerful women who were nationally and internationally recognized that not only strengthened the resolve of the students, but also validated the need for such a course in the Mercer Union High School District’s (MUHSD) curriculum. As Gloria Steinem (personal communication, November 7, 2011) advised students, “It is difficult for young women to study a history about which they are not a part.”

The strength and support of strong female figures such as Gloria Steinem propelled the class to record its highest numbers in 2014–15. Over 400 students sought enrollment in the course. Armed with these numbers, additional sections were requested to meet the demand of the students who had validated the need for the course and its expansion. The school denied additional
sections but allowed two very large classes of 55 students in each. I was adamant that I could handle the numbers so as not to deny student requests.

**Trailblazers Validate the Class**

The initial historical female figure I sought to connect with my students was Dee Dee Myers. As the first female White House Press Secretary in the history of the United States, she served President Bill Clinton from January 1993 to December 1994. A request submitted through Myers’ editor on November 13, 2009 resulted in a swift response where she noted that she was “thrilled” with the existence of such a course, and in particular at the high school level (Myers, personal communication, November 18, 2009). As the author of the New York Times bestselling book, *Why Women Should Rule the World* (Myers, 2008), Myers agreed to meet with students during a class trip to Washington, D.C.

On January 11, 2010, a group of my students met with Myers at my alma mater, Trinity College. The interaction between Myers and the students lent insight into their depth of understanding her work and her efforts. Moved by the quality of questions and expanse of conversation that transpired, Myers commented that on that very day, a sisterhood had emerged and needed to continue. In a 2011 interview with my students at her office, Myers asked the young men about their decision to enroll in the course. Former student Adrian Montero (personal communication, 2011), now 23, remarked:

*What struck me the most yesterday was when she said we can all be architects of change. She said we are all activists. This stood out to me, because we don’t do huge things, we don’t change thousands of lives like she does. And yet, she helped me realize that as long as we try to make a difference, we are all activists.*

The second individual to be interviewed by my students was then First Lady of California, Maria Shriver. Unable to meet the students in person, she coordinated a live video question and answer session. For former class member Fernando Valencia (personal communication, December 16, 2010), now 24, the experience was equally exhilarating:

The sentiments expressed by the students were reflective of those written by their peers. They were proud of the fact that the questions they asked were not only taken seriously, but also regarded as thought provoking and insightful. The students consistently expressed that the class had been validated and hoped other strong female figures would follow the lead established by both Dee Dee Myers and Maria Shriver. Many women answered the requests and followed the lead of these two women. To date, students have been fortunate enough to meet feminist leaders such as: former Oakland/LA Raiders CEO Amy Trask, the Empowerment Plan CEO and Founder Veronika Scott, and the first female high school football coach in the nation, Natalie Randolph. Like Dee Dee Myers, enduring relationships developed among several of the women who have connected with the students. In March 2016 Jess Weiner, author of *A Very Hungry Girl* and Dove’s Global Ambassador for its Campaign on...
Real Beauty visited our community and met students. Multiple interactions with students throughout the years motivated Ms. Weiner to write another book.

During her visit with students she brainstormed ideas with them to craft a book focused on their needs and interests (J. Weiner, personal communication, March 19, 2016).

While students did not initially understand the impact of speaking with historical figures, they eventually grasped the fact that they had a voice and it was valued by the very women who had blazed the very trails they were now seeking to embark upon. As our community struggles within an ongoing cycle of poverty, conversations with empowered women gave students a voice, something previously unrecognized within them. Former student Josie Santellano (personal communication, December 16, 2010), now 23, reflected:

I know for a fact, that speaking with Maria Shriver made a difference in my life. I knew that by taking this class I was making a difference, but hearing Maria Shriver say it, gave me this amazing feeling… Meeting María Shriver and taking this class inspired me to become a better person and make my voice heard, because my voice is important.

My students recognized how powerful they were. While they saw their strength as individuals, they realized it was greater as a group. Thus the opportunity to coordinate a conversation between themselves and Gloria Steinem became critical. After a yearlong effort to secure Steinem for an in-class visit, the method by which we secured her had to be more creative. Within two and a half months of Steinem agreeing to a Skype session, students found themselves engaged in a conversation with a woman whose name is synonymous with feminism (“Persistence Pays Off for Atwater School,” 2015).

The scheduled 30-minute Skype session was generously extended to an hour. Questioners probed Steinem on all aspects of her life and work. In the days that followed our Skype session, Steinem’s office contacted me about introducing students to other influential women who have influenced our country’s history.

