"BUT…. THEY DON'T LOOK LIKE ME." AN EXAMINATION OF MENTORING

RELATIONSHIPS WITH HISPANIC AND LATINX STUDENTS

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Abstract

The guiding objectives of this research were to more deeply understand Hispanic and Latinx students' attitudes about research mentoring relationships and clarify conflicting findings within the existing literature. Study 1 focused on 32 Hispanic and Latinx undergraduate students who had experience with STEM research mentoring. A major goal was to examine whether racial-ethnic "match" between students and their mentors was associated with the types of behaviors that students encounter from their mentors (e.g., instrumental mentoring) as well as students' academic attitudes (e.g., STEM self-efficacy). Findings revealed that students have a stronger preference for mentors who share their personality traits over those who match other sociodemographic characteristics, including ethnic and racial background, gender, and age. Study 2, which used a mixed-methods design, focused on 108 Hispanic and Latinx undergraduate students who had experience with STEM research mentoring. A major goal was to explore their perspectives on how mentors should approach research mentoring relationships with Hispanic and Latinx students. We also examined whether the type of reasoning undergraduates provided was associated with the strength of their psychological identification with their ethnic group. Findings indicated that the strength of participants' ethnic identity was not associated with their reasoning. In addition, findings revealed five overarching themes. Of particular interest was the *culturally aware theme*, which highlighted the importance of mentors acknowledging the unique difficulties that Hispanic and Latinx students experience in navigating their academic system (e.g., language barriers, being first-generation college students, and unhealthy cultural norms within their ethnic-racial group). The findings from this research provide new insight into what Hispanic and Latinx students seek in their research mentoring relationships. The findings also underscore the significance of mentors adopting culturally sensitive mentoring styles and shed light on intriguing directions for future research.

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Introduction

Science, technology, engineering, and math (STEM) fields significantly contribute to the United States economy. For this reason, broadening participation in STEM fields has been an important national priority since the 1970s and 1980s (Gandara & Maxwell-Jolly, 1999). More recently, in 2022, the Biden-Harris administration invested $1.2 billion into increasing students' sense of belonging in STEM education. In addition, this administration hosted a YOU Belong in STEM conference to encourage the success of STEM education nationwide (U.S. Department of Education, 2022). Despite these important efforts, systemic forms of oppression and academic inequities continue to counteract efforts to recruit and retain students of color in STEM fields (Kricorian et al., 2020).

Given that Hispanic and Latinx students have been historically underrepresented in STEM fields and are currently one of the fastest-growing populations in both the education system and the U.S. workforce, it is crucial to make efforts to support their success in STEM education. Although Hispanic and Latinx terms are sometimes used interchangeably, Martinez and Kelsey (2021) found that around half of those who identify with these communities prefer one term over the other. Therefore, both terms will be used in this paper to ensure inclusivity. The underrepresentation of Hispanic and Latinx students in STEM and higher education is a complex issue with multiple factors contributing to their limited participation.

Research findings indicate that Latinx students commonly experience a sense of isolation and corresponding negative emotions in educational settings, which can be attributed to the presence of a hostile environment (Limeri et al., 2019). These unfavorable circumstances have the potential to significantly impact multiple facets of a student's academic experience, including their level of achievement and their ability to persevere in their studies. Moreover, these challenges tend to be particularly pronounced within the STEM

fields (Phillips et al., 2020; Rincón, 2020). For example, Hispanic and Latinx adults currently comprise 18% of the U.S. workforce and are projected to make up 75% of the new workforce between 2020 through 2030; however, they only make up 9% of the STEM workforce (U.S Census Bureau, 2020; U.S Department of Labor, 2021).

A growing body of research has focused on identifying strategies to increase STEM interest and persistence among Hispanic and Latinx students. One of these strategies is academic research mentoring, wherein students learn about the norms that characterize STEM fields from more experienced faculty mentors (McCoy et al., 2015; Sadler et al., 2010). One key question in the mentoring literature is whether an ethnic-racial "match" between the mentor and the student shapes the outcomes of the mentoring relationship. However, the literature examining whether students benefit from working with a mentor who shares their ethnic-racial background has reported conflicting findings. Moreover, it is rare for research to directly examine what students of color want in their mentoring relationships.

The primary aim of this research is to address the existing gaps in the literature. This objective will be pursued through two studies centered on undergraduate students who self-identify as Hispanic or Latinx. Study 1 examines whether ethnic-racial match in the mentoring relationship is associated with STEM identity and self-efficacy among Hispanic and Latinx students. Study 1 also examines whether Hispanic and Latinx students consider ethnic-racial matches important. Study 2 focuses more broadly on what participants think research mentors should do to support Hispanic and Latinx students. Below, I explain the different mentoring behaviors highlighted in the literature and how they impact students from marginalized groups. Then I discuss how the community cultural wealth and situated learning frameworks inform the current research (Lave & Wenger, 1991; Yosso, 2005). Finally, I summarize previous research focusing on the ethnic-racial match and how different mentoring approaches impact students' academic outcomes and identities.

Mentoring: Theoretical and Empirical Background

Research mentoring is a specific type of academic mentoring where a more experienced professional guides students in their field of study. Typically, research mentoring involves meeting with the student, determining the student's academic goals, and working with the student to reach those goals. For example, suppose a student wants to pursue graduate education but needs more research experience. In that case, a mentor may encourage their mentees to take on a lead role in an upcoming research project. Importantly, however, mentoring relationships are exchange relationships, meaning mentors often expect students to reciprocate the support they receive. Students often reciprocate through behaviors such as prosocial communication, reliably meeting with their mentor, confidentiality, showing commitment to the mentoring relationship, and displaying a high level of engagement in the tasks the mentor assigns.

Mentoring relationships often improve students' academic outcomes and interest in their desired fields (for a review, see Sadler et al., 2010). Situated learning theory provides insight into why mentoring relationships are helpful. This perspective proposes that mentoring relationships help guide students into communities of practice and encourage them to actively immerse themselves in their learning activity (Lave & Wenger, 1991). Situated learning is akin to an apprenticeship when an individual learns from a more skilled professional (Hunter et al., 2007; see also Vygotsky, 1978). For example, Hunter et al. (2007) conducted an ethnographic study with undergraduates conducting summer research with a faculty mentor. The researchers wanted to examine how situated learning worked in a student-faculty mentoring relationship. Their findings supported the view that students learn most in a situated context that encourages them to apply and develop their skills in STEM under the guidance of a more experienced mentor (Hunter et al., 2007). The findings further indicated that when undergraduates have a mentor who supports them and gives them insight

into the culture of academic science, students are better able to see themselves in a scientist role (Hunter et al., 2007). These findings provide insight into why mentoring relationships are often vital for students of color. More specifically, students who have historically been excluded from STEM fields may be especially likely to benefit from having a mentor who can guide them into science communities of practice (Santa-Ramirez, 2022).

Positive mentoring behaviors. The majority of the mentoring literature focuses on supportive or positive mentoring behaviors. Two of the most commonly studied positive mentoring behaviors are instrumental and socioemotional mentoring (e.g., Eby et al., 2013; Robnett et al., 2018). *Instrumental mentoring* occurs when mentors provide their protégés with the support that helps them bolster their professional or academic skills. For example, a mentor who helps their student write a manuscript or prepare a poster presentation is engaging in instrumental mentoring. In contrast, *socioemotional mentoring* occurs when mentors provide their protégés with emotional and social support. For example, a mentor who helps their protégé cope with anxiety caused by an upcoming presentation is engaging in socioemotional mentoring.

