Toward an Equity Agenda for Black Girls and Women in STEM Learning Spaces and Careers: Noticing, Validating, and Humanizing

NATALIE S. KING*
Georgia State University

This editorial and themed issue is a call to redirect our efforts from teaching Black women and girls how to navigate and persist in toxic STEM learning environments to a greater vision of being and becoming. As we consider what becoming means for Black girls who transition into Black women in STEM learning spaces and careers, there is often an untold story of struggle, resistance, and resilience. I present the experiences of three Black women physicists who in very recent years became the first, while contributors in this issue share cutting-edge scholarship on how Black girls engage in youth participatory action research, the role of race and gender discrimination on Black girls' mathematical attitudes and beliefs, and how Black girls develop scientific literacies in elementary classrooms. Additional research explores how Black women experience imposter syndrome in their pursuit of terminal STEM degrees, while the final piece in this issue shares counternarratives of Black women engineering teachers by drawing attention to aspirational capital and communal support. We elevate the voices of Black women and girls to author their own stories as unsung heroes in this body of work and reposition them as experts of their experiences. This courageous and radical shift requires coconspirators and agitators to move the equity agenda forward so that Black girls and women are not burdened with the labor of undoing, disrupting, and dismantling systems of oppression that they did not create.

Keywords: Black Girls, Black Women, STEM

Former First Lady Michelle Obama released a book titled "Becoming", a memoir that chronicles her experiences from childhood to adulthood and life beyond The White House. Readers gleaned at the powerful ways in which the compilation of her life's experiences led her to become the first African American to serve as First Lady of the United States of America. After completing her second term in office, she mentioned how the stillness afforded her an opportunity to reflect and she had a lot to say. Former First Lady Michelle Obama authored her own story and shared it with the world. Being *the first* comes with many challenges and moments of insecurity. The stakes are high as you shoulder the weight of unseen history and struggle to fit in while still standing out.

In 1981, Dr. Barbara A. Williams became the first woman to receive a PhD in astronomy, with fewer than 20 Black women having accomplished this feat in the past 30 years (Wilkins,

2021). While her research investigated radio observations of compact groups of galaxies, she also published work exploring recruitment and retention practices of undergraduate women in physics programs (Whitten et al., 2007). In 2006, Dr. Jami Valentine Miller was the first African American woman to earn a PhD in physics from Johns Hopkins University. Dr. Jami is a patent examiner at the United States Patent and Trademark Office. She also created the website AAWiP.com (highlighting African American women in physics) and spends much of her time as a STEM advocate promoting diversity and conducting outreach to inspire young scientists and engineers and those interested in non-academic careers - particularly intellectual property (Miller, 2019). Let's also consider Dr. Jedidah C. Isler, an astrophysicist who became the first African American woman to receive a PhD in astrophysics from Yale University. Her research explores the physics of supermassive black holes that create particle jets nearly moving at the speed of light. While she currently serves as a tenure track faculty member at Dartmouth College, Dr. Isler created and hosts an online network (#VanguardSTEM) to foster community for girls and women of color to thrive on the STEM frontier. Her non-profit organization has initiatives dedicated to social justice and building a support network (Isler, 2021).

I presented three examples of Black women physicists who are pioneers within the STEM fields, and in very recent years became *the first*; and in some instances remain the only. There are Black women STEM professionals across disciplines whose experiences could be highlighted, but I chose to focus on astronomy and physics because they continue to remain White and male-dominated career pathways. As we consider what *becoming* means for Black girls who transition into Black women in STEM learning spaces and careers, there is often an untold story of struggle, resistance, and resilience. While the trailblazers presented in this editorial occupy full-time positions, there remains a responsibility (or dare I say burden) to engage in outreach and advocacy work that will strengthen the pipeline.

For many Black girls who aspire to pursue STEM careers, they are the first in their families to receive a formal college education or attain a terminal degree. They face a history of exclusion in K-12 sectors which manifest in college majors and careers. Bullock (2017) discusses the notion of STEM as property and shares how middle-class Whites in urban areas secure STEM education by repurposing Black schools that are labeled as *failing* and institutionalizing selective admissions strategies. On becoming, we must shift who gets to tell our stories and become the experts of our experiences. Black girls and women are the unsung heroes of Black girlhood research in the STEM fields. Therefore, a repositioning must occur to elevate their voices and expertise as they live and narrate life from their perspectives without censorship or apology.