The culmination of these experiences highlighted the importance of taking trailblazers from the pages of history books and bringing them into direct contact with my students. By assigning the responsibility of the experience to the students, they felt more closely connected with the women. In establishing the connection, the questions asked achieved a level of authenticity that has on several occasions moved the interviewee to tears.

The Interview Process

My students saw the importance of calling upon individuals to identify their personal strengths and weaknesses, emboldening them to question their environment and providing them the tools needed to reshape the manner in which society views them and treats them. Through interviews with living historical figures, students were afforded the chance to document the ways in which the roles of women in society have changed, but not necessarily evolved. The students’ own race, class, ethnicity, and religion influenced
their questions for the leaders and the responses they received further shaped their individual goals.

The strength of the interview process rested in discovering what possibilities existed for the young women and young men who meet with, talk with, and learn from interviewing feminist trailblazers. Students hearing from interviewees that even as young people they have a voice, and it can be powerful, is necessary for the young women of Merced County. Many of the young women have resigned themselves to never leaving or thinking beyond their immediate world. And yet these powerful guest speakers show them that obstacles strengthen them, support and encouragement do exist, and anything is possible if they truly want it.

Students are actively engaged with the guest speakers throughout the entire process. Once a guest speaker confirmed, students researched and developed their individual questions. I gathered the questions from students in order to sort them based on strength and ingenuity. I reviewed the questions to ensure that a higher order of thinking was evident in the questions' crafting and presentation. This standard placed the onus of responsibility upon the students to conduct extensive research, synthesize critical information, and craft questions that elicited responses that extended beyond a typical question and answer session. Students understood that if the answer could be easily found on the Internet, then the question would not be asked. If the guest speaker was willing to donate her time, then the effort put into the interview must reflect an appreciation and respect for that.

The day of the interview, students placed themselves in order of the questions being asked. The student with the strongest question welcomed the speaker and outlined the guidelines for the session. All guests understood that the class had a clear rule of “no judgment,” and thus the decision to forego answering any question would not be viewed in a negative light. Throughout all of the interviews, there has yet to be a question that has gone unanswered. There have, however, been countless remarks about how impressed the speakers were by the caliber of questions and the sincerity of the students in learning from the responses.

The conclusion of the session, whether in person or via Skype, often left the students feeling both exhilarated and overwhelmed. The experience of engaging with someone they have researched, seen on television, studied in class, or read about in articles began to affect them. Capturing these emotions and thoughts became critical, and the crafting of thank you letters afforded students a method to process the experience. For those who were afforded the opportunity to ask a question, the thank you letter was a chance to reflect upon their thoughts and emotions as they connected with the speaker’s words. For those who did not have the opportunity to ask a question, the letters presented a chance for a student to share why they still felt connected to the process.

Bringing Women’s Studies to Alternative Education

Former Assistant Superintendent Stacy McAfee sought expansion of the program to additional sites within the MUHSD. She believed the next step was to reach students at our district’s alternative education site, who might not otherwise be afforded an opportunity to engage in a feminist dialogue. In 2014, Yosemite High School became the first alternative education site to offer a women’s studies class. Students attended this site for one or more of the following reasons: poor attendance, low credits, and/or disciplinary action that removed them from a comprehensive site. The school’s principal saw value in students discussing the lives they lived, the impact of choices made, and the development of tools to change what many perceived to be a predestined life. Forty students enrolled in the two course sections offered at Yosemite. Though this expansion required me to split my day between two campuses located six miles apart, I welcomed the challenge of expanding to a new population and recognized this as a critical juncture for the program.

For the young men at Yosemite High School, placement in the course occurred either because a girlfriend was taking the class or elective credits were needed. Regardless of the reason, none were grounded in a strong desire to learn more about the role of women in society or their impact on the history of the United States. This did not mean that they did not avail themselves to the process. For Michael Murphy, it was
not until the beginning of May, when he sat shaking his head, a look of disgust on his face. When queried, he responded, “I wonder why no other class has ever taken the time to teach me about all that women have accomplished.” When I asked why such a thing would matter, he said, “I would have respected women and treated them better, if I had known how much they contributed to society” (M. Murphy, personal communication, May 4, 2015).

A New Direction for the Program

In August 2015, I relocated the program to Golden Valley High School, within the MUHSD. In returning “home,” I had the opportunity to work with a former Buhach Colony colleague who had recently assumed the role of principal. As a colleague at Buhach Colony, Kevin Swartwood had reached out to football coach Natalie Randolph. Their shared roles as science teachers and varsity football coaches served as common ground that laid the foundation for her subsequent meeting with my students in Washington, D.C. Though new in his role as principal, he was not new to women’s studies. Having taken a women’s studies course in college, his prior experiences strengthened his support. Asked of the educational benefits to students speaking directly with trailblazers, Mr. Swartwood (personal communication, November 29, 2015) commented:

I feel that anytime our students or our own children can hear a consistent message from an admirable person, it helps to inspire them. Any historical figure like Natalie Randolph grabs the attention of students and makes them feel like anything is possible with passion.