According to a meta-analysis by Eby et al. (2013), socioemotional and instrumental mentoring are associated with beneficial academic and workplace outcomes. Furthermore, a longitudinal study illustrated that students who received higher levels of instrumental mentoring reported higher self-efficacy a year later (Robnett et al., 2020). Similarly, another study showed that students who received higher levels of instrumental and socioemotional mentoring relationships also tended to identify more strongly as scientists (Robnett et al., 2018).

Negative mentoring behaviors. Although positive mentoring behaviors are a focal point in the literature, research on negative mentoring styles has increased (Limeri et al., 2019). A growing body of research has identified various potentially harmful mentoring

practices that reflect a lack of sensitivity to interpersonal and structural power dynamics. For instance, in a qualitative study focusing primarily on students of color involved in academic mentoring, Limeri et al. (2019) found that many participants experienced negative mentoring behaviors such as abuse of power, unequal treatment, misaligned expectations, and interpersonal mismatch. For example, in the unequal treatment category, one of the undergraduate students described their mentoring experience as follows:

> "[My Mentor] was giving me a tour, and he introduced me to my other lab mates. He says, "Great, we have another female in the lab. Now we have someone to wash the dishes. (p. 9)."

In addition, some mentors use a colorblind lens when mentoring students of color (McCoy et al., 2015). On the surface, colorblindness might seem like a positive ideology because it invokes concepts related to equality. In reality, however, colorblind ideology contributes to systemic inequity because it fails to acknowledge race-linked patterns of oppression and privilege (Bonilla-Silvia, 2006). It also encourages individuals to deny any cultural variation that may make them uncomfortable. In addition, in a mentoring relationship, colorblindness means that mentors do not acknowledge the unique academic hardships that students of color face, ranging from systemic oppression to microaggressions. McCoy et al. (2015) found that some mentors exhibited color evasion and cultural racism in their mentoring relationships. Although some mentors claimed to treat all their students equally regardless of race, others failed to provide adequate support to their students of color, assuming they did not aspire to pursue graduate education. These behaviors reflect a failure to acknowledge and address racial differences and perpetuate the harmful belief that students of color are less deserving of opportunities for academic advancement.

Research indicates that negative mentoring behaviors have a range of consequences. For example, previous research has shown that students who experience a poor-quality

mentoring relationship report lower levels of trust toward white educators (Benner & Graham, 2013). Additional work indicates that students who encounter negative mentoring behaviors question their intentions and sense of belonging in higher education (Limeri et al., 2019; McCoy et al., 2015). Similarly, these practices negatively impact students' career and psychosocial development by making them question whether they have the ability to become scientists (Limeri et al., 2019). Further research suggests that negative mentoring behaviors can impact students beyond undergraduate education For example Tuma et al. (2021) interviewed life science doctoral students and found that these students also experienced a range of negative mentoring experiences and often attributed them to interpersonal differences and many more. In addition, students in a poor mentoring relationship may find it difficult to leave due to fear of damaging their reputation and retaliation on their mentor's part (Kumar & Blake-Beard, 2012; Scandura, 1998).

Culturally Responsive Mentoring

Due to the challenges that students from marginalized groups face in their mentoring relationships, it is essential to consider ways to acknowledge students' unique strengths. For this reason, the current research draws from the cultural wealth framework (Yosso, 2005). The cultural wealth framework is a strength-based approach that celebrates the unique assets that students of color bring into academia. This theory contrasts with culturally insensitive mentoring models, which directly or indirectly imply that students from marginalized backgrounds must "catch up" to their more privileged peers. Instead, this model examines the different resources that students of color have beyond finances. One of these resources is aspirational capital, which is evidenced when students can maintain hope for their future despite facing several barriers (Yosso, 2005). For example, suppose a Hispanic student is pursuing a degree at a Predominantly White Institution. She draws strengths from her cultural background to persist even though she faces systemic racism, constantly reminding herself,

"No pasa nada, puro pa delante," which translates to "It is all good; we will keep pushing forward." Vasu and Mino (2022) investigated how culturally responsive pedagogy (CRP) adapted in a mentoring-protégé dynamic empowers students to use their cultural capital to gain social capital in the STEM fields. They found that students who perceived their mentoring relationship as having a high quantity of CRP used their cultural capital to gain STEM social capital, which helped increase their academic success (Vasu & Mino, 2022). In addition, because these students' mentors adopted culturally responsive pedagogical approaches, they helped increase their student's STEM self-efficacy and identity.

In sum, previous research indicates that culturally sensitive mentoring can benefit students of color (e.g., Freire, 1993; Liou et al., 2016; Vasu & Mino, 2022; Yosso, 2005). In theory, a mentor from any background can employ culturally sensitive mentoring; however, it seems reasonable to assume that mentors of color are more likely than white mentors to adopt this approach. This raises important questions about whether students benefit from working with a mentor who shares elements of their ethnic-racial background.

Does Ethnic-Racial Match Help in Mentoring Relationships?

Although research on ethnic-racial match within mentoring relationships exists, there have been conflicting findings in the literature. For example, Blake-Beard et al. (2011) found that women and students of color preferred a mentor who matched their gender or ethnic background; these students also reported receiving more help from their mentors than students who did not have a mentor match. Similarly, in a qualitative study, Morales-Chicas et al. (2022) adopted a cultural wealth approach and interviewed Latina undergraduate mentors. During these interviews, mentors reflected on their experience of cultural representation in the STEM fields and highlighted the importance of having a mentor who "looks like you." They also highlighted that a unique connection is made when faculty

engage in a mentoring relationship with students who share their background. For instance, one of the undergraduate mentors said the following:

> "The majority of [my mentees] are Latinas, so I think by them seeing a female Latina just like them, I think that that's an influence."

Findings from this study also showed that undergraduates perceived ethnic-racial match as beneficial in the mentoring relationships with youth in K-12 STEM education (Morales-Chicas et al., 2022). It merits noting that an ethnic-racial match in a mentoring relationship may be hard to obtain for students of color. For example, the National Center for Education Statistics report revealed that only 6% of university faculty were Hispanic.

On the other hand, several studies suggest that although many students from marginalized groups prefer a mentor who matches their background, others do not necessarily find it highly important (Syed et al., 2012; see also Pederson et al., 2020). For instance, Pederson et al. (2022) found that although some students think a mentor match is essential, they also believe that other types of support may be more important to some students of color. More specifically, the findings suggested that professional opportunities such as coauthoring manuscripts might be more important than ethnic-racial match when it comes to satisfaction with the mentoring relationship and commitment to their STEM degree. These conflicting findings call for additional research investigating (a) the importance of ethnic-racial match and (b) more generally, what students want from their mentoring relationships.

Ethnic-Racial Match: Identifying Correlates

The current research examined two sets of theoretically grounded correlates of ethnic-racial match in research mentoring relationships. First, we examined whether ethnic-racial match is associated with STEM identity and STEM self-efficacy, which are psychological constructs that have been linked to students' retention in STEM higher education contexts (e.g., Chemers et al., 2011; Robnett et al., 2015; Sadler et al., 2010). *STEM identity* reflects

the degree to which students 9erceivee themselves as scientists (Chemers et al., 2011; Robnett et al., 2015). For example, a student who grew up attending science events and was introduced to the scientific community early on may have a strong science identity. *STEM self-efficacy* reflects the degree to which an individual believes they can carry out STEM academic tasks (Chemers et al., 2011; Robnett et al., 2015; see also Bandura, 1977). For example, a student who believes they can successfully pass a difficult STEM course has high STEM self-efficacy.

