

## **Identity Dilemmas, Cultural Homelessness and Intersectionality: A Discourse Analysis of the Experiences of a Female Undergraduate International and Transracial Adoptee in Engineering (Research)**

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# **Intersectionality, Identity Dilemmas, and Cultural Homelessness: A Discourse Analysis of the Experiences of a Female Undergraduate International and Transracial Adoptee in Engineering (Research)**

## **1. Introduction**

A home is a place where we experience a sense of safety and belonging. We may think of a home as a physical structure, but we can also recognize the importance of people in creating that sense of safety and belonging. In this paper, we tie the sense of having a cultural home to the belonging and safety we each experience, or do not, in particular people groups with particular cultures. We hope this work can help illuminate the way an educational culture can serve as a home for some students while simultaneously not being a home for others.

While much of the work on broadening participation literature examines student experience through a lens of a single identity (e.g., women, Black and Latinx people, LGBTQ+, veterans, disabled individuals, low socioeconomic status (SES), religious minorities), intersectionality has been instrumental in understanding the nuances and complexities of students' experiences at the intersection of multiple identity groups [1] – [3]. This paper argues that intersectionality, both in theory and practice, creates smaller populations (small n) of unique experiences. Researchers note that individuals possessing multiple groups identities who do not conform to the prototypes of their constituent groups might experience what Purdie-Vaughns and Eibach called “intersectional invisibility” [4]. Intersectionally invisible persons may have certain advantages and disadvantages relative to the mainstream. At the margin of the identity group, they are likely not the target of many directed attacks towards the groups; however, their invisibility leaves them less supported culturally and structurally. Since many students support strategies or DEI solutions tend to focus on a single identity, there is a risk of leaving out some aspects of the students. For example, Black students made up 5.4% of the total undergraduate students enrolled in engineering in the Fall of 2021 [5]; however, the population of Black international Muslim or Black international Muslim women is even smaller. Thus, a Black international Muslim woman living in the US and in engineering education may not feel a sense of home with the Black community, with Black women, with US culture, with other engineers, etc. We argue that the engineering education community needs to understand the complex identities and experiences of individuals to create a sense of safety and belonging for these students.

This paper focuses on how the interplay between engineering culture, identity, and intersectionality contributes to an individual's sense of cultural home/lessness. Our focal participant, Amber, is a female undergraduate engineering student and international transracial adoptee, meaning she was adopted as a child by a family from a different nation and culture, creating a sense of cultural homelessness being between cultures and at the margins of systems of identity and oppression. We utilize discourse analysis techniques to unpack how Amber describes her experiences of being at the margins of the constituent identity groups both in and out of engineering. The study aims to broaden our understanding of inclusion by highlighting the ways intersectional identity contributes to or undercuts our sense of having a cultural home.

## 2. Guiding Frameworks

### 2.1 Intersectionality

Intersectionality is “a way of thinking about the problem of sameness and difference and its relation to power” [6, p. 795]. It can be thought of as a framework, an analytical tool, a perspective, and a tool for social change [7]. Originally, intersectionality focused on the relationship of Black women to existing law regarding issues of sexism and racism. Kimberle Crenshaw [2] - [3] theorized how the intersection of these two systems of oppression created important complications for Black women beyond the experience of sexism by White women and racism by Black men. In subsequent decades, intersectionality has come to be utilized in multiple traditions beyond legal studies (e.g., education [9], engineering education [1]) and regarding multiple systems of oppression (e.g., socioeconomic class, sexual orientation, language, nationality).

In addition, intersectionality traditionally examines large sociological patterns but can also be leveraged in thinking about the ways systems of oppression impact “small n” groups or individual participants. In this paper, we put emphasis on one of the original forms of intersectionality: representational intersectionality. Representational intersectionality refers to the ways prototypes of identity groups are represented in various contexts, including media, politics, and popular culture [3]. Representational intersectionality investigates how the representation of people with multiple intersecting identities in popular culture can be exaggerated or distorted, resulting in inaccurate and harmful stereotypes. In this paper, we focus on the intersectionality of gender, race, and national origin for a single individual, recognizing that there are both important affordances (e.g., for nuance and specificity) and limitations (e.g., we cannot substantiate a larger sociological pattern) when discussing intersectionality for a single person.

### 2.2 Cultural home/lessness

Minority individuals’ identity formation can benefit from group membership in a racial, ethnic, or cultural minority group with which they can identify since it enables them to develop a cultural frame of reference, appropriate social skills, and an emotional connection with the community [10]. The group becomes that person’s *cultural home* where they feel a sense of belonging and are aware of the stable, consistent rules, norms, beliefs, and values accompanying that membership. The cultural home is “a sense of belonging to an ethnic or geographic community with consistent socialization themes and traditions, demarcated by a clear understanding of who the in and out-groups are” [10, p. 9]. A cultural home acts as a soothing function for the individual by providing an “emotionally comforting sense of being at home” [10, p. 12].

*Cultural homelessness* can manifest among individuals when they lack cultural frames of reference to fit into any existing racial, ethnic, or cultural category [10]. Cultural homelessness has been associated with people who identify as multicultural, multiethnic, multiracial, third culture kids (TCKS), military brats, global nomads, or missionary kids, and people who were raised as isolated racial minorities in surroundings dominated by the prevailing culture [11], [12]. Vivero and Jenkins suggest “culturally homeless people share a sense of not belonging and not being accepted as members by any existing group because of their uniqueness; for them, all groups are out-groups” [10, p. 12]. Individuals are recognized as culturally homeless when all three conceptual domains are present at the same time: 1) absence of

ethnic/cultural group membership and attachment, 2) lack of a cultural home, and 3) need for a cultural home [10], [11].

The concept of cultural home is related to a sense of belonging, which has been operationalized to help understand inclusion in engineering education. Sense of belonging tends to connote primarily psychological aspects of inclusion. In contrast, we place emphasis on the words “cultural” and “home” to emphasize the social, structural, and environmental aspects of supporting that psychology.

