

Toward Opportunity-Centered Institutional Logics:

Evidence from Hispanic-Serving Institutions and Science Equity Efforts

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Abstract

In U.S. 4-year postsecondary institutions, predominant institutional logics—the embedded assumptions that guide organizational action—have traditionally focused on prestige seeking via acquisition of resources, reputation, and research capabilities. This focus can hinder the design and implementation of teaching approaches and structures that support equitable student experiences and outcomes, particularly for minoritized students. This study examined the institutional logics guiding the organizational behavior of four broadly accessible Hispanic-Serving Institution (HSI) computer science departments. All were participating in a multi-institutional network of HSIs designed to advance science equity efforts and postsecondary attainment for Latinx students in the discipline. A multiple case study of these four departments included 63 interviews with faculty and administrators, 69 observations of departmental activities, and extensive participant-observations during site visits. Data analysis revealed three themes—inclusivity, talent development, and cultural responsiveness—that indicate how departmental personnel employ institutional logics alternative to prestige-seeking institutional logics. The paper discusses the implications of these alternative institutional logics, characterized as *opportunity-centered logics*, to effect equity-focused institutional transformation, strengthening of HSIs' capacities to serve Latinx and minoritized students, and equity efforts in science.

Keywords: Hispanic-Serving Institutions, institutional logics, science, STEM, equity, postsecondary opportunity, organizational behavior

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Hispanic-Serving Institutions (HSIs) offer significant postsecondary access to racially minoritized groups in the United States, including Latinx students, who, despite being the largest among these groups in the nation, have relatively low postsecondary attainment rates, particularly in lucrative fields like STEM (NCSES, 2022). Historically, most HSIs have been categorized as “broadly accessible institutions” (Crisp et al., 2022), including community colleges and less selective 4-year institutions, with missions to provide postsecondary education to local communities and historically underserved groups. Less well-resourced, broadly accessible HSIs with historically high levels of Latinx enrollment have at times strived to increase external funding and research expenditures to make up for budget shortfalls (Doran, 2014; Gonzales, 2013). Among HSIs, such behavior can be associated with prestige seeking (Zerquera, 2023) toward “Tier One” status (DeTurk & Briscoe, 2020, 2021). The absence of a required Latinx-focused mission in the HSI federal designation calls into question how HSIs are actually serving their students, an institutional quality known as *servingness* (García et al., 2019a).

As one indicator of servingness, HSIs do graduate a disproportionately high share of Latinx students in STEM, including in highly lucrative fields like computer science (NCSES, 2022). Hence, the National Academies of Sciences, Engineering, and Medicine (NASEM, 2019) called for more researchers to study *how* HSIs and other minority-serving institutions (MSIs) effectively educate racially minoritized students. Research has subsequently applied the servingness framework to understand HSI computer science departments’ equity-centered organizational behavior (e.g., Hug et al., 2021; Núñez, 2023). This research has found that organizational assumptions, as well as actions, shape these departments’ equity-centered approaches.

Indeed, the assumptions and frames of reference that guide organizational behavior, known as institutional logics (Gonzales & Ayers, 2018; Kezar & Bernstein-Serra, 2020), are critical to understanding

how organizations work. Ignoring institutional logics hinders the implementation of popular transformation efforts, such as more equity-centered higher education, HSI servingness, or culturally responsive STEM education (e.g., García, 2019; Kezar & Bernstein-Serra, 2020). Interrogating and addressing institutional logics—such as prestige seeking (Zerquera, 2023) to ascend in institutional rankings or the current Carnegie classification system—is critical to maximizing the success of student-centered reform efforts (Kezar & Bernstein-Serra, 2020). Literature on institutional logics in higher education research is dominated by examination of prestige-seeking orientations (Zerquera, 2023), but there is evidence that in broadly accessible institutions, institutional logics look quite different, including being more student-centered (Gonzales & Ayers, 2018).

The three bodies of literature referenced so far—on HSIs, STEM education, and higher education organizations—are rarely brought into conversation with one another, leading to a disconnection of knowledge, which has long stymied student-centered efforts to reform STEM fields (American Association for the Advancement of Science [AAAS], 2019). The premise that institutional logics must be examined to fully understand organizational behavior and reform efforts (e.g., Kezar & Bernstein-Serra, 2020) and that institutional logics look different from the standpoint of different institution types (Gonzales & Ayers, 2018) motivates the research question addressed in this study: *What do institutional logics look like from the viewpoints of faculty and administrators in broadly accessible 4-year HSI computer science departments that are committed to raising Hispanic computing attainment?*

This study is based on a larger research project that examined the organizational behavior of a national multi-institutional network of HSI computer science departments that, for nearly 2 decades, has committed to raising Latinx attainment in the discipline (Villa et al., 2019). Studying the topic in a network that is institutionally situated in broadly accessible HSIs and disciplinarily situated in one of the least diverse STEM fields by race and gender offers insights into the institutional logics that underlie equity-centered practices already demonstrated in the network (Núñez, 2023). This work can also

inform future equity efforts in higher education organizations generally as well as in HSIs and STEM fields.

Conceptual Lens: Institutional Logics

I employed the conceptual lens of institutional logics to investigate underlying frames of reference that guided these HSI departments' commitments to raising Latinx computer science attainment. Institutional logics are embedded assumptions and values that guide organizational behavior (Gonzales & Ayers, 2018; Kezar & Bernstein-Serra, 2020). More specifically, they are "sense making frames" that "provide understandings of what is legitimate, reasonable, and effective in a given context" (Gonzales & Ayers, 2018, p. 457). Three decades ago, Astin (1993) identified that many selective institutions prioritize institutional logics of "resources" and "reputation" via activities like garnering funding, focusing on research, and sustaining selective admissions policies that privilege white, high socioeconomic status students (p. 5). Since then, studies in selective universities have repeatedly documented historically entrenched institutional logics that privilege institutional prestige seeking in U.S. higher education (e.g., Zerquera, 2023), as characterized by "distinction through exclusion" (Taylor & Cantwell, 2019, p. 50). The application of prestige-seeking logics and behaviors (such as tightening admissions standards) can compromise access to higher education, particularly for racially minoritized and low-income students (Zerquera, 2023).

In one exception, Gonzales and Ayers (2018) uncovered five institutional logics expressed among community college faculty: (a) a familial organizational environment; (b) democratic values, such as access to higher education; (c) religious passion and care for the work; (d) neoliberalism through expectations of efficiency; and (e) bureaucratic approaches requiring faculty to audit their work along narrowly defined categories. They concluded that convergence among these logics positions community

college faculty members as “laborers” who are expected to carry out both emotional and efficiency-oriented work (p. 471). These findings diverge from those in the prestige-seeking research and raise questions about how other institution types—like broadly accessible 4-year institutions with missions to provide minoritized and low-income communities postsecondary access (Crisp et al., 2022)—shape institutional logics.

HSI Institutional Contexts

Because they encompass such diverse missions, the extent to which HSIs enact servingness is ambiguous (García et al., 2019a). Evidence suggests that some broadly accessible HSIs follow a prestige-seeking institutional logic (e.g., Gonzales, 2013), which is associated with tightened admissions standards and reduction of access for communities of color, including at HSIs (DeTurk & Briscoe, 2021; Zerquera, 2023). Thus, particularly at broadly accessible, less well-resourced HSIs, institutional logics related to striving for prestige can pose tensions with institutional logics related to servingness. For example, personnel may need to navigate a “careful balance between access and excellence” (Doran, 2014, p. 351), which can compromise equity (DeTurk & Briscoe, 2021). There may be increased expectations to conduct research and garner external funding, challenging faculty members’ commitments to teaching and compromising institutions’ historic orientations toward meeting student needs (DeTurk & Briscoe, 2020, 2021; Doran & Medina, 2017; Gonzales, 2013).