The second set of correlates pertains to specific mentoring behaviors. Namely, we will examine whether the ethnic-racial match is associated with the *socioemotional*, *instrumental*, and *negative* mentoring students receive in their mentoring relationships. As discussed earlier, these mentoring behaviors are frequently studied in the mentoring literature and have been linked to various academic and workplace outcomes for students and employees, respectively (e.g., Eby et al., 2012; Robnett et al., 2018).

At a more general level, the current research sought to more deeply understand what Hispanic and Latinx students believe research mentors should do when mentoring students of their ethnic-racial background. In so doing, we tested for links between students' reasoning about mentoring relationships and their level of *ethnic identity*. This construct reflects the degree to which students view themselves as part of their ethnic group (Phinney, 1992). For example, a student who embraces their cultural language, traditions, and foods may be high in ethnic identity. Ethnic identity has been incorporated into research that aims to increase the representation of students from marginalized groups in STEM and higher education. For example, a study by Gummadam et al. (2015) found that college students with a stronger ethnic identity tended to show better psychological adjustment.

Research Overview

The current research aimed to replicate, clarify, and extend the research mentoring literature across two studies. Toward the end, a major aim of Study 1 was to clarify conflicting findings related to ethnic-racial match in mentoring relationships. I began with exploratory, descriptive analyses examining the degree to which Latinx and Hispanic students perceive "match" as important in research mentoring relationships. Specifically, Research Question 1 asked: *To what extent do students desire a mentor who shares key aspects of their background?* In examining the degree to which students perceive match as desirable, I focused on the degree to which students value ethnic-racial match as compared to other attributes that might be important (namely, gender, age, and personality).

Next, I examined whether ethnic-racial match in research mentoring relationships was associated with several key correlates. Specifically, Hypothesis 1 is as follows: *Students with an ethnic-racial mentor match will have a higher STEM identity and self-efficacy than those without an ethnic-racial match.* Similarly, Hypothesis 2 is as follows: *Students with an ethnic-racial mentor match will receive higher levels of instrumental and socioemotional mentoring and lower levels of negative mentoring compared to those without an ethnic-racial match.*

In Study 2, I broadened my lens to focus on how Hispanic and Latinx students think research mentors should support them. In this exploratory mixed-methods study, I used qualitative data to examine how students think mentors should approach mentoring relationships with Hispanic and Latinx students. Specifically, Research Question 1 asked: *According to students, should research mentors do anything specific when mentoring Hispanic/Latinx students?* Then I turned to quantitative data to address Research Question 2: *Is the reasoning students provided (i.e., the qualitative themes) related to the strength of their psychological identification with their ethnic group?*

Study 1

Method

Participants

Participants were recruited from the University of Nevada, Las Vegas (UNLV). My study focused on a subset of students from a larger sample. Specifically, the current research focused on 32 Hispanic and Latinx undergraduate students in the STEM fields who had a research mentor. It is noteworthy that as of 2023, the College of Sciences and Engineering at UNLV only has four Latinx faculty members, resulting in a student-to-faculty ratio of 1: 146. Regarding ethnic-racial mentor matching, only 7 participants (21.9%) reported having a mentor who shared the same ethnic-racial background as them. I discuss this issue as a key limitation below. The majority of participants were between the ages of 18 and 24 (90.8%). The sample included 25 women (78.1%) and 7 men (21.9%); regretfully, nonbinary gender identity options were not included on the survey. Regarding their fathers' education, 12 participants (37.5%) reported their fathers did not finish high school, 10 participants (31.3%) mentioned at least a high school graduation, 7 participants (21.9%) indicated some college education, and 2 participants (6.2%) stated their fathers held a bachelor's degree or other professional degrees, and 1 participant (3.1%) was unsure of their father's education. In terms of mothers' educational levels, 13 participants (40.6%) reported their mothers did not finish high school, 8 participants mentioned at least a high school graduation (25%), 5 participants mentioned their mother (15.6%) had some college education, and 5 participants' mothers (15.7%) had a bachelor's degree or other professional degree, and 1 participant (3.1%) was unsure of their mother's education level.

Procedure

To recruit participants, research assistants made announcements in STEM courses and STEM academic clubs. In addition, instructors of STEM courses shared recruiting materials

with the students in their courses. Prior to beginning the online survey, all participants provided their consent to participate in the study. The survey included demographic questions as well as closed-ended questions and scales assessing (a) interpersonal match between students and their mentor, (b) their mentor's mentorship behaviors (i.e., socioemotional, instrumental, and negative mentoring), and (c) students' academic attitudes (i.e., self-efficacy and STEM identity).

Measures

  Demographics. Participants reported their ethnicity, gender, major, educational level, and their parents' educational level.

  Mentoring scales. At the outset of the survey, participants indicated whether or not they had a research mentor. (Those that did not have a mentor were branched into another section of the survey and are not included in the present study.) Those who indicated that they did have a research mentor were asked to consider the mentor who has had the most significant impact on their development as a scientist. The survey instructions explained that they should keep this mentor in mind while answering the mentoring questions detailed below.

  Sociodemographic match in the research mentoring relationship. Participants were asked if their current mentors shared key aspects of their background. An example item is listed as follows: "Do you and the mentor you listed above share the same ethnic and/or cultural background?" Participants responded with *yes*, *no*, or *unsure*. Those who selected "unsure" were grouped with the "no" participants in the analysis. This choice was based on my focus on examining participants with definite matches. Given participants' uncertainty, it was deemed more suitable to include them in the "no" group rather than the "yes" group.

  Desire for sociodemographic match in the research mentoring relationship. Participants answered a set of closed-ended questions that gauged the degree to which they

perceived it as valuable to share specific background attributes with their mentor. These attributes included ethnicity, gender, age, and personality. The scale comprised two components. For the first component, participants reflected on whether sharing sociodemographic attributes with their mentor would be helpful for their success in STEM. A sample item is listed as follows: *When it comes to your success in STEM, how helpful would it be if you and your mentor shared the same ethnic and/or cultural background?* Responses ranged from 1 *(Not helpful)* to 5 (*Extremely helpful)*. For the second component, participants reflected on whether sharing sociodemographic attributes with their mentor would enhance their mentor's understanding of the challenges they face in STEM. A sample item is listed as follows: *When it comes to your mentor's understanding of the challenges you face in STEM, how helpful would it be if you and your mentor shared the same ethnic and/or cultural background?* Responses also ranged from 1 (*Not helpful)* to 5 *(Extremely helpful).*

Mentoring behaviors. To assess mentoring behaviors, I utilized a scale developed by Chemers et al. (2011) for undergraduate STEM majors. This scale measured instrumental, socioemotional, and negative mentoring. Instrumental mentoring was measured with three items. A sample item was listed as follows: *How often does your mentor help you finish assignments and tasks?* Response options ranged from 1 (*Very infrequently*) to 5 (*Very frequently*). Higher scores indicated higher levels of instrumental mentoring behaviors. Internal reliability for this subscale was good ($\alpha = .84$). Socioemotional mentoring was measured with four items. A sample item was listed as follows: *How often does your mentor serve as a role model?* Response options ranged from 1 (*Very infrequently*) to 5 (*Very frequently*). Higher scores indicated higher levels of socioemotional mentoring behaviors. Internal reliability for this subscale was excellent ($\alpha = .94$). Finally, negative mentoring was measured with six items. A sample item was listed as follows: *How often does your mentor make you feel stupid while giving you advice?* Response option ranges from 1 (*Very*

infrequently) to 5 (*Very frequently*.). Higher scores indicated higher levels of negative mentoring behaviors. Internal reliability for this subscale was good ($\alpha = .85$).

