

Culturally Responsive Practices: Insights from a High-Quality Math Afterschool Program Serving Underprivileged Latinx Youth

Mark Vincent B. Yu, Yangyang Liu, Stephanie Soto-Lara, Kayla Puente, Perla Carranza, Alessandra Pantano, and Sandra D. Simpkins

Highlights

- Culturally responsive practices are a necessary and defining aspect of program quality.
- A safe, inclusive and respectful climate is fundamental for culturally responsive practices.
- Engaging in personal conversations, including small talk, matter and can make a difference.
- Mutual learning and the promotion of skills across contexts is important for youth voice and contribution.
- Both positive program structure and staff practices are necessary for culturally responsive programs.

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Abstract High-quality afterschool programs (ASPs) are opportunities to diversify the ways that Latinx youth from economically underprivileged communities experience STEM learning. Utilizing qualitative methods, based on the experiences and perspectives of low-income Latinx middle school participants of a math enrichment ASP in Southern California, we identified four culturally responsive practices: (1) the promotion of an inclusive, safe, and respectful program climate, (2) engaging in personal conversations, (3) facilitating opportunities for mutual and math learning across diverse cultures and perspectives, and (4) the promotion of math and a range of social-emotional skills across contexts. These practices helped youth feel more connected to the program, their peers, and program staff (college mentors); provided a platform for youth voice and contribution to the processes of teaching and learning; facilitated opportunities for skill development and practice across the different contexts of youth's lives; interrelated with Latinx cultural values; and helped to promote youth's engagement and math learning. Importantly, youth's relationships with their mentors was a significant aspect of their experiences and perceptions of these practices. We argue that culturally responsive practices are necessary to achieve high-quality programs and provide specific implications for how ASPs can implement them in the design and implementation of their programs.

Keywords Adolescence · Afterschool programs · Culturally responsive practices · Culture · Qualitative methods · STEM · Youth mentoring

Introduction

Afterschool programs (ASPs) are opportunities to diversify the ways that youth from underrepresented backgrounds and economically underprivileged communities experience science, technology, engineering, and math (STEM) learning. Participation in ASPs has been linked to positive youth development and a host of important STEM outcomes (e.g., engagement, motivation, skills; Allen et al., 2019; Vandell et al., 2015). However, while there is increasing evidence that ASPs can have positive effects, not all do. One of the main reasons for the variability in effects is program quality. Findings of a meta-analysis based on 75 studies suggest that ASPs predicted youth outcomes only if they were high-quality; the effects were null if the ASP was not of high-quality (Durlak et al., 2010). Similar findings were found among 158 STEM-focused ASPs in that youth participating in higher-quality programs reported more growth in outcomes compared to youth participating in lower-quality programs (Allen et al., 2019). Recently, scholars have extended the conceptualization of program quality by theorizing that high-quality programs must be responsive to youth's cultural backgrounds and not take a color-blind approach (e.g., Erbstein & Fabionar, 2019; Simpkins et al., 2017;

✉ Mark Vincent B. Yu
markvyu@gmail.com

School of Education, University of California, Irvine, Irvine, CA, USA

Williams & Deutsch, 2016). Moreover, culturally responsive practices are not a separate or an additional dimension of program quality but rather a necessary and defining aspect of every dimension of program quality (Simpkins et al., 2017). To date, the empirical evidence on culturally responsive practices is sparse. Thus, the current study examines culturally responsive practices in a math enrichment ASP that is a university-community partnership in Southern California. Utilizing qualitative methods, we highlight the experiences and perspectives of low-income Latinx middle school participants of the program.

STEM Enrichment Afterschool Programs for Latinx Youth

The Latinx youth population in the United States (U.S.) is steadily increasing and is expected to account for nearly a third of U.S. children under the age of 18 by 2060 (Colby & Ortman, 2015). Because of this significant upward trend, scholars have argued the need to pay greater attention to identifying and understanding the needs and educational experiences of Latinx youth (Erbstein & Fabionar, 2019). Many Latinx youth face structural barriers in school that limit their performance and achievement in STEM as well as their pursuit of these domains (Museus et al., 2011). In 2015, eighth grade Latinx students in U.S. public schools ranked over 20 points below White students in math and science standardized test scores (Alvarez et al., 2016). Furthermore, Latinxs only account for 5% of all mathematical scientists and physical scientists in the U.S. (National Science Foundation, 2017). As the growth of the U.S. Latinx population continues to outpace the growth of Latinxs in many STEM areas, it is critical to document how to better support Latinx youth's STEM learning experiences.

STEM enrichment ASPs serve as important structural supports that can buffer the rampant disparities in the STEM pipeline faced by underrepresented minority (URM) groups including Latinx youth (Museus et al., 2011). To this end, there has been an increasing number of STEM enrichment ASPs that serve Latinx youth, particularly those in high-need communities (Krishnamurthi et al., 2014). Research has shown that ASPs are successful at engaging Latinx youth from these communities (Erbstein & Fabionar, 2019). Unfortunately, Latinx youth can face challenges in their participation and engagement in ASPs, such as culturally incongruent activities, lack of transportation, discrimination, and other negative experiences (e.g., exclusion, lack of support) that may lead them to stop participating or become less likely to benefit from activities (Erbstein & Fabionar, 2019; Fredricks & Simpkins, 2012; Lin et al., 2016; Ma et al., 2020). Given these

potential barriers and stressors, there is a particular need for high-quality ASPs that are responsive to Latinx youth's cultural backgrounds and experiences.

The Role of Culture in High-Quality Afterschool Programs

Although previous research has identified fundamental features of high-quality ASPs (Eccles & Gootman, 2002), ASPs serving URM youth, including Latinx youth, cannot be adequately understood without serious consideration of factors related to culture (Erbstein & Fabionar, 2019; Williams & Deutsch, 2016). In the present study, we focus on culture that is tied to the personal lives and ethnic identities of Latinx youth which includes daily experiences (e.g., in school), and values related to youth's family background, language(s), activities, and customs (Fredricks & Simpkins, 2012; Nasir & Hands, 2006). Moreover, we also consider other dimensions of youth identity (e.g., personalities, interests, strengths), which increases in salience during adolescence, in how youth may reflect on their cultural backgrounds and interactions in ASPs (Williams & Deutsch, 2016). Consideration of these additional frames of reference of ethnically diverse students has important implications to make learning more relevant to and effective for them (Gay, 2010). Our conceptualization of the role of culture in high-quality ASPs aligns with the perspective that culture is an integral and inseparable part of youth development (Velez-Agosto et al., 2017). When applied to ASPs, this perspective suggests that culture is woven into the fabric of youth's experiences and learning in ASPs; and that, in order to fully understand youth development within ASPs, one needs to consider the fundamental role of culture.

Programs that do not align with or are not responsive to youth's culture are likely to create situations that lack cultural person-environment fit and lead to negative developmental processes (Williams & Deutsch, 2016). Further, though ASP staff acknowledge the significance of culture, they often report their discomfort in responding to culture-related incidents (e.g., discrimination, group conflict) because they lack confidence or the necessary skills (Gutierrez et al., 2017). Culture matters because it permeates every aspect of ASPs from program structure to staff practices and youth-staff relationships (Larson & Ngo, 2017; Simpkins et al., 2017).