STEM and Computer Science Education

A logic of servingness appears to have permeated less in HSI STEM departments, with HSI STEM faculty more likely than their non-STEM counterparts to report color-neutral approaches in their work (García et al., 2020). This pattern is related to STEM institutional logics that frame the concept of “excellence” as focused on “pure” science, with gender, ethnicity, and other social categories

constructed as extraneous (Cech & Blair-Loy, 2022). Even within the same HSI, Latinx students in STEM majors, compared with their non-STEM counterparts, report increased discrimination and tokenization (Sanchez, 2019).

Among STEM fields, computer science is one of the most ubiquitous in everyday life. It is appealing to many students as a major because computer science careers can be lucrative (Lehman et al., 2022). Yet, it is also among the least diverse by both race and gender, and its diversity has been declining (Mack et al., 2019). Its inheritance of a racist, sexist, and competitive culture has adversely affected representation of racially minoritized students and women (Lehman et al., 2022; Mack et al., 2019; Sax et al., 2017). And while Latinx computer science students do draw on their communities' cultural assets as sources of personal and peer support to navigate their challenging discipline (e.g., Herrera & Kovats Sánchez, 2022; Rodriguez et al., 2023), it is less clear how institutional or departmental settings support their pathways.

Computer science departments have engaged in several multi-institutional initiatives to diversify the discipline, funded by sources including NSF and the technology industry. These initiatives have focused on supporting department chairs (Lehman et al., 2022; Sax et al., 2017) or departmental teams to develop and implement diversity efforts (Mack et al., 2019; Núñez, 2023). In these efforts, some department chairs contend with multiple and competing pressures and perceive that they lack full agency or skills to cultivate diversity (Lehman et al., 2022; Sax et al., 2017). Other research has found that engaging teams of stakeholders, rather than just individual leaders, has strengthened the development of culturally responsive interventions in computing departments (Mack et al., 2019; Núñez, 2022, 2023). All of these initiatives have provided cross-institutional peer mentoring for

administrative, faculty, and staff stakeholders to learn from one another about how to implement diversity initiatives (Lehman et al., 2022; Mack et al., 2019; Núñez, 2023; Sax et al., 2017).

Overview of This Study

Among the computer science initiatives just described, the Computing Alliance of Hispanic-Serving Institutions (CAHSI) is the only one centered in HSIs. CAHSI departments have graduated Latinx computer science bachelor's degree recipients at a much higher rate than other HSIs and non-HSIs (Villa et al., 2019). By 2030, CAHSI aims to raise the share of Latinx individuals who receive credentials in computer science to 20%, at parity with Latinx representation in the population (CAHSI, n.d.).

Since its 2004 inception, CAHSI has expanded to include over 80 HSIs. This expansion was catalyzed by a 5-year, \$10 million NSF agency-wide grant program award in 2018 to fund CAHSI as a national, multi-institutional alliance to promote diversity in science—the only award that year *not* led by a Predominantly White Institution (Villa et al., 2019). With this grant, CAHSI departments have supported more HSIs to implement and adapt several signature practices to support undergraduate Latinx student success, including collaborative intergenerational research groups, peer tutoring in introductory courses, paid attendance at Latinx- and gender-based computer science conferences, and paid leadership opportunities for students to build community for Latinx and other minoritized students in their departments (Villa et al., 2019). CAHSI also funded a social science research component to investigate HSI departments' organizational behaviors, including those concerning servingness, to promote Latinx success in computer science (Hug et al., 2021; Núñez, 2022, 2023; Rivera & Núñez, 2023). This study excavates the institutional logics guiding those organizational behaviors.

Methods

A qualitative multiple case study to generate and refine “theoretical propositions” (Yin, 2018, p. 20) was employed. To examine the four CAHSI computer science departments’ guiding institutional logics, the research team collected multiple forms of data, including interviews, observations of department events and CAHSI network meetings, and departmental documents. As full participant-observers, the research team followed a transformative paradigm (Hurtado, 2015), which involved (a) data collection to elicit multiple perspectives, (b) immersion in departmental settings and the broader network’s operations, and (c) collection of feedback to refine the findings and guide the network’s continuous improvement efforts.

Institutional Sample and Research Sites

The research team selected four CAHSI computer science departments, all in broadly accessible non-flagship public HSIs that admit the majority of applicants, with three of the four completely open access in terms of admitting any student who completes the high school curriculum that meets that state’s graduation requirements. These institutions were selected for maximum variation in region (i.e., North, South, Southwest, and West), institutional percentage of Latinx enrollment, and duration as an HSI. Table 1 shows each department’s characteristics.

Table 1 *HSIs' Institution and Computer Science Department Characteristics*

	1	2	3	4
Carnegie classification	Master's Colleges & Universities: Larger Programs	Doctoral Universities: Very High Research Activity	Doctoral Universities: High Research Activity	Master's Colleges & Universities: Larger Programs
Years as an HSI	6	30	28	25
Total undergraduate enrollment (#)	14,056	25,151	11,675	13,899
Total graduate enrollment (#)	2,232	3,687	2,621	2,833
Latinx undergraduate enrollment (%)	26%	83%	58%	64%
Latinx undergraduate computer science enrollment (%)	14%	84%	56%	43%

Admission to the computer science major was open at all four institutions; each department enrolled between 345 and 934 students. Students who were not exposed to computer science in high school could take leveling classes to access the basic knowledge needed to pursue the major, as discussed in the findings below. Between 14 and 28 tenure-line or non-tenure-track personnel served as instructors. Across sites, 3.8% of these instructors were U.S.-born people of color (all Latinx), reflecting the low national share (2.8%) of domestic Latinx computer science faculty (NCSES, 2022).

Including the CAHSI grant described, each department ran 5 to 10 grants to support Latinx computer science students with (a) curricular and co-curricular collaborative learning and research; (b) paid leadership, peer tutoring, and research opportunities; and (c) Latinx- and gender-focused computer science conference attendance (Villa et al., 2019). For more on how these departments have enacted servingness, including during the pandemic, see Hug et al. (2021) and Núñez (2023).

Data Collection

The research team visited each department in person for 3 to 4 days. Following IRB-approved guidelines, they conducted interviews with 101 personnel—38 faculty, 25 administrators (i.e., presidents, provosts, deans, associate deans, chairs), 16 staff, and 22 students. They also conducted 69

observations of faculty, course, club, tutoring, research group, and student success initiative meetings and reviewed institutional reports, curriculum sequences, and program descriptions. In CAHSI network meetings, they conducted 90 hours of participant-observations and informal interviews with department members.

Semi-structured interview and observation protocols based on extant research literature were employed to query about and record activities. Team members wrote fieldnotes and in-process memos and regularly debriefed during data collection and analysis (Miles et al., 2020). Interview recordings were professionally transcribed and reviewed for accuracy at least twice by research team members. Additionally, a site report for each campus, including enrollment patterns and detailed descriptions of curricular, programmatic, and co-curricular activities in the department, was generated.