STEM self-efficacy. To measure students' STEM self-efficacy, the current study utilized the Eccles self-expectancy scale (Eccles & Wigfield, 1995; Watt et al., 2012), which has been used in previous research with undergraduates in STEM majors. The scale is composed of nine items. A sample item is as follows: *Compared to other students in my major, science is fairly easy for me.* Response options ranged from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*). Higher scores indicated higher levels of STEM self-efficacy. Internal reliability for this scale was good ($\alpha = .84$).

STEM identity. To measure students' STEM identity, the current study utilized the Chemers et al. (2011) STEM identity scale, which has been used in previous research with undergraduates in STEM majors. This scale is composed of five items. A sample item is as follows: *I feel like I belong in the field of STEM.* Response options range from 1 (*Disagree Strongly*) to 6 (*Strongly Agree*). Higher scores indicated higher levels of STEM identity. Internal reliability for this scale was good ($\alpha = .85$).

Preliminary Factor Analysis

An exploratory factor analysis was conducted on all scales. The results were consistent with previous research using the same scales, indicating that all scales converged into a single factor and demonstrated good reliability, except for STEM self-efficacy. In this case, the factor analysis revealed more than one factor. I suspect that this unexpected factor structure was caused by the current study's small sample size. Because the multifactor solution was not readily interpretable and inconsistent with an abundance of previous research (e.g., Watt et al., 2012), the forthcoming analyses treat the self-efficacy items as a unidimensional construct.

Results

Descriptive Statistics

Descriptive statistics and correlations among study variables are presented in Table 1 and Table 2. There were statistically significant positive correlations among several of the questions that asked about participants' preferences for sociodemographic match in the mentoring relationship when it came to their *success in their major.* For example, participants who reported that it would be helpful to have ethnic-racial similarity with their mentor also tended to report that it would be helpful to have gender similarity with their mentor. Similarly, participants who reported that it would be helpful to have age similarity with their mentor also tended to report that it would be helpful to have gender similarity and ethnic-racial similarity with their mentor. However, preferences for personality similarity did not correlate with preferences for similarity in terms of gender or ethnic-racial background.

Furthermore, there was a statistically significant positive correlation among several of the questions that asked participants preferences for sociodemographic match when it came to the *challenges they faced in their chosen major*. For example, participants who reported that it would be helpful to have an ethnic-racial similarity with their mentor also tended to report that it would be helpful to have gender similarity with their mentor. In addition, those who reported that it would be helpful to have gender similarities with their mentor also reported that it would be helpful to have similar personalities with their mentor as well as age similarities. However, personality did not correlate with ethnic-racial match or age.

Desire for Match

Exploratory analyses were used to address Research Question 1: *To what extent do students desire a mentor who shares key aspects of their background?* To address this question, I conducted two 1-way analyses of variance (ANOVA). The first ANOVA examined whether participants rated certain facets of match as more helpful than others *when*

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it came to their success in their chosen major. Thus, the dependent measure was students' ratings of each facet of match (i.e., ethnicity, gender, age, and personality), which were measured within-subjects. Mauchly's test indicated a violation of the assumption of sphericity χ^2 (5) = 13.25, p = .021, necessitating the use of the Huynh-Feld correction estimate (ε = .868) to adjust the degrees of freedom. The analysis revealed a statistically significant difference in students' desire for a mentor match across the four facets of match, F (2.602, 80.769) = 9.151, p < .001, η^2 = .228, power = .990. Post hoc comparisons using the Bonferroni correction showed that students rated personality match as significantly more helpful for their success in STEM (M = 3.59, SE = .241, 95% CI [3.102, 4.086]) relative to their gender match (M = 2.63, SE = .241, 95% CI [2.134, 3.116]) and age match (M = 2.281, SE = .230, 95% CI [1.812, 2.750]). However, no statistically significant differences were found among the other facets of match.

The second ANOVA examined whether participants rated certain facets of match as more helpful than others *when it came to their mentor's understanding of the challenges they face in their chosen major*. Thus, the dependent measure was students' ratings of each facet of match (i.e., ethnicity, gender, age, and personality), which were measured within-subjects. Mauchly's test indicated that the assumption of sphericity was met χ^2 (5) = 9.151, p = .103. The analysis revealed that there was not a statistically significant difference in students' desire for a mentor match across the four facets of match, F (3, 9) = 2.631, p = .055, η^2 = .078, p'wer = .627. The four facets of match were perceived as similarly helpful when it comes to the mentor's understanding of the challenges faced in STEM.

Ethnic-Racial Mentorship Impact on STEM Identity, Self-Efficacy and Mentoring Behaviors

Hypothesis 1 proposed that students with an ethnic-racial mentor match (i.e., Hispanic and Latinx students who worked with a mentor of the same background) would exhibit higher

levels of STEM identity and self-efficacy compared to those without an ethnic-racial match. A multivariate analysis of variance (MANOVA) examined whether ethnic-racial match (yes/no) was associated with mean differences in STEM identity and STEM self-efficacy. The results revealed that the multivariate effect for self-efficacy and science identity was not statistically significant $F(2, 29) = .364$, $p = .698$. Thus, Hypothesis 1 was not supported.

Hypothesis 2 proposed that students with an ethnic-racial mentor match would report receiving higher levels of instrumental and socioemotional mentoring and lower levels of negative mentoring, compared to those without an ethnic-racial match. A multivariate analysis of variance (MANOVA) examined whether ethnic-racial match (yes/no) was associated with mean differences in instrumental, socioemotional, and negative mentoring behaviors. The results revealed that the multivariate effect for these mentoring behaviors was not statistically significant $F (3,22) = 1.70$, $p = .196$. Thus, Hypothesis 2 was not supported.

Discussion

The study's results suggest that students prioritize matching with mentors based on personality over other factors like ethnicity, gender, and age. Although personality emerged as the strongest preference, there were no significant differences observed regarding other match conditions. These findings shed light on students' preferences in mentorship-seeking, highlighting the importance of personality compatibility. These findings are similar to previous research, which suggested that although sociodemographic match may be important to students from underrepresented backgrounds, other facets may be more important to some students (Syed et al., 2012; see also Pederson et al., 2020). However, it is crucial to exercise caution when interpreting these findings as the nature of these results may stem from the predominantly white demographic of professors and mentors in educational settings, potentially leading students to perceive limited possibilities for ethnic, gender, or age-based

matches. Further exploration is needed to discern whether students' preference for personality matches is above and beyond age match, gender match, and ethnic-racial match.

