

Navigating STEM-Worlds: Applying a Lens of Intersectionality to the Career Identity Development of Underrepresented Female Students of Color

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Abstract:

Knowing that female students of color are underrepresented in Science, Technology, Engineering, and Mathematics (STEM) is not enough. This paper will discuss the need for an intersectionality lens when considering how to retain talented female students of color in university STEM programs. Researchers and practitioners must focus on how students develop their social, academic, and intellectual identities as they become a scientist, doctor, or engineer. This includes the development of their core identity-- perceptions they have of themselves as well as perceptions of those with whom they work and interact. One of the main obstacles researchers and practitioners face includes how to help students adapt to the norms of STEM-worlds (classrooms and work environments related to STEM) as they proceed through the path to becoming a STEM professional. The paper will also discuss the term intersectional trap. This is defined as the act of saying blanket statements to describe a race or group of individuals without considering variations of experience within the population. The paper will end with recommendations for research focusing on qualitative studies that explore the lived experiences of students as they form their STEM identities.

1. What Does a Scientist Look Like?

What do we mean when we call someone a Black female engineering student? It is possible to fall into a trap of making assumptions. First, we may assume that the student is from African heritage. However, her mother may be Caucasian and her father Brazilian. We may assume that the student comes from the inner city and had a dysfunctional family life. The truth, however, is that she comes from an upper-middle-class, stable family with both a father and a mother at home. Another assumption may be that she is not stereotypically feminine and loves science fiction and video games. The truth is that she is not a fan of science fiction or video games, but loves shopping and was the winner of a beauty pageant in high school. Finally, we may assume that she is an atheist or is not religious because she is a strong science student. In reality, she is extremely spiritual and is a practicing Muslim, although she chooses not to wear her hijab as do many female Muslims. Just as a number of students have an obscure vision of what a practicing scientist looks like (Chambers, 1983), it is possible to fall into a trap of making assumptions about someone because of their appearance or the label society places on them. The truth is that the layers of sex, race, family background, socioeconomic status, and religion within the student described above include a number of variations of experience and identity. When we use quantitative analysis to examine the status of a group, such as minority female engineers, it is common to try to understand the individuals by comparing them with all persons in their demographic group. However, the complex intersecting identities inhabiting each person makes it difficult to pinpoint only *one* experience. This example speaks to the need for more qualitative research to understand these ambiguities and is at the heart of the construct of intersectionality.

Statistical analysis of female subgroups, such as Asian biologists or Hispanic physicists, is essential, and the data compiled through quantitative studies is useful in tracking trends among

underrepresented subgroups in STEM. Yet making predictions about an individual is difficult and troubling. An important theory in multicultural analyses, as it relates to females in Science, Technology, Engineering, and Mathematics (STEM), is stereotype threat. Steele (1997) defined stereotype threat as follows: “The event of a negative stereotype about a group to which one belongs becoming self-relevant, usually as a plausible interpretation for something one is doing, for an experience one is having, or for a situation one is in, that has relevance to one’s self-definition” (pp. 616-617). He found that African Americans under stereotype threat had a reduction in test scores and confidence in their subject areas. However, within the populations he studied, there was great variation. Not all African American students respond to stereotypes with a drop in academic performance. Many are resilient and use the stereotypes as a means of self-encouragement, agency, and stepping stones for success (Ellington, 2006; Ong, 2002, 2005). That does not diminish the reality of stereotype threat. It does nonetheless point to the fact that there are a number of varied experiences within specific populations. The primary variations include how each and every student forms their identity as a female of color in a STEM trajectory. Before trying to understand the trap many academic researchers and teachers fall into when considering females of color and their retention in STEM programs, we need to revisit the need for females in STEM and the basics of intersectionality.

According to statistics by the National Science Foundation (2007) and the National Academies of Science (2010a, 2010b), there is a shortage of females in all STEM fields. The primary underrepresented groups in which they focus are African American, Asian American/Pacific Islander, Chicana/Latina, and Native American. According to both organizations, these subgroups represent a huge source of untapped potential and, in terms of matching the percentage of STEM professional, should reflect the demographics of the United

States. Women of color are severely underrepresented at the doctoral level, only representing 9.9% of all the doctorates received in science and engineering (NSF, 2007; U.S. Census Bureau, 2009). Statistics from the National Science Board (2007) also show that women and minorities are less likely to persist in a STEM field major during college than a male non-minority. Even groups that are typically considered overrepresented, i.e. female Asian American STEM students, have not received advancements and upper management positions in government, academia, or industry (Burrelli, 2009). However, it is dangerous to assume we understand a subpopulation by only looking at raw quantitative data.