### *2.3 Intersectionality and Cultural Home/lessness in Engineering*

By broadening the conception of cultural home/lessness from ethnicity, nationality, and culture, we can conceive of many other types of culture as providing the sense of cultural home. Social identity groups, which in general are also systems of power and oppression, can offer a sense of identity, belonging, and community that could function as a cultural home. People who experience themselves at the outskirts, on the outside, or in between dominant social identity groups could experience a similar disconnect to those who feel cultural homelessness in a traditional sense. For example, womanhood may provide a sense of cultural home; but Black women may not experience the same sense of home within broader society’s representation of womanhood as White women would. Black womanhood could define that sense of cultural home, but then other groups— queer Black women, Black Muslim women— may not experience the alignment of cultural home with Black womanness to the same extent that straight Black Christian women do. Because of this representational intersectionality [3] or popular culture’s construction image of prototypical members of groups, social categories will be experienced as a cultural home by some more than others.

Furthermore, engineering culture can be a cultural home, and more for some than others. Disciplinary and educational cultures are enacted in shared physical and social spaces, but those same spaces are experienced differentially by some as inclusive and by others as exclusive or marginalizing. Identity and intersectionality play a significant role in that differentiation of engineering culture. This paper considers the interplays of engineering culture, identity (as culture), and intersectionality as creating or disrupting a sense of cultural home.

## **3. Methodology**

### *3.1 Data collection*

Data for this study comes from a larger project, *Audio for Inclusion* [13], that focuses on exploring students’ experience of marginalization in engineering settings, specifically focusing on students’ hidden or non-apparent identities that their peers or professors are unaware of or maybe do not understand. For recruitment, we adopted an intentional nationwide strategy. We conducted 21 zoom interviews with students, each lasting 45 to 90 minutes and representing a variety of marginalized identity groups.

As a way to establish rapport during the interview, we utilized a scaffolding strategy of showing an iceberg or identity wheel [14] containing many identities, including the concept that some identities are more visible and/or apparent. In contrast, depending on context and person, some are less visible or non-apparent. Some prompts for all participants included: 1) How do you identify yourself, and how do your identities impact your day-to-day life?; 2) What’s something about yourself that is important but hidden in an engineering class?; 3) How do you feel about disclosing your hidden identity to others?; 4) What’s

one thing you wish were different about engineering education?; and 5) What’s one thing you would tell your professors now if you could or advice you would give someone like you in engineering? Additional probing was conducted when deemed necessary.

In this paper, we narrow our discussion to just one person to whom we have assigned the pseudonym Amber. Amber is an international and transracial adoptee from China in her fourth year of engineering school at a Predominantly White Institution (PWI); she also has some mental health concerns. During our conversation Amber’s expression of clarity around her identity and/or identity dilemmas and the subsequent impact in her life stood out to us, especially her discussion of being an outsider in various contexts or communities, whether it was her university or other Asian people. We believe by gaining a deeper understanding of students’ complex identities and experiences, we can identify ways to include them more intentionally.

### 3.2 Data Analysis

The audio-recorded interview was transcribed verbatim and listened to several times to identify quotes and aspects of Amber’s experience that might contribute to developing a sense of cultural homelessness. Since discourse analysis is useful for examining how people use specific words in a given setting to position themselves or highlight the influences of others, we employed several elements of discourse analysis [15], [16] to unpack Amber’s responses.

We specifically looked at the language that Amber uses to express herself, as well as patterns, repetitions, and emotions. We delved into the implied meaning of the language going beyond explicit content and word choice to help map the underlying meaning she was trying to convey (such as using “because” to indicate cause and effect). Her multiple identities were intertwined with our analysis of language because intersecting identities can affect how someone interprets a situation. In presenting our findings, we made use of substantial quotes that underwent minimal editing to strengthen the credibility of our results. Table 1 shows the convention we used while transcribing the interview. We organized findings into themes that helped demonstrate the connection between intersectionality and cultural home/lessness.

**Table 1 conventions for transcribing quotes**

|                 |   |
|-----------------|---|
| text__          | Trailing off  |
| “ <u>text</u> ” | Participant gestured with air quotes while saying the underlined word |
| ::text::        | Gesture done concurrently with the spoken word                        |
| [...]           | Skipped text for space  |
| #.              | Line number to specify during analysis and discussion.                |
| (pause)         | Pause   |

## 4. Findings

In this section, we analyze Amber’s interview discourse in detail and discuss how she represents her sense of outsidership. Subsection 4.1 explores how Amber expresses her identity. Subsections 4.2 and 4.3 delves into two distinct types of identity dilemmas for Amber in life as well as in academic settings.

### 4.1 Expressing Identities, Upbringing, and Sense of Being an Outsider

Amber is an international adoptee from China who arrived in the United States when she was one and a half years old. She also identifies as a woman in STEM and is in the fourth year of her undergraduate studies. Amber’s reasoning for studying engineering was driven by its multiple opportunities, including the potential to improve the lives of people and the environment. She states she experiences anxiety and depression and receives medication and therapy from university resources. When asked how her identities affect her day-to-day life, she expresses her sense of being a perpetual outsider:

- 1 I feel in a way a lot like, well, I guess in terms of school, I feel a lot like kind of like  
2 an outsider because I go to [university name] which is like the majority very like  
3 white and traditionally conservative school. And so, since, like, I don’t fall into a lot of  
4 those like categories of what people might assume be like the stereotypical  
5 [university name] student. I feel a little bit like (pause) like an outsider in that sense.
- 6 Um... But also, because like (pause) because I am not only an international adoptee but  
7 also transracial adoptee, meaning that my family is white. But obviously, I’m not.  
8 ::pointing towards her face:: I, I feel like that kind of stresses me out, in that sense  
9 where it’s like, “Well, Am I “Chinese” enough, am I “American” enough or am I,  
10 should I identify as “White” because my family is and because of how I was raised  
11 , but like, would that be a betrayal to like, my Heritage and my, you know, like my  
12 face ::points towards face:: and stuff.
- 13 So like, especially when I meet like other Asian people, I am really scared to tell them  
14 that like I’m adopted because I don’t want them to think that I’ve been, like, whitewashed  
15 or that I’m somehow like less Asian than them. But like also, I don’t look traditionally  
16 like, “Chinese” if that makes sense. So, I don’t know if it comes out in this video. But  
17 like, I’m pretty on The Brown side--- end of spectrum as opposed to like, If you think  
18 like Chinese, a lot of people think, like all of them are very pale, very whatever this and  
19 that, and I don’t really fall into like the stereotypical “Chinese looking person” either.  
20 So, this is (pause) a struggle in that like, I really don’t feel like I fit in anywhere, for like  
21 a multitude of reasons.