Culturally Responsive Practices

Acknowledging the important role of culture in ASPs, Simpkins et al., (2017) developed an initial conceptual framework to examine how the features of high-quality programs (Eccles & Gootman, 2002), typically presented

in universalistic terms, can be implemented in ways that are culturally responsive. A culturally responsive approach involves considering “the multiplicity and fluidity of cultural practices, beliefs, and knowledge, and conveys a dynamic, synergistic relationship between the provider (ASPs and staff) and youth participants” (Simpkins et al., 2017, p. 13). This approach builds on existing frameworks including cultural competence as well as inclusive teaching and emphasizes the importance of considering youth as active, co-producers of their learning environments. To be culturally responsive, practices must go beyond a static set of skills or knowledge or the mere representation of culture as an aspect of inclusive teaching. Culturally responsive practices involve youth bringing their cultural backgrounds and everyday experiences to ASPs which influence how they think, act and learn, and contribute to the shaping of the broader program culture (Simpkins et al., 2017; Williams & Deutsch, 2016).

In their framework, Simpkins et al., (2017) proposed general examples of culturally responsive practices related to positive program structure such as providing culturally relevant and personally meaningful activities in the context of a safe program environment. Specific to staff practices, they proposed the importance of building on youth’s cultural assets and strengths, and encouraging youth expression of their needs, interests, and opinions. Although these examples reflect culturally responsive practices, Simpkins et al., (2017) acknowledged that they were preliminary because it was a conceptual model that had yet to be rigorously interrogated.

Aligning with propositions in the Simpkins et al., (2017) framework, researchers have begun to explore cultural responsiveness in ASPs. For example, Liu et al., (2018) found that Latinx youth’s perceptions of ethnic-cultural respect were associated with more positive ASP experiences. In another study, McGovern et al., (2020) highlighted the importance of providing a safe ASP space that affirms Latinx youth’s ethnic-cultural values and bilingualism. They further noted the significance of staff creating connections with Latinx youth based on shared experiences, and promoting cultural awareness related to discussions about diversity. Ettekal et al., (2020) argued the need to include Latinx youth’s perspectives in the design of activities in order to ensure culture is integrated in authentic and preferred ways. Earlier research by Diversi and Mecham (2005) described the importance of staff practices that involved non-Latinx ASP mentors providing a space for Latinx youth to talk about difficult life experiences and daily “teenage” experiences as a way to foster positive cross-cultural relations and to promote youth’s academic skill development and engagement.

As these studies suggest, ASP dimensions related to *positive program structure* (e.g., safe and positive social norms,

culturally relevant curriculum, skill-building opportunities) and *supportive youth-staff relationships* are critical to the facilitation and promotion of culturally responsive practices (Hirsch et al., 2011; Roth & Brooks-Gunn, 2016; Simpkins et al., 2017; Smith et al., 2014; Yohalem & Wilson-Ahlstrom, 2010). Supportive youth-staff relationships constitute one of the most important dimensions of program quality that alters the extent to which culturally responsive practices can impact youth learning and development (Richmond et al., 2018; Simpkins et al., 2017). These youth-staff relationships contribute to positive youth development and have been associated with higher grades, lower levels of psychological problems, and increased STEM learning and interests (Chittum et al., 2017; Kuperminc et al., 2019; Price et al., 2019; Smith et al., 2017; Yohalem & Wilson-Ahlstrom, 2010). Although we know that positive program structure and youth-staff relationships are important, we know less about what it means for these specific dimensions of program quality to be culturally responsive. Continued specification is required with respect to which culturally responsive practices are actually used by staff, which practices may matter most, and *how* these practices are actually implemented within specific ASPs serving ethnic minoritized youth.

Taken together, although scholars have begun to pay greater attention to the importance of promoting cultural responsiveness as an inseparable and integral part of ASP quality, there has been limited attention given to how to achieve it and what it looks like in practice (Larson & Ngo, 2017; Simpkins et al., 2017). Research on ASPs, including those specific to STEM enrichment, have only scratched the surface when it comes to the identification and understanding of culturally responsive practices for URM youth. There is a critical need for more research in this area, particularly Latinx youth from low-income communities, who may benefit most from these spaces (Fredricks & Simpkins, 2012; Krishnamurthi et al., 2014).

Current Study

Specific to the STEM learning experiences of Latinx youth, researchers have suggested that ASPs can help youth visualize a path toward STEM success, especially when they are paired with staff/mentors who are from similar cultural backgrounds, close in age, and can serve as potential role models (Museus et al., 2011). Moreover, a recent report by the National Research Council (2015) proposed that when programs intentionally connect STEM to relevant issues in a community and youth’s cultural backgrounds, the possibilities for equitable STEM learning opportunities are expanded. The report highlights the importance of providing meaningful opportunities for collaborative learning, youth leadership, and connections across youth’s different learning contexts (e.g., school, home, ASPs) which in turn can reinforce youth’s

cultural assets and real-world applications of STEM learning activities (NRC, 2015). Importantly, for Latinx youth, the effectiveness of these learning activities can be theorized based in part on their endorsement of communal goals, the value of interdependence, and commitment to helping improve the lives of individuals in their communities (Kupersmidt et al., 2018). More empirical research is needed to understand the interrelations between Latinx youth's cultural values and their experiences in ASPs (Erbstein & Fabionar, 2019). Additionally, as concluded by the NRC (2015) report, "more detailed accounts of what culturally responsive STEM out-of-school time learning looks like and leads to are needed" (p. 21).

Utilizing qualitative methods based on the perspectives of low-income Latinx middle school participants of a university-based math enrichment ASP, the overall purpose of this study is to identify and examine culturally responsive practices in context. Specifically, we sought to interrogate and identify positive program and relational features and understand how they were implemented in culturally responsive ways in the program. Qualitative methods can inform more ecologically sensitive data collection which allows for more in-depth examination of cultural and interpersonal processes that serve as foundation for Latinx youth experiences and outcomes (Delgado-Romero et al., 2018). Qualitative methods can amplify and empower youth voices, particularly for youth who are marginalized in society (Stein & Mankowski, 2004).

The overall study is grounded in constructivist epistemology (Lincoln et al., 2011). We believe that it is important to understand the meanings that youth make of their experiences in the program. We view knowledge as being constructed in interactions and thus use transactional methods and consensus building approaches to understand youth's experiences in the program. We interpret these meanings within a frame that privileges the contextual nature of lived experiences but that also seeks to uncover when and where commonalities in meanings exist that may help inform youth-related practice within similar educational program contexts.

Study Context

As previously described, although there are various types of afterschool programs available to youth (e.g., sports, art, academic clubs), programs designed specifically for STEM enrichment are becoming increasingly widespread especially for URM youth in underserved communities (Allen et al., 2019; Krishnamurthi et al., 2014; NRC, 2015). One such example of these programs is the current study context, a math enrichment ASP based in a Hispanic-Serving University that serves approximately 120 middle school students each year from two public schools in Southern California.