Data Analysis

One of the researchers conducted data analysis focused on interviews and observations with the 63 faculty and administrators, using the constant comparative method (Strauss & Corbin, 1998) to identify common patterns. First-cycle coding (Saldaña, 2015) identified initial common patterns. Separate memos, matrices, and visual displays were generated to further condense the data (Miles et al., 2020). Second-cycle coding (Saldaña, 2015) generated integrative and conceptual patterns, some of which constitute the themes discussed in this piece (Charmaz, 2014; Miles et al., 2020).

Fifteen initial codes emerged, 14 of which focused on organizational and institutional behaviors. The 15th focused on organizational mindsets, which aligned with the conceptual lens of institutional logics, and therefore formed the basis for this analysis. Subcodes in this *mindset* code included an *inclusion emphasis*, defined as providing access to both the major and engaging educational experiences, which informed the **institutional alignment** and **inclusivity** themes discussed later. Two additional subcodes—*talent development assumptions about students* (positive assumptions about

student growth) and *talent development assumptions about collective ability to improve student success* (organizational responsibility to promote student success)—constitute the **talent development** theme.

The subcodes that together shaped the **cultural responsiveness** theme were *cultural consciousness* (recognition of students' cultural qualities that shaped their academic studies) and *perceived barriers* (awareness of structural barriers faced by many Latinx students). The final theme was based solely on one institution's data that revealed **less cohesion** among participants with regard to the preceding themes.

Positionality and Trustworthiness

As the author of this piece and the research team leader, my background as a Latina HSI researcher with over a decade of faculty and administrative experience at two broadly accessible 4-year HSIs shaped my positionality toward this work. In data collection, I led a team of two Latinas with a total of over 15 years of experience working in broadly accessible HSIs who served as full CAHSI network participant-observers during the grant's entire 5-year duration. To enact an HSI positionality (Núñez, 2017), we applied our social and institutional identity backgrounds to spend immersed and extended time in HSI institutional contexts, rather than the short and detached "drive by" research (Hurtado, 2015) that too commonly misrepresents the lived realities in HSIs. For this particular analysis, I employed the full data corpus to compare patterns in faculty and administrator interviews with those of staff, student, observation, and document data. I brought these perspectives into conversation with one another to engage in crystallization (Hurtado, 2015) to connect expressed organizational assumptions with observed behaviors and to excavate the institutional logics guiding these departments' approaches.

Limitations

The findings may not be representative of all personnel within these departments or at these institutions. However, although a few participants expressed color-neutral views (García et al., 2020),

the majority expressed more equity-centered guiding assumptions. Furthermore, most personnel expressed that they perceived that most (if not all) of their colleagues held such assumptions.

Findings

Five themes emerged from the data: (a) aligning assumptions with work in broadly accessible and HSI settings, (b) inclusivity, (c) talent development, (d) cultural responsiveness, and (e) lower cohesion at one institution around inclusivity, talent development, and cultural responsiveness institutional logics.

Aligning Assumptions With Work in Broadly Accessible and HSI Institutional Settings

Throughout their interviews, study participants referenced the ways in which institutional logics guided their thinking and work. One faculty member's words illustrate how guiding assumptions can shape faculty responsiveness to student needs in different institutional settings:

If you've done a PhD, most likely you were [at] a R1 institution. It's likely very different from what we have here....If you use the same cultural background from there and try to plug it in here, it might not work. Most probably it won't work...So, yeah, some faculty are not aware [of this discrepancy] is what I figure.

This faculty member identified that the assumptions most useful in guiding faculty "here"—in a broadly accessible HSI—were different from those over "there," in more selective institutions. Put differently, they speculated that institutional logics from R1 institutions might not align optimally to respond to organizational and student needs in such settings.

Indeed, two new faculty members in different HSIs noted a discrepancy between what might work in navigating their own highly selective graduate institutions and these broadly accessible HSIs. One said that "one of the things that has stood out to me the most is the institutional and systemic differences between a place like [a flagship institution] and a place like here. And it's not something that

I was very aware of before I came here.” The other noted “there's just a very wide range of experiences” at their institution. They continued:

I don't want to keep bringing up [my graduate alma mater] but...like, that's a very stark contrast between where I was last year and where I am now. You know, they pick the cream-of-the-crop students....So, it's just different. And I thought I had adjusted to it, and I don't think I have all the way yet. So, it's something I'm gonna have to learn as well.

What this faculty member felt they had to “learn” could, in fact, be the “cultural background” referenced by the first faculty member—in part, an institutional logic related to research and teaching that contrasts with the logics of their highly selective graduate institutions (Terosky & Gonzales, 2016). Indeed, an executive-level leader hinted at the contrast between “mindsets” of access versus selectivity:

So, we're very committed to access....If you meet our admissions criteria, are we ready for you? Do we understand how to make you successful? Do we understand your needs as a learner? *Not* can you meet our high standards, right? Are we open and sensitive and considering your needs, both in the classroom and beyond the classroom?...Do we have policies in place that make it as easy as possible for you to survive financially on this campus, even though our fees in registration are really low? So that's *more of the mindset* [emphasis added].

This leader's invocation of “mindset” suggests that these particular work approaches, which could be considered guiding institutional logics, would be more conducive than others to promoting student success in broadly accessible HSI settings.

In fact, this particular leader touched on the full range of themes that emerged from this analysis. First, by emphasizing the importance of access and being ready for all students, he referenced inclusivity, which I discuss next. He also referenced talent development by invoking the collective “we” as responsible for understanding how to address students' needs in order to promote their success. Likewise, he referenced the theme of cultural responsiveness when he focused on students' needs

within and beyond the classroom, including financial, familial, and caretaking needs. And later in his interview he further emphasized cultural needs as he described his effort to establish a Latinx cultural center on campus. In the sections that follow, I elaborate on these themes further, describing how they guide organizational assumptions for behavior. Where possible, I provide corresponding evidence from departments that these assumptions were both espoused *and* enacted in organizational activities.

Inclusivity

The theme of inclusivity was evident in the perspectives of multiple stakeholders, including top-level institutional leaders, mid-level department leaders, and faculty. One executive-level administrator observed that inclusion and excellence are typically framed as competing institutional logics: “I mean, nobody says this explicitly, but you’ll hear people [in higher education] talk about, ‘We’re an excellent institution and, in spite of that, we’re going to pursue access,’ right?” He contrasted that framing with how his own institution emphasized “excellence in the service of access.” A faculty member at the same institution described learning more about what this means:

I've really come to appreciate...the mission of the university, of access. So that's already something that's very dear to me....It puzzled me for a while, really...access and excellence. But I'm a big advocate of this....I am extremely passionate about making sure that all of our students feel included....I always have this on my mind.

These comments and institutional vision emphasize a broader mission as incorporating inclusivity.

Other administrators and faculty discussed the importance of inclusivity in their own departments. As one leader said, “Here, in the department, one thing I know is that we want to make sure that there are open-door policies for the students.” He connected these policies with establishing courses that would enable more students without high school computing experience to learn about the field: “We started [an introductory course in computer science] which doesn’t require math, so we could actually get to see these students and [help them feel] welcomed in the major.” Other departments in

the CAHSI network observed the success of this course, and some adapted it to similarly reach more students who had not had access to high school computer science.