In the extended quote above, we see Amber name an “outsider” identity and explain various ways she experiences her outsider status. Her repeated use of “stereotypical” demonstrates her awareness of prevailing narratives about these population groups and positions herself outside of them. She details her struggles to fit in with the White or Asian cultures in lines 6–12. In lines 8–12, she underscores the emotional cost of the tension between her upbringing and her heritage. Her use of the words “scared,” “whitewashed,” and “less Asian than them” in lines 13-15 suggest her insecurity and fear about her place

in the Asian community. They can also indicate that she might try to hide her identity as an adoptee in an effort to fit in with the Asian in-group, where she feels somewhat out of place. In lines 15–19, Amber describes a “traditionally Chinese” or “stereotypical Chinese looking person” in terms of skin tone: Chinese looking people are “very pale,” while she is on the brown end of the color spectrum. Finally, the repeated use of air quotes suggests her frustration and confusion around relating to the social constructs of each identity group she marginally belongs to.

Amber currently has an Anglo-sounding surname from her adoptive father, which she thinks would give people the impression that she is White. However, to Amber, her white-sounding name is possibly a misrepresentation of herself, as she mentions:

22 There’s nothing about it that says [...] this person is Chinese [...] I almost feel like  
23 that’s like a deception.

Despite having a white-sounding name and being raised by White parents, she feels alienated from the family in some ways. She shares that during her college years, she attempted to change her surname to a Chinese one as a way to embrace her Chinese heritage. But that effort did not sit well with her family. Though she expresses regret for not changing her surname, Amber ultimately decided to keep her current name due to family disapproval and complicated paperwork. It seems that the desire to connect to a specific identity to resolve an identity dilemma for her, in her case, the White or Chinese identity, creates a double bind situation. If she keeps her White-sounding last name, she experiences it as possibly not representative of herself; if she changes it, her adoptive family feels she has separated herself from them. Even within her own family, where we might typically experience our deepest sense of home, all of these encounters could act as painful reminders of her marginal status or “otherness.”

#### *4.2 Experiencing Dilemmas with Identifying as White or Chinese*

Amber’s self-positioning as an outsider in numerous contexts at the beginning of the interview led us to inquire about the time she started to think about this outsider identity. Amber recounted a time when her high school teacher recommended, she identify as White while applying to colleges:

24 When I was applying for colleges. One of my teachers in high school was like, oh,  
25 Amber\_\_ [...] basically, he was like, ‘oh, you should, when you apply for colleges,  
26 you should write down that you’re White because you’re culturally white, and white  
27 people have a better, like, have a better chance of getting accepted into these schools  
28 as opposed to like saying that you’re Asian.’

29 I was like, hmm, I don’t really like know what to say. Because like in this instance,  
30 he like called me out in front of the entire class. And so, I was\_\_ I felt like I was  
31 being put on the spot of like my identity and who I was and like\_\_ (pause) And also like,  
32 is that true? Like, is there some way that I should like to play the game or whatever?  
33 Like figuring out, who I am to like get further ahead in life. And, like, is that even  
34 ethical for me to, like, bend the rules in that sense, I guess. And, like, do I even want to?

35 I didn't, by the way. I did put down Asian because I feel like it would be like deception  
36 and like some like malicious almost to put down something that I don't feel like I am.  
37 But I do see like how I guess, he could, you could like twist it to look like that.

As Amber recounts this event, it appears that her teacher wanted to share a strategy that he thought would help Amber get college admission. Nonetheless, the suggestion to leverage her “cultural whiteness”, as noted by her high school teacher (line 26), in contrast to her own more complicated racial identity, is a problematic statement from an authority figure. Although Amber appears to acknowledge that her identity or status can be “twisted” (line 37) either by her or others, we can infer that this event could be deemed as an act of microaggression since singling her out or putting her in the spotlight (line 31) possibly heightened her sense of being an outsider, reminding her of her differences and/ or marginal status. Additionally, we find her striking use of words like “betrayal,” “ethical,” “deception,” and “malicious” demonstrate Amber’s strong stance against being categorized in any way with which she does not identify or feel comfortable; we see this as an act of resistance against her teacher’s advice and worldview.

We also see evidence that Amber remembers this story with guilt and worry regarding having no good option— what some would call a double bind [17]. If she identifies as White, she sees it as a betrayal of who she is. If she identifies as Chinese, she worries she is not using some rightful support she should have because she did not grow up in a Chinese family. She still questions whether recategorizing herself was the right choice because the categorizations do not have enough specificity for her to be completely honest. Perhaps she faces similar dilemmas as she continues to choose how she racially identifies in similar situations. She expands on this dilemma:

38 I always say that there's like never\_\_ There's never a good time to be Chinese  
39 American. Like, it just sucks. There's\_\_ Chinese people don't like you because you're  
40 American, America doesn't like you because you're Chinese. Like if you're like any  
41 other sort of like East Asian, people like love you. They're like, oh, you're Japanese, I  
42 Love Sushi [...] or they're like, oh, you're Korean, I love like K-pop [...] whatever.

43 It's like, oh, you're Chinese. Ha ha. ::mocking tone:: Are you a communist spy? Or  
44 it's like, it just like, oh, do you like\_\_ are you like super racist?? Do you like work in  
45 the factory or something? And I'm like, (ugh..) there's like no good connotations of  
46 being Chinese American, especially because of like, covid-19 [...] It made being  
47 Chinese American hard too. Because a lot of people are like, “oh, it's your fault  
48 because of like, China's doing this.”