Limitations and Future Directions

It is important to acknowledge certain limitations of this study. First, the sample size was relatively small, which undermined statistical power and may have impacted the generalizability of the findings within this specific population. Therefore, caution should be exercised when interpreting the results pertaining to ethnic-racial match. Furthermore, future research should investigate whether students prioritize the concept of "match" or if other factors, such as critical consciousness and awareness of structural inequities, hold greater significance. In addition, research with a larger and more diverse sample would be valuable for conducting a more thorough analysis, particularly by including participants who have mentors matching specific aspects of their sociodemographic background. Moreover, future research should prioritize longitudinal studies when investigating self-efficacy, STEM identity, and mentorship behaviors, as it would be crucial to observe how the relations among these constructs unfold over time.

Study 2

In our first study, the key finding was that participants preferred a mentor who matched their personality more than any other facet. Expanding upon this insight and seeking to delve deeper into the preferences of Hispanic and Latinx participants regarding mentorship, the subsequent study—referred to as Study 2—aims to amplify Hispanic and Latinx voices and shed light on their desires within mentorship relationships.

Method

Participants

We recruited participants from the University of Nevada, Las Vegas. The current study focused on a subset of students from a larger sample. Specifically, the current study included 108 students who identified as Hispanic or Latinx and had a research mentor. Among them, 75 (68.8%) were women, 27 (24.8%) were men, 3 (2.8%) identified as nonbinary, and 3 (2.8%) identified as gender variant or nonconforming. Most participants (n = 77; 70.6%) identified as first-generation college students, meaning that neither of their parents had obtained a 4-year degree, most students (N = 65, 59.6%) were in their first year of college. Most participants were 18-21 years of age (87.1%). With regard to political ideology, 61 (56%) identified as Democrat; 13 (11.9%) identified as Republican; 8 (7.3%) identified as Libertarian; 7 (6.4%) identified as Progressive; 6 (5.5%) identified as Socialist; and 13 (11.9%) did not identify with any of the aforementioned political parties. Regarding immigration status, 75 participants (68.8%) indicated that they were born in the U.S. but at least one of their parents immigrated to the U.S.; 14 (12.8%) indicated that they and their parents were born in the U.S.; 8 (7.3%) indicated that they, their parents, and their grandparents were born in the U.S.; 7 (6.4%) indicated that they immigrated to the U.S. before the age of 12; and 3 (2.8%) indicated that they immigrated to the U.S. after the age of 12. We also asked participants about their street race, which provides a way to gauge whether

participants' ethnic-racial identity differs from how others perceive them. About two-thirds of participants reported that their ethnic-racial identity and street race overlapped. Specifically, 67 (61.5%) participants reported their street race as Hispanic and Latinx. Of the remaining participants, 26 (23.9%) reported their street race as White; 11 (10.1%) reported Asian; 3 (2.8%) reported Other; and 2 (1.8%) reported Black. It is noteworthy that as of 2023, the College of Sciences and Engineering at UNLV only has four Latinx faculty members, resulting in a student-to-faculty ratio of 1: 146.

Procedure

We recruited participants using the psychology participant pool, email listservs, and in-person recruitment efforts. Compensation for participants included either one SONA credit or an opportunity to enter a raffle for a chance to win one of four $50 VISA gift cards. Prior to beginning the survey, all participants provided their consent to participate in the study. The survey included demographic questions, quantitative measures assessing students' ethnic identity, and an open-ended question gauging participants' perception of whether mentors should do anything in particular when working with Hispanic and Latinx students.

Measures

Demographics. We asked participants to share their ethnicity, street race, gender, education level, social-economic status, and political affiliation.

Multigroup Ethnic Identity Measure (MEIM). To measure the strength of participants' psychological identification with their ethnic group, the research team utilized the MEIM scale. This 15-item scale is widely used to measure the degree to which an individual identifies with an ethnic group(s) (Phinney, 1992). A sample item is as follows: *I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs*. Responses range from 4 (*Strongly Agree)* to 1 (*Strongly Disagree*). Higher

scores indicated that students identified strongly with their ethnic background. Internal reliability for this sub-scale was good ($\alpha = .92$).

Attitudes about mentoring students of color. I adapted the McCoy et al. (2015) interview questions to understand whether and how mentors should engage in specific behaviors to support students of color. Specifically, we asked students: "When research mentors work with Hispanic/Latinx students, should they be doing anything in particular to support them?" The participants responded either yes or no. Then they responded to an open-ended question to explain their reasoning: "Please explain why you believe that research mentors who work with Hispanic/Latinx students should [should not] be doing anything in particular to support them."

Qualitative Coding and Analysis

We used thematic analysis to analyze the open-ended data in which participants shared their perspectives about how mentors should approach mentoring relationships with Hispanic and Latinx students (Research Question 1). Thematic analysis is a qualitative analytic technique that can be used to identify, analyze, and report themes within the data. Throughout the coding process, the research team utilized Braun and Clarke's (2006) recommendations for thematic analysis. Initially, the lead author conducted a comprehensive reading of the entire dataset and designed a coding manual. We created this manual using an inductive approach, which means that the analysis was exploratory (vs. confirmatory) and data-driven (vs. guided by a specific theory). The coding manual included five overarching themes. Some of the themes had corresponding subthemes. To assess inter-rater reliability, the lead author, the second author, and three undergraduate research assistants independently used the coding manual to code all 108 responses. We held regular meetings throughout the coding process to ensure inter-rater reliability and check for coder drift. Inter-rater reliability,

which was indexed by Cohen's kappa, was good-to-excellent throughout the coding process (k = .84 - .86).

Researcher Positionality

During the process of data analysis and coding, my research team actively engaged in self-reflection and extensive discussions regarding the potential influence of our individual background on the formulation of research questions and subsequent data analysis. The research team fostered trust by encouraging coders to voice any disagreement throughout the coding process. The lead author, a doctoral student in her twenties, identified as a Hispanic, cisgender, heterosexual woman. The second author, an associate professor in her thirties, identified as a White, cisgender, heterosexual woman. Both authors possessed academic training in developmental psychology and the psychology of gender. The graduate research assistant was a doctoral student in her twenties who identified as a Sri Lankan American, cisgender woman. The remaining team members were psychology undergraduate students: One research assistant was an undergraduate student in her twenties who identified as a Christian, European-, African-, and Mexican-American, cisgender heterosexual woman. The second research assistant was a post-baccalaureate student in her twenties who identified as an Asian, heterosexual woman. The third research assistant was an undergraduate student in her twenties who identified as a multiracial and ethnic, cisgender, heterosexual woman. The research team consisted of a diverse group of women, including individuals who identified as Hispanic and Latinx, potentially bringing personal insights pertinent to the challenges students face in mentorship dynamics. However, as the lead author, who identifies as Hispanic, my viewpoint may not encompass the entirety of experiences within this community. Hence, it was imperative to include coders with both similar and differing identities. The integration of various identities among the coding team may yield insights into the experiences of diverse groups, thus fostering a more thorough analysis of the data.

Results

The findings are organized into two sections. First, I present qualitative results addressing Research Question 1, which explored whether Hispanic and Latinx students think mentors should consider ethnic-racial background when mentoring individuals from their ethnic-racial background. Second, I present quantitative findings related to Research Question 2. This question aimed to understand whether participants' beliefs differ based on the strength of their ethnic-racial identity.

Are Hispanic and Latinx Students Seeking Specific Mentorship Support?