Reports highlight stubborn trends over time as it relates to Black girls' performance in science and mathematics and Black women's persistence in STEM careers. According to the Pew Research Center (2021), Black women are still underrepresented in the STEM workforce. Also, while there are specific areas where women are more likely to be present, such as the healthcare field, Black women "remain underrepresented in other job clusters, such as the physical sciences, computing and engineering" (Pew Research Center, p. 4) . These studies solidify that simply allocating federal funds to support initiatives for "girls/women of color" while essentializing the experiences of Black girls/women are not enough to increase participation, performance, engagement, or interest in the STEM fields. A disrupting and restructuring must occur to "paint a systemic portrait that portrays the STEM talents and proficiencies of Black women and girls" (King & Pringle, 2019, p. 540). Therefore, future

research must provide a platform for their voices to reverberate above the noise of statistics that are mere representations of inequitable educational and institutional systems. These larger structures have historically excluded Black girls and women from authentic participation in advanced science and mathematics courses, STEM programs, and STEM careers. For those who have persisted to become scientists, engineers, mathematicians, and everything in between, their contributions are often ignored, erased, or hidden behind a White male heteronormative culture within the STEM fields.

For this purpose, we must guard against the erasure of our experiences or misrepresentation of our narratives. This themed issue on *becoming* Black girls and women in STEM education and careers is an act of resistance. Scholars present their research sharing authentic stories of success and struggle – from documenting Black girls' engagement in youth participatory action research projects to improve educational outcomes for their peers to Black women battling imposter syndrome as they pursue terminal degrees in the STEM disciplines. Repositioning and narrating stories of *becoming* requires an equity agenda. The term *equity* has been conflated to mean many different things to different people, with institutions adopting diversity, equity, and inclusion plans while simultaneously disenfranchising the individuals they claim to protect and serve. Equity, as defined in this editorial, adopts the Annie E. Casey Foundation's (2021) definition as "the state, quality or ideal of being just, impartial and fair." (par. 5). It is a pursuit of justice that addresses structures and systems preventing individuals from living their full and healthy lives.

In striving toward an equity agenda, our efforts must shift from teaching Black girls how to become Black women who can effectively navigate oppressive systems and *swim against the tide* (Hanson, 2009) to disrupting the culture of science and existing narratives of who can become a scientist, technologist, engineer, or mathematician. Where does the work begin in dismantling structures that were intentionally created to isolate and exclude certain groups of people? In moving toward an equity agenda for Black girls and women in STEM learning spaces and careers, it requires us to reject a one-size fits-all approach to delve deeper into the lived experiences and intricacies of Black girlhood and womanhood and the intersectionalities of being and becoming. This themed issue highlights the importance of relationships and draws attention to the contexts that Black girls and women create and nurture for self-care and persistence to experience academic success while (en)countering negative narratives and toxic STEM learning environments.

Who are the coconspirators and agitators that will enact change and move the equity agenda forward so that Black girls and women are not burdened with the labor of undoing, disrupting, and dismantling? Within academia, for example, Black women faculty often have greater responsibilities as it relates to their scholarship, teaching, and service. Many times, these demands are with no additional compensation or recognition. Research suggests that Black women professors are expected to serve on multiple committees, asked to complete administrative tasks, and given more advisees and other informal assignments (Evans & Cokley, 2008; Herbert, 2012; Tindall 2009). According to Lee et al. (2021), Black women STEM faculty need internal and external mentorship opportunities related to scholarship and tenure. Yet, we are faced with the reality of Black women faculty and STEM professionals' underrepresentation which limits their capacity to serve as mentors while also meeting the rigorous demands of their primary positions or careers (Dekelaita-Mullet et al., 2021). Drs. Barbara A. Williams, Jami Valentine Miller, and Jedidah C. Isler all created programs/initiatives and dedicated their time to

making the way easier for Black women to pursue STEM careers. What spaces are we preparing Black women to occupy and who are we preparing them to become? Young and colleagues (2021) state that an act of collective resistance with participatory obligation from stakeholders is needed to improve the educational experiences for Black women and girls. Similarly, Coleman-King et al. (2021) discuss ally development as a means for creating equitable, anti-racist spaces. Using this model, White allies would partner and build relationships with Black Women Critical Race Educators and learn to use their privilege to help advance social justice aims. Bettina Love (2019) states that allyship is often performative and self-glorifying and purports that coconspirators are needed to critically analyze racism, sexism, and White supremacy. Coconspirators stand in solidarity to challenge and undo patriarchy. This work requires commitment from federal agencies, foundations, K-12 schools, institutions of higher education, and a comprehensive approach that includes the families and communities in which Black girls and women live, grow, and learn. As we consider this equity agenda, we emphasize the significance of noticing, validating, and humanizing.