As was evident in his words, learning for my students must extend beyond the written word. The absence of opportunities, combined with the lack of support could be detrimental, especially in a community such as ours, which faces daunting statistics (Ibarra, 2014). Progressive in his mindset, his willingness to recognize the potential of the program offered me hope that the long-term goals could be achieved for an expanded program that was far-reaching in its scope and impact.

Conclusion

Demand for the Role of Women in Society and U.S. History course, as well as the Transnational Women’s Studies course, has been greater than the funding allotted by the MUHSD. Still, the insight and impact cannot be overlooked. Class alumni continue to stress the importance of the continuation and growth of the class, because they see it as critical for our community. As male former student Hayden Yang, now 19, stated, “The class made me feel comfortable to know there are a lot of individuals like me, who face challenges… It shocked me that this world is living upon expectations and assumptions” (personal communication, November 4, 2015).

The ability to become an agent of change derives from one’s ability to identify a problem. Having identified the problem within our community, a passion to bring about change has been exhibited. My students have repeatedly shown that the infusion of women’s studies into the high school curriculum is a powerful tool. Affording students the ability to place themselves in conversations with trailblazers and redefine their views of themselves was beneficial not only to the individual, but also to the community they call home.

A lesson exists in this, not only for the students but also for those leading the feminist movement. If change is to occur, it must be based on the insights and experiences of all stakeholders, regardless of age. My dream was to mentor not only students but also those teachers who recognize we must prepare our students to eliminate societal constraints by taking ownership of their lives.

I completed my eighth year of teaching women’s studies in the high school setting. I have journeyed with over 750 students who successfully completed the course. I have attended the weddings of students who married early in their twenties and held the babies of some who repeated the cycle of teen pregnancy. But, I have also been contacted by former students who celebrated their 20th birthdays by noting that they did not have children and had advanced their education or careers. These former students broke a cycle that had entrenched their families for generations. Among those class alumnae
who pursued college I have witnessed several graduate
with majors and minors in gender studies.

Regardless of the path they have chosen, my students
consistently commented on the significance of the class
in their lives. Many educators think exposure to women's
studies can wait until college; however, I have seen
proof that earlier introduction increases the likelihood
for redefining one's future. Not everyone can have a
godmother who introduces her to Gloria Steinem at the
age of eight, but I can do my part to introduce students
to a wide array of incredible women the moment they
walk into my class. Feminism is not just for the young
women and young men in my community. Instead,
feminism can show all communities that cultural norms
can be redefined.

References

expectations and achievement and adolescent
women's risk of unprotected first sex. Sociological Perspectives, 58 (3), 358–379.
doi:10.1177/0731121415582102

amazing journey of American women from 1960

Dunbar, B. (2008, August 26). She was a computer
nasa.gov/centers/langley/news/researchерnews/
nr_kjohnson.html

Forman-Brunel, M., & Eaton, J. (2009). The graceful and
gritty princess managing notions of girlhood from the
new nation to the new millennium. American Journal
of Play, 1 (3), 1–27.

Frohlich, T. C., & St., M. L. (2015, March). Cities with
usatoday.com/story/money/business/2015/03/07/247-
wallist-highest-unemployment/24366329/

Giwargis, R. (2015, April 2). Buhach Colony social
experiment results in 80 detentions. (n.d.). Retrieved
atwater/article172688770.html

mercedsunstar.com/news/local/article3291286.html

Merced Community Action Agency. (n.d.). Poverty in
poverty-in-merced-county/

Montazeri, S., Gharacheh, M., Mohammadi, N.,
of early marriage from married girls' perspectives
in Iranian setting: A qualitative study. Journal of
doi:10.1155/2016/8615929


Persistence pays off for Atwater school. [Video
archive/8422756/

March). Educational sorting and residential aspirations
among rural high school students: What are the
contributions of schools and educators to rural brain
294–326 doi:10.3102/0002831214527493

Stanford University. (n.d.) Gloria Steinem: Ms. at 40 and
com/watch?v=2qhO3t3ZPZ8

don't have constitutional protection against
com/2011/01/03scalia-women-discrimination-
constitution_n_803813.html
Sisters Inspiring Change