



The Choice is Yours: Intersectional Studies versus Studies of Intersectional Populations in Computing Education Research

Yolanda A. Rankin*
yrankin@emory.edu
Emory University
Atlanta, GA, USA

Jakita O. Thomas*
jnt0020@auburn.edu
Auburn University
Auburn, Alabama, USA

Sheena Erete*
serete@umd.edu
University of Maryland
College Park, MD, USA

Nichole Pinkard
nichole.pinkard@northwestern.edu
Northwestern University
Evanston, IL, USA

ABSTRACT

Despite the emergence of intersectional computing and increased scholarship that utilizes the concept of intersectionality, there is a lack of consensus about the appropriation of intersectionality as a critical framework within the computing education community. Intersectionality provides a critical lens for understanding and analyzing the complexity in human experiences that are shaped by multiple social constructs (race, gender, class, etc.) in mutually influencing ways. What lies at the heart of the matter is acknowledging the humanity of intersectional populations to create safe spaces and a sense of belonging in the computing community. However, using Eurocentric research methods when working with intersectional populations tends to further marginalize them. Calling into question the validity of Eurocentric methods, we argue for alternative ways of knowing in CS education research that affirm intersectional populations. Applying critical autoethnography to our own body of computing education research, we leverage *Black feminist epistemologies* or *Black women's ways of knowing* to differentiate intersectional studies from studies of intersectional populations.

CCS CONCEPTS

• **Social and professional topics** → **Computer science education**.

KEYWORDS

Black feminism, intersectionality, intersectional methods

ACM Reference Format:

Yolanda A. Rankin, Sheena Erete, Jakita O. Thomas, and Nichole Pinkard. 2024. The Choice is Yours: Intersectional Studies versus Studies of Intersectional Populations in Computing Education Research. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1 (SIGCSE 2024)*, March 20–23, 2024, Portland, OR, USA. ACM, New York, NY, USA, 7 pages. <https://doi.org/10.1145/3626252.3630942>

* Contributed equally and are recognized as first authors of this paper.



This work is licensed under a Creative Commons Attribution-NonCommercial International 4.0 License.

SIGCSE 2024, March 20–23, 2024, Portland, OR, USA
© 2024 Copyright held by the owner/author(s).
ACM ISBN 979-8-4007-0423-9/24/03.
<https://doi.org/10.1145/3626252.3630942>

1 INTRODUCTION

In recent years, *intersectionality*, “a recognized form of critical inquiry and praxis” in the social sciences, has gained momentum within the field of computing, contributing to the birth of a new subfield known as **intersectional computing** [12, 34, 43]. The merging of social science with computer science has created new opportunities for how we think about computing education, specifically how we as a community can work together to achieve diversity, equity, and inclusion for all. As such, we are experiencing a shift in computing education with the acceptance of scholarship that uses terms like *inclusion*, *diversity*, *accessibility*, *neurodiversity*, *equity*, *social justice*, and, of course, *intersectionality* [28, 29, 35, 40, 44, 45].

Intersectionality is “a way of understanding and analyzing the complexity in the world, in people, and in human experiences...social and political life and the self... are generally shaped by many factors in diverse and mutually influencing ways.” [12, p.2]. Though intersectionality has recently gained momentum within the field of computing, its origins can be traced back to the early 19th century [12, 13, 34], long before Kimberlé Crenshaw first introduced the term *intersectionality* in the late 1980s [15, 16]. An intersectional approach in computing education becomes necessary when seeking to understand marginalized populations that are often subjugated to the outer fringes of society because of the historical, social, and political ramifications of white supremacy, gendered racism, classism, and other forms of oppression [12, 13]. Leveraging intersectionality as a critical framework in computing education research [12, 13, 36, 37], we identify populations that live at the intersections of race, gender, class, sexual orientation, ability, etc. as *intersectional populations*.

Yet, there is a lack of consensus about the appropriation of intersectionality as a critical framework within the computing education community [8, 36, 37, 40–43]. This suggests the need for more robust methods to support the emergence of intersectional computing. Acknowledging the humanity of intersectional populations is essential to creating inviting, safe spaces that foster a sense of belonging in the computing community. However, traditional research methods position intersectional populations as *objects of study* rather than *agents of knowledge* [11]. Such positioning further marginalizes and calls into question the validity of traditional computing education research methods that are based on an *Eurocentric masculinist* perspective [10]. To further illustrate this point, Patricia Hill Collins argues that “one cannot use the same techniques to

study the knowledge of the dominated as one uses to study the knowledge of the powerful. This is precisely because subordinate groups have long had to use alternative ways to create an independent consciousness and to rearticulate it through specialists validated by the oppressed themselves” [10, p.751]. Applying Eurocentric masculinity or dominant culture research methods to understand the experiences of intersectional populations contradicts intersectionality as a critical praxis, thus contributing to the failure to acknowledge and redress existing social inequalities in computing education.

As Black women scholars in the field of computing, we embrace Black women’s ways of knowing or *Black feminist epistemologies* to take a definitive stance on how scholars should approach research that focuses on intersectional populations. Based on our lived experiences as Black women researchers and human subjects in academia, we posit that there is a distinct difference between *intersectional studies* and *studies of intersectional populations*. In this paper, we pose the following research question: **What is the difference between studies of intersectional populations and intersectional studies?** Using critical autoethnography, we reflect on our own work to demonstrate how we arrived at this notion of *intersectional studies* that resist dominant culture research methods that dehumanize intersectional populations [10].