Approximately 98% of the students from these schools are Latinx and over 90% are free/discounted school lunch recipients. Approximately 15% (compared to the California state average of 38%) of the students at these schools meet or exceed the state math standards. In the ASP, approximately 80 college students are recruited as mentors to serve as front-line staff (herein referred to as "mentors") for middle school students each year across one academic year. Based on demographic data collected during the time of this study (2018–2019), approximately 55% percent of mentors were Asian and/or Pacific Islander, 25% Latinx, 14% White and 14% mixed race/ethnicity or other. Over 50% of U.S. domestic student mentors were federal student aid recipients and over 40% of all mentors were from first-generation college student families. College students are intentionally referred to as "mentors" as opposed to "tutors" or "staff" in the program to emphasize their role as potential role models for youth. Mentors are expected to form positive relationships with students, encouraged to share their experiences as college students, and show an interest in students' lives.

The program integrates weekly enrichment sessions for youth (a component that is typically included in all STEM enrichment ASPs) with additional university outreach including STEM-focused field trips, and college information-sessions for families. Middle school students are provided bus transportation directly from their schools to the ASP to participate in the program activities. As part of the program, mentors facilitate the 2-hour weekly math enrichment sessions with youth. Youth are separated into groups of 6–10 with 2–3 mentors. More often than not, each group includes mentors who differ with respect to racial and ethnic background (e.g., 1 Latinx mentor paired with 1 Asian mentor). Therefore, youth often interact with mentors from various ethnic-cultural backgrounds. The activities during the weekly sessions are collaborative in nature and often require students and mentors to work together to accomplish a group task. The program designs math activities that go beyond just focusing on procedures or applications, allow multiple solution approaches, and encourage the development of sense making and tolerance of ambiguity through productive struggle. In contrast to programs that focus more on remediation and tutoring, the goal of the program is to provide enriching experiences that afford youth opportunities to make connections, to have fun, *and to learn*. By focusing on supportive youth-staff relationships based on mentoring principles rather than on tutoring and explicitly targeting youth's math knowledge and skills through enriching activities and active learning, the program attempts to impact youth's positive development and broader STEM engagement and learning (Durlak et al., 2010; Roth & Brooks-Gunn, 2016).

The program offers training through a university course where mentors are provided with opportunities to work as

a reflective team to develop strategies for engaging youth, while at the same time, getting mentorship from professors and experts on math pedagogy and effective youth program practice. In addition to covering weekly math activity curriculum, example topics covered during the training sessions include engaging and connecting with students, the importance of community building, and promoting active learning, to name a few. Although most mentors voluntarily attend the training sessions, some take the course for university credits.

Method

Participants

As part of a larger research study conducted in the 2018–2019 academic year, 28 middle school students participated in in-depth interviews during the spring quarter. Prior to the interviews, students completed program surveys which included demographic questions (e.g., ethnicity, gender) and questions related to their perceptions of program quality. Students were purposely selected based on (a) how long they had been in the program (at least two quarters) and (b) their perceptions of program quality, followed by (c) a range of student demographics that reflected the larger program population. After identifying students who participated in the program for at least two academic quarters, we stratified students based on their perceptions of program quality. Fourteen out of the 28 participants (50%) represented students who rated the program as generally high-quality whereas seven (25%) rated the program as generally low-quality, and seven (25%) fell within the middle range in terms of their general rating of the program. All 28 of the students (100%) identified as Latinx and reported being born in the United States. Twenty-five students (89%) specified having a Mexican/Mexican American ethnic background, one “American Indian and Mexican,” one “Guatemalan,” and one who only identified as “Latino.” There was an equal number of students who identified as Male (50%) and Female (50%). Participants’ ages ranged from 10–13 years ($M = 12.11$). All 28 students (100%) were free/discounted school lunch recipients and were potential first-generation college students. Eighty-two percent of the students had a family household income of less than \$35,000. Participants were paid \$5 for each program survey they completed and \$10 for an interview. The names in this study are pseudonyms which were selected by participants. In some instances, we replaced pseudonyms such as “Tree” to more discernible names (e.g., Tree to Teresa). This study was approved by an institutional review board for the protection of human subjects. Latinx bilingual research

assistants collected students’ parent study consents and demographic information (e.g., income) over the phone. Students were assented in person.

In-Depth Interviews

During in-depth semi-structured interviews, interviewers asked students to reflect on their experiences and interactions with their mentors in the program. Interviews lasted an average of 60 minutes. Students were given the option to be interviewed in English and/or in Spanish. Twenty-seven students preferred to be interviewed in English. The one student who preferred Spanish was interviewed by a Latina bilingual researcher using a pre-translated Spanish version of the interview protocol. The protocol consisted of five sections: general questions about the youth, general program experiences, perceptions of youth-staff relationships, perceptions of cultural responsiveness, and a section on outcomes and skills.

Although data collected during the entire interview was utilized for analysis, we paid particular attention to the section on youth’s perceptions of cultural responsiveness in the program. In this section, we asked youth to reflect on their experiences in the program based on their cultural background. To help scaffold this discussion with youth, we first provided them with the following broad definition of culture: “People use the word culture to basically describe the ways people of different racial or ethnic groups do things based on things like their beliefs, languages, family values, customs and activities.” After ensuring youth understood and were comfortable with this definition, we provided them an opportunity to describe their own culture. We had youth reflect on topics related to their ethnic Latinx culture including the specific languages they speak at home, the types of activities or customs that they do with their family, and the personal and educational values that are important to them and their family. We also asked youth to reflect on places where they “fit-in culturally.” We then transitioned to talking about whether they felt like they fit-in culturally in the program. We followed up with questions surrounding youth’s perceptions of cultural representation in the program, the different culture-related supports they have experienced in the program, and their general thoughts about how the program and their mentors could change or improve to better support their culture.

Interviewers were instructed to ask follow-up questions in order to encourage youth to elaborate on their responses and provide specific examples. The first author and three graduate students conducted the interviews. Prior to the interviews, graduate students participated in interviewing workshops and feedback sessions led by the first author. The majority of the interviewers were women (75%) and identified as Latinx (75%) or Asian and Pacific Islander (25%). Interviews were

audio-recorded, transcribed verbatim using an online transcription service and then checked by research assistants for accuracy. The interview conducted in Spanish was transcribed, translated to English and checked by two Latinx bilingual research assistants.

Analytical Process

In the following paragraphs, we discuss our analytical process which involved two stages including 1) an initial coding of culturally responsive practices, followed by 2) a thematic analysis of culturally responsive practices. We also discuss our reflexivity and our efforts to audit our analytical process and findings.

Stage 1. Initial coding of culturally responsive practices

As part of the larger study, the research team developed initial/a priori codes encompassing the goals of the study including identifying broad examples of culturally responsive practices. Drawing on prior research and frameworks, we defined *culturally responsive practices* broadly as ways in which the program and mentors engaged Latinx youth's ethnic-culture and personal (home and school) life into the processes of teaching and mentoring in the program. As such, instances of support for youth's ethnic-cultural backgrounds and efforts to connect their learning experiences across the different contexts of their lives were considered examples of culturally responsive practices in this initial round of analysis. Research assistants coded each interview transcript to collate/index examples of culturally responsive practices using Dedoose Version 8.3.17, a cloud-based qualitative data analysis application (Dedoose, 2020). The research team met weekly to address coding questions and to ensure consistency between coders through a process guided by consensual qualitative research, an approach grounded in constructivist epistemology, which uses an iterative process of consensus building to make meaning of data (Hill et al., 2005). Two coders were assigned to every transcript and after both coders independently coded a transcript, the two coders compared codes and reconciled any discrepancies. Discrepancies which the coders could not reconcile were brought to the larger group meetings and reconciled by the entire coding team led by the first author, who served as an auditor of the coding process (Hill et al., 2005). These initial codes served as the building blocks for the next stage of our analysis.