Noticing - In American society, Black students are less likely to be taught by qualified teachers, more likely to spend time out of class due to discipline-related sanctions, and more likely to be taught by a teacher who is not of their racial and/or cultural backgrounds (United Negro College Fund, 2019; King et al., 2021). Black girls specifically are vulnerable to sexual victimization and a phenomenon called "school to confinement pathways" that stems from race and gender-based oppression and biases (Morris, 2016a). Black girls are also directly impacted by criminalizing policies and practices and are vulnerable to abuse, exploitation, and dehumanization (Morris, 2016b). Adults perceive them as less innocent than their peers and are prone to adultification in formal schools (Morris, 2019). Furthermore, their concerns are often dismissed, and healing-informed learning spaces are needed to provide the protection that they deserve. We must notice what is happening in schools serving Black and Brown children and their communities.

Noticing requires us to look beyond "at-risk" factors to the wealth that resides in communities. As human beings, we are sensitized to notice, which is critical in developing professional practice. Mason (2002) describes the Discipline of Noticing as "a way of working against the tendency to forget, to not notice, to be so caught up in your own world that you fail to be sufficiently sensitive to possibilities" (p. xi). Jacobs and colleagues (2010) defined the construct of *professional noticing of children's mathematical thinking* by introducing a method to unpack the in-the-moment decision making through a series of interrelated skills. While the process includes attending to children's strategies, interpreting their understandings, and then deciding how to appropriately respond, that is not the focus of this paper. This is a call to transition a natural act into a collection of practices where we no longer ignore the harsh realities of what Black girls and women face on a daily basis in STEM learning spaces and careers. There is a level of intentionality that proceeds one's ability to notice, and then act as an agent of change. In noticing, our call to action is to stand in solidarity with Black women and girls and fight against injustices for more inclusive and welcoming learning and work spaces.

Validating - Validation is defined as being officially acceptable or something that can be supported or backed up (Cambridge, n.d.). In the context of STEM learning spaces and careers, validating Black girls and women is critical so they do not feel pressured to conform to a preexisting norm. This validation comes with an understanding that Black women and girls are whole beings with full multidimensional identities that must be embraced. Oftentimes, they have

carved out spaces in the margins as pockets of resistance to build community and shield against deficit-oriented societal narratives. It is our responsibility to acknowledge and respect those spaces and seek to normalize the centrality of Black women's and girls' experiences. These STEM counterspaces are considered "safe spaces" from the prevailing culture and privileged norms of success (Ong et al., 2017). Counterspaces have been critical for the success of Black women in STEM higher education as they seek haven from isolation and microaggressions. Our true work is not complete until counterspaces are no longer needed for Black women and girls to access resources, services, and refuge from discrimination and trauma. Validation goes beyond developing coping mechanisms while maintaining the status quo. We must redirect our efforts from teaching Black women and girls how to navigate and persist in toxic cultures and spaces to a greater vision of simply being and becoming.

Humanizing - In promoting humanization of STEM learning spaces and careers, we ask the fundamental question - what does it mean to be fully human? Humans are flawed, prone to mistakes, and tend to learn from experience. Being human is being perfectly imperfect. How does that influence our perspectives, journeys, and stories? At the center of humanity is love. Loving ourselves and others requires us to be selfless and embrace multiple identities and realities that exist at the same time. It demands an acknowledgement that my Blackness, girlhood/womanhood, sexuality, and other forms of identity intersect in complex ways and are inextricable. One should not be forced to decide if being Black or a woman is more appropriate in certain settings or become invisible when their cultures or beliefs are not congruent with the norm. As a Black woman in STEM, one should be free to wear her natural hair in the workforce without ridicule; she should not fear being labeled as unprofessional due to her tresses. Black women with full-figured body types should not fear being targeted or hypersexualized. As we delve deeper into what humanization means within STEM education and careers, we also must consider social emotional development and the role of voice and belonging. Young and colleagues (2017) discuss the importance of socializing agents for Black girls' achievement in mathematics and address academic and affective dispositions. They purport that socializing agents should be culturally responsive, strengths-based, and academically affirming to support achievement and identity development. Edwards et al. (2016) discuss the significance of relationships as a critical element in work around Black girlhood, and purport that Black girls can, and should define their own identities. This work begins with relationship-building and an understanding of the unique ways in which Black girls and women develop identities across time, space, and contexts.