When asked in a closed-ended format whether research mentors should do anything in particular to support Hispanic and Latinx students, 63 participants (58.33%) selected "yes." This group was titled *Culturally Inclusive Mentorship.* The remaining 46 (42.2%) participants selected "no." This group was called *Culturally Uniform Mentorship*. All themes, coding categories and sample responding are presented in Table 3. It merits noting that some qualitative responses were not coded due to a lack of rationale provided by participants regarding whether mentors should take specific actions to support Hispanic or Latinx students. For example, one participant simply said "life," which did not provide sufficient information to code.

Culturally Inclusive Mentorship

In the *Culturally Inclusive Mentorship* group, the research team identified two overarching themes within the data: (1) *Cultural Awareness* ($f = 52$) and *Educational Equity* ($f = 14$). Each overarching theme was accompanied by corresponding subthemes. It is important to note that the themes and subthemes were not mutually exclusive. That is, participants had the flexibility to reference multiple themes and subthemes in their responses.

Cultural Awareness. This overarching theme highlights the significance of mentors being culturally sensitive and providing personalized support that recognizes the Hispanic

and Latinx cultural background of students. The responses that comprise this theme emphasize mentors offering extra emotional support to address the challenges students encounter in the academic environment due to their cultural experiences. This theme included three subthemes: (1) *Navigating First-Generation and Ethnic Challenges* ($f = 29$), (2) *Cultural Diversity* ($f = 31$), and (3) *Family Expectations and Academic Pressure* ($f = 9$). The subthemes that characterize their responses are described in detail below.

    Navigating First-Generation and Ethnic Challenges. The first subtheme emphasizes the challenges faced by Hispanic and Latinx students as first-generation individuals, often directly associating these difficulties with their ethnic-racial background and how it affects their ability to navigate the academic system. It highlights the obstacles they grapple with, such as language barriers and the distinct challenge of not being able to seek guidance from family members who lack firsthand experience with college. For example, one participant who identified as non-binary explained the difficulties they experienced as a first-generation student: "…I was the first in my family to attend a university no one knew how to help me and couldn't give me any advice.... Many Latinx students experience this, on top of language issues and a multitude of other intersectional issues." This participant emphasized the absence of familial support in their academic journey, highlighting the importance of mentors being mindful of these obstacles.

    Cultural Diversity. The second subtheme highlights cultural challenges. Specifically, some participants described aspects of their cultural background that have created difficulty for them in higher education settings. These include stigma surrounding mental health, the presence of machismo, a lack of emotional support, and experiences related to trauma. For example, one participant who identified as a woman explained the difficulties of addressing mental health in an immigrant household, "Many have immigrant parents who don't understand the importance of mental health or expressing ones emotions, so it's important for

mentors to be understanding and listen to what they have to say..." This participant emphasized the need for mentors to familiarize themselves with these cultural aspects that can internally impact students' persistence in higher education.

Family Expectations and Academic Pressure. The third subtheme underscores the heavy academic pressure that Hispanic and Latinx students experience from their family and/or culture. These participants emphasized that mentors need to recognize the burden this can place on students. For example, one participant who identified as a man said, "Often times 1st gen students are those from immigrant families. They look at their parents accomplishments and compare it to their own…At least when I compare my accomplishments to those of my parents or uncles/aunts I feel like I haven't done nearly as much as they did when they were my age. I know for a lot of Hispanic/Latino students it feels like we haven't accomplished nearly enough (This probably applies to all student of immigrant families). The mentor should help them realize how far they have come and what they accomplished to get where they are." This participant emphasized the need for mentors to understand this pressure exists and help students navigate it by reminding them of their accomplishments.

Educational Equity. The second overarching theme centers on instrumental support, with students expressing a desire for mentors to offer additional resources, academic assistance, and opportunities to Hispanic and Latinx students. Some students also recognized the underrepresentation of individuals from their background in higher education. The subtheme that characterizes their responses are listed below. This theme included three subthemes: (1) *Coping with Imposter Experiences* ($f = 1$), (2) *Financial Challenges and Work Life Balance* ($f = 2$), and (3) *Identifying Available Resources* ($f = 12$).

Coping with Imposter Experiences. In this subtheme, a participant shared her experiences with imposter phenomenon and expressed her interest in mentors acquiring the

skills to navigate this phenomenon as it is more prevalent for students from underrepresented backgrounds. Specifically, she noted, "…Research mentors should address imposter syndrome, as this is a problem that is more common among Hispanic and Latinx students in research." Although this subtheme only included one response, it was important to include given that the imposter phenomenon appears to be particularly common among students from marginalized groups (Nadal et al., 2021).

Financial Challenges and Work-Life Balance. Within this subtheme, students articulated the financial challenges faced by Hispanic and Latinx students, a significant number of whom juggle full-time work and schooling. Participants emphasized the importance of mentors learning to offer guidance on effectively managing these dual responsibilities. For example, one participant who identified as non-binary said, "Many Latinx students are in the same boat as me, they have to work and go to school to afford it which makes difficult to prioritize school, many of my latinx friends realized they couldn't make it and dropped out, but if they had the right support we could figure out a solution to help them stay in school." This participant highlighted the impact of having to juggle school and work and the importance of having a mentor help navigate this difficulty to keep students in the educational system.

Identifying Available Resources. Within this subtheme, students emphasize the importance of mentors providing guidance to Hispanic and Latinx students on accessing available resources. These resources may include financial aid, student organizations, or academic support groups. For example, one participant who identified as a woman said, "…Like in my personal experience, my parents both went to college, but it was a while ago and things change over time. So, I needed a lot of help with classes, financial aid, and picking a pathway that would lead me to success in my major." This participant emphasized the idea

that mentors should assist with providing resources that are available at the university, in this case financial aid and class load.

Culturally Uniform Mentorship

The second set of qualitative findings pertain to students who expressed a preference for *Culturally Uniform Mentorship.* As noted, these responses originate from students who reported that mentors should not do anything in particular when mentoring students of color. The research team identified three primary themes within the data. The first overarching theme was titled *Equal Treatment* ($f = 28$). The second theme was titled *Individualized Support* ($f = 11$). Lastly, the third theme was titled *Mentorship is Universal* ($f = 7$).

As before, participants were able to reference multiple themes in their responses, as they were not mutually exclusive. It is worth noting that the culturally uniform mentorship responses were much shorter and had less nuance than the culturally inclusive mentorship responses. Accordingly, subthemes were not necessary.

Equal Mentorship. In this first theme, participants emphasized the importance of equal treatment. More specifically, participants explained that mentors should treat all students the same and provide similar support regardless of their ethnic-racial background. For example, one participant who identified as a man said, "Because they are just ordinary people like everyone else and should be treated the same." It is worth noting that participants may be confusing the equality with equity, which research has found that many individuals, including those in their professional fields often use the term interchangeably even though they mean very distinctive things (Chheda et al., 2023).

Individualized Support. In the second theme, participants explained that mentoring should be tailored to the distinct needs of each individual, rather than being defined solely by their ethnic or racial background. For example, one participant who identified as a woman said, "I feel it depends on the individual being mentored not just all Hispanic students,

anything particular should be based on the person regardless of ethnicity." This individual proposed that mentorship should be customized to suit the individual, as each person has unique areas they wish to focus on. This theme echoed the results of our initial study, where participants prioritized a mentor, whose personality aligned with theirs for their success in STEM, over factors such as gender, age, or ethnic-racial background. This finding underscores the importance of a personalized approach, as certain students may prefer a more relatable mentorship experience.