49 Obviously like I don't\_\_ I don't like the Chinese government but like do I like Chinese  
50 culture? Do I like Chinese people? Yeah, I do. But a lot of people like just equate, the  
51 two. And so, they think like that I'm communist or that everyone in China believes the  
52 same thing or they like, all agree on this point to whatever but [...] I don't know. Because  
53 there's like literally a billion people in China. So, to think that like it's one monolith that  
54 they look and think and act in the same way is really \_\_ (pause)



In this excerpt, Amber elaborates on her identity dilemma, a feeling of being in-between identities. We see how prevalent narratives that people appear to subscribe to have an impact on Amber's navigation between races and cultures. She draws comparisons to other dominant East Asian narratives to demonstrate how misconceptions about Chinese Americans were made worse by the COVID-19 pandemic. Furthermore, she argues against the tendency to equate a person with the government or assume that everyone in China thinks or looks the same way. However, we also see some ways she perpetuates other stereotypes about Japanese and Korean people (e.g., sushi, K-pop). We all hold and perpetuate some stereotypes about others while acknowledging that we ourselves and the groups we belong to are more complex and multifaceted than the stereotype.

Amber also shared some instances of peer racial/ethnic invalidations, which she found offensive:

- 55 **Amber:** So, a lot of people will be like, Are you, like, Mexican? Are you Hawaiian?  
56 Are you Filipino? [...]It's like some sort of like guessing games with them. Like where  
57 in the world are you from?  
58 **Interviewer:** Who are these who are these people, basically?  
59 **Amber:** Just like, like anyone I guess, like a lot of classmates. [...] they say things that from  
60 the back you look so blah blah blah, [...]. Like are you sure you're not like Polynesian or  
61 whatever? I'm like, "no, I I think I know where I'm from. I know where I was born. You just  
62 have like weird stereotypes about what people look like, which is \_\_" Like it's fine to be  
63 curious about what people are from. But like to make it into this game is really \_\_  
64 and like it happens a lot, which is kind of weird. I guess because like I don't look what  
65 they want me to look like, they got very confused.

In lines 55 to 65, Amber reflects on the frequently occurring "guessing game" around Amber's identity/ies- which further highlights how society's focus on normative racial categories can be problematic for individuals who do not fit neatly into these boxes. The stereotype people hold about Chinese people ("I don't look what they want me to look like") might contribute to people's confusion regarding Amber's identity. Even though Amber acknowledges that curiosity may play a role; however, she rejects turning this curiosity into a game or quiz show where she is objectified.

It is important to comprehend that the above experiences are not unique to Amber. Instead, they are part of a larger, systemic issue of discrimination documented in literature. Microaggression can be brief and commonplace verbal, behavioral, or environmental interactions, intentional or unintentional, and can have a detrimental effect on a person or group [18]. Some common forms of it are seemingly innocuous questions such as "where are you from" and "what are you" which discredit the identities of people who do not fit into socially acceptable categories [19]. A thing to notice here is her peers' invalidating questioning towards her ("Are you sure..."). Questions like these can force the respondent to publicly identify, legitimize, and inform others about their racial identities, further underscoring their outsider status and exacerbating their stress and anxiety [20]. We get the impression that Amber's being at the intersection of cultural whiteness and phenotypical Asianness led to these intrusive questioning and/or the guessing game she was subjected to.

Overall, we can sense that Amber's identification dilemma is within a context where the people around her have a limited understanding of other cultures and fall back on stereotypes. The commonly held

stereotype about Chinese culture and individuals is limited and negative and fails to encompass Amber's experiences or identity. Similarly, we can assume that Chinese people know little about people living in the USA. As Amber suggests, if people were aware of the diversity of people in other cultures, she might fit better into people's perceptions.

#### *4.3 Experiencing Marginalization at the Intersection of Gender and Race*

While Amber's sense of differentiation from "traditionally Chinese" or "stereotypical Chinese looking person" was evident from her description (see 4.1, 4.2), we were curious about her sense of outsidership in her academic setting, evidenced by her use of the phrase "do not fall into the categories of a stereotypical student," (lines 3-5). The interviewer asked a follow-up question about what categories a "stereotypical student" possesses, and Amber responded by saying:

66 The College of Engineering here is only like 20 percent female, 25 that's like the  
67 best. So, I'm already like different in that way [...] There are like some Chinese  
68 students here, and like international students here, but a lot of them are grad  
69 students, so\_\_ I'm an undergrad [...]  
70 A lot of my professors have been like Old. White. Americans. Guys. And a lot of my  
71 peers look like that except not all old, you know. [...]

When asked later what one thing she would change about engineering education, Amber took some time to think and share:

72 I feel like I would like my school more, I would feel like I fit in more and like I  
73 specifically, in engineering, If it would just like more diverse. If there were more  
74 people that look like me, and I wasn't such like a like an outlier and a good (pause)  
75 spectacle.

In lines 66-71, we see Amber listing multiple aspects which make her different or unlike her male peers and contribute to her feeling like an outsider in the university setting, namely gender, race, nationality, and academic standing. Amber's description of her college demographics, she identifies the group of "White," "Americans," and "Guys" as a contrast to her own identity as a Chinese American, a Woman, as well as a transracial adoptee. Amber shares with us that she wanted to find communities or student organizations for students with a similar identity and/or experience as hers, but she could not find any. However, the absence of organizations or communities for individuals with a similar identity to hers as a transracial adoptee highlights her experiences of invisibility and feeling like an outsider in her university setting. The same sentiment is further emphasized by her use of strong language such as "outlier" and "good spectacle" (lines 74-75), articulating how the demographics in her college environment affect her sense of self and her concepts of what it takes to belong in this predominantly white school where she is pushed to margins from multiple identity aspects as a result of her complicated identity and status.

Students tend to feel isolated when their college setting does not always resemble a place where they feel more accepted. We asked how Amber is perceived in engineering contexts by her peers and professors, Amber replies:

76 They can go one of two ways– either they assume that I’m very studious and I  
77 know everything because I’m Asian or they see me, and they assume that, I don’t know  
78 what\_\_ I don’t know anything [...] So, it’s like a lot of people underestimate me because  
79 I am a woman, I am dumber than I am or because I’m Asian, I’m like, Super perfect at all  
80 my studies. Which is \_\_ Neither of those are true.