Administrators and faculty in one department described allowing students who were taking developmental English to start simultaneously in the major. This challenged an institutional policy that students take a year of developmental English *before* taking computer science classes, assessing students' potential in more expansive ways. As one faculty member asked, "If they can do the math, what difference does it make that they are still taking developmental English?" Notably, students who attend 4-year HSIs are less likely to be academically prepared than students at other institutions (Núñez & Bowers, 2011). Thus, opportunities to participate in the computer science curriculum transcend the exclusion that more restrictive policies might produce. They also counter national trends in increased demand among students to major in computer science, which could lead to excluding some students from the major (NASEM, 2018).

Inclusivity was also evident in some pedagogical approaches that participants described. One administrator emphasized that "TAs have to be reminded they are not filters, but gateways." That view was shared by others at the same institution, and TA training was implemented to promote inclusive approaches. At another institution, an administrator noted that faculty could improve in more culturally responsive pedagogical approaches: "Our students...come from different backgrounds....You need to adjust your pedagogy to recognize their talent and promote the talent....Your expectation has to reflect what the students are." He emphasized the importance of understanding the challenges students face as they balance other responsibilities with coursework and of being accommodating and flexible about issues like class attendance or scheduling labs and tests. He stressed that it was important to check in with students to understand their needs and to design corresponding inclusive pedagogical approaches.

At another institution, an instructor described checking in with students about how she could support them and discovering that many were hungry when they came to school. Subsequently, she ensured they had access to basic needs, at least when they were taking her courses and tests:

You know, some of our students at home cannot afford food or whatever. So I [have] brought food at every test to the class....Every time I have a test, I bring food, because my students need to have food to eat before they take a test. And I use my own money to give students food....So, I don't discriminate. I just bring some for everybody so they have privacy.

She was mindful of the stigma students might feel in accessing basic needs services, like food pantries on campus, so she included all of her students in that practice. Another institution had an app that notified students about where they could pick up donated food. All students had access to the app, and their choice of whether to use it was private. These approaches mitigated the potential stigma that Latinx students might feel in accessing such a service (Duran & Núñez, 2021).

There is concern that students of color lack access to co-curricular science opportunities and that this can hinder their chances to pursue graduate science studies (NASEM, 2019). However, in these departments, co-curricular experiences like research opportunities were designed to be inclusive. One administrator emphasized the importance of this approach: "It's not, 'Okay, we're selective, and this will go away.'...I mean, you can select who you want in your research group, but for the others, how are we going to provide them those experiences?" Another faculty member described that in selecting the members of her research groups, grades are "not an issue for me. If they explain, 'Okay, look, I have a bad GPA, but I really, really want to do it,' and you can see that they're excited about it....I think that would be the main [criterion] for me." Administrators at that same institution also invited all STEM students at first-year orientation to enroll in an institutionalized zero-credit course to learn research methods; the designer of the course explained that "the only math requirement is that the student

qualifies for pre-calculus.” Thus, these students could enter college and immediately participate in a course designed to introduce them to research opportunities.

Talent Development

Study participants emphasized the importance of contributing to students’ academic development and presumed that all students held potential to succeed if given the right supports. As one instructor put it, “Talent doesn’t reside in particular ZIP Codes, it doesn’t reside in particular races, or in socioeconomic groups or parts of the country. It’s everywhere if we’re prepared to support it, right?” An administrator at another institution described a similar message from top-level leadership:

Never confuse our students with where they come from....They may come from underserved high schools where they didn’t get the support that they needed. That doesn’t mean that they’re intellectually inferior, right? And again, what do we do then, to make up the difference? What do we do to balance the playing field? That’s our challenge. It’s a huge opportunity. I’m getting a little choked up here, because it’s so rewarding to be in a position where we can at least help students to meet those objectives.

Like several others in the study, this leader expressed the importance of the institution’s responsibility to support students in developing their potential, as well as a great sense of reward in making such an impact.

Several other administrators and faculty expressed that cultivating talent, including learning alongside students, contrasted with the “impact” they might make at more highly selective institutions. A faculty member who was quite active in both research and teaching stressed the added value of instructors at their institution:

You’re not at Stanford. But probably your contribution to the society is much more than those universities....You know, if I don’t do the research, there are a million other people who could do

the same research. But if I fail to give advice to the student, there aren't a million other people who are going to give them advice. So that's very important, in my opinion.

Another faculty member emphasized the importance of identifying "students who will bring greater societal impact"—including those who are less socioeconomically well-positioned—for various departmental opportunities. In this way, faculty emphasized cultivating students' social and economic mobility as a key goal guiding their work. As one put it,

The faculty that join here, they say the reason that they joined here is because of the demographics of students. They can make a real impact in their lives. So I believe they already share some of the, you know, passion for the community.

Some faculty said they had chosen to work in academia instead of the far more lucrative technology sector because, in the words of one, "I see their success. You know, in industry, you don't have this kind of feeling."

To promote students' economic and social mobility, several participants expressed how they encouraged student involvement in "things where you're just pushing them over the cusp" or giving them "that little push" through opportunities to work on research projects, peer tutoring, departmental leadership positions (such as leading student clubs), or conferences. Perhaps the strongest expression of this commitment came from the faculty member who said, "When somebody knocks on that door...it's ethically my job....It's my responsibility." He continued, "Medical doctors take an oath to do this. I think we all, once we become faculty, we do take that oath—whether we say it publicly or not—and it is to serve the students."

There was also evidence that faculty and administrators assumed shared responsibility for organizational learning to improve student experiences and outcomes, as in a learning organization (Senge, 2006). At the end of each interview, the researcher asked the participant if they had any questions; it was not unusual to hear an answer like the following:

If you find out things that you think would be good for us, or there's stuff I can read, or whatever, that would give us more ideas. Because right now we're just trying to take the most effective practices and use them....You [the interviewer] have the enviable position of being able to look at a lot of different programs and process them on a larger scale.

Another faculty member from the same department asserted, "I still want more from you, though. Tell me what else I need to do....That would be great. Anything we can use...the techniques to get us forward. That's what I want."

In sharing talent development efforts, faculty and administrators praised the collegial nature of their departments. It was not unusual to hear perceptions like, "I trust everybody here—my colleagues, you know, everybody's willing to help out....We all tend to sort of jump with things just to help out, even when we don't know all the nitty gritty details. I just do really feel like there's a ton of talent." Others discussed the importance of supporting faculty and staff in talent development. For example:

If we as faculty and staff don't feel a sense of belonging and don't feel like the university's investing in us, how can we model that belonging and create the belonging for our own students, if we feel like we don't belong? Right? So, a way to signal that you belong is to invest in your professional development....It starts with, "Our faculty and staff are talented, incredibly talented....How can we further them so that we can benefit our students?"

Still others discussed how their department regularly reviewed numerical data on student enrollment, progression in courses, or graduation rates, or conducted observations of their courses in order to improve support systems for students (see also Núñez, 2023).

Cultural Responsiveness

Study participants described departmental climates responsive to Latinx students' concerns, including where curricula and pedagogical approaches engaged students' linguistic backgrounds. They also recognized and supported students' familial interactions around pursuing nonlocal opportunities,

like conferences or internships. As one faculty member put it, “The department’s definitely very encouraging....I’ve been in...three departments before this. And this department is by far the most active...in increasing participation of underrepresented people, women, as well as specifically Hispanic people.”