In this themed issue, authors approach their research with an equity agenda and explore the STEM trajectory of Black girls and women. Taylor et al. (2021) emphasize scientific literacies in elementary classrooms and how we can support critical thinking skills through a science writing heuristic. In doing so, Black girls are presented with opportunities to ask questions, make claims, and provide evidence through argument-based inquiry. Sheretta Butler-Barnes et al. (2021) present a study examining Black girls' experiences as mathematics learners in various school settings. They explored race and gender discrimination and how they shape Black girls' mathematical attitudes and beliefs. As we seek to increase the visibility of Black girls in gatekeeping subjects such as mathematics, we are reminded about the importance of noticing and validating their presence. This work is further supported by Shadonna Davis' (2021) implementation of a youth participatory action research (YPAR) project that encouraged Black girls to learn about STEM fields and research. While the participants shared that many of their

schools did not provide opportunities to engage in research, learn about their histories, or question the status quo, YPAR created and nurtured spaces for Black girls to grapple with their representation and belonging in STEM spaces and careers through critical inquiry. This study is a reminder that we cannot afford to neglect social aspects and connections that validate and humanize Black girls' being and belonging.

When the identities of Black girls are not validated, they often become Black women who suffer from imposter syndrome. Marsha Simon (2021) investigated how to negotiate doctoral STEM studies and delved into the concealed stories of imposter syndrome's influence on Black doctoral women in STEM fields. Black women's experiences in higher education are understudied and they encounter discriminatory practices such as racialized and gendered microaggressions that are pervasive and normalized in STEM education and careers. Implications of this research stresses the importance of Black women feeling secure in pursuit of their undergraduate STEM degrees in order to successfully transition into graduate programs. This security can be achieved by having access to mentors, role models, and counternarratives that help to reduce the negative feelings fostered by racial and gendered oppression.

In considering representation and who Black girls learn from and about in K-12 sectors (or have access to in college and STEM careers), we cannot afford to promote racial diversity for diversity's sake. There are unique lenses and approaches that can be gleaned from Black women teachers; their presence in elementary and secondary classrooms is necessary to promote an equity agenda. The textbooks and curricular resources available to Black girls are expurgated and do not provide ample opportunities to learn about the contributions of Black women scientists, engineers, mathematicians or inventors. Furthermore, Black women only comprise a fraction of the teacher workforce, and the numbers are lower for science and mathematics teachers (Taie & Goldring, 2020). While the percentage of female STEM teachers has increased drastically over the past few decades, racial diversity (particularly for Black/African American STEM teachers) has remained stagnant (Will, 2020). Among public school teachers, only 7% identify as non-Hispanic Black (Taie & Goldring, 2020). Of all gender and racial/ethnic demographic categories reported, Black women are the lowest paid science teachers (*Science Teacher Demographics and Statistics*, 2021)). This is in congruence with McGee and Bentley's (2017) notion of "the troubled success of Black women in STEM" that reveals the structural racism, sexism, and race-gender bias within educational and work settings.

The final paper in this issue, written by Christopher Wright and colleagues (2021), share counternarratives of Black women engineering teachers and draw attention to aspirational capital and familial and communal support to develop a sense of self. Black women engineering teachers embody the racialized and gendered experiences of Black girls in their classrooms and can leverage community cultural wealth (Yosso, 2005) to forge positive experiences and pathways in STEM. Black teachers who have successfully navigated through engineering pathways have the knowledge and experience to cultivate networks for the students that they serve. Research suggests that positioning and STEM identity authoring concurrently reinforce intergenerational relationships and are influenced by societal and cultural norms (Campbell et al., 2021). Black girls can transform their identity development within formal schools and in community spaces through practices that advance academic success, sociopolitical consciousness, and joy (Price-Dennis & Muhammad, 2021). Therefore, protecting spaces where Black women and girls experience joy and intellectual freedom are critical for positive self-identity development.