A diverse STEM workforce, particularly as it relates to female STEM students, is important for innovation, new approaches to scientific discovery, multiple perspectives, and the ability to look at world and scientific problems in new and unique ways (ACGPA, 2009; Bement, 2009). This new knowledge could come from the minority women's unique perspectives, backgrounds, and cultural traditions. Research has also found that females, especially females of color, have inherent compatibility for the research, skills, and work environment challenges in most areas of STEM (Riegle-Crumb & King, 2010; Hanson, 2004). Just as an increase in female lawyers helped to pass laws and legislation related to sexual harassment and domestic violence, more females of color in STEM could help solve problems related to race and ethnic-based health disparities (Satcher, 2001) and environmental concerns (Taylor, 2009), among others.

The reasons for underrepresentation and/or exclusion of women of color in STEM may relate to their experiences within the scientific community, which is abundantly White and male. Students who do not fit the White male standard are likely to not feel a part of that community, which could affect their performance and willingness to stay in the field (Brunn-Bevel, Davis, & Olive, 2015). McIntosh (1989) was the first to use the term White privilege, which she described

as a set of unearned advantages enjoyed by Whites that they rarely reflect upon in their daily lives. She refers to these advantages as “an invisible package of unearned assets which *they* can count on cashing in each day, but about which *they* remain oblivious” (McIntosh, 1989, para. 3). She calls this an *invisible knapsack*. In her framework on White privilege, acts of racism are not open acts of meanness, but rather unknowing advantages experienced by Whites on a daily basis. This White privilege could be both personal and institutional. Female students of color must adapt to the norms of a White male STEM-world to be successful.

2. What is Intersectionality?

Female students of color in STEM may face a multitude of racial and ethnic bias on a day-to-day basis, which could be considered multiple systems of oppression (Carlone & Johnson, 2007; Ong, 2002). But do these varied oppressions compound within the individual and add to their oppression with each layer of intersection? This is where the principle and framework of intersectionality comes into play. The original iteration of the construct of intersectionality was introduced by Crenshaw (1991; 1993) to illuminate the oppressions of Black women and to explain how they had been left out of the conversations about feminism and gender equality. Much of the subsequent research in the next few years continued to focus on Black women and the struggles they faced (Brewer, 1993; Collins, 1999; James & Busia, 1993; Seiler, 2003; Settles, 2006). Although it has only recently been used in the field of education, the intersectional framework has been used by social science researchers to investigate multiple and intertwined inequalities faced by women in areas such as politics, violence, criminology, and sexuality (Acker, 2000; Crenshaw, 1991; Walby, 2009; Trahan, 2011). It is primarily used as a tool in the fields of social justice and equity (Clarke & McCall, 2013).

In recent years, a number of researchers (Nash, 2008; Browne & Misra, 2003; Carbado et

al., 2013) have proposed that the framework be expanded to consider all combinations of identities, including those that include students within the majority. Studies are needed to see what underlying factors related to intersectional identities reveal themselves in all students when they begin to form their identity as a student of STEM. Intersectionality also focuses on other issues such as explorations of group and individual identities, issues of power, inequality, and oppression. It also connects research and praxis to solve social justice problems (Dill & Zambrana, 2009). Intersectionality does not deny the importance of social categories or labels, but it focuses on how the social categories are “produced, experienced, reproduced, and resisted in everyday life” (Weber, 1998, p. 1783). Crenshaw (1993) discusses three forms of intersectionality: structural, political, and representational. To understand the variations of intersectionality in women of color and how those factors relate to their identity in STEM, it is best to focus on representational intersectionality (Crenshaw), which primarily focuses on the intersections of the student’s race and gender.

