Board 140: Towards Servingness-Oriented Mentorship

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Towards Servingness-Oriented Mentorship

Introduction

Latino/a/e students are the fastest growing college population in the U.S.A. Hispanic-Serving Institutions (HSIs) are instrumental in this growth, enrolling approximately 66% of all Latino/a/e undergraduate students [1]. As HSIs are granted their status by merely enrolling 25% Latino/a/e students, there is a pressing need to transition from a focus on numerical representation to a comprehensive dedication to the educational success and well-being of Latino/a/e students. This transition from 'serving' to 'servingness' requires a critical examination of existing programs and policies and their impact on the academic and social experience of Latino/a/e students[2].

Servingness is a term used to describe and qualify efforts in education to serve Latino/a/e students [2]. Based on a comprehensive systematic review of HSI research, García, Núñez, and Sansone [3] define servingness a multidimensional concept meant to assess how an institution supports the development of Latina/o/e students beyond degree completion. Rather, true servingness centers the development of both disciplinary and cultural identities. Structures of Servingness describe the different support systems that shape the experiences of Latino/a/e students.

Given the rapid increase of Latino/a/e students going to college, particularly at HSIs, there is a strong need to translate the concept of *servingness* into practice by identifying and characterizing features of structures of *servingness* in academic programming [4]. This study investigated the features of *servingness* within a co-curricular program at a land-grant HSI in the southwestern U.S. This program seeks to improve the educational attainment of first-generation and low-income engineering students, and to foster participants' self-directed learning skills for long-term success in engineering. Approximately 60% of students at the institution are Latino/a/e. Most students rely on financial aid to pursue higher education. Within the co-curricular program, engineering students are provided a small stipend and invited to pair with industry mentors. The industry mentors guide the students through the completion of one or more design projects, certifications, or entrepreneurial endeavors related to their discipline. Costs associated with these projects, certifications, and experiences are paid for by the program. Although the co-curricular program is not specifically designed for Latino/a/e students, a *servingness*-oriented analysis is warranted to evaluate the program's alignment to the institution's mission as an HSI. The principles of *servingness* may be extended to benefit all identities and cultures as *servingness* encourages a culturally-conscious approach to institutionalizing systems of social liberation and inclusivity.

Industry mentoring opportunities can be effective in fostering marginalized students' interest and sense of belonging in STEM [5; 6]. "Intentional mentoring", a practice in which the mentor strategically differentiates mentorship according to students' needs and skills, has been documented to increase retention of marginalized students [7]. Previous studies have identified the presence of a "hidden curriculum", defined as the collection of "transmitted inclusionary or exclusionary systemic messages that are structurally supported and sustained in engineering" [8]. This "hidden curriculum" is both an artifact and regulator of engineering culture. Success in

engineering relies on the ability to navigate the hidden curriculum; the culture sustained by the hidden curriculum affects students the moment they enter the classroom [9]. Critical examination has shown that the hidden curriculum echoes systems of marginalization observable in society as whole, often placing disproportionate pressure on students of marginalized identities, such as first generation, Black, and Brown students, to abandon or distance themselves from their culture, assimilate, or exit STEM [10;11].

Mentorship experiences are frequently key in the acclimation of marginalized students to the culture and norms of STEM to help navigate the hidden curriculum [10;8]. Therefore, a more focused and *servingness*-oriented exploration of mentorship experiences within STEM programming is warranted. The goal of this study was to identify the servingness-orientation of the mentoring component of the co-curricular program. This was accomplished through analysis of interviews with mentors involved in the program. The results highlight opportunities for undergraduate mentoring programs to better equip mentors for successful mentorship experiences while shifting towards an asset-based characterization of students. Implications for *servingness*-oriented mentorship programs are discussed.