The studies in this themed issue present a unique opportunity for Black scholars to co-construct knowledge with Black girls and women and author our own stories. We are reminded of the importance of noticing and leveraging various forms of capital, while also validating the accumulated assets and resources that Black women and girls bring to STEM learning spaces and careers. Representation is critical, but must be preceded by a disruption of STEM culture and intentional support and recruitment efforts. Black women and girls should not be placed in vulnerable situations and forced to inhabit spaces that were created to disenfranchise and exclude them. As we move toward an equity agenda, noticing, validating, and humanizing Black girls and women in STEM learning spaces and careers have the potential to inform the process of becoming. Becoming who we envision ourselves to be and not molded into an image that conflicts with or minimizes our rich heritage, cultures, and identities.

References

Annie E. Casey Foundation. (2021, May 26). *Equity vs. equality and other racial justice definitions*. https://www.aecf.org/blog/racial-justice-definitions

Bullock, E. C. (2017). Only STEM can save us? Examining race, place, and STEM education as property. *Educational Studies*, *53*(6), 628-641.

Butler-Barnes, S. T., Lea II, C., Leath, S., Rogers, L., Barnes, D., & Ibrahim, H. (2021). Visible or invisible? Black girls' experiences in a mathematics classroom. *Journal of African American Women and Girls in Education*, *1*(2), 26–59. DOI: 10.21423/jaawge-v1i2a85.

Campbell, T., Rodriguez, L., Moss, D. M., Volin, J. C., Arnold, C., Cisneros, L., ... & Abebe, B. (2021). Intergenerational community conservation projects, STEM identity authoring, and positioning: the cases of two intergenerational teams. *International Journal of Science Education, Part B*, 1-17.

Cambridge Dictionary (n.d.). Validation. In *Cambridge Dictionary*. Retrieved July 10, 2021, from https://dictionary.cambridge.org/us/dictionary/english/validation

Coleman-King, C., Anderson, B. N., & Koerber, N. (2021). Black women's labor and white ally development in an urban teacher education Program. *Frontiers in Education*, *6*. https://doi.org/10.3389/feduc.2021.501960

Davis, S. (2021). Employing YPAR to reflect on the past, present, and future promotes Black girls to learn about STEM fields and research. : STEM fields and research. *Journal of African American Women and Girls in Education, 1*(2), 60–93. DOI: 10.21423/jaawge-v1i2a87.

Dekelaita-Mullet, D. R., Rinn, A. N., & Kettler, T. (2021). Catalysts of women's success in academic STEM: A feminist poststructural discourse analysis. *Journal of International Women's Studies*, *22*(1), 83–103.

Evans, G. L., & Cokley, K. O. (2008). African American women and the academy: Using career mentoring to increase research productivity. *Training and Education in Professional Psychology*, *2*(1), 50–57. https://doi.org/10.1037/1931-3918.2.1.50

Edwards, E., McArthur, S. A., & Russell-Owens, L. (2016). Relationships, being-ness, and voice: Exploring multiple dimensions of humanizing work with Black girls. *Equity & Excellence in Education*, *49*(4), 428-439.

Herbert, S. S. (2012). What have you done for me lately?: Black female faculty and "Talking Back" to the tenure process at PWIs. *Women & Language*, *35*(2), 99–102.

Isler, J., PhD. (2021). *Jedidah Isler, Ph.D. | Astrophysics | Speaker | Consultant*. jedidahislerphd.com. http://jedidahislerphd.com/about

Jacobs, V. R., Lamb, L. L., & Philipp, R. A. (2010). Professional noticing of children's mathematical thinking. *Journal for research in mathematics education*, *41*(2), 169-202.

King, N. S., & Pringle, R. M. (2019). Black girls speak STEM: Counterstories of informal and formal learning experiences. *Journal of Research in Science Teaching*, *56*(5), 539-569.

King, N. S., Collier, Z., Johnson, B. G., Acosta, M.M., & Southwell, C. N. (2021). Determinants of Black families' access to a community-based STEM program: A latent class analysis. *Science Education.*

Lee, A., Corneille, M., Jackson, K. T., Banks, B., & Allen, S. (2021). Pathways to institutional transformation at HBCUs: recommendations from HBCU Black women STEM Faculty. *SN Social Sciences*, *1*(4), 1-18.

Mason, J. (2002). *Researching your own practice: The discipline of noticing*. Psychology Press.

McGee, E. O., & Bentley, L. (2017). The troubled success of Black women in STEM. *Cognition and Instruction*, *35*(4), 265-289.