When using intersectionality as a methodological lens, a number of factors must be considered. First, intersectionality must address who should be included in the category, what role inequality plays, and how the different categories or identities operate within the individual (Cole, 2009). Second, the identities within the individual are not considered to be additive; identities cannot simply be stacked on top of one another and called intersectional (Hardiman et al., 2013). Third, neither race nor gender should be considered more important than the other; ranking oppressions is not effective or meaningful. Each situation determines the impact of the identity for the individual, and the how the individual’s identity is conveyed depends on each of the other categories for full expression (Anderson & Collins, 2012). As well, Landry (2007) believes in simultaneity, which means that race, class, and gender cannot be separated when studying

individuals with an intersectional lens. Although they are ever present, not all of the identities are relevant in every situation (Reay, 2007). Landry also believes in multiplicity, which asserts that the relationships between gender, class, and race are interactive rather than summative; the impact of the categories is much more important than the sum of the parts (Landry, 2007).

3. It's a Trap!

When we assume to know everything about a female student in STEM based on demographic and/or quantitative data, we may fall into *intersectional trap*, which is the act of saying blanket statements to describe a race or group of individuals without considering variations of experience within the population. How is intersectional trap different from stereotyping? Stereotyping, according to Lippmann (1956), is a way to maintain order by referring to the world and expressing our beliefs based on the observed characteristics of some individuals within a group. Though not originally intended as such, the term has taken on a derogatory context when it refers to typically oppressed groups such as women and minorities. Stereotypes are common and not a cause for concern unless they lead to discrimination or stereotype threat (Steele, 1997). Intersectional trap can be similar to stereotype threat in that individuals may feel that because of their intersections, they must adapt to the societal norms of other individuals within a certain world. For example, a White female engineering student who is majoring in Computer Science might feel that she has to like video games and be a stereotypical “geek” to fit the norms of that world. The other negative possibility is that individuals may perceive the intersections of a person, both visible and invisible, and assume that individual must behave a certain way based on those characteristics. Intersectional trap can, therefore, be *self-imposed* or *other-imposed*. This is especially troublesome for STEM students, especially female students of color.

Intersectional trap may be prohibitive for minority females in STEM by two processes. First, *intersectional trap* may steer students away from careers in which they do not feel comfortable. Role models are important in STEM, but in the absence of role models, students must decide how they will inhabit a space that is both gendered (mostly male) and marked by a majority of White instructors and professionals. In a sense, female students may feel like these areas are *sacred spaces*. Sacred spaces are day-to-day STEM-worlds that students navigate in which they are generally unaccustomed (Shain, 2002). To feel welcome in those spaces, students must adapt to the norms of the group and identify themselves as members of that population. However, that may be “easier said than done.” In a sense, the students must practice *identity suspension*. When members of an underrepresented group attempt to navigate sacred spaces, they sometimes suspend their outside identities to conform (albeit temporarily) to the norms of that environment to fit in and be successful. In this process, they contribute some of their identity to the space as well as take some of the norms and values of the sacred space with them when they leave. Both the space and the individual are changed by the experience. This process may be disruptive for both the individual and the space, especially if the norms of that space are deeply ingrained and well-established. But what is identity and how is it formed in college students?

4. STEM Identity

Hall (1992) defined identity as “something formed through unconscious processes over time, rather than being innate in consciousness at birth” (p. 288). This definition speaks to the idea of identification being an on-going process. It is developed over time through social interactions and is a dynamic and changing process (Bohan, 1993). Gee (2000) believes that the kind of person one is recognized as being is dependent on the context and the place and time one inhabits. He refers to the kind of person you are (both what you believe about yourself and what others

believe you to be) as your Discourse. Each individual has a *core identity*, which holds universally across many contexts. Discourses help to define this core identity, which changes as the individual goes through many experiences and records them internally, a process which Mishler (2000) calls one's *narrativization*. The students' stories about themselves, which build their identity, are created by their unique social experiences (Gee, 2000). Furthermore, the individual identities or intersections within an individual may have a lasting effect on a student's Discourse and identity development. Subrananiam (2014) speaks of her experience in the culture of science: "Now I know that we all have multiple identities, belonging to particular or multiple genders, races, ethnicities, classes, and nations at the same time. Yet when no around me shared these multiple identities, my growing realization of the importance of identity came in fragmented ways—coming to identify the individual colors in a prism" (p. 171). She argues that a community of STEM is never culture free and comes with unwritten rules about who fits into the role of a scientist (Subramaniam, 2014).