Methods

Five industry mentors were interviewed via Zoom using a semi-structured methodology to assess and understand mentors' predispositions to the mentoring process. Interviews were conducted in Fall 2023, prior to the mentors' participation in a mentor training workshop through the co-curricular program. The interview questions focused on the mentors' experiences with mentoring, the benefits of mentoring, and their ideas on supporting scientists of marginalized identities. Mentors were given a vignette describing a hypothetical Latina student's experience, then their responses to the vignette were analyzed. The vignette described a situation in which a student formed an informal affinity group as a support mechanism for discrimination in the classroom. That vignette is detailed in the interview protocol, attached as Appendix A.

Data analysis was performed using a reflexive thematic analysis methodology, employing an inductive coding approach to analyze the qualitative data gathered from interviews. This method is particularly useful when exploring complex phenomena or when existing theoretical frameworks are limited. Authors PVR and CMG independently reviewed a subset of the data to identify patterns, concepts, and recurring themes. Through an iterative process of coding and constant comparison, codes were generated to capture the diversity and nuances within the dataset. New codes emerged as the analysis progressed, and existing codes were refined or collapsed into broader categories based on similarities and differences. Identified codes were organized into thematic categories, which formed the basis for the interpretation and discussion of findings. The use of inductive coding allowed for a nuanced understanding of the data and rich insights into the experiences, perspectives, and phenomena under investigation.

Due to the subjective nature of reflexive thematic analyses, we acknowledge ourselves as participants in the creation of knowledge from interview data, noting that the influence of subjectivity and positionality is inevitable during the constructivist production of knowledge and is beneficial for critical analysis of social systems (12;13). In the spirit of transparency, we

identify our usage of the terms Latino/a/e as effort to center the speech patterns of the interviewed mentors while including “Latine” to honor non-binary gender identities.

Results

Interviewed mentors presented a mosaic of identities and experiences, including those presented in Table 1.

Table 1: Participant Demographics

Participant	Self-Identified Identities/Characteristics
Arturo	Latino, Man, Alumnus, First-Generation Immigrant, First-Generation Student, Relied on Financial Aid
Daniel	White, Man
Pedro	Latino, Man, Alumnus
Katheryn	White, Woman, Alumna
Jeanette	White, Woman, Alumna, Relied on Financial Aid

Theme 1: Self-Directed Learning as a Prerequisite for Mentees

Although the mission of the co-curricular program includes fostering students’ self-directed learning skills, interviews with industry mentors showed that mentors expected the mentor-mentee relationship to be student-directed from the onset. Several industry mentors saw themselves in a supportive role, and issues with project engagement were frequently assigned as a deficit of the student.

For example, when interviewee Pedro was asked how they, as a mentor, can nurture a mentee’s industry-demanded critical thinking and self-directed learning skills, Pedro responded, *“the student comes to me with problems and whatever project they have or whatever issue they need help with.”* Though they demonstrate helpfulness and empathy, Pedro indicated that the student must possess self-directed learning skills to drive the mentor-mentee relationship and, indeed, the project itself, and neglected to address how the mentor can support the development of students’ self-directed learning skills.

Daniel takes greater initiative with their mentees, but still relies on students’ prerequisite self-directed learning in the continued mentoring process. When asked their thoughts on how to foster students’ self-directed learning skills, Daniel responded, “*I don't have a solution. No, I think - I know there was some there, was some effort of – I think there's a couple of emails from [the mentorship coordinator] that was like, ‘hey you guys need to reach out to [Daniel].’ [I asked the students,] ‘how's your design review going?’ And it was kind of just quiet.”* Daniel seems to suggest that their support of students’ self-directed learning is in assessing progress on the project and directing the mentees to respond to emails. While inquisitive helpfulness is welcomed in this context, there was a lack of further action to bridge the gap of student initiative.

This theme in the data suggests a need for the program to equip mentors with skills and protocols to be responsive to mentees' stage of independent learning.

Evidence-based techniques, including the scaffolding of self-regulation, content knowledge, and project management skills, can help mentors and students navigate stages of independent learning, foster, self-direction, and improve the mentorship experience [14]. Improving the efficacy of the mentorship experience by differentiating according to students' needs is a structure of *servingness*. This differentiation should center on the identities and cultures that students bring with them, and should support epistemological border crossing within institutional and programmatic cultures [3].