Here Amber shares how she thinks she is positioned based on her identity: as dumb because she is a woman or as extremely smart because she is Asian, invoking the widespread model minority myth. These narratives of identity shaping capability were extended further by statements that denigrate her successes:

81 People be like,“ oh, like you weren’t actually that smart. The only reason why you  
82 got those high grades was because the professor likes girls. Like that \_\_ ” ::shakes head::  
83 Stupid! ::delivered in lowered tone::. I was just good at the class, there’s no reason to  
84 think that like, I don’t know, schmoozing my way up to the top of \_\_ whatever.

Amber later elaborates that the “people” she refers to here are primarily her classmates. Amber recalls a situation from Calculus II class when some of her classmates complained about the difficulty of the classes and exams. Amber finds all her calculus classes, including Calculus II, enjoyable and performs well in them. Amber appreciated Calculus II and the professor’s teaching style. When she shared her positive view with classmates, a male peer dismissed it, implying favoritism due to her gender. Amber reflects:

85 But I was like, what a way to like belittle both my (pause) academic success and like  
86 my identity all in one swoop. It was a very\_\_ and It was just like an offhand  
87 comment [...] And like, I remember pretty well. Like, I know I guess just like some of  
88 these things stick with you, even though he probably doesn’t remember saying it.

Amber’s academic success and intelligence were undermined by people who suggested she was only successful due to her ability at “schmoozing” (line 84). This positioning undermines her intelligence and ability to perform well in her classes as well as marginalizes her in the engineering social setting (lines 85-86). These hurtful comments also leave a lasting impact on her, as she notes in lines 87-88.

On another note, several of her peers also attributed her intelligence to being Asian:

89 A lot of people like have this preconceived notion like that Asians are inherently  
90 a bit smarter [...] They take it said, like a gospel sometimes and they like, almost get  
91 them upset with me. Like, if my like whatever thing I was doing was wrong, they’d be  
92 like. Oh, why why Amber? I’m disappointed. Like why did you do this? Like I came  
93 to you because you were Asian. I thought you knew what you were doing. [...]  
94 It’d be one thing if they were like, oh, Amber, I thought you were smart, I’d be  
95 like, okay. Like yeah, that’s on me. Like I slipped up, but I feel like I came to you  
96 because you Asian like, do you equate Asian with being smart? Or I don’t I don’t  
97 know what they’re thinking but like, yeah.

Amber mentioned she is usually good at her studies and is willing to own her mistakes in the study guides. However, she rejects attributing her success or failure to the model minority myth.

Our impression is that, even though she is not aware of what her classmates are thinking exactly, she is very much affected by what they do or say. These peer interactions remind her of her outsider status (not Asian enough, women not represented well, etc.). Amber does call out individuals for having preconceived notions or prejudices (e.g., “do you equate Asian with being smart”), but she also tries to fit into these roles, possibly as a way to find the sense of self and belonging:

98 I have like a lot of anxiety about being better and like, improving myself. And, like,  
99 I don't know, I was talking to my therapist about this thing. Like Does my\_\_ this part  
100 of my drive to be better and improve myself \_\_ [...], Does that come from like this  
101 preconceived notion that I have- [...] So it's like [...] do I work hard to be smart so I  
102 can fit in better with this preconceived notion of what Asian is in either my eyes  
103 or other people's eyes so that I can feel like I fit in more, I can be more like Chinese if  
104 that works.

This excerpt indicates Amber feels some burden to conform to the model minority model. Even though she does not align herself with all the stereotypes people possess about Chinese people (see section 4.2), subscribing to the “preconceived notion of what Asian is in either my eyes or other people's eyes” (lines 102-104) may be a way of finding a resolution to her racial identity dilemma. These expectations to be smart and better than others or be a model minority take a toll on her. Research has found that the model minority myth particularly impacts Asian or Asian American students because of the pressure to live up to unrealistic standards of perfection, which can have negative psychological implications (e.g., depression) [21].

To summarize what it is like to be a transracial adoptee woman in STEM, Amber states:

105 I think all of these differences, make it harder. Because there's nothing easy about  
106 being different and being in the minority because they feel, again like an outsider  
107 like you don't have a lot of people they can talk to about it, they wouldn't understand.  
108 They wouldn't\_\_ It's like almost like you don't feel relevant in a sense.

109 Would I change any of this about me? Hmm. Maybe, maybe not. But like that's not  
110 really I don't really have a choice in the matter. So, I mean, I'm stuck with what I  
111 have. So, I might as well make the best out of it.

112 But yeah, a lot of what I think like overall about, like my experience, I don't\_\_  
113 especially like in that Academic School setting, I don't think that any of them have  
114 particularly helped me. A lot of what I think about are the moments where I felt like  
115 belittled or underestimated or like like an outsider or like, even like, weirdly ridiculed  
116 for something that I've done, that pertains my identity. Yeah, I don't\_\_ don't think\_\_  
117 I'm sure that it's done stuff to like, that it'll improve my character and make me a  
118 little more understanding person. But a lot of\_\_ you know, but like at what cost?

With the expressions “being different” and “being in the minority,” Amber reiterates her sense of outsidership, emphasizing the social isolation resulting from these differences. In line 109, Amber asks a question (“Would I change any of this about me?”) and answers unprompted. She concludes she is “stuck with” the basic circumstances of her life: being adopted from China by a white family, being only a few women in her engineering programs, therefore decides to “make best out of it.”

In lines 114-116, we notice that Amber uses a number of “or” to enumerate the various negative experiences due to her identity. Amber’s experiences of discrimination, racism, and stereotyping might have an impact on her mental health and wellbeing since the consequences of marginalizing experiences get even more complicated for those who are multiply marginalized due to their visible or invisible identity and experiences, as they might be perceived as “different” by the larger society [22]. While these experiences may contribute to Amber’s character development and resilience, Amber’s remark “at what cost” reminds us powerfully that these experiences DO cause actual harm to individuals [23].

## **5. Discussion and Implications**

### *5.1 Applying Cultural Homelessness Theory in Engineering Education*

In this paper, we used the example of Amber, an international and transracial adoptee and female undergraduate engineering student, to help broaden our understanding of inclusion with cultural home/lessness and intersectionality. Though the study is exploratory in nature, we believe that considering the lens of cultural homelessness can help us understand or learn more about some of the complexities that come with identity and how certain identities or individuals like Amber could be positioned into the margins in certain environments.