Although the construct of intersectionality began with Crenshaw's interpretations (1991, 1993) and focused primarily on Black women, intersectionality can be considered when analyzing any number of intersections in other individuals. The reason Black females have been the primary focus of intersectionality research could be from the interpretations of *double jeopardy* (Beale, 1970), originally applied to African American females in science. This idea, along with the idea of a *double bind* (Malcom & Malcom, 2011), forwards the premise that disadvantages compound when each intersection is added to the experience (Purdie-Vaughns, V., & Eibach, R. P., 2008). However, this may not be the case. For example, a Black female can experience both sexism and racism, but her experience of being both Black and female cannot be considered more oppressive or problematic than her experience of being a *Black female*. Purdie-Vaughns and Eibach (2008)

believe the discussion should move from the context of “who is more oppressed” to a discussion of how an individual’s intersectional identities render them invisible. They purport that a Black female may experience a mixture of advantages and disadvantages, which may disrupt any notion of double jeopardy.

These factors point out one problem with the way we view privilege in that it is not static and can inhabit a space within a group of similar or like-minded individuals. In this sense, privilege can be a *continuum of intragroup privilege*. For example, the women’s suffrage movement is portrayed as White female movement, but there were many black females involved (Davis, 1983). So in this instance, to say females do not have privilege is not entirely correct. Depending on the time and context of the individual’s experience, all privilege may not be created equal. For example, if a White student enters a Historically Black college, that individual may not receive any benefits from their Whiteness. In a sense, they may also experience stereotype threat in social gatherings and in positions of leadership because of their *minority* status in that environment.

Believing that every intersection of identity (religion, sexual orientation, socioeconomic status) is compounded within an individual implies that the student would be under such a load of oppression that they would be unable to get out of it and move forward. Believing in the compounding of identities constitutes a form of *intersectional trap*. That is why it is important that researchers and teachers do not view intersectionality as *multiplicative*. Another form of intersectional trap is to believe that the stereotypical example of a White male scientist or engineer is the model to which all comparisons of scientists are made (Carbado, 2013). This may be difficult to avoid seeing that they represent the majority of practicing scientists and engineers as well as, historically, the greatest number of Nobel Prize winners and inventors. As Carbado

(2013) explains, it is important that practitioners do not consider the White male scientist as the standard because that makes it “easier for whiteness to operate as the natural and unmarked racial backdrop for other social positions, rather than as a particular and “different” representation of them...Gender is *then* intersectionally but invisibly constituted as white” (Carbado, 2013, p. 823-824).

5. Pipeline Problems

Students must form their identities as a scientist or engineer side by side with their core identity. One metaphor used to illustrate the process of becoming a person of STEM is the “pipeline.” The use of the pipeline metaphor has been pervasive since its first introduction by Berryman (1983) as a metaphor for the pursuit of STEM careers. Although it has been useful in analyzing the path that students take on their journey to become a STEM student and potentially part of the STEM workforce, its limitations as a metaphor are numerous. It was established as a formulaic way of evaluating the career paths of engineers. In discussing the origins of the pipeline metaphor, Metcalf (2010) states “It is based on supply-side economics, flow modeling, and social engineering and designed by engineers and the National Research Council’s Committee on the Education and Utilization of the Engineer. Depicted as a balance equation, the model describes the linear sequence of steps necessary to become a scientist or engineer and was used to calculate the large numbers of scientists and engineers that would be needed to maintain national competitiveness” (p. 2). This metaphor is based on one field, engineering, and does not take into account the myriad of obstacles students face as they progress through a STEM field of study.

The pipeline metaphor proposes that female students of color begin their journey as a scientist in kindergarten. They are then completely developed when they arrive at the other end of the pipe and take their place as a professional (or in academia) after they finish college. Leaks are

used to describe a student's entry and exit (attrition) from STEM and generally refer to those that are lost along the trip, never to return. It erroneously suggests that the more female students who are stuffed into one end, the more that will turn out of the other end of the pipe to complete their degree and chose STEM as a lifelong career. The assumption is that those who leave the pipeline leave by choice, not because of sexism, racism and discrimination (Subramaniam, 2014, p. 211). In a sense, there is no guarantee that they will arrive at their destination intact, no guarantee that they will continue to be successful after their exit from the pipeline, and no way to return to the pipeline once they leave it. Proponents of this metaphor make the assumption that all STEM students begin their journey an extremely young age. Some researchers (e.g. Seymour & Hewitt, 1997) believe that the use of the metaphor also ignores the fact that the STEM workplace reflects societal norms, which are generally socialized to an environment ideally suited for White men. This makes the pipeline an ill-suited framework to understand STEM career identity formation (Carlone & Johnson, 2007; Xie & Shauman, 1997; Zirkel, 2002). Also, the pipeline metaphor may not accurately portray the obstacles that female students of color encounter in their career identity development (Carlone & Johnson, 2007; Cannaday et al., 2014).