Theme 2: Industry Mentors View Mentorship as a Recruitment Opportunity

Recruitment was frequently the mentor's primary or secondary purpose in participating in the program. When Arturo was asked why they agreed to serve as a mentor with the program, they respond, "*I'm very passionate about helping [the university] in any capacity that I can*," acknowledging the bright students that come from the institution. Arturo sought to translate the mentorship into a longer partnership with mentees, indicating that the program is "*another kind of avenue to talk to some of these bright individuals, and try to maybe convert them from mentees to, you know, hires possibly.*" The benefits of mentorship under Arturo thus exceeded the domain of the program itself.

When mentor Katheryn was similarly asked why she is a mentor in the program, she said that it was an opportunity to make the transition into the workforce easier for students, suggesting that she can transform her past difficulties into opportunities to prepare students for success in similar situations. She also said, "*I recruit for our company as well. And so I'm invested in, like, the [university's students]*." For Katheryn, mentees are potential future teammates to be nurtured and prepared accordingly.

This theme suggests an effective alignment of mentoring outcomes with the efforts of the program in fostering longitudinal success of student participants. Mentors are not explicitly invited to recruit students; this opportunity grew naturally. Coordinators of a *servingness*-oriented industry mentorship program may consider having explicit discussions with potential mentors regarding the recruitment opportunities in order to elicit more instances of recruitment (and potentially more mentors). Additional efforts aimed at fostering a culture which celebrates border-crossing are still necessary beyond the recruitment since expanded recruitment on its own does not disrupt the status quo of STEM culture. Once recruited, STEM professionals still face the culture of disenfranchisement in their navigation of the hidden curriculum [15].

Theme 3: Mentorship as a Map of the Hidden Curriculum for Students of Marginalized Identities and Cultures

Mentors revealed a hidden curriculum which teaches "lessons" of patriarchy and Anglo-centrism, highlighting that mentorship experiences are frequently key for young engineers of marginalized identity to learn how to successfully navigate those lessons. Arturo observed that many members of the engineering workforce are white, English speakers who are uncomfortable

when their peers speak Spanish. This is an example of an effect of the hidden curriculum's "lesson" that academics speak English, a misconception and prejudice supported by learning environments where English is a prerequisite. Arturo continues, "*I don't know, I feel like - I feel like just talking a different language in front of white people makes them so uncomfortable that they get curious. And that's the thing, is - you gotta celebrate that you know a different language. So, the opportunities I do have to talk in Spanish to co-workers, because somebody comes and visits the building or whatever, I take that opportunity. And everybody around obviously finds it weird, mostly because they're uncomfortable, right? They don't understand.*"

Arturo highlighted the need for Spanish-speaking students to screen prospective work environments for company culture: "*I think it has it has a lot to do with the company culture and the inclusivity of it. So, one of the things is making sure as you're looking for employment that you research that, right? What is the demographic of the company? You know, do they hire from other places? And can I fit in because somebody else already paved that path for me, right?*" Arturo thus offers advice and recommendations for mentees to retain their identity and comfort in that identity as they navigate the hidden curriculum.

In another interview, Jeanette was prompted on how she would handle an issue where a student was experiencing marginalization via the hidden curriculum of Anglo-centrism. Although she does not speak Spanish, Jeanette connects to the hypothetical student, invoking the discrimination that she faced in navigating engineering as a woman. She first notes that, in a STEM culture echoing, "*a prior generation where there was only allowed to be one woman on the team*," she has faced gendered discrimination by men and women on her team.

To navigate the hidden curriculum "lesson" of patriarchy, Jeanette suggests that validation of and support during marginalizing experiences is key in STEM: "*it's sometimes important to have somebody at - who's that person's peer to be able to, 'okay, let's just say something.'... I'd absolutely have gone back to my other colleagues to check, 'Hey, am I misinterpreting this [discriminatory] behavior?' And they could say, 'nope I had this exact same [experience].' And then I get to decide, do I stay or do I go? Move into another area [of work], right? And in cases where I've gone and confronted the person, sometimes it changes and sometimes it doesn't, right?*" In her description experiences with discrimination in engineering, Jeanette indicates that finding solidarity with peers is core to navigating the hidden curriculum of patriarchy in engineering—as a student or as a professional.

