Growing Enrollments Require Us to Do More: Perspectives on Broadening Participation During an Undergraduate Computing Enrollment Boom

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ABSTRACT

Since 2006, undergraduate interest in computer science degrees has increased significantly, marking the third period of CS enrollment growth since the field's emergence in the early 1900s. Scholars have theorized that institutional approaches to managing these cycles of enrollment growth, notably the inability to scale programs, resulted not only in the discipline's constriction, but also the disproportionate decline in the participation of Black, Latin*, and Indigenous students in computing. This history suggests that it is important for stakeholders to think intentionally about how the management of enrollment surges can hamper, or even undermine, efforts to broaden participation in CS; yet there is limited research examining whether and how stakeholders from CS departments perceive this relationship. This paper reports findings from a qualitative study of CS departments at four public research institutions in the United States to understand how 55 stakeholders perceived undergraduate enrollment and diversity trends, as well as the relationship between booming enrollments and diversity efforts within the department. We found that participants largely spoke about their diversity work without referencing the impacts of enrollment shifts in the department. When this relationship was discussed, participants varied in how they framed it—as either positive, negative, or null. We argue that separating out diversity work from core priorities in the department will hinder departments' ability to sustain BPC efforts into the future. Instead, it is imperative that stakeholders understand how departmental responses to dynamic external forces (e.g., booming enrollments, shifting realities related to COVID-19) impact diversity efforts.

CCS CONCEPTS

• **Social and professional topics ~ Computing education**

KEYWORDS

Broadening participation; external dynamics; undergraduate computing; enrollment growth

1 INTRODUCTION AND LITERATURE REVIEW

This year, as the SIGCSE community focuses on efforts to expand opportunities in computing education, it is important to consider this work within a broader context of departmental priorities. Undergraduate computer science (CS) departments have recognized the need to address racism and sexism, particularly as it impacts the participation of women[1] and Black,

[1] While the language "women and Students of Color" is commonly used in BPC literature, we acknowledge this phrasing risks contributing to "an entrenched misunderstanding of how women's experiences as women also intersect with their experiences as members of ethnic minority groups" [1, p. 313]. Hence, we want to draw direct attention to the ongoing need to center Women of Color in research on women's experiences in computing.

Latin*, and Indigenous students – identified as "*underrepresented racial/ethnic minorities*"[2] by the National Science Foundation [4]. Departments have implemented a range of interventions to broaden participation in undergraduate computing (BPC) [5, 6], yet stubborn and persistent participation gaps remain. For instance, according to data provided by the U.S. Department of Education of all computing and information sciences bachelor's degrees awarded in the 2016-2017 academic year, 47% were awarded to white men, whereas only 2% were awarded respectively to Black women and Latinas/Hispanic women [7, 8]. Comparatively, white men earned 27% of all bachelor's degrees that year, while Black women earned 6%, and Latinas/Hispanic women earned 8% [7, 8].

History suggests an important factor influencing who majors in computing fields is overall undergraduate computing enrollment. That is, past periods of growth in computing have been followed by sharp, disproportionate declines in the representation of women and Black, Latin*, and Indigenous students [10–12]. For example, when we consider the 1990s, during the "dot com" boom, representation gaps grew. Specifically, Sax et al. [13] found that in 1990, 3.3% of entering college men and 1.5% of entering college women indicated plans to major in CS. However, by 2000, 9.3% of incoming college men planned to major in CS, while only 1.9% of women did. Similarly, Sax et al. [14] found that, while Black students earned 10% of computing degrees in 1994, by 2000, that share had fallen to approximately 8.5%, though Black students' degree attainment in all other fields had risen steadily during that same period.

Such trends are concerning given that undergraduate computing is experiencing a period of historic enrollment growth [15]. Recent growth in computing bachelor's degree production (74%) significantly outpaced overall growth in bachelor's degree production (16%) and labor demands in the tech sector suggest that "the longer-term trend is likely to be high or growing numbers of enrollments for many years to come" [10, p. 3]. Although U.S. colleges and universities face many levels of uncertainty amidst the coronavirus pandemic, it seems likely that interest in pursuing computing degrees will remain high, as the pandemic has highlighted the importance of technology in global economies and underscored the advantages of fields that can conduct their work remotely.