As a specific example, an administrator described a change in hiring procedures that emphasized the institution’s identity as an HSI:

Previously, we would write position descriptions in a very generic way....If you took off the title and the names, it could apply to any university in this country. Not a single thing about our student population, about our culture, about the way we do things....We’ve now started weaving in and foregrounding [that] we serve a Latino-majority population.

Faculty in other departments also noted that in faculty search processes, interview protocols and campus visits highlighted the institution’s HSI identity.

Several personnel expressed the importance of affirming students’ linguistic capabilities as part of recognizing their cultural assets. One explained how many students at his campus were “the sole English-language speaker...the negotiator and conflict resolution person for their family.” He continued:

Guess what? They're using that on our campus. They're using that skill in the lab. We are using their talent and skill to better the university. So, it's just reframing it as an asset-based approach.

That has taken off like wildfire on this campus.

Not surprisingly, on this campus students could be heard communicating in Spanish with one another and with their instructors. One instructor acknowledged that this might be frowned upon elsewhere:

You hear people sitting over there speaking Spanish to one another about whatever. You might find that to be taboo in some places. But here, it's Monday, you know? I think students know that, and I think that allows them to feel welcomed here. That we're not going to stop them from speaking their language that they're comfortable with.

This faculty member explained that “a lot of our TAs and undergraduate students, they are native Spanish speakers, so they are able to help students in their native language.”

Participants across institutions described how being able to communicate with Spanish-speaking peers or instructors could increase students’ comfort levels. Non-Spanish-speaking instructors were observed encouraging Spanish-speaking students, particularly those who appeared hesitant to speak up in class, to communicate with one another before providing answers. And several faculty were learning to speak Spanish with students. One institution offered personnel a Spanish course and distributed a booklet in its orientation packet to educate faculty and administrators about Spanish pronunciation of names. At another institution, a non-native Spanish speaker described incorporating Spanish into her course content:

I try to include Spanish language into my teaching...even though I cannot tell which country they are from, right? But I can still...be sensitive about which language, which region [might be relevant for assignments]. So those are things I try to be sensitive about.

Indeed, she was observed giving her class a computer programming assignment that required Spanish-to-English translation.

Participants also recognized how to effectively communicate—verbally or in written form—with Latinx and Spanish-speaking students to strengthen their learning. One faculty member described how he worked with students to learn technical writing—they told him, “Dr. Fletcher, [the assignment] is tough, because our speech doesn’t work that way.” He described his response:

And so, then I got into this mindset. I said, “Okay then...I want you to tape record your paper before you write it. Bring it in, I want to hear what it sounds like.” And so, I had the kids tape record themselves before they started writing. That helped tremendously for them doing technical writing. So...they had to do two translations. They had to get from the mind in Spanish

to English, and then from English to [the] technical writing way....[It was] an enigma trying to figure that one out. I don't know if I'm right. I just know it works.

Another non-Spanish-speaking instructor likewise expressed that engaging in more verbal exchanges with Latinx and Spanish-speaking students benefited them in disciplinary problem solving and communication: "Last year, one-third of my class was Hispanic students. And they are very talkative. They have very good feedback. If they are being taught something, they will talk back to you....They will just reply with whatever they know." This instructor observed that his Latinx students were less reticent than students from other backgrounds to ask and answer questions about course material, and he drew on their verbal participation as an asset to enhance learning. In these ways, faculty expressed responsibility for connecting with students' forms of linguistic expression rather than expecting students to conform to other communication approaches.

In a similar vein, several faculty described how they supported students in negotiating family relationships and responsibilities, for example by being flexible and making accommodations for attendance, test taking, or assignments. One administrator described supporting students who wanted to travel as part of their education and training:

Sometimes we talk to parents. So, in the STEM program, for example, we have...an orientation with the parents. And we talk about...because parents...of our Hispanic Mexican-American students in particular are very protective...and they don't want their kids to go away, you know? [They might say] "Okay. Finish your degree, but you're staying here." And they don't realize the value of these students going away, getting additional training, and so on. So, we talk about it. We bring panelists...faculty members, for example, that got their bachelor's degrees here and went away and now are back. [Where a student might say] "I can't do that," you know, one of the faculty members says, "Talk to my mom. She's in the audience. She let me go and look at me now."

Others supported students by speaking with their families about taking advantage of nonlocal opportunities, like Latinx computing conferences or Google internships.

One faculty member described a student who was at risk of leaving school permanently. He told them, “Give me your mom’s cell phone number and write down your address. If you don’t register in the fall, I’m going to go to your home and talk to your mother and call her on the cell phone and make sure she brings you here....You have to come back.” Upon reflection, the professor shared, “When I think about it, it really brings me on the verge of tears.” Following this encouragement, the student got their own job, earned more than enough money to pay for fall tuition, and returned to school. Then, the professor hired the student on campus to do research, and the student went on to pursue a prestigious and lucrative job. Describing other similar cases of how he had encouraged student persistence, he hinted at a logic different than one he might have been socialized toward in graduate school: “Now, that’s not part of the job description that I signed up for.”

All four departments supported co-curricular, racially affirming clubs that, in the words of an administrator, were “bridging that Hispanic aspect” with the profession. A Latinx faculty club advisor, for example, described warning students about potential isolation as one of few Latinx individuals at internship sites like Google: “You know, when you guys go out there, that can happen....Take this as an opportunity to be leaders and to be the first ones, and to be the strong ones.” Some of these clubs created their own Hackathons and invited Latinx industry representatives to attend. Club events and attendance at Latinx computing conferences afforded many Latinx students their first chance to meet Latinx computing professionals and to earn internships and jobs. One department even incorporated Hispanic rituals into its events. A faculty member explained:

We do Dia de Muertos and Halloween....We celebrate both. We come and we do the costumes, but they also write their calaveras [prose celebrating minoritized computer scientists]....We sing.

We have food. We have tamales. We have pan de muerto. We have hot chocolate. So, I think that's one [strategy]—engaging them, making them feel welcome.

The faculty member shared with the interviewer a Facebook page replete with photos of these events and other initiatives, including an outreach program that Latina college students independently arranged to educate Latinas at a local K–12 school about computing professions and coding. This faculty member articulated the value of culturally responsive approaches for students in their department:

You have to find a place for you to work where you'll feel free to be yourself. And I think all these activities help at least more Hispanic students...feel themselves. They feel comfortable enough to embrace what's unique about them.

Hence, in contrast to those in predominantly white, selective institutional settings (e.g., McGee, 2020), these approaches enabled students to bridge, not separate, their identities as computing majors and as Latinx individuals.

Lower Cohesion of Inclusivity, Talent Development, and Cultural Responsiveness at One Institution

Although there was high consistency overall, data at one HSI were less fully saturated with these themes than at others. While the majority of faculty and administrators at this HSI expressed these institutional logics, and many equity-centered practices were undertaken in the department, two tenure-track faculty shared that they were emphasizing research more than teaching—at least until they received tenure. Senior faculty confirmed that the department's tenure review process emphasized research, and a leader referenced the department's national ranking in computer science. And, unlike at other institutions, executive-level leaders did not identify Latinx student needs as a distinctive focus, reflecting "color-neutrality" (García et al., 2020) in their leadership approaches.