Mentorship is Universal. In this theme, participants mentioned that the ethnic or racial background of the student should not be a significant factor in a mentorship relationship. For example, one male participant said, "Race/ethnicity doesn't seem to be as important when it comes to mentorship." This statement emphasizes that certain students prefer entering a mentorship dynamic without potential concerns about how their ethnic or racial background might influence their rapport with their mentor.

Ethnic Differences in Qualitative Themes

To answer Research Question 2, we conducted quantitative analyses to determine if students' qualitative reasoning was connected to the strength of their ethnic identity as measured by their scores on the MEIM scale. Specifically, we conducted an independent-samples t-test to explore whether scores on the MEIM showed a significant mean difference depending on whether students were in the culturally inclusive mentorship group or the culturally uniform mentorship group. The assumption of homogeneity of variance was met, as indicated by Levene's test for equality of variance ($F = .163$, $p = .687$), suggesting similar variances between the culturally inclusive mentorship group and culturally unfirm mentorship groups. The results revealed that there was not a statistically significant difference between the culturally inclusive mentorship group and culturally uniform mentorship groups in terms of their ethnic identity, $t(107) = -1.804$, $p = .07$, $d = .569$); however, it merits noting that the

"yes group" (*M* = 3.11, *SE* = .07) displayed slightly higher ethnic identity compared to the "no group" (*M* = 2.91, *SE* = .088).

Discussion

The goal of this study was to investigate whether undergraduate students think it is important for research mentors to consider their ethnic or racial background within the context of the mentoring relationship. I also examined whether there were differences in ethnic identity levels between those who believe mentors should consider this factor and those who do not. I used a mixed-methods approach to conduct the study. The majority of participants expressed the view that mentors should indeed acknowledge ethnic or racial background in their mentoring relationships. However, there were also students who did not consider ethnic or racial background to be as significant. In the next section, I will summarize the key qualitative findings that emerged during our analysis.

Culturally Inclusive Mentoring Themes

After coding the qualitative data within the culturally inclusive mentoring group, two primary themes emerged to justify why students believe that research mentors should take ethnic-racial background into account in the mentorship relationship: (1) *cultural awareness* and (2) *educational equity*. Notably, each overarching theme comprised three subthemes, with some being more prominent in participants' responses, which will be emphasized below.

Within the *cultural awareness* overarching theme, two subthemes were referenced particularly often. The first, *navigating first-generation and ethnic challenges*, reflects students' struggles in higher education, such as language barriers and navigating the system alone. These students emphasize the importance of mentors being aware of these challenges, particularly among Hispanic and Latinx students. The second subtheme, *navigating cultural diversity* included responses from participants who expressed the need for mentors to show

care, empathy, and a profound understanding of issues like stigma around mental health and trauma within Hispanic and Latinx cultures.

Both subthemes underscore the significance of recognizing cultural differences in mentorship relationships. This connects to work emphasizing the importance of culturally responsive mentorship approaches for the success of Hispanic and Latinx students (Vasu & Mino, 2022). In addition, prior literature has indicated that mentors often adopt a colorblind approach in their relationships with students of color (McCoy et al., 2015). My findings can further contribute to understanding why the concept of colorblindness is detrimental in mentorship relationships. Specifically, many of the students in the current study drew connections between challenges in higher education and ethnic-racial background. Mentors who adopt a colorblind approach may overlook these challenges and fail to provide appropriate mentorship support.

Within the second overarching theme, *educational equity*, one subtheme was particularly prevalent. Specifically, the third subtheme, *identifying available resources*, highlights the importance of mentors guiding Hispanic and Latinx students towards essential resources vital for their college success, such as academic support, financial aid, and involvement in student organizations. This subtheme also highlights the importance of recognizing the challenges commonly associated with students from underrepresented backgrounds. For instance, Saenz et al. (2017) conducted interviews with Latino male students at a community college and discovered that many participants leverage their cultural capital and familial support to navigate the educational system. They often refrain from seeking help with resources when needed due to fear. It's crucial for mentors to be capable of providing necessary resources to their students, regardless of how seemingly trivial they may appear. This emphasizes the need for mentors to create a safe space where students from marginalized groups feel comfortable seeking resources or assistance when necessary.

Culturally Uniform Mentorship Themes

After coding the qualitative data within the *culturally uniform mentorship group*, consisting of participants who hold the belief that mentors should not have specific actions when working with Hispanic and Latinx students, three themes emerged. Two were referenced particularly often. Within the first theme, *equal treatment*, students stressed the importance of being treated equally, receiving the same level of support, advice, and attention as any other student. It is worth noting that although this theme may seem straightforward, participants may be inadvertently conflating equality with equity. Research has highlighted that these terms are often used interchangeably despite their distinct meanings (Chheda et al., 2023). In addition, students might be engaging in power evasion, which essentially involves denying racism by stressing the importance of equal opportunities (Neville et al., 2013).

The second overarching theme, *individualized support*, highlights the importance of mentors tailoring their approach to meet the unique needs of each student, rather than basing it solely on their ethnic or racial background. Although the notion of individualized support seems logical, it is important to note that the majority of the participants expressed a desire for mentors to acknowledge their ethnic-racial background within the mentorship relationship. Therefore, participants advocating for individualized support and emphasizing the insignificance of ethnicity or race are essentially disregarding the culturally inclusive mentorship group's preference for mentors to acknowledge race and ethnicity within the mentorship relationship. Consequently, mentors must uphold cultural sensitivity to provide tailored assistance to those who seek it. It is imperative for mentors to undergo training on effectively mentoring students from diverse backgrounds, specifically concentrating on methods to prevent colorblind mentorship dynamics. Building upon the findings from the first study, where participants prioritized personality match over other factors, it is important to acknowledge that many participants may resist the idea of race and ethnicity playing a role

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in higher education due to the lack of diversity among professors and mentors. Overall, the diverse responses within the sample are consistent with the conflicting findings in the mentor-match literature.

Ethnic Identity and Mentorship Relationships

Quantitative analyses were conducted to investigate whether students' views on the importance of ethnic-racial background in mentorship relationships were impacted by the strength of their ethnic identity. However, the analysis revealed no significant difference between participants who believed ethnic-racial background was important and those who did not. Nonetheless, it is noteworthy that individuals in the culturally inclusive mentorship group exhibited slightly higher ethnic identity measures compared to those in the culturally uniform group. Furthermore, Hispanic and Latinx participants originate from various countries and often undergo diverse experiences. Although participants may strongly identify with their ethnic background, it doesn't automatically imply that their specific group encounters academic inequities.

Limitations and Future Directions

Several limitations merit consideration. First, it is important to acknowledge the diverse experiences within Hispanic and Latinx groups, which can vary significantly from one subgroup to another. It is important for future research to explore the within-group differences within the Hispanic and Latinx communities to gain a comprehensive understanding of the variations within this demographic. In addition, the use of the Phinney (1992) multigroup ethnic identity scale raises concerns about its relevance given potential shifts in societal dynamics over time. Utilizing a different ethnic identity measure or adapting the existing multigroup ethnic identity scale to better reflect contemporary societal dynamics would provide valuable insights. Furthermore, since the majority of the participants were in their first year, exploring the perspectives of more senior students could provide valuable

insights into whether views on mentorship dynamics change as students progress through higher education. To this point, previous research indicates that students typically do not associate their academic preferences with their ethnic identity until their second year (Syed, 2010). In addition, the cultural diversity subtheme delves into numerous toxic traits commonly observed within Hispanic and Latinx culture. While no gender difference was noted in participant responses, it is advisable for future research to adopt a more intersectional approach when addressing these behaviors. Furthermore, recruited participants were required to have a mentor and identify as Hispanic or Latinx. It is crucial to highlight that data were gathered from numerous Hispanic and Latinx individuals who did not meet the study's criteria due to lacking a mentor. This flaw warrants acknowledgment and further investigation to understand why many of these Hispanic and Latinx participants lack mentorship support.