Given the precedents, many in the computing community are concerned about the possible impact of the current enrollment growth on student diversity, particularly the participation of Black, Latin*, and Indigenous students and women in computing [16, 17]. A recent survey by the Computing Research Association confirmed that many departments were struggling to center diversity work while managing growing enrollments; few computing units reported making decisions about enrollment based on their possible diversity impact and most did not believe their diversity initiatives would be sufficient in addressing the diversity-related concerns associated with growing enrollments [15].

Within this context, there is a need to better understand how computing departments are managing their growing enrollments without compromising efforts to broaden participation for women and Black, Latin*, and Indigenous students. The following research questions guided this qualitative project:

- How do stakeholders perceive enrollment trends in their department?
- How do stakeholders perceive diversity trends in their department?
- How do these stakeholders describe the relationship between enrollment growth and diversity in computing?

2   CONCEPTUAL FRAMEWORK

We used the Inclusive Excellence Change (IE) model as a guide for our research design. This conceptual framework synthesizes environmental and organizational factors from prominent models of organizational behavior and change (e.g., shifting demographics and institutional norms) to better model the comprehensive nature of transformative diversity work [18–20]. We selected the IE framework because it defines how environmental factors impact institutional diversity work [20], which aligned with our interest in how nationwide enrollment growth in CS was impacting departmental diversity efforts. Additionally, the IE model's definition of inclusive excellence aligned with the core commitments of the BRAID initiative (described below): emphasizing a commitment to students' intellectual and social development through the purposeful use of resources to expand access, attention to diversity and representation within the curricula, and development of an academic community that welcomes and serves all students [20]. We used the IE model to guide the development of our interview protocol, so that each interview question spoke to the different dimensions of the IE framework: external environments, organizational behavior, organizational culture, and organizational levers for change [20]. For example, we asked stakeholders how their departmental diversity efforts aligned with institutional norms and priorities, to understand how diversity work was impacted by the broader organizational culture [20]. Additionally, we asked stakeholders how they sought buy-in around their diversity efforts, to understand how leaders were developing levers for change [20]. Using the IE model to inform the protocol development resulted in rich, comprehensive conversations about the nuances, challenges, and impacts of departmental diversity work in undergraduate CS.

3   METHODS

The data for this paper was gathered as part of BRAID, a multi-year, mixed methods research project aimed at understanding efforts to broaden participation in undergraduate computing at 15 research universities across the United States. In 2018, the research team began a multi-site qualitative study of four of the

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[2] While the terms *underrepresented minority* or *URM* are commonly used in STEM and computing communities and literature, we agree with Williams' [2] critique that it is harmful, racist language. As such, we are shifting the language we use in our work. We employ the term *underrepresented* when our participants used it, as indicated by quotation marks. Otherwise, we explicitly name the specific racial/ethnic groups we mean to describe or use *Students of Color* to refer broadly to

students who self-identify as Black, Latin*, Indigenous, Asian, and/or multiracial. Further, we use *Latin** as a gender-inclusive referent for students of Latin American descent; a term that "encompasses gender fluidity and identity labels that already exist, as well as those that have yet to be included in the mainstream vocabulary" [3, p. 164].

institutions to examine how booming enrollments were shaping departmental efforts to broaden participation in CS. We sought to understand how participants perceived or made sense of the relationship between booming enrollments and departmental diversity trends and initiatives [21].

Our goal in selecting institutions was to identify CS departments that could provide rich insights into how differently situated institutions were pursuing diversity efforts in the unique context of growing enrollments nationwide. The four institutions in this study were selected based on a range of factors, including institutional type, demographics, department size, and location, as well as the breadth of departmental diversity efforts.

3.1 Participant Selection

We used a purposeful sampling strategy [21] to recruit participants who had taken on leadership roles within diversity efforts in computing. We identified stakeholders through a snowball method [22]: we asked participants to refer us to other key players in the computing department's diversity efforts. We sought a broad range of perspectives. As a result, our sample included a mix of undergraduate and graduate students, department staff, faculty, department chairs, and other stakeholders at the college-level (e.g., dean, associate dean, coordinators) and outside the college (e.g., student services directors). Participant demographics are included in Table I.