Stage 2. Thematic analysis of culturally responsive practices

After all 28 transcripts were reconciled, the first author, with the help of two research assistants, conducted a thematic

analysis (Braun & Clarke, 2012) of the excerpts indexed as examples of culturally responsive practices. Our goal in this stage was to identify specific themes across the excerpts collated from our initial coding of culturally responsive practices. Specifically, this process involved the following steps. First, the excerpts coded for culturally responsive practices were downloaded from Dedoose. Second, the three researchers then conducted an inductive analysis of the excerpts by individually identifying emerging codes that appeared interesting and meaningful, while also memoing to begin developing overarching themes within the data. Third, all three researchers then met to discuss initial codes and memos across all excerpts. Based on emergent codes (e.g., promoting a safe space, engaging in personal interactions with youth, helping youth develop real-world skills), researchers conducted a more targeted analysis of transcripts to identify patterns and themes across the emergent codes and transcripts. During this iterative process, we again drew from prior literature, frameworks and theory on program quality and cultural responsiveness (e.g., Eccles & Gootman, 2002; Simpkins et al., 2017), which served as “sensitizing concepts” (Charmaz, 2014), and attuned us to emergent codes in the data as well as helped us contextualize the significance of the subsequent themes. As an example, several of the themes that we identified shed light on ways that youth “co-construct” their learning experiences in the program and with staff, which Simpkins et al., (2017) posit as being an important aspect of culturally responsive practices. It should be noted that although we considered elements of program structure, we paid particular attention to the relational processes among staff and youth, and how elements of program structure helped to support culturally responsive staff practices. Once themes were finalized, transcripts were coded and reconciled by two different research assistants similarly to the consensus building process described above (Hill et al., 2005).

Reflexivity statement and auditing of our analytical process and findings

Our own relationship to the study data is important to explicate. We, the authors of this manuscript, are seven individuals (6 women and 1 man) who identify as Latina (3), Asian and/or Pacific Islander (2), or White (2) of varying ages, who bring a relational, developmental, educational lens to understanding Latinx youth's experiences in afterschool programs. Together we have a wealth of developmental, cultural, academic, and professional experiences that informed our interpretation of the study findings and their implications for research and practice.

To balance our perspectives and audit our analytical process and findings, we presented our codebook and preliminary analyses during group meetings that included researchers that were familiar with the larger study but

were not directly involved with the data analysis. Additionally, we sought informant feedback by consulting with other interviewers, mentors, and coordinators from the larger study and program to corroborate the themes and key examples. In our presentation of the study findings below, we also highlight how some themes varied across the different youth in our study (e.g., based on youth's different personalities, interests, ratings of the program). Consideration of these differences allowed us to further investigate the nuances of culturally responsive practices and provide a better understanding of these practices in context. In doing so, we hope to provide additional credibility of our findings (Lincoln et al., 2011).

Findings

Four overarching themes emerged representing culturally responsive practices in the program. Below we present these themes and discuss the ways in which each practice helped to promote youth's engagement and math learning in the program.

Theme 1: The promotion of an inclusive, safe and respectful program climate

The first theme involves culturally responsive practices through the promotion of an inclusive, safe, and respectful program climate. One aspect of this theme is cultural representation, with respect to ethnic culture, which youth described as being an important indication of inclusion in the program. For example, common sentiments shared by youth included statements such as:

Here, there are people from my culture. They're part of where I am [from].

(Emiliano)

I'm not the only Mexican here. We don't need to be embarrassed of our culture. We can be proud of who we are.

(Kassandra)

Youth also noted the significance of their mentors' and the broader program's efforts to include specific examples from their culture (e.g., using native fruits and soccer in math problem examples) and doing similar activities and games as their families (e.g., Lotería). These efforts were welcomed by youth and were particularly emphasized by youth who had rated the program as generally low-quality. Olivero, for example, described wanting to see his culture embedded "more" in the activities because it "makes activities more relatable and makes math more fun." These examples highlight the significance of promoting an inclusive environment (e.g., meaningful

representation) as a way of fostering youth's engagement and math learning.

As an important aspect of their experiences of inclusion, youth described the program context as a space where they were able to freely express themselves and engage with their peers and mentors and in the program activities, without feeling awkward, embarrassed, or ultimately concerned about their social and physical safety because of their cultural background. This context helped make youth feel like they fit-in culturally in the program:

What makes me feel like I fit in culturally here is because the people here don't judge me on how I act or what I do. Everybody's pretty much just accepting of me like if I was also part of their culture.

(Alex)

Alex elaborated by comparing his experience in the program to his experience in school which he described as a setting where people "judge" and at times "hurt" other students based on "who they are and what their culture is." Luigi, a youth who described feeling "despised because of his ethnicity" in "American/non-Mexican restaurants", described feeling more comfortable and respected in the program. Other youth elaborated on their sense of physical safety in the program by describing the program as a place where "they won't shoot you" (Salvador) and where their friends and family members "won't get deported" (Belen). In their description of these specific examples, these youth spoke about their experiences outside of the program where they were exposed to potential physical safety issues (e.g., active shooter drills in school, knowing of individuals who were deported in their community). Importantly, youth referenced the program context, specifically with respect to their access and connection to supportive peers and caring staff (e.g., teacher chaperones, coordinators, mentors), as a key reason for their sense of physical safety.

For youth, feeling physically and socially safe in the program was a fundamental aspect of their experiences. It made youth more engaged in the program activities and helped to facilitate their math learning. Importantly, the promotion of both a safe and inclusive program space was a consequence of both youth's and mentors' intentional and collaborative efforts to engage others who may be targeted or singled-out because of their cultural backgrounds. The following statement from Eduardo is representative of this sentiment:

Everybody fits in and there's no one that stands out. For example, *we* don't judge non-Mexican kids or even Mexican kids if they don't speak Spanish. *We* don't want them to be left out, so *we* bring them in.

(emphasis added)

While youth described collaborative and program efforts to promote an inclusive and safe program space in general, they emphasized mentors' specific efforts to foster respect. For example, youth described actions that their mentors did to foster mutual respect including acknowledging and validating their perspectives and efforts in the program. Youth also described respect based on what mentors "don't do," as indicated in the following youth statements:

They don't say my culture is wrong.

(Adam)

They don't say anything bad about my culture and beliefs.

(Luigi)

They don't get mad at me for speaking Spanish...like at school.

(Olivero)

Youth conceptualized respect in the context of an inclusive and safe program space where they not only felt like their presence mattered, but also where they were not negatively targeted or judged because of their cultural backgrounds. Taken together, youth's reflections suggest that they bring with them experiences outside of the program setting, which at times involved negative culture-related incidents as well as exposure to physical safety issues.