This theme supports previous characterizations of mentoring as an opportunity to acclimate and prepare students of diverse cultures and identities for success in the hidden curriculum [8]. A *servingness*-oriented approach suggests that navigation of the hidden curriculum should not require students to forgo their identities or assimilate. Rather, effective *servingness*-oriented mentoring involves preparing students for academic and professional success while retaining their cultural roots.

Theme 4: Affinity Groups are Viewed as Core to the Support of Students of Marginalized Cultures and Identities

Affinity groups are "groups that form around a shared identity [which] can allay feelings of isolation and foster inclusion among historically excluded populations" and are an avenue of support for students of marginalized identities in STEM [16]. In their interview responses, industry mentors indicate that affinity groups are core to the support of students of marginalized identities.

Within theme 3, Katheryn's assertion that her navigation of the dominant patriarchal engineering culture relied on, "*[going] back to my to my other colleagues to check, 'Hey, am I misinterpreting this [discriminatory] behavior?*' *And they could say, 'nope I had this exact same [experience].' And then I get to decide, do I stay or do I go?*" In seeking solidarity with peers of a similar experience, Katheryn formed an affinity group.

As another example, in response to the hypothetical student experiencing marginalization for her Latina identity in the vignette, Pedro said, "*I would ask her to find out the resources that the university has for support. Is there a Hispanic Engineering Club that she can attend where you can talk to people similar in her similar situations?"*

Regarding changing engineering culture to be more welcoming of languages beyond English, Arturo references an effort at their company to create an affinity group for learning English as a second language (ESL), affording members an opportunity to practice their English in a safe space. While efforts grounded in *servingness* should celebrate linguistic diversity in engineering, Arturo identified affinity groups as effective supports for marginalized engineers. When asked to articulate further on supporting marginalized students, Arturo added, "*the biggest thing I think I bring to the [mentorship] table is, I went through a lot of struggles, like I mentioned earlier. We grew up very poor, obviously I was on scholarship, so I know how difficult that is.*" Arturo thus indicated that affinity with the struggles of students is their greatest mentoring asset, advancing the notion that affinity groups are effective supports of students and engineers of marginalized cultures and identities.

Within a *servingness*-oriented program*,* the notion of an affinity group as a support for marginalized engineering students is welcomed as these groups create opportunities for students to carve out spaces for their identity within engineering. However, affinity groups would be less necessary if popular engineering culture were inclusive of diverse cultures and identities. The needed change in culture is potentially advanced in the creation of safe spaces for affinity groups. Institutional and program leadership should consider the purposeful creation and support of safe spaces for intracultural and transcultural self-expression and solidarity within STEM mentoring, and the practice of this kind of solidarity in all STEM spaces.

Conclusion

The findings associated with the mentor interview data suggest that there are many avenues to improve structures of *servingness* within industry mentorship programs at HSIs. These improvements rely on bolstering present structures of *servingness*, such as career recruitment opportunities within mentoring situations, and differentiating the mentorship process in response to student need, identity, and culture. Potential implications for practice, policy, and research are briefly summarized below in Table 2.