Our paper is structured as follows: First, we provide an overview of Black feminist epistemologies. Next, we share our personal evolutions from being Black women who engage in computing education research of intersectional populations to becoming Black feminist scholars who conduct intersectional studies. Drawing from our lived experiences, we derive guidelines for conducting intersectional studies that position intersectional populations as *agents of knowledge*. Finally, we conclude with a call to action for the computing education research community.

2 BLACK FEMINIST EPISTEMOLOGIES AS VALID KNOWLEDGE PRODUCTION

Black feminist epistemologies refer to Black women’s ways of knowing [37]. Since Black women were first enslaved in the U.S. over four centuries ago, they recognized that their intersectional experiences were uniquely different from white women. Black women in the U.S. learned to survive, developing specialized knowledge for how to deal with the denial of their humanity and their invisibility in a capitalist society that refused to acknowledge Black people as being equal before the law [3–5, 9–12, 14, 17].

“Like other subordinate groups, African-American women not only have developed distinctive interpretations of Black women’s oppression but have done so by using alternative ways of producing and validating knowledge itself” [10, p. 746]. This statement speaks to Black women’s ability to generate specialized knowledge borne from the diversity of their lived experiences that is passed down from generation to generation of Black women via intimate conversations with each other, storytelling, oral histories, and other Afrocentric traditions of sharing and acquiring information necessary for our survival [2, 10]. These Afrocentric traditions defy epistemic methods of knowledge production valued by the dominant culture such as journal articles, conference proceedings, books, large-scale data sets, or websites [2, 32, 46]. Consequently, Black

feminist epistemologies such as *Black Feminist Thought*, *intersectionality*, *misogynoir*, *digital Black feminism*, among other critical social theories, have emerged to center the diverse experiences of Black women in the U.S., establishing the multiplicity of Black women’s ways of knowing as valid forms of knowledge production.

2.1 Black Feminist Thought

Recognizing the significance of the intersection of race and gender, Patricia Hill Collins [11] conceived the critical social theory of Black Feminist Thought (BFT), which positioned U.S. Black women as knowledge agents or experts of their own experiences. Refusing to elevate white women as the epitome of femininity, BFT resists false notions that Black women are inferior to white men, white women or Black men, less feminine than white women or other racialized populations of women, and consequently, have little to no value in society. Black women refuse to succumb to attacks on our humanity despite having endured centuries of systemic oppression. These systems of oppression manifest as racism, patriarchy, classism, or gendered racism—a specific type of racism in which white women are privileged and empowered because of their racial identity while Black women are subjugated to differential treatment because of their intersectional identities [9, 11].

Rather than glorifying oppression, BFT celebrates U.S. Black women’s resilience in the face of adversity, our refusal to play the victim, and our willingness to survive continued subjugation to both overt and subtle forms of oppression in American society (e.g. the reign of terror in the reconstructed “new south” during the post-civil war era that upheld white supremacy and racism in the U.S.) [11, 12, 21, 31]. As a blatant act of resistance, BFT demonstrates how we as Black women have managed to persevere despite attempts, successful or not, to kill our bodies, stunt our political and economic development, and break our spirits. Black women choose to survive by leveraging our outsider-within location in society to develop life skills, coping strategies, and political agendas that exemplify the fortitude of Black women’s commitment to ourselves, Black men, Black children, Black families, and Black culture [33]. BFT argues for a collective Black women’s standpoint that does not require homogeneity of lived experiences but instead embraces differences in class status, sexual orientation, and other attributes as critical to understanding how Black women create counterspaces in defiance of systemic oppression that nullifies our existence [11, 22].

2.2 The Six Core Constructs of Intersectionality

In *Intersectionality as a Critical Social Theory*, Collins [12, p. 45] defines the six core constructs essential to intersectionality that invoke critical inquiry. They include (1) relationality; (2) power; (3) social inequality; (4) social context; (5) complexity; and (6) social justice. We briefly define each below:

- (1) **Relationality.** Rejecting the notion of “either/or” and embracing “both/and,” relationality seeks to understand the relationships that exist between social constructs (e.g., race, gender, class, nationality, etc.) [12, 13]. Relationality identifies different entities and their relationships to one another.
- (2) **Power.** Collins [11] introduces the concept of matrix of domination and the four domains of power—structural, interpersonal, disciplinary, and hegemony. These four domains

demonstrate how power interacts with one another to create intersecting power relations that "produce social divisions of race, gender, class, sexuality, ability, age, country of origin, and citizenship status that are unlikely to be adequately understood in isolation from one another" [12, p. 46].