Another problem with the use of the pipeline metaphor is the phrasing used when students are leaving the pipeline through leaks and cracks, which implies a faulty system. Students who leave the pipeline are never to return on the conventional *stream* since materials that reenter a pipeline are typically thought of as contaminants. What about students who change to a STEM field while in college or students who are from a workforce or military background and at some later date decide to enter STEM fields through a major career change? In many senses, there is no *traditional career path* into the fields of STEM, which is implied by the pipeline metaphor. Although a previous study has looked at the pipeline from the Bachelor's to PhD (Miller & Wai,

2015), few studies have looked at the career identity development of pre-college students, particularly studies who have tentatively committed to a STEM Career. A new metaphor needs to be explored that visualizes multiple pathways for entry and exit into STEM-worlds and better reflects the obstacles underrepresented students face.

6. Why They Stay and Why They Go

It makes no difference how many female students of color we “push” into the pipeline if we are losing many talented STEM candidates along the way. It is possible that this sense of identity is a barrier that many talented students must cross. Female students’ complex identities as both an individual and as a future STEM professional are significant as they develop a sense of “who they are and what they want to become” (Cobb, 2004, p. 336). The development of their science identity is intertwined with their core identity, so both have to be developed together. The lack of cultural inclusiveness and relevance (Carlone & Johnson, 2007; Seymour and Hewitt, 1997) in the STEM-world may be a hindrance to many talented females and minorities. To keep them in STEM, we must foster their sense of scientific literacy, wonder, and expertise and help them to feel part of the culture while retaining their core sense of self. We must also be careful not to ascribe gendered or racialized qualities to students of color such as the “masculinized” aspects of science or the culture of competition. It is also possible that some male students would excel in a more “feminine” STEM culture that focuses on cooperation and is more student-centered. Although we can analyze groups of underrepresented students, students develop their sense of self as individuals with multiple intersections of social identities (Reynolds & Pope, 1991).

Is the attrition of females of color in STEM an individual or institutional issue? Using identity as a framework, it is possible to analyze both individual identity development and the institutional culture of STEM (Ulriksen, Madsen, & Holmgaard, 2010). A number of studies have

analyzed how students function in a STEM culture (Beasley & Fisher, 2012; Marlone & Barbino, 2012; Tate & Linn, 2005; Brown, 2004; Carlone & Johnson, 2007; Brand, Glasson, & Green, 2006). Marlone and Barbino (2005) used a laboratory context to analyze how students viewed their racial identities and how those conflicted with their identities as a scientist. They found that African American students had feelings of invisibility and felt a lack of inclusion when their race was focused on more than their role as a scientist (Hurtado, 1996; Lord, Camacho, Layton, Long, Ohland, & Washburn, 2009). A study by Tate and Linn (2005) with female women of color in engineering used a multiple identities framework. They focused on three identities: (1) an intellectual identity tied to their desire to become an engineer, (2) an academic identity focused on having excellent grades, and (3) a social identity related to their race and gender. They found that women experienced conflicts in their social identity as they aspired to become engineers and were reluctant to include themselves within a definition of who engineers could be. This study showed that interactions between students of color and their social, academic, and intellectual identities could work together to influence both their educational and career goals and aspirations (Tate & Linn, 2005).

Other studies have shown the problems that arise when students juggle multiple identities. Using the context of classroom lessons related to creation and evolution, Brown (2004) showed that university students can manage their multiple identities by “code-shifting.” To maintain their status or group membership, students are able to change their discourse (conversations) to reflect scientific identity, then switch to a different discourse with their peers to maintain their racial and ethnic identity. In these *sacred spaces* of scientific discourse, these students were able to maintain identity frameworks (which appear on the surface to be oppositional) in order to maintain membership and be comfortable in multiple groups (Brown).