Table 2: *Servingness*-Oriented Implications of Results

	Implications for Practice	Implications for Policy	Implications for Research
Theme 1: Self-Directed Learning as a Prerequisite for Mentees	Programs should support differentiated scaffolding of self-regulation, content knowledge, and project management skills.	Educational policymakers should focus on differentiation, abandoning a "one-size-fits-all" approach to policy design.	Future research should examine mechanisms of support for students' self-directed learning skills and the impact of supports on marginalized collectivist cultures.
Theme 2: Industry Mentors View of Mentorship as a Recruitment Opportunity	Program coordinators should make this structure of *servingness* more explicit in both the mentee and mentor-recruiting process.	Policymakers should consider tax breaks or grants for private industries that extend mentorship opportunities to encourage diversity in the STEM workforce.	Longitudinal studies of outcomes and effects on Latino/a/e representation in STEM resulting from these recruitment opportunities are warranted.
Theme 3: Mentorship as a Map of the Hidden Curriculum for Students of Marginalized Identities and Cultures	Mentors and program coordinators should formally provide spaces to acknowledge the hidden curriculum and to equip students to thrive within and revise the curriculum.	Policymakers should include formal discussions of the hidden curriculum in funded programs, and should fund scholars who have successfully navigated those systems.	Future research should identify mechanisms by which the hidden curriculum is transmitted and maintained, and mechanisms by which the hidden curriculum can be dismantled or rendered inclusive.
Theme 4: Affinity Groups for the Support of Students of Marginalized Cultures and Identities	Mentors and program coordinators should identify and create safe spaces for affinity groups to form, such as clubs of cultural celebration.	Continued and improved funding of institutions dedicated as affinity spaces, such as HSIs and historically Black colleges and universities (HBCUs), is highly warranted.	Future research should examine factors in successful creation of affinity group spaces, core attributes which make them effective and supportive, and the forms they may take.

Theme 1 suggests that a key barrier to a student's engagement in the mentorship process is in the initiation of a successful mentor-mentee relationship. As this initiation requires a degree of self-direction, mentors interested in fostering students' self-directed learning acumen should consider themselves *leaders* in the initiation of the mentor-mentee relationship. Thereafter, students should be encouraged to grow through a differentiated, scaffolded redistribution of the lead role

in the mentor-mentee relationship. Mentors should examine that student's self-directed learning skills at the time of program entry and work to build from there.

A *servingness*-oriented approach promotes examination of the cultural impact of a focus on "self-directed learning", namely, how that focus may normalize a culture of individualism and simultaneously marginalize collectivist cultures. The ultimate focus on the individual "self" in learning demonstrates the culture of individualism in STEM. A better approach may be a focus on helping the self-directed learner to acknowledge *when* to collaborate.

Theme 2 reveals that structures of *servingness* can precipitate without strategic facilitation. We suggest, however, that program coordinators should encourage explicit discussion of recruitment opportunities in undergraduate industry mentoring. Educational administrators should further bridge industry and mentorship programs and incentivize mentorship opportunities. To qualify the indicator of *servingness* in mentorship recruitment, researchers should conduct longitudinal studies of the experiences of marginalized students and the effect on representation of diverse identities and cultures in STEM.

Theme 3 guides mentors and program coordinators to best serve students by intentionally preparing them to navigate systems of exclusion perpetuated through the "hidden curriculum." A *servingness*-oriented approach, however, goes a step further: mentors and program managers should aim for a paradigm shift so that no student is disproportionately pressured to assimilate. Educators should foster a critical consciousness through explicit discussions of the hidden curriculum and the exclusionary and assimilatory features of current STEM culture. Administrators interested in dismantling the gatekeeping nature of STEM should consider creating spaces for formal discussions on the hidden curriculum and the roles of the members of the STEM community in its propagation and potential deconstruction. Future research may elucidate additional features of the hidden curriculum, identifying mechanisms by which that curriculum is transmitted, and potentially dismantled, within and without the mentorship paradigm.

Despite our criticisms of assimilatory features of STEM culture, we believe that the *servingness*-oriented nature of this analysis mandates honoring the experiences of Latino/a/es, including those individuals who make the choice to navigate the hidden curriculum and/or prepare other Latino/a/es to do the same. To that end, we commend those who seek success for themselves, their families, and their cultures in the form of knowledge, capital, and/or social mobility. We wish to honor those people who foster safe spaces for diverse identities and cultures within STEM. We acknowledge and appreciate that the interviewed mentors are supporting students out of a desire to impart a positive impact on their community. All criticisms of approaches to mentoring are made in context of a system which has fallen short of preparing mentors and mentees for a successful mentorship experience.