- (3) **Social inequality.** Intersectionality rejects the notion that social inequality is inevitable, because the social world and human beings are naturally unequal [12]. Intersectionality requires uncovering the inner "workings of power relations in producing social inequalities and the social problems they engender" in the field of computing [12, p. 46] [18].
- (4) **Social context.** Social context refers to how interpretative communities organize knowledge production and whose knowledge production processes are valued or invalid. Social context is necessary for appreciating the social positions of individuals and groups within power structures that determine valid knowledge production processes [12, 13].
- (5) **Complexity.** No single lens is appropriate for understanding how seemingly separate social categories interact with one another to produce systems of power that create social inequalities. Inherently dynamic, intersectionality repeatedly engages multiple social factors and examines their relationships with one another over time [12].
- (6) **Social justice.** Social justice as a core construct of intersectionality raises concerns about how practitioners and researchers conduct intersectional scholarship in an ethical manner [12, p. 47]. Less CS education research has addressed how studies of intersectional populations push for social justice, liberation, freedom, social equality, or equity.

3 METHOD

Embracing alternative qualitative methods not frequently used in CS education research [24, 41], we apply critical autoethnography, a self-reflexive scholarly examination that positions the researcher as the site of inquiry [1, 6, 7, 25, 26, 39]. BFT espouses the notion that concrete experience is a "criterion for credibility frequently...invoked by Black women when making knowledge claims" [10, p. 759]. This aligns with the Black feminist principle that Black women are intellectuals who have produced specialized knowledge based on our lived experiences. As Black feminist scholars committed to the survival and well-being of Black women and girls, we use critical autoethnography to exercise our testimonial authority, power, and privilege [11].

Critical autoethnography requires us to define the social context in which we as Black feminist scholars exist [26, 39]. Recent events in the U.S. depict a nation grappling with misinformation via popular news channels, social media, and political agendas. On one end of the spectrum, referred to as the "far right," conservative political factions seek to suppress any discussion of race, gender, class, sexuality, ability, and nationality, labeling them as *un-American* and divisive. The use of misinformation has sparked a national political movement to eliminate diversity, equity, and inclusion efforts in K-16 education and to silence scholars who leverage critical social theories (i.e., intersectionality, feminism, critical race theory, queer theory, black feminism, etc.). At the other end of the spectrum, referred to as the "far left," more liberal political factions acknowledge

that the wealth of the U.S. is based on the enslavement of Black people for four centuries and that patriarchy and xenophobia still exist. Additionally, there have been calls for reparations to address the economic divestiture of Black Americans. Some Americans perceive the "far left" as socialists who give undue attention to "non-existent racism," gender and sexual identification, and the use of pronouns. The far left has often been accused of only paying lip service to equity, social justice, freedom, and liberation movements with few tangible actions toward dismantling systems that impede positive social change. In the midst of these "culture wars," Black feminist epistemologies serve as critical frameworks necessary for resisting ignorance, white supremacy, systemic racism, patriarchy, ability, heteronormativity, and what it means to be an American.

Using a series of storytelling prompts (e.g., *When did you first learn about the concept of intersectionality? How do you apply intersectionality in your CS education research? How has intersectionality changed you as a researcher?*), we have written personal narratives that share our experiences learning how to apply intersectionality as a critical praxis to our research. In each reflective piece, we use first-person singular pronouns to represent each Black woman's standpoint [19]. We ask that readers respect the following intimate accounts as Black women's lived experiences, which do not require validation by anyone, nor are these personal details shared for entertainment purposes. Finally, readers may be tempted to invalidate these critical autoethnographies out of fear that they are somehow accountable and/or complicit in the harm, trauma, or oppression shared in this paper. Instead, we encourage readers to engage in their own self-reflexivity to interrogate how they appropriate or misappropriate intersectionality in their own research.

4 OUR CRITICAL AUTOETHNOGRAPHIES

This section includes two autoethnographies that reveal how we developed our critical consciousness while conducting research to center the experiences of Black women and Black/Latine girls [5].

4.1 First Critical Autoethnography

4.1.1 Inception. As junior faculty, I was assigned to teach an introductory CS course at Spelman College, a historically Black, all-female institution. There were multiple sections of this course since it was required for all CS majors. After teaching the course for multiple semesters, Jakita and I noticed that we consistently lost about a third of the Black women in the class by midterms which indicated that we had a serious retention issue with first-year students. Jakita came up with the idea of using students' experiences with food to introduce the concept of algorithms. We co-developed a food module that consisted of multiple food-related activities that featured recipes as examples of algorithms. I implemented the food module in my class during the first few weeks of the semester. Students were required to maintain an online journal of their experiences completing the different food-related activities, indicating what they liked, did not like, and suggestions for improvements. No female students withdrew from the class even when their cumulative grade at midterms was a C or below. I implemented the food module again in the same course taught during a different semester. I compared these two courses of the same class with no inclusion of the food module. As usual, a substantial number of Black women

withdrew from the course by midterm. Proud of the increased retention of Black women in my entry-level courses which included the food module, I thought that I had accomplished something worthy of attention and published this work [38]. Though I had focused on the intersectional population of Black women, it did not occur to me to use intersectional methods to explore their reasons for persisting in this introductory CS course.