Carlone and Johnson (2007) looked at students of color in science and separated them into two groups: self-recognition and external recognition. Students who focus on self-recognition feel a part of science culture and view their purpose in that community is to use science to help others and the environment. Students who seek external recognition feel the need to be recognized by their peers for their accomplishments in order to feel included in the scientific community. For those more affected by external recognition, the authors felt that a disruption of a student's identity could affect their willingness to stay in STEM, especially when they feel "overlooked, neglected, or discriminated against by meaningful others within science" (Carlone & Johnson, 2007, p. 1202). One problem with their study is that the authors committed a form of *intersectional trap* by assuming that only female students are focused on self-recognition and also are the only ones who have altruistic aims (Ginther & Kahn, 2012). Although this may be true for some, it is presumptuous to assume that only female students are altruistic. This assumption further highlights the need for research on students of color in STEM using an intersectionality lens which does not make assumptions about student behavior or beliefs.

Students inhabit multiple identities and these all come to bear on their development as a student and particularly as a student of color in STEM. Jones and McEwen (2000) developed a conceptual model of multiple dimensions of identity, which highlighted the way students' shifting salience (awareness of their identities) affects the way they act in different contexts. What students deem important and necessary in any given moment depends on the need for that identity in that particular situation. They may hide some identities and reveal others in a STEM-world, especially if they feel they do not fit into that culture (Reynolds & Pope, 2001). In a sense, they rank these identities and pull the necessary identity out of their "toolbelt" when needed to function and adapt in that particular environment. In these *sacred spaces*, students are affected by the

culture, but change the culture around them by their mere presence. Gross (2004) also believes their choice to become a STEM student is based on the intersections of their (1) social identities , (2) sense of who they are, and (3) sense of who they want to be.

7. Conclusions and Connections

To retain female students of color in the fields of STEM, researchers must look at both institutional practices (including the culture of STEM-worlds) and the convergence of social, career, and academic identities within STEM students. One important step in controlling the attrition of these students in STEM is to develop more qualitative studies that help reveal how identity as a STEM student is formed. This may include developing a more effective metaphor than the “pipeline” which better accounts for the STEM career identity development of students of color. This research must be careful to not focus too much on the separate identities of these students, but instead focus on the interactions of their various salient identities as they navigate the culture of STEM-worlds. These qualitative studies could include phenomenologies, ethnographies, or a number of other qualitative research formats. As noted by Grant and Zweir (2012), studies are needed that focus on both the need for change through both the self-transformation of students and the restructuring of institutions. This restructuring should lead to the development of policies which dismantle oppressive institutional practices and balance equitable power and privilege structures within STEM.

So how do we, as researchers and practitioners, change things that we cannot see? As Subramaniam (2014) states: “Invisible things are not necessarily “not-there” (p. 22). We must first recognize and research how STEM students form their identities by asking them about their experiences in interviews, focus groups, and informal discussions. It is also necessary to better understand how students shift their identities as they proceed through the path to becoming a

STEM professional and what toll (if any) this shifting of identities takes on them (Prior, 2015). It is important that researchers discuss the multiple identities of not only students in the minority, but also students in the majority, to see how multiple advantages might appear when privilege works to their advantage instead of their detriment (Fraga, Martinez-Ebers, Lopez, & Ramirez, 2006). As Browne and Misra (2003) discuss, researchers must examine all groups, not just women of color, to understand the true nature of intersectionality, including how these intersections can create both privilege and oppression (Bowleg, 2008). As well, researchers need to change the incorrect notion that students can only inhabit one salient identity. The truth is that students want to be able to inhabit a world where all aspects of their identity can be expressed and validated (Vaccaro, 2015).

The purpose of this essay is not to say that all quantitative studies related to females of color in STEM are necessarily inaccurate or ineffective. Quantitative studies can be combined with qualitative data to triangulate the areas of need and help to focus intersectional studies of students and their institutions (Campbell, 2015). Yet quantitative studies may not be effective in helping researchers understand (1) the extent and complexity of variability within populations and (2) how intersections such as race, sex, and sexual orientation contribute to the development of a student's STEM identity. Only by analyzing individual students and hearing their stories can their complex identities be viewed in all their many facets of reality. By using a lens of intersectionality, we can help students realize their intersections make them unique. Understanding their uniqueness should help them seek solidarity with their fellow students and learn to navigate the sacred spaces of their STEM-worlds (May, 2014). Even though female STEM students possess an assortment of multiple intersections and identities, they still only represent one unique individual.

if everything happens that can't be done
by e.e. cummings

we're anything brighter than even the sun
(we're everything greater than books might mean)
we're everyanything more than believe
(with a spin leap alive we're alive)
we're wonderful one times one

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