TABLE I
PARTICIPANT DEMOGRAPHICS BY INSTITUTION

Participating Institutions	(1)	(2)	(3)	(4)	Total
Total number of participants	16	15	10	14	55
Faculty	5	6	3	5	19
Students (undergrad, grad)	4	6	5	3	18
Staff within department	5	1	0	0	6
Stakeholders outside the department	1	1	1	5	8
Department chairs	1	1	1	1	4
Women	13	9	8	11	41
Men	3	6	2	3	14
White	5	6	2	11	24
Asian	4	7	5	1	17
Black	4	0	0	0	4
Latin*	1	0	1	0	2
Two or more races	2	1	1	2	6
No response (race/ethnicity)	0	1	1	0	2
Percent increase in undergraduate computing enrollment 2014-2017	44	30	22	40	-

3.2 Data Collection

We conducted hour-long, individual interviews with these 55 stakeholders to explore their perceptions of enrollment and diversity trends, their experience with diversity work, as well as their perceptions of the relationship between diversity efforts and the growing enrollments in computing. Specifically, the protocol had six questions focused on perceptions of enrollment trends, including two that asked participants to share their observations of population trends among women and Black, Latin*, and Indigenous students. There were 13 other questions focused on the factors and initiatives that supported or constrained diversity and inclusion initiatives in the department, including one question that directly asked how enrollment growth was impacting departmental BPC efforts. Interviews were conducted remotely via Zoom; individuals received a $50 gift card for their participation in the study.

3.3 Data Analysis

Once interviews were completed and transcribed, the research team conducted a preliminary cycle of structural coding. A structural code is a "content-based or conceptual phrase...that relates to a specific research question used to frame the interview" [23, p. 98]. Structural codes are defined in advance and allow the research team to index relevant interview excerpts, and then examine these buckets of data for salient themes [23]. To ensure codes were consistently applied, six members of the research team initially coded the same transcript, compared our excerpts and applied codes, then met to clarify and refine code definitions before divvying up the remaining interviews to code individually.

For this paper, the research team examined excerpts from two structural codes: 1) perceptions of enrollment trends (n=137) and 2) reflections on the relationship between diversity efforts and growing enrollment (n=164). Three members of the team analyzed this subset of data by writing individual, analytic memos that identified and made meaning of the "emergent patterns, categories, themes, concepts, and assertions" within both structural codes [23, p. 48]. The research team met to compare memos, refine interpretations, and develop consensus around an outline of key findings related to each research question. These themes are described in detail in the findings section. This collaborative approach to analysis allowed multiple perspectives and interpretations to emerge and be considered, resulting in richer understandings of the data [23].

4 LIMITATIONS

Though diverse in size and geography, the institutions in this study are all research universities experiencing similar degrees of undergraduate enrollment growth. Thus, our findings may speak more closely to similarly situated institutions. For other types of institutions, such as community or liberal arts colleges, the enrollment boom and BPC work may be experienced differently. Nevertheless, the issues raised by our findings may still resonate across institutional contexts.

Additionally, our snowball sample yielded few referrals to individuals directly involved in undergraduate admissions, whose perspectives might have added additional insights about the institution's perceptions of enrollment growth and diversity, equity, and inclusion (DEI) goals. Finally, there were two institutions where we were not as effective in connecting with the undergraduate Students of Color [34] who were active in departmental DEI initiatives. Their voices are critical and should be included in conversations about the enrollment boom and its

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3 We capitalize certain racialized terms, such as Students of Color, "as a grammatical move towards empowerment and racial justice" of student communities that have historically been marginalized in the field [24, p. 93].

effect on BPC efforts. All of these aforementioned limitations present important opportunities for future research.