4.1.2 Wake-up call. During the summer of 2019, I began reading about intersectionality [13] as a critical social theory. For the first time, I finally had a name for how my identity as a Black woman resulted in experiences where I was treated differently because of my race and gender. I now had a critical framework that exposed how race and gender interacted with one another to produce gendered racism. No longer invisible, I began to see myself as a Black woman in the field of computing who had every right to be here. The more I read and learned about intersectionality as a critical praxis, the more I realized its power. One of my first lessons was understanding that I needed to educate myself by reading as much information about intersectionality as I could. I recognized my limitations as a trained computer scientist and decided to step outside of my comfort zone, joining a reading group within a diverse community of non-CS scholars. We met regularly to discuss Patricia Hill Collins' *Intersectionality as a Critical Social Theory* [12]. I grew more in four months time than I did the entire previous year. I realized that intersectionality was not simply identity politics. I began to understand more deeply that conducting studies of intersectional populations was not the same thing as applying intersectionality as a critical framework for understanding how systems of power create the social inequities that exist in our society. I was dealing with power dynamics in academia between the research advisor and student and between tenured faculty and junior faculty.

Around the same time, I realized that there was very little research about Black women's experiences navigating CS degree programs. I seized the opportunity to take advantage of my position, power and privilege to center the experiences of Black women in computing. While I was excited to redirect my research, I was also scared that this could be detrimental to my career. I had been advised by more seasoned scholars that research focused on Black women in computing was not valued in the field of computing. I accepted the risk, intentionally shining a light on Black women's experiences navigating the computing ecosystem and explicitly calling out various forms of harm, violence, trauma and oppression that they had endured. What I discovered was that there was power in defining who I wanted to be as a researcher. I began to engage in self-reflexivity, constantly asking myself a series of questions that forced me to be honest about why I wanted to do this work. It was not just a research topic for me; it was my life. Being in community with other Black women was essential to ethically doing this work or else I would be guilty of objectifying and inflicting harm on Black women. I purposefully sought opportunities to encourage Black women to speak their truth. I moved away from using surveys or questionnaires because these were inadequate data collection methods for unpacking the nuances of Black women's experiences in computing. I was inundated with the hegemony of academia where I had been trained to be the subject matter expert in the room and that human-subjects were really objects of study rather than human

beings with their own ideas, knowledge, and agency. Publications were essential to me getting tenure. But then I realized that I could not play this game of publish or perish, ignoring the humanity of Black women, the trauma that we have suffered, and still call myself a Black feminist. What was my motivation? Publishing papers or social justice for Black women in computing?

4.1.3 Transformation. After much soul searching, I chose to pursue social justice for the advancement of Black women in computing. I strategically chose which knowledge research projects should be shared with the public and which ones would remain sacred knowledge that honored the ingenuity and resilience of Black women. I would not expose the pain and trauma that I or my Nubian sisters had suffered just to get a publication. Rather, I would leverage Black women's ways of knowing to understand how systemic racism, gender discrimination, gendered racism and classism operate to inhibit Black women's persistence in the field. Before I started any face-to-face study, I spent a considerable amount of time getting to know people I spent weeks building relationships and trust. When facilitating a study, I would recruit participants with clear communication that they were partners and contributors in this research process. They could choose to participate (or not) as often as they wanted to. Instead of forcing human subjects to do my bidding, I redistributed power to them, giving them several options as to how they could contribute to the study if they chose to do so. I shared preliminary results with Black women so they could see what the data showed and understand how I was interpreting that data, asking them to clarify or verify any conclusions that I had reached. I realized that I had initially abused my power, position and privilege, placing myself in the role of the expert rather than realizing that my Nubian sisters had much to teach me. I intentionally looked for opportunities to engage them in conversations, taking a back seat to let these Black women who so generously shared their experiences with me, lead the conversation and talk about whatever they felt was relevant or necessary. This was life-affirming work for me. My assumptions about why Black women were underrepresented in computing were challenged (e.g. *Black women are unprepared for computing degree programs. Black women need to assimilate to succeed in CS.*). I am ashamed to admit that I believed the same racist, sexist ideas about Black women and yet I was a Black woman [27]! Referencing bell hooks, confession is the first step to developing critical consciousness [5]. I learned that Black women were perfectly capable of doing CS. It was the American education system that was broken as evidenced by hostile high school computing classes, male-dominated computing departments, programming-focused computing curriculum, etc. Years later, I have evolved as a scholar, a Black feminist. I don't always get it right. I have made many mistakes, but I learn from my mistakes.

4.2 Second Critical Autoethnography

4.2.1 Inception. I first deeply engaged in conversation about intersectionality in 2019 when a group of colleagues and I were discussing its new and extensive use in computing, particularly in CS education and HCI, and how these approaches lacked context and historical grounding. Points of contention included how the concept of intersectionality was watered down and the erasure of Black women as the originators of intersectionality. I knew about

intersectionality before these conversations, but in 2018 and 2019, the concept became a popular method for computing scholars to describe their identities. As I learned more about it, I began to reflect on my work supporting Black girls in computing education, which began in 2014 when we created a program for Black and Latina middle school girls to engage in STEM, specifically computing. We published about the program's successes using Eurocentric epistemologies as measures of validation, but had never shared the details of the program that really made it a success beyond working with Black and Latina girls, because we didn't have the language. Black feminist epistemologies such as BFT and intersectionality gave us that language.