Notably, other mid-level leaders at this institution described a lack of cohesion around a mission of servingness. Their concerns actually led them to correct color-neutrality through internal self-study

and by reworking faculty hiring procedures to incorporate servingness-oriented approaches (Villareal, 2022). In fact, they were working on transforming their current HSI identity toward a more idealized one embodying servingness (García et al., 2019b).

Discussion

This study illuminates interrelated guiding assumptions and organizational behaviors that together challenge dominant institutional logics of prestige seeking in higher education. Administrators and faculty expressed that newcomers to a broadly accessible HSI setting (particularly those primarily familiar with R1 settings) should adjust their sensemaking frames to align with the new institutional context in order to better serve students. Further, the findings indicate convergent institutional logics of (a) inclusivity, (b) talent development, and (c) cultural responsiveness. Starting from inclusivity challenges the “exclusion” standpoint (Taylor & Cantwell, 2019) exhibited by many higher education institutions.

Even the discursive framing of “diversity” and “access” in land grant institutions, whose missions include a strong public emphasis, typically constructs “diverse” individuals as outsiders, comparing them with a majority population (like white males) to measure progress (Iverson, 2012). By contrast, faculty and administrators in these four departments did not engage in such boundary construction. Their logic of **inclusivity** challenged sorting and excluding in favor of a belief that all students, whatever their background, deserved a chance in their curricular and co-curricular activities, majors, and institutions. Like faculty in other studies (Gonzales, 2013; Terosky & Gonzales, 2016), many expressed that their institutions’ broad access and HSI missions aligned with their own values and that they viewed their work as having an impact on societal equity that was distinct from that of colleagues in selective institutions.

In the logic of **talent development**, participants emphasized beliefs that student growth and social and economic mobility superseded dominant logics of resources and reputation (Astin, 1993). This

guided them to provide pathways to access the computer science major, supportive pedagogy and research opportunities, as well as conference attendance, jobs, and internships. Put differently, a growth mindset (Dweck, 2008) was evident in many interview excerpts; in one department, posters encouraging such a mindset were displayed on the walls for all to see. A growth mindset has positive consequences for student development, as faculty beliefs that student abilities are malleable, rather than fixed, are associated with increased performance in STEM courses (Canning et al., 2019). Critiqued for being overly individualistic, however, growth mindset should be developed and applied in the social, economic, and cultural contexts where interventions are situated (Denworth, 2019). This study indicates that integrating a growth mindset with contextually situated logics like cultural responsiveness can augment an orientation toward serving HSI students.

In contrast to a color-neutral orientation (García et al., 2020), personnel in this study expressed a logic of **cultural responsiveness** that recognized the structural and cultural issues their students faced. This recognition involved promoting Latinx postsecondary opportunities, establishing racially affirming professional clubs and leadership opportunities, and developing departmental Latinx cultural rituals. It involved engaging Spanish communication approaches and language as well as encouraging students to communicate with their families about how to benefit from geographically distant conferences or internships. Framing bilingualism, multicultural navigation, family support, and relevant cultural rituals as assets enables students to integrate their identities as Latinx and as scientists and is one critical component of inclusive science approaches (Hurtado et al., 2017). These findings indicate that, rather than leaving Latinx STEM and computer science students on their own to cultivate community cultural wealth (Herrera & Kovats Sánchez, 2022; Rodriguez et al., 2023), departments can infuse opportunities for students to integrate their community cultural wealth into their studies.

Ultimately, the findings suggest that alternative disciplinary logics (Posselt, 2015) exist that can challenge the problematic racism, sexism, and competitiveness in computer science and the tech

industry (Mack et al., 2019). These logics challenge misconceptions that narrowly define merit in terms of scientific excellence and excise it from social identity considerations, thereby excluding minoritized groups' perspectives, assets, and representation (Cech & Blair-Loy, 2022). Significantly, prior research on institutional and disciplinary logics in STEM fields has only included scientists from R1 institutions (Posselt, 2015; Cech & Blair-Loy, 2022). This study indicates that scientists from broadly accessible HSIs offer distinctive constructions of institutional logics that recognize the integration of racialized and scientific identities, as well as the co-existence of inclusivity and excellence in science (Hurtado et al., 2017).

Logics of inclusivity, talent development, and cultural responsiveness can challenge white supremacy in higher education and in STEM because they do not construct boundaries that frame non-white individuals as outsiders (Iverson, 2012). These logics guide organizational behavior that includes, rather than excludes, racially minoritized communities from postsecondary and STEM opportunities (García et al., 2019a; Núñez, 2023). Weaving institutional logics of inclusivity, talent development, and cultural responsiveness challenges prestige-seeking logics (Zerquera, 2023). Further, it enhances conceptualizations of servingness in HSIs (García et al., 2019a) and intentionality in STEM (NASEM, 2019).

Drawing on Milner's (2020) concept of opportunity-centered teaching and Flores's (2022) concept of an ecology of postsecondary opportunity, I frame these logics as *opportunity-centered institutional logics*. Opportunity-centered teaching accounts for structural barriers facing minoritized communities to create culturally affirming educational experiences (Milner, 2020). Creating more equitable postsecondary opportunity structures involves creating a culturally responsive ecology of policies, practices, and resources that includes investments in the institutions that minoritized students are most likely to attend, such as HSIs and MSIs (Flores, 2022; NASEM, 2019).

The contrasting findings from the department with less cohesion among opportunity-centered logics reinforce the importance of considering how historical and broadly accessible missions at HSIs shape institutional logics (Doran & Medina, 2017). This department was one of two highly research-active institutions in the study, suggesting that a research-oriented mission may increase the likelihood of the instantiation of prestige-seeking institutional logics, which can pose tensions for (and create less cohesion among) faculty in their commitments to research, teaching, and students (DeTurk & Briscoe, 2021; Gonzales, 2013).

This finding also suggests that the degree of alignment among differently positioned stakeholders' conceptions of institutional logics is associated with cohesion of HSI personnel's commitment to servingness (e.g., DeTurk & Briscoe, 2021) or their intentionality to enact culturally responsive STEM practices, including those focused on teaching (NASEM, 2019). Importantly, however, several personnel from this institution were already aware of this and were undertaking change efforts to move the organizational identity toward a more idealized HSI identity involving servingness (García et al., 2019a, 2019b).

Implications

By examining less studied institutional contexts, including broadly accessible institutions (Crisp et al., 2022), HSIs (NASEM, 2019), and computer science departments focused on equity for minoritized students (Mack et al., 2019; Núñez et al., 2023), this study reveals alternative frames of reference, or opportunity-centered institutional logics, that can direct equity-centered organizational behavior. Future research should address institutional logics in these settings to not only identify but also challenge deeply embedded assumptions, like those related to prestige seeking, that hinder the uptake of the currently popular "logic of reform" focused on student success (Taylor & Cantwell, 2019, p. 125). Furthermore, research should continue to bridge the historically disconnected literatures in higher

education organizational studies, HSIs, and STEM education to design more salient, applicable, and effective approaches to transform academic institutional and disciplinary organizational settings, which, in higher education, are typically situated within the department (AAAS, 2019).

This study holds implications for developing culturally responsive leadership in postsecondary education broadly and in HSIs and STEM. Such leadership entails the recognition and interruption of—as well as reparation for—inequitable assumptions and practices (Santamaria & Santamaria, 2016). The institutional variation in the current findings affirms research showing that enduring and predominant institutional logics, like prestige seeking and the emphasis of research over teaching, can pose barriers to change in equity-centered reform efforts (e.g., Kezar & Bernstein-Serra, 2020). Investing more time up front, at the recognition stage, appears to be necessary for successful equity-centered initiatives. For example, one multi-institutional computer science reform required that administrators and faculty take significant time to read and reflect on their own biases and organizational assumptions before designing and implementing interventions; this investment of effort influenced the initiative's success (Mack et al., 2019).