Conclusion

This study provides fresh insights into the preferences of Hispanic and Latinx students regarding mentorship relationships. It introduces innovative support by amplifying the voices of these students, filling a current gap in mentorship literature where their perspectives are often overlooked. The first study underscores the importance that participants place on personality match in mentorship above and beyond other facets of match such as ethnicity-race, gender, and age. The second study underscores the importance of mentors acknowledging students' ethnic-racial backgrounds in mentorship relationships, reflecting the diverse perspectives among participants. These findings collectively suggest that although personality alignment is something that students might desire in their mentoring relationships, recognizing and respecting students' ethnic-racial identities is also important for effective mentorship relationships. The variability in preferences among students regarding ethnic-racial acknowledgment prompts further consideration of the complexities within mentorship dynamics and the diverse needs of students.

Table 1. *Descriptive statistics and bivariate correlations: Success in Chosen Major.*

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Gender Match	2.63	1.36	--									
2. Ethnic/Cultural Match	3.00	1.46	.763***	--								
3. Personality Match	3.59	1.37	.193	.275	--							
4. Non-Academic Interest Match	3.16	1.42	.433*	.437*	.701**	--						
5. Age Match	2.28	1.30	.480**	.442*	.321	.343	--					
6. Negative Mentoring	2.11	.97	.235	.194	-.185	-.013	.026	--				
7. Socioemotional Mentoring	4.22	.93	-.088	-.092	.342	.064	.089	-.413*	--			
8. Instrumental Mentoring	3.48	1.11	-.194	-.308	.000	-.327	.131	-.159	.645**	--		
9. Science Identity	4.48	1.01	-.267	-.148	.039	-.099	-.150	-.038	.236	.256	--	
10. Self-Efficacy	3.50	.74	.404*	.280	-.117	-.002	.097	.143	-.283	-.186	-.507**	--

Note. *p < .05 **p < .01 ***p < .001

Table 2. *Descriptive statistics and bivariate correlations: Challenges in Chosen Major.*

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Gender Match	3.00	1.61	--									
2. Ethnic/Cultural Match	3.19	1.55	.775***	--								
3. Personality Match	3.34	1.36	.399*	.335	--							
4. Non-Academic Interest Match	2.78	1.34	.661**	.517**	.593**	--						
5. Age Match	2.63	1.34	.495*	.392*	.304	.602**	--					
6. Negative Mentoring	2.11	.97	.201	-.053	-.265	-.095	-.009	--				
7. Socioemotional Mentoring	4.22	.92	.001	-.064	.314	.207	.083	-.413*	--			
8. Instrumental Mentoring	3.48	1.11	-.189	-.292	-.055	-.030	.108	-.159	.645**	--		
9. Science Identity	4.48	1.01	-.277	-.215	-.002	-.139	-.024	-.038	.236	.256	--	
10. Self-Efficacy	3.50	.74	.324	.303	-.081	.046	.081	.143	-.283	-.186	-.507**	--

Note. *p < .05 **p < .01 ***p < .001

Table 3. *Qualitative Themes*

Culturally Inclusive Mentorship Themes			
Theme	Definition	Example	Frequency (*f*)
Cultural Awareness	In this overarching theme, students highlight the importance of mentors being culturally sensitive and offering tailored support that acknowledges their Hispanic and Latinx cultural background.	See subthemes below	52
Subtheme 1: Navigating First-Generation and Ethnic Challenges	Participants emphasize the importance of research mentors understanding that certain students, particularly first-generation ones, often must navigate the educational system without familial guidance. They urge mentors to actively assist these students in overcoming barriers such as language obstacles and being the first in their family to pursue higher education.	""A lot of Hispanic/Latinx students are first generation students since many of their parents are immigrants so they might not have the knowledge or advice or resources as other students." (Hispanic/Latinx woman)	29
Subtheme 2: Navigating Cultural Diversity	Participants stress the significance of research mentors recognizing the cultural hurdles faced by Hispanic and Latinx individuals, including toxic traits, mental health stigma, machismo, trauma, and difficulty expressing emotions. Furthermore, they advocate for offering extra support to acknowledge and tackle these challenges.	"I think they should understand the culture and the upbringing that most Hispanic children grow up from traditional parents to try to help with generational trauma." (Hispanic/Latinx woman)	31
Subtheme 3: Family Expectations and Academic Pressure	Participants highlight the importance of research mentors grasping the academic pressure experienced by students, whether self-imposed, familial, or cultural. They stress the significance of mentors empathizing with these sentiments and recognizing the weight it can place on students, while also offering reassurance that they are doing a great job.	"I think research mentors who work with Hispanic/Latinx students should support them because many Hispanic/Latinx students suffer with being the perfect" kid and making their parents proud even though it might never be enough." (Hispanic/Latinx woman)	9

Educational Equity	Within this overarching theme, students highlight their desire for mentors to provide additional resources, academic support, and opportunities while advocating for **equitable access** alongside their non-Hispanic peers.	See subthemes below	14
Subtheme 1: Coping with Imposter Experiences	Participants underscore the necessity for research mentors to possess the ability to navigate and mitigate impostor experiences, particularly acknowledging its prevalence among students from Hispanic and Latinx backgrounds.	"Hispanic/Latinx students are vastly underrepresented in research. Research mentors should address imposter syndrome, as it is a problem that is more common among Hispanic/Latinx Students in research"	1
Subtheme 2: Financial Challenges and Work-Life Balance	Participants emphasize the significance of research mentors being capable of assisting students in balancing work and school commitments, especially considering that many Hispanic and Latinx students encounter financial challenges, necessitating employment alongside their academic pursuits. It is crucial for mentors to support students in navigating these responsibilities effectively.	"..Many Latinx students are in the same boat as me, they have to work and go to school to afford it which makes [it] difficult to prioritize school..." (Hispanic/Latinx Gender variant/nonconforming)	2
Subtheme 3: Navigating Available Resources	Participants underscore the importance of research mentors directing Hispanic and Latinx students to utilize available resources such as financial aid, student organizations, or academic support groups.	"They should provide resources for them and their families." (Hispanic/Latinx woman)	12
Culturally Uniform Mentorship Themes			
Equal Treatment	Participants emphasize that mentors should avoid offering preferential treatment based on ethnic or racial background. They stress that Hispanic and Latinx students deserve equal support, advice, and attention as their peers.	"Because they are just ordinary people like everyone else and should be treated the same" (Hispanic/Latinx Male)	28
Individualized Support	Participants stress that mentors should prioritize individual support over	"Just to treat them the same as any other race as the problems could differ from	11

	basing it on ethnic or racial background.	others and everybody has different things they need help with." (Hispanic or Latinx Male)	
Mentorship is Universal	Participants emphasize that ethnic and racial background should not play a significant role in mentorship relationships.	"I think that there should be the same amount as anyone else. Race/ethnicity doesn't seem to be as important when it comes to mentorship" (Hispanic/Latinx male)	7

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