We (two Black women trained as computer scientists) initially created the program to help support the education of Black girls to be successful in STEM with an emphasis on computing education. From the onset, we had always said that our goal was not to force them into computer science. Instead, we wanted them to have exposure and experience in computer science and confidence that they could be in computing if they desired. If they decided to study computer science long-term, that would be a plus but not a measure of success. We had these conversations internally as we were designing the program, and our logic behind that was based on our experiences as computer scientists (e.g., both being trained at top universities and working in tech companies that were hostile environments to endure). We knew that there would be many Black girls that shared our love of computing if they were exposed to it, but we also recognized that there were many reasons why they may decide to not pursue it—including the lack of inclusive spaces. So our amazing Black and brown girls were mentored by amazing high school and college Black and brown young women in a safe, fun, loving environment created by Black women. At the same time, we gauged success using traditional measures (e.g., STEM knowledge assessments, attitudes, and behavior surveys). We were doing research with intersectional populations and not intersectional studies and didn't even know it.

4.2.2 *Wake up call.* After creating the program for the girls, we realized that we were not meaningfully incorporating the families of these girls who supported and loved these girls outside of our program. These families had opinions about their girls' STEM education and had valid ways of knowing based on their lived experiences. However, we did not have a way to include them in our program as equal contributors of STEM knowledge for our girls. Instead, we relied on what we knew about computing education based on our experiences and what research says about Black and brown girls' education. No matter how well-intentioned, I was doing research with intersectional populations, not intersectional studies.

4.2.3 *Transformation.* We created an addition to the program, where we worked directly with the girls' caring adults¹ (e.g., parents, families). We built relationships with them by hosting workshops, where we discussed ways to support their girls in their STEM education, shared resources, engaged in social relationship building amongst their caring adults, etc. The caring adults participated in

overwhelming numbers [30]. But even in our initial approach, we created the adult workshops to focus on "capacity building," which is situated in white supremacy, because it assumes that we're the experts with certain knowledge that then needs to be "taught," ignoring their expertise and experiences as valid and essential. Simply put, we did not initially approach the caring adult portion of the program as an opportunity for us to "lead from the back," or making space for them to share their expertise or topics they desired to learn more about. Instead, we approached it as an opportunity for us to share how they can support their girls in STEM and what roles they could take (based on research), but none of these approaches were based on Black women's ways of knowing.

But we learned the capabilities and desires of the caring adults pretty quickly since they took control of the group within the third year of its existence. Very clearly, they told us, "Thank you for creating this, but these are the things that we want to talk about. Here are the topics that we think are important and here are the experiences that we want to share with each other." And since then, the caring adult group is self-led, where we support as necessary, but they are the experts in the room. They create sessions, where they share their expertise and knowledge with each other (whether based on formal or informal training). This demonstrates a reversal of roles since we, as researchers, become participants while the Black families and caring adults (mostly women) led the sessions, teaching us how we should approach learning for their daughters.

Furthermore, our initial approach did not include the broader community of people that surrounded the girls outside of our program. But based on our lived experiences, we knew community was critical to creating equitable and inclusive experiences and safe spaces for Black girls. And the caring adult group taught us that there is a history of why certain spaces and places were not viewed as welcoming, regardless of their intention. And that we needed to understand that local history in order to really engage in transformation—else it's all lip service. If we wanted to create sustainable programming that had the ability to scale and grow, we had to understand the power and the history of why things are the way they are [20].

So we started to dive deep by first learning the history from Black community elders as well as what is written in books/articles. We recognized and began to value the stories that were shared with us and spent incredible amounts of time listening in spaces that are not always valued in the academy. We also began to view histories critically, applying Collins' Black Feminist Thought to understand power and the role that these histories have in impacting formal and informal approaches to computing education. After understanding the histories, we made strategic decisions with the community and the families about our STEM program to address historic harms [20]. And this felt far removed from what is typically considered to be computing education. However, it was only when we began to grapple with the complexities of doing this work in partnership with intersectional populations that we realized this transformation (or so we hoped) from studies of intersectional populations to conducting intersectional studies. Using culturally relevant pedagogy is a starting point, but it will not move the needle in terms of creating community-centered transformation that is led and owned by Black people. It does not center the voices of Black girls and women. Instead, it centers certain knowledge at the expense of

¹We use the term "caring adults," because we are mindful, respectful, and celebratory of various family compositions.

people’s humanity. Intersectionality is not simply a theory that I use in my research but language to describe my experiences, and it has led to our community-driven approach to CS education that centers Black girls and women.

5 STUDIES OF INTERSECTIONAL POPULATIONS VERSUS INTERSECTIONAL STUDIES

These two critical autoethnographies reveal major differences between *studies of intersectional populations* and *intersectional studies*. Studies of intersectional populations focus on individuals or groups whose lived experiences represent more than one social construct as the target population(s). Members of the target population are positioned as objects of study. Consequently, epistemologies that reflect the sociocultural norms, knowledge production practices, language, customs, etc. valued by members of the target population are otherized and perceived to be deficient. This is due to researchers and practitioners valuing Eurocentric ways of knowing and the scientific method over non-Eurocentric epistemologies. The needs, wants, and desires of members of the target population are subordinate to the research agenda, requirements of the funding agency or deadlines for scholarly work and other publications. Researchers and practitioners who conduct studies of intersectional populations ignore power relations. The history that has created the current social context is never brought into dialogue with the work. Moreover, power and history are not considered in the design of the research, the methods chosen, the ways in which data is collected or analyzed, nor the interpretation of the data analysis. Additionally, researchers do not concentrate on building lasting relationships with members from the target population.