Theme 4 identifies affinity groups as key supports for marginalized students as they navigate STEM culture. Mentors and program coordinators may facilitate the formation of these affinity groups, such as through clubs which celebrate a culture or identity, or otherwise through discussions of the potential benefits of affinity groups. "Minority" Serving Institutions, such as HSIs and Historically Black Colleges and Universities (HBCUs), exist as institutionalized

affinity spaces; policymakers should capitalize on this through enhanced funding of these institutions and nurture of their status as cultural bastions. In pursuit of *servingness*, further characterization of the forms and features of affinity groups, as well as the mechanisms by which they flourish, is needed.

We acknowledge that people of identities which are traditionally referred to as "marginalized" may not see personal benefit in these affinity spaces, and more generally may not self-identify as marginalized. We understand that the marginalizing features of STEM culture interact with everyone uniquely and in context of the intersectionality which an individual is assigned [17]. We do not seek to equate "marginalized" with "on the margins of participation or accomplishment in STEM," but rather to acknowledge that individuals of marginalized identities face disproportionate pressure to exit STEM disciplines. As this pressure is socially constructed, its impacts on students vary with the culture of a given institutional setting, so the necessity, form and presentation of affinity groups will similarly vary. While the themes discussed reveal opportunities to construct and bolster structures of *servingness*, many of these structures are starting points in a necessarily collective effort to deconstruct systems of marginalization in STEM. Recruiting, creating affinity spaces, and empowering students to navigate a hidden curriculum do not directly reorganize STEM culture to be equitable and justice-oriented. These structures, however, demonstrate a growing cultural interest in social justice within STEM, and this cultural interest is validated and invited through an institutional focus on equity-oriented interventions. Until this interest is a norm, the longitudinal successes of the structures of *servingness* described here require students of marginalized identities and cultures to do additional work as they graduate from the program: these students must successfully navigate the tension between assimilation into the culture of the hidden curriculum and retention of their individual identity and culture. Additional and continuous efforts to critically examine the *servingness* of equity-oriented interventions are necessary in order to scaffold this interest into a STEM cultural norm of transcultural celebration and border-crossing.

Limitations

This study does not truly capture the beautiful mosaic of diverse cultures and identities that comprise student bodies at undergraduate institutions. Most explicitly stated, the members of the "Hispanic" populations served at HSIs each present highly individual cultures and educational needs. Thus, reflexivity, consideration of context, and conversations with students and mentees are ultimately necessary for any structure of *servingness*.

The industry engineers interviewed in this study were few and are not representative of engineers everywhere. Nevertheless, their insights are essential in understanding our institutional context, and can guide examination of other settings.

Finally, all knowledge produced herein is inevitably affected by the positionalities of the researchers, beginning with asking a question and continuing throughout the research process. Examination of the merits of this work should be done in understanding and interpretation of those positionalities.

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Appendix A.1: Interview Schedule

Interview Protocol

Note references to program and university by name and university-specific statistics are removed for blinding. Also, note minor formatting changes (i.e. font size, spacing) have been made to comply with ASEE author standards.

INTRODUCTION PROTOCOL

1) After going over the consent form, asking if they have any questions, and getting the interview participant to sign, as well as recording their self-selected pseudonym (any first name that is not their first name), tell them you are starting the audio recording.
2) Start the recorder and introduce yourself and the participant (using pseudonym), along with the date and time.
3) Be sure to assert that any questions that they want to skip, they can.
4) Make some small talk to encourage a friendly, casual interview space.
    a) Try to connect with the mentor on a casual, friendly level if possible. Consider making jokes when appropriate and applicable.
5) Ask a lot of questions like "why do you think that is?" to encourage critical thinking and meta-cognition.

MAIN INTERVIEW PROTOCOL

Background/General

1. Are you a [university associated with program] alumnus? What year did you graduate?
    a. If not, where is your alma mater? What year did you graduate?
2. What is your job/where do you work?
3. Why did you choose engineering?
4. How would you describe your past mentoring experience?
    a. Was that experience in a formal program?

b. Have you previously mentored through the [program]?