In summary, youth described the promotion of an inclusive, safe, and respectful program climate as important aspects of their experiences in the program. These aspects, in tandem, were described by youth as being critical to the social processes underlying culturally responsive practices in the program. This climate created a promotive context for youth's comfort and willingness to engage with their peers and mentors. This climate served as a foundation for youth's engagement in the program activities and their math learning.

Theme 2: Engaging in personal conversations

The second theme involves culturally responsive practices by engaging in personal conversations. These conversations were not limited to discussions about youth's ethnic culture but instead involved youth's interactions and discussions with their mentors about broad personal topics ranging from life stories, daily experiences, similarities, to shared interests. For example, when asked about one specific interaction or conversation with his mentor that meant a lot to him, Adam reflected on a conversation about life stories:

The one conversation that stood out was when we talked about how other people grow up because it gave

me new insights into how actually other people grow up. Like some people grow up poor, some grow up rich which affects the way they act towards other people. He told me about how he used to live. That made me understand him more.

Like Adam, other youth described gaining a better understanding of their mentors by engaging in personal conversations, which in turn facilitated a sense of connection, companionship and comfort with their mentors. Indeed, when asked about the best part of their relationship with their mentors, youth often replied similarly to Rowland, who said, "We talk to each other. We understand each other. We're friends." When the interviewer followed up and asked why he felt that it was important for him to have a relationship with his mentor in this way, Rowland said, "Because I don't really feel comfortable with people that don't understand me."

Personal conversations also served as a way for mentors to gauge and sustain youth's engagement and math learning in the program. Jasmine, alluded to this process in her description of personal conversations about daily experiences with her mentors:

We could talk to them about our personal lives. They always ask us 'how've you been.' One time, I wasn't really feeling good because of something that happened at school. They started talking to me about it and it helped me a lot. I really like that.

Jasmine described an appreciation for her mentors' efforts to ensure she was okay before engaging in program activities. This made her not only feel cared for by her mentors but also better able to engage in math learning: "It made me focus and more motivated to do math that day." For youth, mentors acknowledging and prioritizing their personal well-being before "doing math" seemed to be a critical aspect of culturally responsive practices. Engaging in personal conversations with youth provided mentors a relational platform for this process.

Other examples of personal conversations included conversations about cultural holidays (e.g., Cinco de Mayo, Christmas), special events (e.g., birthdays, school breaks), and even general topics about "things that happened over the weekend." In addition to a range of personal conversation topics, youth described differences with respect to the dynamics of conversations. Many mentors and youth engaged in conversations during allotted "free times," typically at the beginning of the session before the start of the math activities, during mid-session breaks ("brain breaks"), and/or at the end of session while youth waited for their bus to take them home. Some

conversations, however, happened more organically throughout the session as indicated by Lily:

Sometimes they like taking additional breaks so that we can talk each other...before going back to the math again...it's bit of a variety.

Lily further described enjoying these additional breaks, indicating that it helped and “re-energized” her to be more motivated to work on the math activities with her mentors.

Youth also described differences with respect to how their mentors facilitated these interactions. For example, some youth noted having similar personalities with their mentors as an important dynamic of personal conversations with their mentors. This was described by Leticia who said, “I’m social, she’s social, so it just fits that I feel comfortable talking to her,” and Rowland who said, “He’s funny, I’m funny. He’s kind, I’m kind... he understands me, and I understand him.” Other youth described the importance of shared interests which made them more comfortable engaging in personal conversations with their mentors. This was particularly important for youth who identified as being more reserved and less comfortable engaging in personal conversations. For example, Belen, a youth who self-identified as being shy said:

It gave us a reason to connect. [My mentor] liked the same things I did, like playing video games like I do. That really made me feel nice...more comfortable with him.

For Belen, having shared interests with her mentor acted as a catalyst for personal conversations. Other youth described similar processes, leveraging other similarities (e.g., cultural backgrounds) with their mentors to serve as a foundation for personal conversations. For some youth, these initial interactions seemed to pave the way for deeper conversations over time about life stories and daily experiences. This was alluded to by Teresa who said:

First, it was all about the games and joking around with each other. Over time, I’ve become more comfortable. They would always ask us how we were, what we did, or what we’ve been doing.

In addition to the role of shared interests, Teresa’s response suggests the power of time and consistency when it comes to personal conversations. In general, youth’s willingness to engage in personal conversations evolved from a series of positive interactions over time. It seemed that even weekly, simple interactions (e.g., joking around, talking about “things that happened over the

weekend”) can make a difference in not only promoting a positive relationship and connection but also youth’s math learning and motivation in the program.

Other youth, particularly those who rated the program as lower quality, recognized the importance of personal conversations but felt that there was opportunity for improvement. For example, Vanessa talked about wanting to get to know her mentors more and having more conversations related to “what they believe and in their culture.” Thus, Vanessa like other youth recognized the value of personal conversations in building connections with mentors but felt that there needed to be more opportunities within the program for these interactions.

Overall, personal conversations varied in content and dynamics, and over time. These conversations represented ways in which mentors engaged youth’s personal lives outside of the program in order to more effectively understand and address youth’s diverse and unique identities and needs. These conversations facilitated youth’s connection and companionship with their mentors and promoted their broader engagement and math learning in the program.

Theme 3: Facilitating opportunities for mutual and math learning across diverse cultures and perspectives

The third theme involves culturally responsive practices through facilitating opportunities for mutual and math learning across diverse cultures and perspectives. These opportunities were noted by the majority of youth in the study who indicated that it didn’t necessarily matter to them whether their mentors shared a cultural background similar to their own. Instead youth described the significance of the program being an “equal place” where cultural difference was welcomed, normalized, and a source of learning. This idea was exemplified by Lily:

The way that they teach here is more like of an equal place where you could be thinking about different ways of doing things because we have so many different minds, and so many different ways of thinking. That could be because of the culture, I’m not sure, but it’s never really an issue because we all have the same mindset.

For youth, what seemed to matter more than cultural similarities were opportunities to relate with and to learn from their mentors despite perceived cultural differences or similarities:

Sometimes my mentors are from the same culture as me and we relate. But if they’re different, they tell me about their culture...like the things they celebrate, that

they don't celebrate... We all learn from each other.
(Juanita)

Although youth appreciated ethnic-cultural representation in terms of their peers in the program and the opportunity to relate to mentors from similar ethnic-cultural backgrounds, they noted the benefits of also having mentors who were from a different racial or ethnic background. Specifically, youth often noted the fact that because mentors in the program had diverse cultural backgrounds, they were able to learn "more" about different cultural perspectives and math from them. This was as alluded to by Emiliano who said:

[The mentors] have different cultural backgrounds and different [math] knowledges here. It helps you learn more from them and them from you.

Adding to this sentiment, Rowland said "I'm basically learning about a new culture with them." Additionally, Luigi said that he learned "new ways of solving math problems" from his mentors.