CS education researchers and practitioners arguably fail to engage in the kind of self-reflexivity that interrogates the efficacy of Eurocentric methodologies. Research methods and instruments are designed without members from the target population, or they are originally designed for some other group and then applied without consideration for who developed them or whether the use of these same methods or instruments may introduce harm (unintended or otherwise) to intersectional populations [18, 23, 41]. Researchers often retrofit methodologies to study intersectional populations, or they pull data from intersectional populations and conduct analysis under the banner of intersectionality. There is little to no reflection on the ways in which power and dominant beliefs impact the study design, the outcomes of the study, or the ways in which the work is disseminated [36]. One’s own positionality is not considered, and how that impacts the study, the findings, and the interpretation of analyses. Because power relations, history, and self-reflexivity are absent, there is no correlation between the structures that exist, resulting from historical continued dominance over a period of time under a particular set of power constellations (e.g., matrices of domination) [18, 36]. The results of the work are never shared with the members of the target population who were engaged. They are not asked if the interpretations accurately represent what they communicated or if the conclusions drawn or inferred are accurate. Finally, as a result of all that has (not) come before, while there may be an acknowledgment of a problem (e.g. lack of representation within the field of computing), there is no push for social justice. If

there is a push for change, the change may be couched in terms of strategies, mechanisms, and practices that members of the target population need to take up with little to no examination of the contexts, environments, and structures that also need to be changed and transformed. In essence, the practices of researchers and practitioners who conduct studies of intersectional populations may be viewed by their target populations as extractive and transactional.

Intersectional studies also focus on and engage individuals or groups whose lived experiences represent more than one social construct as the target population(s). However, the members of the target population are positioned as agents of knowledge and experts of their lived experiences. Their sociocultural norms, practices, language, customs, etc. are assets that are centered in the work and given equal value. Power relations are identified and explored. The historical and political implications of those power relations are also identified, explored, and accounted for in the study design. If the methods considered are found to be insufficient in the ways described above, then new intersectional methods are co-created with members of the target population. Researchers and practitioners constantly engage in self-reflexivity every step of the way, from being in relationship, community, and coalition with members of the target population; through co-creating research questions; identifying and co-creating methods; sharing and validating findings, interpreting analyses; all the way to co-creating and co-authoring scholarly works. Researchers and practitioners of intersectional studies are always thinking about and considering positionality and proximity. They clearly state their positionality and proximity to members of the target population in scholarly works. Because power, history, and positionality are attended to, intersectional studies are able to draw correlations between structures, power, and social inequalities. Finally, intersectional studies push for social justice, transformation, freedom, and liberation.

6 CONCLUSION

As a call to action and a show of solidarity, we implore the computing community to engage in three concrete actions. First, engage in self-reflexivity as it is a prerequisite for conducting intersectional studies before working with intersectional populations begins, during research activities, and at the end of a research project. Second, we must educate ourselves about Black feminist epistemologies and other non-Eurocentric ways of knowing that center intersectional populations before working with them. This requires the CS education research community to engage with critical theories grounded in the social sciences and humanities and to value and promote non-Eurocentric epistemologies that center and prioritize people, culture, and social issues over curriculum, pedagogy, and assessments. Finally, develop new CS education interventions in coalition with organizations led by intersectional populations such as *BlackcomputeHer.org*, *the Alliance for Identity-Inclusive Computing Education*, *The Papaya Project*, *the Computing Alliance of Hispanic-Serving Institutions*, etc. that are committed to the pursuit of social justice in K-16 computing education to build a safe and thriving community for everyone. Addressing these actions would create a community of CS education scholars and practitioners that equitably conduct intersectional studies *with* rather than about intersectional populations.