Following culturally responsive leadership approaches, it is recommended that faculty and administrators at all levels interrogate their deeply embedded assumptions and consider how predominant institutional logics may hinder the equity-centered change they wish to see. To interrupt and repair deeply embedded logics, faculty, staff, and administrators might engage in collective reading and reflection to (a) address institutional logics that could hinder organizational transformation (Kezar & Bernstein-Serra, 2020); (b) design HSI environments that more intentionally support Latinx and minoritized communities (e.g., García, 2019); and (c) apply learnings from research centered on MSIs and HSIs about inclusive computer science and STEM practices (Herrera & Kovats Sánchez, 2022; NASEM, 2019; Núñez, 2023). These efforts could occur within institutions or as part of multi-institutional peer-mentoring efforts. To strengthen the cohesion of equity-centered efforts, this work should engage

faculty, staff, and administrators in shared sensemaking (Kezar, 2018) to develop common understandings and language to articulate opportunity-centered institutional logics. More detailed recommendations on how faculty and administrators can implement and improve equity-centered initiatives like these can be found in Núñez's (2022, 2023) research about these departments' organizational behavior.

The opportunity-centered institutional logics presented here align with an increasing public emphasis on higher education's potential to promote social and economic mobility. The Carnegie classification system is addressing this issue by creating a social and economic mobility classification to highlight institutions effectively serving minoritized and low-income students. Current U.S. Secretary of Education Miguel Cardona has called for higher education institutions "to reimagine themselves around inclusivity and student success, not selectivity and reputation" (Carnegie Foundation for the Advancement of Teaching, 2022). Focusing on opportunity-centered institutional logics provides one departure point for that reimagining.

References

- American Association for the Advancement of Science. (2019). *Levers for change: An assessment of progress on changing STEM instruction*. https://www.aaas.org/sites/default/files/2019-07/levers-for-change-WEB100_2019.pdf
- Astin, A. (1993). *Assessment for excellence: The philosophy and practice of assessment in higher education*. Oryx Press.
- Canning, E. A., Muenks, K., Green, D. J., & Murphy, M. C. (2019). STEM faculty who believe ability is fixed have larger racial achievement gaps and inspire less motivation in their classes. *Science Advances*, 5(2), Article eaau4734. <https://doi.org/10.1126/sciadv.aau4734>
- Carnegie Foundation for the Advancement of Teaching. (2022, February 9). *The Carnegie Foundation and the American Council on Education announce partnership on the Carnegie Classifications for Institutions of Higher Education*. <https://www.carnegiefoundation.org/newsroom/news-releases/carnegie-foundation-and-american-council-on-education-announce-partnership-on-the-carnegie-classifications/>
- Cech, E. A., & Blair-Loy, M. (2022). *Misconceiving merit: Paradoxes of excellence and devotion in academic science and engineering*. University of Chicago Press.
- Charmaz, K. (2014). *Constructing grounded theory: A practical guide through qualitative analysis* (2nd ed.). SAGE Publications.
- Computing Alliance of Hispanic Serving Institutions (n.d.). *About*. Retrieved September 7, 2023, from <https://cahsi.utep.edu/about/>
- Crisp, G., McClure, K. R., & Orphan, C. M. (2022). *Unlocking opportunity through broadly-accessible institutions*. Routledge.

Denworth, L. (2019, August 12). Debate arises over teaching “growth mindsets” to motivate students.

Scientific American. <https://www.scientificamerican.com/article/debate-arises-over-teaching-growth-mindsets-to-motivate-students/>

DeTurk, S., & Briscoe, F. (2020). From equity and enlightenment to entrepreneurialism: An HSI’s pursuit of “Tier-One” status in the neoliberal era. *Review of Higher Education*, 43(4), 967–988.

<https://doi.org/10.1353/rhe.2020.0027>

DeTurk, S., & Briscoe, F. (2021). Equity vs. excellence: Is the pursuit of “Tier-1” status compatible with social justice? *Journal of Hispanic Higher Education*, 20(1), 112–128.

<https://doi.org/10.1177/1538192719836197>

Doran, E. (2014). Negotiating access and Tier One aspirations: The historical evolution of a striving Hispanic-Serving Institution. *Journal of Hispanic Higher Education*, 14(4), 343–354.

<https://doi.org/10.1177/1538192715570638>

Doran, E., & Medina, O. (2017). The intentional and the grassroots Hispanic-Serving Institutions: A critical history of two universities. *Association of Mexican American Educators Journal*, 11(3),

29–49. <https://doi.org/10.24974/amae.11.3.360>

Duran, A., & Núñez, A.-M. (2021). Food and housing insecurity for Latinx/a/o students: Advancing an intersectional research agenda. *Journal of Hispanic Higher Education*, 20(2), 134–148.

<https://doi.org/10.1177/1538192720963579>

Dweck, C. (2008). *Mindset: The new psychology of success*. Ballantine Books.

Flores, S. (2022). *Improving equity in U.S. higher education: A call for equity-enhancing opportunity*

structures. Spencer Foundation. <https://www.spencer.org/learning/improving-equity-in-us-higher-education-a-call-for-equity-enhancing-opportunity-structures>

García, G. A. (2019). *Becoming Hispanic-Serving Institutions: Opportunities for colleges and universities*.

Johns Hopkins University Press.

- García, G. A., Koren, E. R., & Cuellar, M. (2020). Assessing color-neutral racial attitudes of faculty at Hispanic-Serving Institutions. *AERA Open*, 6(3), 1–14.
<https://doi.org/10.1177/2332858420944906>
- García, G. A., Núñez, A.-M., & Sansone, V. A. (2019a). Toward a multidimensional conceptual framework for understanding “servingness” in Hispanic-Serving Institutions: A synthesis of the research. *Review of Educational Research*, 89(5), 745–784. <https://doi.org/10.3102/0034654319864591>
- García, G. A., Ramirez, J. J., Patron, O. E., & Cristobal, N. L. (2019b). Constructing an HSI organizational identity at three Hispanic-Serving Institutions in the Midwest: Ideal versus current identity. *Journal of Higher Education*, 90(4), 513–538. <https://doi.org/10.1080/00221546.2018.1522198>
- Gonzales, L. D. (2013). Faculty sensemaking and mission creep: Interrogating institutionalized ways of knowing and doing legitimacy. *The Review of Higher Education*, 36(2), 179–209.
<https://doi.org/10.1353/rhe.2013.0000>
- Gonzales, L. D., & Ayers, D. F. (2018). The convergence of institutional logics on the community college sector and the normalization of emotional labor: A new theoretical approach for considering the community college faculty labor expectations. *The Review of Higher Education*, 41(3), 455–478.
<https://psycnet.apa.org/doi/10.1353/rhe.2018.0015>
- Herrera, F., & Kovats Sánchez, G. (2022). Curando la comunidad [Healing the community]: Community-centered STEM identity. *Journal of Hispanic Higher Education*, 21(2), 135–150.
<https://doi.org/10.1177/15381927211069543>
- Hug, S., Jurow, A. S., & Thiry, H. (2021). HSI students’ experiences of “servingness” during COVID-19. *Dialogues in Social Justice: An Adult Education Journal*, 6(2), Article R1147.
<https://journals.charlotte.edu/dsj/article/view/1147>