Amber’s experience of outsidership was brought up many times throughout the interview. Literature has found that individuals like Amber who do not meet the normative characteristics (physical, social, and/or behavior) associated with a particular racial group could be deemed inauthentic, resulting in a heightened sense of otherness and difference [22]. These dynamics can contribute to the sense of “outsidership” [24], as seen in the case of Amber. The notion of “cultural homelessness” coincides with the overarching sense of being an outsider and the accompanying feelings and/or emotions. Confusion, rejection, and isolation are three primary emotional responses associated with cultural homelessness [10]. We can see Amber wrestling with each of these aspects (See sections 4.1, 4.2): (1) she is unsure about how to identify herself because she is either white or Chinese (confusion); (2) despite being of Chinese descent and culturally White, she fears to be rejected by both groups because of the way she looks and how she was raised (rejection); (3) she withholds her adoptee status from Asian people because of fear of rejection (isolation).

As Vivero and Jenkins noted [10], the cultural homelessness framework can be expanded to include social groupings beyond initial demographic meanings [25]. As the term engineer itself has the potential to be an exclusionary social category that privileges some behaviors while marginalizing others in particular situations [26], [27], we argue that Amber’s sense of homelessness extends into the engineering settings as well, where implicit and explicit cultural norms produce a stereotype of engineers as white, middle-class, heterosexual men focused on technical knowledge [28], [29]. Other cultural norms, such as smartness [30], ability [31], and professional shame [32], further define in-groups in engineering. When

considered collectively, these norms exclude people who do not fit the stereotyped image of an engineer and prevent engineering from becoming a cultural home.

A similar construct to cultural homelessness, sense of belonging has been a popular lens for understanding experiences of engineering culture. Sense of belonging is primarily understood as an individual and psychological construct. In contrast, cultural homelessness extends that understanding of belonging, by helping us think about who is an insider or an outsider to a specific group or identity and reminding us that in every instance of belonging (insiderness), there may be a parallel instance of exclusion (outsiderness).

### *5.2 How Intersectionality Creates Small n Experiences of Cultural Homelessness*

Our focal participant is a student from a specific population: a female international and transracial adoptee with White/US and Asian/Chinese racial and ethnic affiliations. Her experiences lie at the intersection of multiple systems of oppression. Within the system of race, Amber identifies as and holds an Asian ancestral descent. Phenotypically, she is darker than many Chinese and east Asian people that her peers expect and could be said to be subject to systems of both racism and colorism. Culturally, she has been raised in the US by a white family, so perhaps in this regard, she has proximity to whiteness and is not significantly subject to a system of oppression of nationality and culture. However, she experiences some exclusion from US culture, school, and even her own family, due to her Chinese appearance. Amber's racial and ethnic identity is frequently subjected to questioning either by herself or others as she does not wholly identify with either group. Chinese people, already minoritized in the US, are not necessarily a cultural home for Amber as she does not share direct knowledge of Chinese culture. In engineering settings, her experience is characterized by essentialism and marginalization due to the overlapping of systems of gender and race. Amber experiences intersectional invisibility [5], which arises for individuals who have two or more subordinate or marginalized identities who do not fit the prototypes of their identity groups. That is, all groups she could identify with position her in the out-groups, leading her to feel a sense of not being well represented. And, since very few people in Amber's life lie at her particular intersections of identity dimensions, where her interactions occur mostly through stereotypes (e.g., how an Asian person should be).

While this paper discusses one very specific and "small n" population, we argue that intersectionality, in some ways, creates many "small n" populations, whether it is the Black Muslim woman or the transracial adoptee. It is only by homogenizing people within an identity group that we think we see sameness. When remembering the many intersections of experiences, the dominant groups and small marginalized populations, we remember that inside any group membership, some may be feeling "homeless." Thus, we suggest that our theoretical understanding of representational intersectionality can expand by investigating divergent experiences of cultural homelessness.

### *5.3 Implications for Creating an Inclusive Culture in Engineering Education*

Stories humanize us. They emphasize our differences in ways that can ultimately bring us closer together. They allow us to see how the world looks from behind someone else's spectacles. They challenge us to wipe off our own lenses and ask, "Could I have been overlooking something all along?" [33, p. 2440]

Amber's experience in and out of engineering settings presents us with the opportunity, as Delgado [33] suggests, to "wipe off our lenses," rethink our own perspectives, and consider whether we have been overlooking something all along regarding creating inclusive environments. We assert that the interplay of engineering culture, small n populations, intersectionality, and cultural homelessness opens a tangible dimension of creating inclusion that we may not always consider.

Amber's narrative does not mention any authority figures (e.g., professors, administrators), aside from noticing the majority of faculty in her program are "White. Old. American. Guys." The reason behind this could be a prevalent image of engineering classrooms as being "robot-like" and lacking emotional or personal connections [34]. Amber shared that she prefers utilizing the campus mental health resource than approaching professors. It remains unclear what the outcome would be if Amber approached her professors and shared her experiences; however, it is clear they are not a proactive force for inclusion.

Individuals with complex identities and experiences may inevitably find themselves on the margins and may not feel fully at home in a setting. Student organizations and programs are a means to promote a sense of belonging and foster community among students based on shared identity [35]. Aligning with this idea, we find Amber wanting to embrace her Chinese identity by being involved with the Chinese student association. She also tried to find a student organization dedicated to international and transracial adoptees, but there was none at the university. While student organizations are valuable resources for promoting a sense of belonging, the institutional support strategy based on a quorum of students with shared identity may not adequately support students belonging to multiple marginalized groups because they may be the only or one of a few students in the university [36]. Secules et al. suggested practitioners in diversity support can think about and explore intersectionality and liberatory pedagogy theories as a way to rethink their policies and practices to serve students, especially those who may experience intersectional invisibility and multiple forms of marginalization [36]. An idea of cultural home/lessness alongside intersectionality opens up opportunities for us as a community to understand the potential impact of intersectional invisibility upon the psychological health and wellbeing of the "small n" population and how these factors shape identity. Further research is needed to understand the intersectional experiences of these students and to inform efforts to address their needs.