Appendix A.2: Interview Schedule

5. What does mentorship mean to you?
    a. What is the role of a mentor?
    b. What kind of relationship do you expect between mentors and mentees?
6. What kinds of skills which are important for the workforce can students get through mentoring that aren't traditionally learned in the classroom?

Program-Specific

7. Why are you participating in the [sic] program?
8. [if participated in past] What were some positive aspects of the mentorship program?
9. What do you expect to learn in the mentor workshop?
10. What do you expect the mentoring process to be like for this program? (Addressing misconceptions in future workshops)
    a. What types of support do you think your mentee might need in the [sic] program? What topics do you expect to discuss with your mentee?
    b. What do you anticipate as potential challenges?
    c. [if participated in past] How can your previous experiences as an [sic] mentor be improved?
    d. Which aspects of mentoring do you anticipate needing to negotiate with your mentee? To what extent?
    e. What types of support do you need/want as a mentor?
11. One goal of the [sic] program is to encourage student participants to be self-directed in their learning. What are your thoughts about how a mentor might assist their mentee in becoming more self-directed?

Cultural-Responsiveness

12. What is your self-defined racial and gender identity?

Appendix A.3: Interview Schedule

13. According to [university] data, approximately [sic]% of students are Hispanic, [sic]% of students need financial aid, and, in STEM, [sic]% of students are first-gen. Historically, these students face many barriers in pursuing an engineering degree.

    a. Should these students receive specific support? From whom?

    b. [if applicable] do you think the university should provide specific support to these students? If so, how/why?

    c. [if not mentioned] Do you think these students might need specific types of mentoring or have specific needs as they transition into the workforce? Probe for explanation and/or examples.

I have a story built from research data about a common experience some students have while studying STEM(Johnson, 2007). I'm going to read it to you and ask you some questions afterwards:

VIGNETTE

Isabel is a young, Latina university freshman. She came from a predominately Hispanic community to earn her B.S. in Chemical Engineering. She is just beginning to be comfortable with the sudden change in her living situation, now living in a dorm, separated from her family. Isabel is generally kind and did well in class but was sometimes mocked or teased by classmates for her accent.

Isabel didn't really ask many questions. She often keeps to herself, working on her notes or an assignment. But on the occasion when she was brave enough to raise her hand, she saw heads dart and heard whispers and giggles. When groups were assigned for a project, her teammates had trouble understanding her or downright ignored her. She wonders how she will get through her labs with a partner, let alone the career field.

Eventually, she meets Mateo, a Latino engineering student in another section of Isabel's course. She meets up with him to do homework in the student union after class and seems to be doing well in the course. Still, Isabel finds herself dreading going to class or seeing her classmates on campus.

14. What strikes you first about this story?

    a. (If they don't address whether they believe this story, probe using questions like, "Does this story seem plausible to you? Why or why not?")

Appendix A.4: Interview Schedule

15. I am going to ask you to imagine this scenario playing out with your mentee.
    a. If your mentee is in Isabel's (main character) role, how would you advise them in this situation?
    b. If your mentee is in Mateo's (friend of main character) role, how would you advise them in this situation?
    c. (If they don't address this anywhere, ask how they think this feels to the student who experienced it.)

16. Does sexism and racism exist in engineering? In your workplace? Get clarity on their response(s).
    a. If no, ask them to explain.
    b. If yes:
        i. Ask for examples if not provided.
        ii. Many efforts have been undertaken to address sexism and racism in engineering, but the problem remains. What could be done differently?
        iii. (if not addressed):
            1. Who do they think should do something?
            2. On what level are changes needed (personal, departmental, global)?

INTERVIEW TERMINATION PROTOCOL

1. Probe if there is anything else they want to say or offer.
2. DECOMPRESS. Mention something casual like the weather. Try to laugh if appropriate and applicable.
3. Thank them for their time and ensure they have relevant contact information to follow up with any questions, comments, or concerns.