Youth welcomed diversity with respect to their mentors' different cultural backgrounds and were drawn to the prospect of learning "more" and "new" things from them (e.g., different language, cultural insights, math knowledge), adding that it made conversations and the math activities more "interesting" and "enjoyable." These differences encouraged youth to find common ground in the form of mutual learning. Teresa, for example, said:

[Although] we have our differences, we also have our similarities which could bring us together, like we can learn from each other, no matter what...

Importantly, these opportunities were in the context of a collaborative, inclusive, safe and respectful program climate where youth felt not only free but empowered to express themselves and their individual perspectives. For example, Fernando said:

Here, I can just say whatever I think could be a possible [math] solution and not have people judge me on it. That's one of the things I mostly like about [the program]... I can give my answer and even if it's wrong, they still say 'good job for trying'.

Fernando's mentors welcomed his contributions and validated his efforts regardless of whether he was right or wrong. This helped to not only facilitate Fernando's math learning in the program but also empowered him to share his perspective and knowledge with his mentors and peers:

They can teach me but I can also share stuff about what I know that they don't... like sometimes I can teach the math to them and the other students in my group.

This reciprocal process seemed to undergird the benefits that youth derived from opportunities for mutual learning, in that they were not only able to learn from their mentors but that they were also able to contribute to their mentors' (and their peers') general and specific math learning experiences in the program. Taken together, opportunities for mutual and math learning across diverse cultures and perspectives served as a way to engage cultural differences and youth's meaningful contributions to the processes of math teaching and learning in the program.

Theme 4: The promotion of math and a range of social-emotional skills across contexts

The fourth theme involves culturally responsive practices through the promotion of skills across contexts. An important aspect of cultural responsiveness is connecting youth's learning experiences across the different contexts of their lives. In our study, youth described instances in which the program not only created connections across different contexts of their lives but also provided them with important math and a range of social-emotional skills that helped them navigate these connections. There were two general categories of connections described by youth: 1) school and home-life connections and 2) "real-world" connections.

With regards to school and home-life connections, youth described gaining both math and social-emotional skills, which in turn, helped them in school and at home. Ignacio for example described how he improved his math and organizational skills which helped him "stay on top of things like schoolwork [and] homework." Luigi described a similar process, noting that he developed "different strategies" to approach math assignments at school and at home. In addition to these math skills, another important aspect of school and home-life connections involved youth gaining social-emotional skills that allowed them to better "help" their peers at school and their family at home with math. This sentiment was exemplified in the following quotes by Via and Amy in their discussion of how the program "supports" their culture:

Because of [the program], in school whenever [my peers] would need help with math or are stuck, I can help them.

(Via)

[My mentors] help me with my math, to get better at it, which makes me better able to help when my parents and siblings need help.

(Amy)

For youth, gaining math and a range of social-emotional skills to be better able to help others across the different contexts of their lives was an important aspect of their experience in the program. It also aligned with their cultural values related to helping others, including their family members (e.g., *familismo*). These skill-building opportunities allowed youth to leverage their cultural assets related to the importance of helping others in their lives. Indeed, common sentiments shared by youth included “It’s important to help others always” (Santiago) and “In my family culture, it’s important that we all help each other” (Leslie). Youth also attributed their development of this social-emotional skill to the program’s “culture of helping” and collaborative environment. This was alluded to by Lily who said, “We’re always working in groups here, [the mentors] show us how to help other people, because we should be helping others instead of thinking of ourselves.” Youth’s experiences not only leveraged their cultural assets related to helping others across the different contexts of their lives, but it also provided them an important platform to practice both their math and social-emotional skills.

In addition to school and home-life connections, youth described gaining social-emotional skills that helped them navigate the “real-world”:

I have learned how to interact with people more. I get to be more outwards and get to learn about new things and learn about new personalities and adapt to different situations in the real-world.

(Belen)

In their descriptions of these skills, youth often referenced learning skills that they considered applicable for daily life and their goals for their future. These included interpersonal based skills such as teamwork and communication as well as intrapersonal based skills such as emotion regulation (e.g., “I learned not to get frustrated when confronted with problems”, “I learned how to calm myself down”). Although the specific social-emotional/ “real-world” skills youth gained varied, one important element of their experience in the program involved their mentors serving as role models for these skills. This was exemplified in the following by Leticia who said:

I want to say I look up to her because she never gets frustrated in things. She seems like she could figure anything out...that’s really what I want for myself

because I want to be able to be strong for myself in order to do things.

Specific to their STEM learning experiences in the program, youth noted how the social-emotional learning skills they learned helped to promote their persistence and perception of the importance of math and science for their future (e.g., “It’s helped me not give up on math”, “I learned that I could do so much more with math and science...I want to be an engineer”).

Overall, youth described instances in which the program not only created connections across different contexts of their lives but also provided them with math and a range of social-emotional skills that helped them navigate these connections. These skills aligned with youth’s cultural assets and were applicable to their daily lives and goals for the future. Youth described the program context and their mentors, in particular, providing a platform and serving as role models for these skills.

Discussion

The purpose of this study was to identify and examine culturally responsive practices in a math enrichment ASP. Based on the experiences of Latinx middle school youth participants of the program, we identified four themes representing culturally responsive practices: (1) the promotion of an inclusive, safe and respectful program climate, (2) engaging in personal conversations, (3) facilitating opportunities for mutual and math learning across diverse cultures and perspectives, and (4) the promotion of math and a range of social-emotional skills across contexts. These practices helped youth feel more connected to the program, their peers and mentors; provided a platform for youth voice and contribution to the processes of teaching and learning; facilitated opportunities for skill development and practice across the different contexts of youth’s lives; and helped to promote youth’s engagement and math learning.

In our study, we focused on culturally responsive practices in relation to two dimensions of program quality including positive program structure and supportive youth-staff relationships. Our findings suggest that youth’s relationships and interactions with staff are a particularly significant aspect of their experiences and perceptions of these practices. In line with previous research, we found that staff practices can serve as an important point-of-service by which culturally responsive practices related to positive program structure can be realized (Roth & Brooks-Gunn, 2016). However, it is important to note that both dimensions are important and that the dynamic interaction and synergy between the two are likely to influence

the broader program culture and youth's learning experiences (Hirsch et al., 2011). These dimensions need to work together in tandem in order to promote a culturally responsive program. For example, personal conversations between youth and staff are likely not going to be well-received by youth if they perceive the broader program climate as an unsafe context. Additionally, opportunities for mutual learning across diverse cultures are unlikely to happen or be seen as authentic without intentional programmatic features (e.g., cross-cultural interactions, collaborative learning). Thus, these dimensions are necessary but by themselves are not sufficient to create a program that is responsive to youth's cultural backgrounds. Youth are less likely to attend programs if they are perceived as unsafe and not inclusive. But even when programs are considered "safe," youth may be less likely to benefit if they do not develop positive connections with staff. Serious consideration of culture at all levels of program design and implementation is needed to create a high-quality program that is truly culturally responsive.