Additionally, we see Amber's coping mechanisms for her identity dilemmas, and her experiences of discrimination and stereotyping include seeking mental health support available at the university, avoiding discussing her experiences with others, and maintaining professional relationships with faculty and peers. While counseling centers are valuable resources for promoting student mental health and wellbeing, they should not be deemed the only way to serve students, especially those who may experience intersectional invisibility and multiple forms of marginalization. Universities should take an all-hands approach involving all stakeholders in the institution, including the faculty, administration, and students, to support students to promote student wellbeing and shift the institution's culture [37]. Examples include the department-wide initiative at Ohio State University to create a Wellness Committee made up of faculty, advisors, and a group of student volunteers, which later developed into a university-wide initiative involving deans and department representatives [38], the faculty development program at Texas A&M University to enhance student engagement and the classroom environment [39], and the interactive Teaching Assistant workshop for graduate students at the University of Washington [40].

## 6. Conclusion

Where do our students find a sense of home? As we have argued, because of representational intersectionality, there will inevitably be cultural homes for some people that are not as fully cultural homes for others. Feeling culturally homeless does not mean something is wrong with the individual; instead, some might inevitably feel this way due to their complex identities, experiences, and situations. This paper showcases Amber's ("outsider") identity construction through her responses and the connections between her subjective experiences and cultural homelessness. We also underscore the need for intentionality to create inclusive environments that recognize and celebrate the diversity of students from multiply minoritized backgrounds.

We think the ideas presented in the study will be useful as a springboard for considering small n populations and how we can design the educational system and engineering to become a culture where they feel at home. We invite researchers, faculty, mentors, and administrators to engage in intentional thinking to make students feel at home in engineering settings. For example, what can be done to support better students from multiply minoritized students? If support centers or student organizations are a potential solution, what messages are these centers conveying? How can we be more intentional in language use, given the power of language to create in-groups and out-groups implicitly and explicitly? Additionally, to better understand students' identities and what it might mean for them to be "at home," we can invite students to co-create ideas with us. By doing so, we can foster an inclusive culture that celebrates and values the diversity of all students and helps them feel seen, heard, and supported.

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## References

- [1] E. Blosser, "An examination of Black women's experiences in undergraduate engineering on a primarily white campus: Considering institutional strategies for change," *J. Eng. Educ.*, no. March 2018, pp. 52–71, 2019, doi: 10.1002/jee.20304.
- [2] K. Crenshaw, "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics," *Univ. Chic. Leg. Forum*, vol. 1989, no. 1, pp. 271–282, 1989, doi: 10.4324/9781315631011-38.
- [3] K. Crenshaw, "Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color Mapping the Margins: Intersectionality, Identity Politics, and Violence Against Women of Color," *Source Stanf. Law Rev.*, vol. 43, no. 6, pp. 1241–1299, 1991.
- [4] V. Purdie-Vaughns and R. P. Eibach, "Intersectional Invisibility: The Distinctive Advantages and Disadvantages of Multiple Subordinate-Group Identities," *Sex Roles*, vol. 59, no. 5–6, pp. 377–391, Sep. 2008, doi: 10.1007/s11199-008-9424-4.
- [5] American Society for Engineering Education., "Engineering and Engineering Technology by the Numbers," 2021.
- [6] S. Cho, K. W. Crenshaw, and L. McCall, "Toward a field of intersectionality studies: Theory, applications, and praxis," *Signs*, vol. 38, no. 4, pp. 785–810, 2013, doi: 10.1086/669608.
- [7] P. H. Collins, *Intersectionality as critical social theory*. Durham: Duke University Press, 2019.



- [8] J. C. Nash, "Re-thinking Intersectionality," *Fem. Rev.*, vol. 89, no. 1, pp. 95–121, 2008, doi: 10.1007/978-94-017-9002-4\_5.
- [9] D. Mitchell, C. Simmons, and L. Greyerbiehl, Eds., *Intersectionality & higher education: theory, research, & Praxis*. New York: Peter Lang, 2014.
- [10] V. N. Vivero and S. R. Jenkins, "Existential hazards of the multicultural individual: Defining and understanding 'cultural homelessness,'" *Cultur. Divers. Ethnic Minor. Psychol.*, vol. 5, no. 1, pp. 6–26, 1999, doi: 10.1037/1099-9809.5.1.6.
- [11] V. N. Vivero and S. R. Jenkins, "Cultural homelessness, multiminority status, ethnic identity development, and self esteem," *Int. J. Intercult. Relat.*, vol. 35, no. 6, pp. 791–804, Nov. 2011, doi: 10.1016/j.ijintrel.2011.04.006.
- [12] R. C. Hoersting and S. R. Jenkins, "No place to call home: Cultural homelessness, self-esteem and cross-cultural identities," *Int. J. Intercult. Relat.*, vol. 35, no. 1, pp. 17–30, 2011, doi: 10.1016/j.ijintrel.2010.11.005.
- [13] S. Secules, M. B. Kali, and C. McCall, "Audio dissemination for qualitative and broadening participation research: Lessons learned and future possibilities," in *2022 ASEE Annual Conference & Exposition, 2022*.
- [14] S. R. Jones and M. K. Mcewen, "A Conceptual Model of Multiple Dimensions of Identity," *J. Coll. Stud. Dev.*, vol. 41, no. 4, pp. 405–414, 2000.
- [15] J. P. Gee, *How to do discourse analysis: a toolkit*, Second Edition. London ; New York: Routledge, 2014.
- [16] J. P. Gee, *An introduction to discourse analysis: theory and method*, Fourth edition. New York: Routledge, 2014.
- [17] M. Ong, C. Wright, L. Espinosa, and G. Orfield, "Inside the Double Bind: A Synthesis of Empirical Research on Undergraduate and Graduate Women of Color in Science, Technology, Engineering, and Mathematics," *Harv. Educ. Rev.*, vol. 81, no. 2, pp. 172–209, Jun. 2011, doi: 10.17763/haer.81.2.t022245n7x4752v2.
- [18] D. W. Sue *et al.*, "Racial microaggressions in everyday life: Implications for clinical practice," *Am. Psychol.*, vol. 62, no. 4, pp. 271–286, 2007, doi: 10.1037/0003-066X.62.4.271.
- [19] M. J. Lee, J. D. Collins, S. A. Harwood, R. Mendenhall, and M. B. Hunt, "'If you aren't White, Asian or Indian, you aren't an engineer': racial microaggressions in STEM education," *Int. J. STEM Educ.*, vol. 7, no. 1, 2020, doi: 10.1186/s40594-020-00241-4.
- [20] C. C. Ozaki, M. P. Johnston-Guerrero, and K. A. Renn, "Engaging Multiracial Students," in *Student Engagement in Higher Education*, 3rd ed., Routledge, 2019.
- [21] E. O. McGee, B. K. Thakore, and S. S. Lablance, "The burden of being 'model': Racialized experiences of Asian STEM college students," *J. Divers. High. Educ.*, vol. 10, no. 3, pp. 253–270, Sep. 2017, doi: 10.1037/dhe0000022.
- [22] M. H.-L. Nguyen, "International and Transracial Adoptees Experiences of Racism and Racial Discrimination and Personal Coping Style," 2015. [Online]. Available: [http://pitt.idm.oclc.org/login?url=https://www.proquest.com/dissertations-theses/international-transracial-adoptees-experiences/docview/1681017215/se-2?accountid=14709%0Ahttps://pitt.primo.exlibrisgroup.com/openurl/01PITT\\_INST/01PITT\\_INST:01PITT\\_INST??url](http://pitt.idm.oclc.org/login?url=https://www.proquest.com/dissertations-theses/international-transracial-adoptees-experiences/docview/1681017215/se-2?accountid=14709%0Ahttps://pitt.primo.exlibrisgroup.com/openurl/01PITT_INST/01PITT_INST:01PITT_INST??url)
- [23] B. Coley and M. Jennings, "The Price of Persistence: Investigating the Impact of Pursuing Engineering on Undergraduate Student Mental Health," *Proc. - Front. Educ. Conf. FIE*, vol. 2019-Octob, 2019, doi: 10.1109/FIE43999.2019.9028426.
- [24] Hamako, Eric, "Improving anti-racist education for Multiracial students," University of Massachusetts Amherst, 2014. doi: 10.7275/YNXA-SQ93.
- [25] M. G. Franco and S. A. Franco, "Impact of Identity Invalidation for Black Multiracial People," *J. Black Psychol.*, vol. 42, no. 6, pp. 530–548, Dec. 2016, doi: 10.1177/0095798415604796.