- Hurtado, S. (2015). The transformative paradigm: Principles and challenges. In A. Alemán, B. P. Pusser, & E. Bensimon (Eds.), *Critical approaches to the study of higher education* (pp. 285–307). Johns Hopkins University Press.
- Hurtado, S., White-Lewis, D., & Norris, K. (2017, December) Advancing inclusive science and systemic change: The convergence of national aims and institutional goals in implementing and assessing biomedical science training. *BMC Proceedings*, 11(Suppl. 12), Article 17.
<https://doi.org/10.1186%2Fs12919-017-0086-5>
- Iverson, S. (2012). Constructing outsiders: The discursive framing of access in university diversity policies. *Review of Higher Education*, 35(2), 149–177.
<https://psycnet.apa.org/doi/10.1353/rhe.2012.0013>
- Kegan, J., & Lahey, J. (2009). *Immunity to change: How to overcome it and unlock the potential in yourself and your organization*. Harvard Business Press.
- Kezar, A. (2018). *How colleges change: Understanding, leading, and enacting change* (2nd ed.). Routledge.
- Kezar, A., & Bernstein-Serra, S. (2020). Scaling culture change through institutional logics: A look at the American Association of Universities (AAU) STEM initiative. *Peabody Journal of Education*, 95(4), 356–373. <https://doi.org/10.1080/0161956X.2020.1800173>
- Lehman, K. J., Karpicz, J. R., Nakajima, T. M., Sax, L. J., & Rozhenkova, V. (2022). “None of this happens in a vacuum”: The impact of external dynamics on department chairs’ efforts to broaden participation in undergraduate computing. *Computer Science Education*.
<https://doi.org/10.1080/08993408.2022.2160150>
- Mack, K. M., Winter, K., & Soto, M. (Eds.). (2019). *Culturally responsive strategies for reforming STEM higher education*. Emerald Publishing.

- McGee, E. (2020). *Black, brown, bruised: How racialized STEM education stifles innovation*. Harvard Education Press.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2020). *Qualitative data analysis: A methods sourcebook*. SAGE Publications.
- Milner, R. (2020, October 22). How to really close opportunity gaps during our national racial reckoning. *Education Week*. <https://www.edweek.org/leadership/opinion-how-to-really-close-opportunity-gaps-during-our-national-racial-reckoning/2020/10>
- National Academies of Sciences, Engineering, and Medicine. (2018). *Assessing and responding to the growth of computer science enrollments*. The National Academies Press.
<https://doi.org/10.17226/24926>
- National Academies of Science, Engineering, and Medicine. (2019). *Minority serving institutions: America's underutilized resource for strengthening the STEM workforce*. The National Academies Press. <https://doi.org/10.17226/25257>
- National Center Science and Engineering Statistics [NCSES] (2022). *Women, minorities, and persons with disabilities in science and engineering*. Alexandria, VA: National Science Foundation.
- Núñez, A.-M. (2022). Creating cultures of student success: Insights from Hispanic-Serving Institution computer science departments. *Change*. 54(5) 44-51.
<https://www.tandfonline.com/doi/full/10.1080/00091383.2022.2101867>
- Núñez, A.-M. (2023). Examining organizational behavior of Hispanic-Serving Institution computer science departments: Toward servingness and equity in the field. *Journal of Women and Minorities in Science and Engineering*, 29(2), 75-96. DOI: 10.1615/JWomenMinorScienEng.2022038505
- Núñez, A.-M. (2017). Flipping the HSI narrative: An HSI positionality. *Association of Mexican American Educators Journal*, 11(3), 276–295. <https://doi.org/10.24974/amae.11.3.370>

- Núñez, A.-M., & Bowers, A. J. (2011). Exploring what leads high school students to enroll in Hispanic-Serving Institutions: A multilevel analysis. *American Educational Research Journal*, 48(6), 1286–1313. <https://doi.org/10.3102/0002831211408061>
- Posselt, J. R. (2015). Disciplinary logics in doctoral admissions: Understanding patterns of faculty evaluation. *The Journal of Higher Education*, 86(6), 807–833. <http://dx.doi.org/10.1353/jhe.2015.0030>
- Rivera, J., & Núñez, A.-M. (2022). Staff at Hispanic-Serving Institutions: Debugging Challenges in Navigating Computer Science. *About Campus: Enriching the Student Learning Experience*, 27(1), 38-47. <https://journals.sagepub.com/doi/abs/10.1177/10864822221102477>
- Rodriguez, S., Ramirez, D., Lehman, K.J., & Sax, L.J. (2023). Utilizing community cultural wealth to explore the experiences of Latina undergraduate students in computing, *Journal of Women and Minorities in Sciences and Engineering*, 29(3), 1-24.
- Saldaña, J. (2015). *The coding manual for qualitative researchers* (3rd ed.). SAGE Publications.
- Sánchez, M. E. (2019). Perceptions of campus climate and experiences of racial microaggressions for Latinos at Hispanic-Serving institutions. *Journal of Hispanic Higher Education*, 18(3), 240-253.
- Santamaria, L. J., & Santamaria, A. (Eds.). (2016). *Culturally responsive leadership in higher education: Promoting access, equity, and improvement*. Routledge.
- Sax, L. J., Zimmerman, H. B., Blaney, J. M., Toven-Lindsey, B., & Lehman, K. J. (2017). Diversifying undergraduate computer science: The role of department chairs in promoting gender and racial diversity. *Journal of Women and Minorities in Science and Engineering*, 23(2), 101–119. <http://dx.doi.org/10.1615/JWomenMinorScienEng.2017017221>
- Senge, P. (2006). *The fifth discipline: The art and practice of the learning organization* (2nd ed.). Doubleday.

- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). SAGE Publications.
- Taylor, B., & Cantwell, B. (2019). *Unequal higher education: Wealth, status, and student opportunity*. Rutgers University Press.
- Terosky, A., & Gonzales, L. (2016). Re-envisioned contributions: Experiences of faculty employed at institutional types that differ from their original aspirations. *Review of Higher Education*, 39(2), 241–268. <http://dx.doi.org/10.1353/rhe.2016.0005>
- Villa, E. Q., Hug, S., Thiry, H., Knight, D. S., Hall, E. F., & Tirres, A. (2019, April 14–22). *Broadening participation of Hispanics in computer science: The CAHSI INCLUDES Alliance* [Conference paper]. Annual Collaborative Network for Engineering and Computer Science (CoNECD) at the American Society for Engineering Education, Washington, DC, United States.
- <https://www.asee.org/public/conferences/148/papers/24674/view>
- Villareal, C. (2022). Servingness in the borderlands: A study of faculty hiring at a Hispanic-Serving Institution on the border. *AERA Open*, 8. <https://doi.org/10.1177/23328584221099597>
- Yin, R. K. (2018). *Case study research and applications: Designs and methods* (6th ed.). SAGE Publications.
- Zerquera, D. (2023). Still striving, and for what? Centering equity in the study of prestige seeking in higher education. In L. W. Perna (Ed.), *Higher education: Handbook of theory and research* (Vol. 38, pp. 265–324). Springer.

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