5 RESULTS

As we conducted interviews, we found that participants rarely brought up growing enrollments as impacting their diversity efforts (n=89), when compared to the number of times they spoke about the broader institutional context surrounding diversity efforts (n=744) and the diversity initiatives themselves (n=771). The data about the impact of growing enrollments in relation to diversity efforts came almost exclusively in response to our direct question about this relationship: "How are your diversity efforts impacted by growing enrollments in computing?" This was a surprise to us, as past research indicated the enrollment boom was a pressing concern among CS department chairs [25], and so we expected it would be similarly salient for other stakeholders. We interpret this dynamic further in the discussion section, but first synthesize how participants perceived and narrated the growing enrollments broadly (RQ1), diversity trends (RQ2), and the relationship between enrollment growth and BPC efforts (RQ3).

5.1 Perceptions of Enrollment Trends

Most participants perceived enrollments in computing majors as growing at a higher rate than enrollments in non-computing majors, which manifested in noticeably larger class sizes. Participants perceived the enrollment boom in CS through several lenses: most interviewees saw it as a *crisis* (i.e. a difficult to manage situation that hinders teaching and learning) and/or a *challenge* (i.e., a demanding situation to which they can adapt), while a small number of participants saw it as an *opportunity* (i.e. an incentive to adjust and thrive in new circumstances).

Crisis Narrative. When referring to the booming enrollments, participants frequently used crisis language describing them as "rocketing," "exploding," "overwhelming," and "untenable" with regard to scaling teaching, advising, and existing institutional capacity/resources to meet demand. Interviewees who had slightly negative attitudes toward the computing enrollment boom, including both faculty and students, expressed concerns about their institutions' preparation and capacity to manage the growing number of students. Some participants noted that their lecture halls were not equipped to accommodate more students, especially in the introductory courses. Participants noted that increased enrollments affected all aspects of teaching and learning from cultivating instructor-student relationships to testing and grading.

At one institution, limiting enrollments seemed to be the most immediate response to the *crisis*. However, some participants expressed concerns that such a measure might discourage students from applying to CS majors, especially those coming from marginalized backgrounds. For example, some participants feared that limiting enrollment would make enrolling in CS more difficult for community college transfer students.

Challenge Narrative. Most participants responded to the *crisis* of booming enrollments as a *challenge*, requiring them to adapt in ways that were often difficult but still doable. Faculty members emphasized that larger classes forced them to focus less on teaching and more on managing TAs and students (e.g., setting stricter deadlines and requirements, training increased numbers of TAs, etc.). All of the institutions in this study responded to the enrollment boom by hiring more faculty and academic personnel

to increase teaching capacity. This expansion of teaching resources, however, was often not enough to fully accommodate considerably increased student interest in the major. Several faculty perceived the inevitable changes in classroom management as limiting their ability to offer individualized support to students. They expressed concern that this might further disadvantage "at-risk students" already struggling in CS courses.

Furthermore, growing numbers of students put additional pressure on student support services, especially academic counseling units that struggled to advise large numbers of students with limited personnel. Several participants expressed concerns that students were not receiving sufficient academic counseling, as a staff member described the situation:

> How do you advise 3,700 students? It is a big question. It's something that I think the department still prides itself on but also needs to start thinking about what are ways that it can make the advising process more streamlined and better for students.

Some stakeholders developed creative ways to address the issue of growing interest in the major. For instance, an academic advising office in one department "hired a director of communications," whose main responsibility was utilizing social media to make students feel supported and part of a tight and inclusive community.

Opportunity Narrative. A small number of interviewees saw the enrollment boom as an *opportunity*; these participants noted positive changes, like the department's increased visibility and centrality on campus. As one of the participants noted: "We've gone from an obscure department on campus to, we're in the top five majors right now." The participants noted that as the department's size grew, so did their visibility and prestige at the institution, which facilitated access to resources (e.g., alumni donations, institutional investments in infrastructure for the college) and increased the number of talented students interested in the major. Increased student interest enabled departments to expand their degree offerings, allowing students to specialize in a range of sub-fields. Additionally, some faculty members mentioned that increased class sizes might not necessarily mean an increase in workload if the teaching process was well-thought out, organized, and enhanced by incorporating new technologies. All of the aforementioned measures partially alleviated immediate concerns related to computing's enrollment boom; however, most participants noted that more work was needed to ensure that students were receiving meaningful learning experiences.