- [26] M. J. Bruning, J. Bystydzienski, and M. Eisenhart, "Intersectionality as a framework for understanding diverse young women's commitment to engineering," *J. Women Minor. Sci. Eng.*, vol. 21, no. 1, pp. 1–26, 2015, doi: 10.1615/JWomenMinorScienEng.2014007345.
- [27] K. L. Tonso, *On the outskirts of engineering: learning identity, gender, and power via engineering practice*. Rotterdam: Sense Publishers, 2007.
- [28] E. A. Cech, "Culture of Disengagement in Engineering Education?," *Sci. Technol. Hum. Values*, vol. 39, no. 1, pp. 42–72, 2014, doi: 10.1177/0162243913504305.
- [29] S. Secules, "Putting diversity in perspective: A critical cultural historical context for representation in engineering," in *ASEE Annual Conference and Exposition, Conference Proceedings*, 2017, vol. 2017-June, no. June. doi: 10.18260/1-2--28776.
- [30] E. Dringenberg, S. Secules, and A. Kramer, "Studying smartness in engineering culture: An interdisciplinary dialogue," *ASEE Annu. Conf. Expo. Conf. Proc.*, no. June 2019, 2019.
- [31] S. Secules, A. Gupta, A. Elby, and C. Turpen, "Zooming Out from the Struggling Individual Student: An Account of the Cultural Construction of Engineering Ability in an Undergraduate Programming Class," *J. Eng. Educ.*, vol. 107, no. 1, pp. 56–86, 2018, doi: 10.1002/jee.20191.
- [32] S. Secules, N. W. Sochacka, J. L. Huff, and J. Walther, "The social construction of professional shame for undergraduate engineering students," *J. Eng. Educ.*, vol. 110, no. 4, pp. 861–884, 2021, doi: 10.1002/jee.20419.
- [33] R. Delgado, "Storytelling for Oppositionists and Others: A Plea for Narrative," *Mich. Law Rev.*, vol. 87, no. 8, p. 2411, Aug. 1989, doi: 10.2307/1289308.
- [34] M. B. Kali, S. Secules, and C. J. McCall, "Including Alice: Uncovering the narrative of one student's experience at the intersection of international student status and mental health," in *2021 CoNECD*, 2021.
- [35] T. L. Strayhorn, *College students' sense of belonging: a key to educational success for all students*, Second edition. New York: Routledge, 2019.
- [36] S. Secules, N. W. Sochacka, and J. Walther, "New directions from theory: Implications for diversity support from the theories of intersectionality and liberatory pedagogy," in *CoNECD 2018 - Collaborative Network for Engineering and Computing Diversity Conference*, 2018.
- [37] M. B. Kali and S. Secules, "The new normal: Student perspectives on supportive university policies during COVID and beyond," in *2022 CoNECD (Collaborative Network for Engineering & Computing Diversity)*, 2022.
- [38] A. Maxson and D. L. Tomasko, "Supporting the mental health and wellness of chemical engineering students at the department and college levels," in *ASEE Annual Conference and Exposition, Conference Proceedings*, Jun. 2020, vol. 2020-June. doi: 10.18260/1-2--35257.
- [39] R. C. Martin, C. Lang, S. N. C. Liu, C. L. Sandoval, M. Bergman, and J. E. Froyd, "Resources for faculty development: Implicit bias, deficit thinking, and active learning," *ASEE Annu. Conf. Expo. Conf. Proc.*, 2019.
- [40] K. Yasuhara, K. Malcolm, and N. M. R. Foo Kune, "Lessons learned: A three-office partnership to engage graduate TAs with mental health training," *ASEE Annu. Conf. Expo. Conf. Proc.*, 2019, doi: 10.18260/1-2--32440.