REFERENCES

- [1] Tony E. Adams, Carolyn Ellis, and Stacy Holman Jones. 2017. *Autoethnography*. John Wiley & Sons, Ltd, 1–11. <https://doi.org/10.1002/9781118901731.iecr0011> arXiv:<https://onlinelibrary.wiley.com/doi/pdf/10.1002/9781118901731.iecr0011>
- [2] Molefi Kete Asante. 1991. The Afrocentric Idea in Education. *The Journal of Negro Education* 60, 2 (1991), 170–180. <http://www.jstor.org/stable/2295608>
- [3] bell hooks. 1984. *Feminist Theory: From margin to center*. South End Press, Boston.
- [4] bell hooks. 1989. *Talking Back: thinking feminist, thinking black*. South End Press, Boston.
- [5] bell hooks. 2000. *Feminism is for everybody: Passionate politics*. Pluto Press.
- [6] Robin M. Boylorn. 2016. On Being at Home With Myself: Blackgirl Autoethnography as Research Praxis. *International Review of Qualitative Research* 9, 1 (2016), 44–58. <https://www.jstor.org/stable/26372178>
- [7] Robin M. Boylorn and Mark P. Orbe. 2021. *Critical Autoethnography: Intersecting Cultural Identities in Everyday Life, 2nd Edition*. Routledge, New York, NY.
- [8] Khalia M. Braswell, Jasmine Johnson, Brie'anna Brown, and Jamie Payton. 2021. Pivoting During a Pandemic: Designing a Virtual Summer Camp to Increase Confidence of Black and Latina Girls. In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education* (Virtual Event, USA) (SIGCSE '21). Association for Computing Machinery, New York, NY, USA, 686–691. <https://doi.org/10.1145/3408877.3432380>
- [9] The Combahee River Collective. 1977. The Combahee River Collective Statement: Black Feminist Organizing in the Seventies and Eighties.
- [10] Patricia Hill Collins. 1989. The Social Construction of Black Feminist Thought. *Signs* 14, 4 (1989), 745–773. <http://www.jstor.org/stable/3174683>
- [11] Patricia Hill Collins. 2000. *Black feminist thought*. Routledge, New York NY.
- [12] Patricia Hill Collins. 2019. *Intersectionality as Critical Social Theory*. Duke University Press, Durham, NC.
- [13] Patricia Hill Collins and Sirma Bilge. 2016. *Intersectionality*. Polity Press, Cambridge, UK.
- [14] Brittany C. Cooper. 2017. *Beyond Respectability: The Intellectual Thought of Race Women*. University of Illinois Press.
- [15] Kimberle Crenshaw. 1993. Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics. , 383–95 pages.
- [16] Kimberle W. Crenshaw. 1995. Mapping the Margins: Intersectionality, identity politics, and violence against women of color. In *In Critical Race Theory*, Kimberle W. Crenshaw, Neil Gotanda, Gary Peller, and Kendall Thomas (Eds.). The New Press, New York, 357–383.
- [17] Angela Y. Davis. 1981. *Women, Race & Class*. Random House, Incorporated.
- [18] Sheena Erete, Yolanda Rankin, and Jakita Thomas. 2023. A Method to the Madness: Applying an Intersectional Analysis of Structural Oppression and Power in HCI and Design. *ACM Transactions on Computer-Human Interactions* 30, 2, Article 24 (apr 2023), 45 pages. <https://doi.org/10.1145/3507695>
- [19] Sheena Erete, Yolanda A. Rankin, and Jakita O. Thomas. 2021. I Can't Breathe: Reflections from Black Women in CSCW and HCI. *Proc. ACM Hum.-Comput. Interact.* 4, CSCW3, Article 234 (Jan. 2021), 23 pages. <https://doi.org/10.1145/3432933>
- [20] Sheena Erete, Karla Thomas, Denise Nacu, Jessa Dickinson, Naomi Thompson, and Nichole Pinkard. 2021. Applying a Transformative Justice Approach to Encourage the Participation of Black and Latina Girls in Computing. *ACM Trans. Comput. Educ.* 21, 4, Article 27 (oct 2021), 24 pages. <https://doi.org/10.1145/3451345>
- [21] Paula Giddings. 1984. *When and Where I Enter: The Impact of Black Women on Race and Sex in America*. William Morrow, New York.
- [22] Sandra G. Harding. 2004. *The Feminist Standpoint Theory Reader*.
- [23] Christina Harrington, Sheena Erete, and Anne Marie Piper. 2019. Deconstructing Community-Based Collaborative Design: Towards More Equitable Participatory Design Engagements. *Proc. ACM Hum.-Comput. Interact.* 3, CSCW, Article 216 (Nov. 2019), 25 pages. <https://doi.org/10.1145/3359318>
- [24] Aleata Hubbard Cheuoua. 2021. Confronting Inequities in Computer Science Education: A Case for Critical Theory. In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education* (Virtual Event, USA) (SIGCSE '21). Association for Computing Machinery, New York, NY, USA, 425–430. <https://doi.org/10.1145/3408877.3432453>
- [25] Sherick Hughes, Julie L. Pennington, and Sara Makris. 2012. Translating Autoethnography Across the AERA Standards: Toward Understanding Autoethnographic Scholarship as Empirical Research. *Educational Researcher* 41, 6 (2012), 209–219. <https://doi.org/10.3102/0013189X12442983> arXiv:<https://doi.org/10.3102/0013189X12442983>
- [26] Sherick A Hughes and Julie L Pennington. 2017. *Autoethnography: Process, product, and possibility for critical social research*. Thousand Oaks: Sage Publications.
- [27] Ibram X Kendi. 2016. *Stamped from the beginning: The definitive history of racist ideas in America*. National Books.
- [28] Richard E. Ladner and Maya Israel. 2016. "For All" in "Computer Science for All". *Commun. ACM* 59, 9 (Aug. 2016), 26–28. <https://doi.org/10.1145/2971329>