In line with prior research and theory, our findings suggest that culture and culturally responsive practices are at the core of high-quality programs (e.g., Simpkins et al., 2017; Velez-Agosto et al., 2017). Programs that are not culturally responsive are not high-quality (Ettekal et al., 2020; Liu et al., 2018). Culturally responsive practices therefore are not a separate component but are inseparable from every component of program quality (Simpkins et al., 2017). High-quality programs are designed to and through youth's personal and cultural strengths (Gay, 2010; Simpkins et al., 2017). Our findings made explicit the notion of cultural responsiveness as a mutually defining process, one that privileges youth's voice and cultural strengths in the design and co-construction of programs and math learning opportunities. In the following paragraphs, we discuss examples of why culturally responsive practices are at the core of program quality and how ASPs can implement them in the design and implementation of their programs.

Promoting a safe physical and psychological climate is a basic, necessary condition for high-quality programs (Eccles & Gootman, 2002). However, how youth perceive program safety can vary based on their culture and experiences which necessitates culturally responsive practices. For the Latinx youth in our study, this fundamental feature of high-quality programs involved the promotion of an inclusive, safe and respectful program climate. Indeed, similar to previous research with Latinx youth (e.g., Diversi & Mecham, 2005; McGovern et al., 2020) the promotion of an inclusive and safe space was prominent in youth's perceptions of culturally responsive practices. Youth bring with them their history of experiences related to their race, ethnicity and culture into programs

(Williams & Deutsch, 2016). Unfortunately, for many URM youth, this may involve physical safety issues as well as chronic negative culture-related incidents (e.g., bullying, discrimination; Benner et al., 2018; Borden et al., 2006). ASPs may serve as safe havens/respite from these negative experiences which are particularly prevalent in Latinx youth's environments (Borden et al., 2006).

Extending Eccles and Gootman (2002)'s framework, our findings suggest that beyond meeting the basic need of physical and psychological safety, culturally responsive programs provide an environment where URM feel they are respected. In line with previous research (e.g., Liu et al., 2018; Smith et al., 2017), respect was a critical component of youth's positive experiences in the program. In our study, it was particularly noteworthy that youth juxtapose feeling respected in the program with experiences in other contexts of their lives (e.g., school) where they felt negatively targeted or judged because of their cultural background. Our findings suggest that to design culturally responsive ASPs, issues related to youth's safety (e.g., both physical and social/cultural safety), sense of inclusion, and respect should be taken seriously and should reflect a program climate that not only acknowledges but also counters the negative physical and culture-related incidents that may impact Latinx youth's daily lives. Culturally responsive programs acknowledge the lived experiences of youth outside of the program so that any strife or broader inequities are not emulated within the program context (Simpkins et al., 2017). Doing so provides an important foundation for youth's engagement in program activities and their math learning.

Another key feature of high-quality programs is striving to promote positive social norms among youth and staff (Eccles & Gootman, 2002). However, youth and staff may hold different views concerning appropriate social and cultural norms. Our findings suggest that ASPs hold the great potential to serve as settings for youth to learn and develop strategies to reconcile social and cultural differences when they are given a meaningful role and voice in the process. Youth are active, co-producers of their culture and learning environments (Calabrese & Tan, 2018; Nasir & Hands, 2006). Aligning with Simpkins et al., (2017)'s propositions on culturally responsive practices, our findings showcased high-quality staff practices that took a youth-centered approach and incorporated youth's voices. In our study, mentors cultivated an inclusive, safe, and mutually respectful program climate *with* youth and following youth's lead when it came to facilitating opportunities for mutual and math learning. Mentors encouraged youth contribution by providing opportunities for youth to showcase their strengths and leadership skills. In line with prior research on culturally sustaining pedagogy (Ladson-

Billings, 2014), youth's participation in the program and their interactions with their mentors helped them to appreciate and celebrate their personal and cultural strengths while gaining math skills and knowledge of other cultures.

Through personal conversations, mentors fostered connections with youth and their personal lives outside of the program which in turn helped them to better support youth's engagement and math learning. In this way, mentors were able to provide support that "fit" to youth's culture and needs, thus highlighting how culturally responsive practices are inseparable from program quality (NRC, 2015; Simpkins et al., 2017). Within the specific context of our study, the importance of personal conversations can also be interpreted as echoing the Latinx cultural value of *personalismo*, which refers to the value placed on forming positive, interpersonal relationships through warmth, trust, and respect (Guilamo-Ramos et al., 2007), which in turn serves as an important foundation for mutual reciprocity, engagement, and math learning. Overall, our themes demonstrate how culturally responsive practices can be integrated in ways that leverage youth's culture, influence and co-construction of their learning environments. Because youth are not passive recipients of support, our study suggests the importance of fostering meaningful outlets for youth voice, engagement, and contribution. These efforts may be particularly important for URM youth from economically marginalized communities (Calabrese Barton & Tan, 2018; Stein & Mankowski, 2004).

The culturally responsive practices that we have identified can be relevant to other ASPs serving Latinx youth. However, given that our study was based on a math enrichment ASP for low-income Latinx youth, our findings have specific implications for promoting more equitable informal STEM learning experiences. We found that the practices we identified helped to promote youth's math engagement and learning in several ways. For example, through personal conversations mentors were able to better engage youth, gauge their math skills, and motivate their math learning. Through the promotion of math and a range of social-emotional skills across contexts, youth saw the value and relevance of math as an important way to help others in their lives, including their siblings and parents. This specific finding may be connected to Latinx youth's cultural value of *familismo*. *Familismo* refers to having a strong identity with the family unit that then plays a role in decision-making, holding family well-being as a priority (Bernal et al., 2009). Youth's general perceptions of their math abilities also improved and was supported through opportunities for mutual and math learning across diverse cultures and perspectives. Mentors' efforts to validate youth voice and encourage their contributions

and perseverance seemed to play a critical role in this process. Together, our findings link to research that have argued for the legitimacy and viability of culturally responsive practices in supporting youth's sense of mattering and efficacy across their "real-world" contexts as a way to promote their broader STEM engagement and learning (Gay, 2010; Ladson-Billings, 2014; NRC, 2015). Given the underachievement and underrepresentation of Latinx youth from economically marginalized communities in STEM, our study demonstrates the critical role of culturally responsive practices in the promotion of more equitable STEM learning opportunities and outcomes.

In summary, our study makes several unique contributions. First, extending preliminary conceptualizations of the integral role of culture in ASPs (e.g., Simpkins et al., 2017), we identified and provided in-depth descriptions of four broad culturally responsive practices in context by detailing specific practices and providing specific strategies and ways in terms of how they are implemented within a math enrichment program serving Latinx youth. Second, we demonstrated how culturally responsive practices may interrelate with specific Latinx cultural values, namely *personalismo* and *familismo*. Both these contributions are significant considering research often fails to investigate contextual aspects of high-quality programs, or their interrelation with culture and other contexts in youth's lives (Larson & Ngo, 2017; Roth & Brooks-Gunn, 2016). Third, we describe how culturally responsive practices can promote youth's broader STEM engagement and math learning, helping to fill a critical gap in the literature related to the need to identify how these practices may be related to youth outcomes (NRC, 2015; Simpkins et al., 2017). Lastly, our findings provide important implications for practice, described further below, which are critical for staff training efforts, ASP design and development, and continuous program quality improvement.