Miller, J. V. (2019). *Jami Valentine Miller, Ph.D.* drjami.com. https://www.drjami.com/

Morris, M. W. (2016a). Protecting Black Girls. *Educational leadership*, *74*(3), 49-53.

Morris, M. (2016b). *Pushout: The criminalization of Black girls in schools*. New Press, The.

Morris, M. W. (2019). Countering the Adultication of Black Girls. *Educational Leadership*, *76*(7), 44-48.

Ong, M., Smith, J. M., & Ko, L. T. (2018). Counterspaces for women of color in STEM higher education: Marginal and central spaces for persistence and success. *Journal of Research in Science Teaching*, *55*(2), 206-245.

Pew Research Center. (2021, April). *STEM Jobs See Uneven Progress in Increasing Gender, Racial and Ethnic Diversity*. https://www.pewresearch.org/science/2021/04/01/stem-jobs-see-uneven-progress-in-increasing-gender-racial-and-ethnic-diversity/

Price-Dennis, D., & Muhammad, G. E. (2021). Introduction: Centering Black Girls' Ways of Knowing: Past, Present, and Future. In *Black Girls' Literacies* (pp. 1-9). Routledge.

Science Teacher Demographics and Statistics [2021]: Number Of Science Teachers In The US. (2021, April 30). Zippia. https://www.zippia.com/science-teacher-jobs/demographics/

Simon, M. (2021). Negotiating doctoral STEM studies: An in-depth look at the Black woman impostor. *Journal of African American Women and Girls in Education, 1*(2), 94–118. DOI: 10.21423/jaawge-v1i2a89.

Taie, S., & Goldring, R. (2020). Characteristics of Public and Private Elementary and Secondary School Teachers in the United States: Results from the 2017-18 National Teacher and Principal Survey. First Look. NCES 2020-142. *National Center for Education Statistics*.

Taylor, J. C., Christensen, J., Sharp, S. ., Therrien, W. . and Hand, B. (2021). Using the science writing heuristic to improve critical thinking skills for fifth grade Black girls. *Journal of African American Women and Girls in Education*, *1*(2), 10–25. DOI: 10.21423/jaawge-v1i2a86

Tindall, N. T. J. (2009). The Double Bind of Race and Gender: Understanding the Roles and Perceptions of Black Female Public Relations Faculty. *Southwestern Mass Communication Journal*, *25*(1), 1–16.

United Negro College Fund. (2019, March). K-12 Disparity Facts and Statistics, Retrieved from https://uncf.org/pages/k-12-disparity-facts-and-stats

Whitten, B. L., Dorato, S. R., Duncombe, M. L., Allen, P. E., Blaha, C. A., Butler, H. Z., ... & Williams, B. A. (2007). What works for women in undergraduate physics and what we can learn from women's colleges. *Journal of women and minorities in science and engineering*, *13*(1).

Wilkins, O. (2021, February 8). *The First Black Woman PhD Astronomer: Barbara A. Williams*. The Sky Is Not the Limit. http://theskyisnotthelimit.org/scoping-out-radio-astronomy/2021/02/08/the-first-black-woman-phd-astronomer-barbara-a-williams

Will, M. (2020, November 19). *There Are Many More Female STEM Teachers Now Than 20 Years Ago*. Education Week. https://www.edweek.org/teaching-learning/there-are-many-more-female-stem-teachers-now-than-20-years-ago/2018/10

Wright, C., Likely, R., Allen-Handy, A., & Flowers, A. (2021) I am able to have a different lens and different approach:' A critical examination of how Black female engineering teachers utilize and create counternarratives. *Journal of African American Women and Girls in Education*, *1*(2), 119–140. DOI: 10.21423/jaawge-v1i2a88.

Yosso*, T. J. (2005). Whose culture has capital? A critical race theory discussion of community cultural wealth. *Race ethnicity and education*, *8*(1), 69-91.

Young, J., Butler, B., King, N., & Wandix-White, D. (2021). The Time is Now:(Re) visioning,(Re) assessing, and (Re) storing the State of Educational Research for African American Women and Girls. *Journal of African American women and girls in education.*

Young, J. L., Young, J. R., & Capraro, M. M. (2017). Black Girls' Achievement in Middle Grades Mathematics: How Can Socializing Agents Help?. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, *90*(3), 70-76.