- [29] Kevin Lin. 2022. CS Education for the Socially-Just Worlds We Need: The Case for Justice-Centered Approaches to CS in Higher Education. In *Proceedings of the 53rd ACM Technical Symposium on Computer Science Education - Volume 1* (Providence, RI, USA) (SIGCSE 2022). Association for Computing Machinery, New York, NY, USA, 265–271. <https://doi.org/10.1145/3478431.3499291>
- [30] Nina Martin and Renee Montagne. [n.d.]. "Nothing Protects Black Women From Dying in Pregnancy and Childbirth". <https://www.propublica.org/article/nothing-protects-black-women-from-dying-in-pregnancy-and-childbirth>
- [31] Manasee Narvkar, Josiah Mangiameli, Adriana Alvarado Garcia, Azra Ismail, Daniel Schiff, Danielle Schechter, Jordan Chen, Karthik Bhat, Marisol Wong-Villacres, Anusha Vasudeva, Aparna Ramesh, Michaelanne Dye, Naveena Karusala, Pragati Singh, Savanthi Murthy, Shubhangi Gupta, Udaya Lakshmi, and Neha Kumar. 2019. Bringing Shades of Feminism To Human-Centered Computing. In *Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems* (Glasgow, Scotland UK) (CHI EA '19). Association for Computing Machinery, New York, NY, USA, 1–12. <https://doi.org/10.1145/3290607.3310419>
- [32] Tema Okun. 1999. White supremacy culture. *Dismantling racism: A workbook for social change groups*. Durham, NC: Change Work. Retrieved from http://www.dismantlingracism.org/Dismantling_Racism/liNKs_files/whitesupcul09.pdf (1999).
- [33] Patricia Hill Collins. 1986. Learning from the Outsider Within. <https://doi.org/10.2307/800672>
- [34] Yolanda A. Rankin and Jakita O. Thomas. 2019. Straighten up and Fly Right: Rethinking Intersectionality in HCI Research. *Interactions* 26, 6 (Oct. 2019), 64–68. <https://doi.org/10.1145/3363033>
- [35] Yolanda A. Rankin and Jakita O. Thomas. 2020. The Intersectional Experiences of Black Women in Computing. In *Proceedings of the 51st ACM Technical Symposium on Computer Science Education* (Portland, OR, USA) (SIGCSE '20). Association for Computing Machinery, New York, NY, USA, 199–205. <https://doi.org/10.1145/3328778.3366873>
- [36] Yolanda A. Rankin, Jakita O. Thomas, and Sheena Erete. 2021. Black Women Speak: Examining Power, Privilege, and Identity in CS Education. *ACM Transactions on Computing Education* 21, 4, Article 26 (oct 2021), 31 pages. <https://doi.org/10.1145/3451344>
- [37] Yolanda A. Rankin, Jakita O. Thomas, and Sheena Erete. 2021. Real Talk: Saturated Sites of Violence in CS Education. In *Proceedings of the 52nd ACM Technical Symposium on Computer Science Education* (Virtual Event, USA) (SIGCSE '21). Association for Computing Machinery, New York, NY, USA, 802–808. <https://doi.org/10.1145/3408877.3432432>
- [38] Yolanda A. Rankin, Jakita O. Thomas, and India Irish. 2019. Food for Thought: Supporting African American Women's Computational Algorithmic Thinking in an Intro CS Course. In *Proceedings of the 50th ACM Technical Symposium on Computer Science Education* (Minneapolis, MN, USA) (SIGCSE '19). Association for Computing Machinery, New York, NY, USA, 641–646. <https://doi.org/10.1145/3287324.3287484>
- [39] Deborah Reed-Danahay. 2017. Bourdieu and Critical Autoethnography: Implications for Research, Writing, and Teaching. *International Journal of Multicultural Education* 19, 1 (Feb. 2017), 144–154. <https://doi.org/10.18251/ijme.v19i1.1368>
- [40] Monique Ross, Zahra Hazari, Gerhard Sonnert, and Philip Sadler. 2020. The Intersection of Being Black and Being a Woman: Examining the Effect of Social Computing Relationships on Computer Science Career Choice. *ACM Trans. Comput. Educ.* 20, 2, Article 9 (Feb. 2020), 15 pages. <https://doi.org/10.1145/3377426>
- [41] Monique S. Ross. 2023. Let's Have That Conversation: How Limited Epistemological Beliefs Exacerbates Inequities and Will Continue to Be a Barrier to Broadening Participation. *ACM Trans. Comput. Educ.* 23, 2, Article 17 (mar 2023), 4 pages. <https://doi.org/10.1145/3578270>
- [42] A. Solomon, D. Moon, A. L. Roberts, and J. E. Gilbert. 2018. Not Just Black and Not Just a Woman: Black Women Belonging in Computing. In *2018 Research on Equity and Sustained Participation in Engineering, Computing, and Technology (RESPECT)*. 1–5.
- [43] Jakita O. Thomas, Nicole Joseph, Arian Williams, Chanrtel Crum, and Jamika Burge. 2018. Speaking Truth to Power: Exploring the Intersectional Experiences of Black Women in Computing. In *Proceedings of the 2018 Research on Equity and Sustained Participation in Engineering, Computing, and Technology, RESPECT 2018*. <https://doi.org/10.1109/RESPECT.2018.8491718>
- [44] A. Nicki Washington, Legand Burge, Marlon Mejias, Ketly Jean-Pierre, and Qi'Anne Knox. 2015. Improving Undergraduate Student Performance in Computer Science at Historically Black Colleges and Universities (HBCUs) through Industry Partnerships. In *Proceedings of the 46th ACM Technical Symposium on Computer Science Education* (Kansas City, Missouri, USA) (SIGCSE '15). Association for Computing Machinery, New York, NY, USA, 203–206. <https://doi.org/10.1145/2676723.2677277>
- [45] G. J. Washington, M. Meijias, and L. Burge. 2020. Understanding How to Engage Black HS Boys in Computer Science Through Tech Innovation and Entrepreneurship. *Computing in Science Engineering* 22, 5 (2020), 20–28.
- [46] Tukufu Zuberi, Eduardo Bonilla-Silva, et al. 2008. *White logic, white methods: Racism and methodology*. Rowman & Littlefield Publishers.