Implications for Practice

At the beginning of this article, we discussed the value of identifying *how* culturally responsive practices are actually implemented within specific ASPs serving ethnic minoritized youth. Toward this end, we identified four broad culturally responsive practices and detailed specific examples and ways that ASPs and staff can integrate them into the design and implementation of their programs. For example, with respect to the culturally responsive practice related to engaging in personal conversations, we described specific types of conversations that staff can have with youth. Although not exhaustive, our findings shed light on additional aspects of program structure, based on the specific program context of our study and

lessons across the four themes, that can facilitate the effective implementation of these practices as well as their broader implications for practice.

First, our findings suggest that one key aspect of program structure for culturally responsive practices is providing ethnic minoritized youth opportunities for both same- *and* cross-ethnic/race learning and interactions. Indeed, the fact that the program in our study had diverse program activities and ethnically/racially diverse mentors was critical to the benefits that the youth perceived experiencing. With respect to the program activities, our study suggests the importance of ensuring “representation” in ASPs which can include providing curriculum and activities that reflect and engage youth’s cultural strengths. While representation in this way can promote inclusivity, it needs to be done in a thoughtful manner so that youth feel authentically engaged rather than alienated from these efforts. If practices are not executed in a thoughtful manner, it is possible that programs can perpetuate stereotypes, accentuate intergroup differences, and amplify cultural divides (Ettekal et al., 2020). With respect to their mentors, youth noted that it did not necessarily matter to them whether their mentors shared a cultural background similar or different to their own. Instead, what bore more significance for youth was that the program was an “equal place” where both cultural similarities *and* differences were a source of learning and empowerment. Within our specific program context, a critical aspect of youth’s experience of culturally responsive practices derived from their interactions with other Latinx youth and mentors in the program as well as their engagement with mentors from different cultural backgrounds. It is important to note that the youth in our study may have had different experiences in the program if these cultural and relational dynamics were different (e.g., if Latinx youth were the minority in the program). Having mentors from similar racial/ethnic backgrounds can facilitate connections based on shared cultural and lived experiences. At the same time, racial/ethnic diversity can afford opportunities for the development and practice of critical social-emotional skills such as cooperation, mutual respect, and different ways of thinking. Our study suggests the importance of exposing youth to diverse relationships (e.g., with same and cross-ethnic/race peers and staff) that allow them to engage their personal and cultural strengths while at the same time ensuring an equitable ASP environment despite perceived cultural similarities or differences (Ettekal et al., 2020; Simpkins et al., 2017).

Extending prior frameworks (e.g., Eccles & Gootman, 2002; Simpkins et al., 2017), another key aspect of program structure that emerged as being significant for the implementation of culturally responsive practices in our study was the promotion of collaborative learning

opportunities among youth and mentors. The notion of collaborative learning, which involves a group of learners working together to accomplish a shared goal, aligns with Latinx youth’s endorsement of communal goals and the value of interdependence (e.g., *familismo*), thus helping to provide a sense of predictability and comfort. In prior research (Yu et al., 2020), we found that the collaborative learning element of the program allowed youth and mentors to work together and co-construct group norms. It also provided opportunities for youth to partake in the decision-making process and to showcase their skills and strengths (e.g., communication, leadership skills). By actively engaging youth, collaborative learning opportunities helped to promote youth’s skill development, engagement, and math learning in the broader program. Together, our findings suggest that collaborative learning opportunities should be considered as an important foundation and aspect of programs seeking to serve and more meaningfully engage Latinx youth. Importantly, collaborative learning should not be limited to program activities with youth but also among staff as a part of their training experiences. Ongoing professional development opportunities coupled with intentional time for collaborative and critical reflection will help to promote practices that are not only culturally responsive but also effective (Gutierrez et al., 2017; Richmond et al., 2018).

Finally, extending prior frameworks on culturally responsive practices (Simpkins et al., 2017), our study highlights the importance of providing a platform for meaningful interpersonal connections between program staff and youth as a key aspect of program structure that facilitate culturally responsive practices. Specifically, in our study, the explicit distinction between “mentor” and “tutor” seemed to empower and provide the foundation for the strong relationship between youth and mentors in the program. Further, the program embeds intentional opportunities for youth to engage in personal conversations including reserving the first ten minutes at the start of the program for “check-ins” with youth as well as providing “brain breaks” throughout the session. ASPs, particularly those that are more structured and scheduled (including many STEM programs), should not underestimate the power of providing a platform and time for these personal interactions. There are multiple ways of engaging youth’s culture and personal lives that are not limited to incorporating knowledge of specific ethnic-cultural information and practices. Indeed, even small and positive conversations (e.g., about similar personalities and shared interests) matter and can make a difference. They not only allow youth to voice their opinions and discuss what is important in their lives, but they can also inform the ways in which staff approach teaching and mentoring that is best aligned with youth’s needs. Additionally, they can also promote the effectiveness of more indirect forms of influence

such as role-modeling (Hurd & Deutsch, 2017; Museus et al., 2011).

Strengths, Limitations, and Future Directions

One strength of this study was our in-depth examination of culturally responsive processes in an under-studied context, namely an ASP focused on math enrichment and attended by low-income Latinx adolescents. Although practices can vary given a particular ASP context, in line with the perspective that core aspects of quality are applicable to all programs (Smith et al., 2014), we expect our identified practices to be relevant to a diverse array of ASP contexts serving URM youth. However, given our focus on one ASP context, the extent to which our findings can be generalized is not known. Nonetheless, because both the Latinx population and the number of STEM enrichment ASPs are on the rise, our study provides important implications for understanding the potential impacts of these enrichment spaces on youth's broader STEM engagement and learning. Specific to our study context, there is a growing network and particular need for math enrichment programs that specifically target underserved youth including Latinx (e.g., Kennedy & Smolinsky, 2016; Shepherd & Sakashita, 2009). Future research to determine the prevalence of culturally responsive practices in similar and different ASP contexts serving a diversity of youth populations is warranted.

Second, privileging the voices of youth, our study is one of the few studies to document how STEM ASP practices can be culturally responsive. Youth's perspectives of culturally responsive practices matter and are critical in designing culturally responsive programs that are ultimately effective for them. However, this design also comes with limitations as it represents a specific perspective. Future studies could triangulate more perspectives including staff and objective third-party observers to get a fuller picture of the processes of culturally responsive practices in ASPs. Given the very limited body of research in these areas, future research should continue to identify culturally responsive ASP practices and the specific ways we can leverage these practices for continuous program quality improvement. Moreover, research is needed to examine whether and how practices are ultimately related to youth experiences and outcomes in these settings as well as how perceptions of practices may differ across diverse youth.

Conclusion

Time and again, research on ASPs have found that quality is an important aspect of effective ASPs. However, although potentially effective for all youth, experiences of

high-quality programs can vary, particularly for URM youth from economically marginalized communities. Culturally responsive practices are necessary to achieve high-quality programs. Our study suggests that Latinx youth's cultural experiences are related to the ways in which they experience ASP activities and interact with staff. To better support youth, serious and thoughtful consideration should be given to promotion of culturally responsive practices.

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Conflict of Interests

The director of the math afterschool program from which this study is based is a co-author of this manuscript. The remaining authors have no additional conflict-of-interests to disclose.

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