5.2 Perceptions of Diversity Trends

Several interviewees had observed an increase in the number of women enrolled in computing. According to one participant, the "total number of women in the program was much larger than it was five or ten years ago," which they attributed to the broader enrollment trends within the department. At one of the larger institutions, a participant lauded their department for enrolling one of the largest cohorts of women in the nation. Participants perceived the numerical growth in undergraduate women in computing as, at least, proportionate to overall enrollment growth, meaning that the percentage of women enrolled in the department had either increased or stayed the same. Despite these gains, several interviewees also reported high attrition of women from the major: even if a CS program admitted a large number of

women initially, a significant proportion of them would drop out after taking a few courses. Participants cited many reasons for women's departure from computing, such as women not feeling included, not having their voices heard, and/or struggling with "mansplaining."

Unlike observations about the growth in women's enrollment, participants observed that the percentage of Black, Latin*, and/or Indigenous students had either remained stagnant or was increasing at a slower rate (than overall enrollment and in comparison, to women's enrollment). This dynamic occurred across all four sites, regardless of the racial demographic trends within the institution, state, or region. At one institution, a participant spoke directly to this, observing that the percentage of "underrepresented minorities remained the same while the proportion of women crept up slightly."

Within these conversations, identity was often framed as a binary, with participants describing their perceptions of diversity trends *either* by race *or* gender. These conversations did not consider how representation (or the lack thereof) can be shaped by multiple aspects of identity simultaneously. Despite observations that the representation of women was increasing at a faster rate than the representation of Black, Latin*, and/or Indigenous students, none of the participants interpreted what these observations signaled for the participation of Women of Color. This further underscored the need for intersectional approaches that directly address the experiences of students embodying multiple marginalized identities [1].

5.3 Perception of the Relationship Between Enrollment Growth and Diversity Efforts

As noted earlier, participants rarely described the growing enrollments as having any relationship to their diversity efforts. When asked directly about the relationship, participants described the enrollment boom as creating *challenges* as well as *opportunities* for diversity work. We also found that some participants did not perceive any relationship at all; these narratives we characterized as *null*.

Opportunity Narrative. The *opportunity narrative* largely highlighted how the increased number of Black, Latin*, and Indigenous students and women created more opportunities for community building. Several interviewees noted how women and Students of Color fostered connections within the department by creating study groups and other informal supportive spaces. Students described study groups created by women as expanding students' "opportunity to relate to other people in the classroom," and generally noted having "more connections with People of Color and women, as a result of the [enrollment] growth." These relationships proved to be an important resource that maintained students' engagement in the class. Stakeholders at each university commented on the importance of formal resources including identity-based campus organizations, career development programs, and diversity-focused conferences, like Grace Hopper and Tapia. Within these spaces, students experienced a sense of affirmation, connection, and belonging, in addition to material resources and support networks that empowered them to persist in their major.

Stakeholders also felt that the growing enrollments created opportunities to expand student engagement in departmental diversity initiatives, particularly outreach and affinity organizations. This finding was best captured by one interviewee who explained, "I feel like there's been more organizations... As a result of these clubs and more activities centered around underrepresented students, I feel like I get more interaction with them." Participants named identity-centered groups led by Students of Color and women (i.e., National Society of Black Engineers, Society of Hispanic Professional Engineers, and the Association for Computing Machinery's Council on Women in Computing) as vital community supports and integral sites for diversity and inclusion initiatives.

Another interviewee spoke more broadly about how the enrollment growth "positively impacted" the department's diversity because "it has given a lot of opportunities for students to get involved in different things in computing. And also, has allowed for a lot of job opportunities and internship opportunities...just networking opportunities." This stakeholder felt the student-led clubs and organizations provided spaces for students to network and explore a wider range of sub-areas within the field (i.e., robotics, AI, etc.) outside the classroom setting. In most of these co-curricular spaces, such as hackathons and professional development workshops, women and Students of Color served as leaders, expanding their visibility in the department and encouraging broader participation in these activities.

Challenge Narrative. The *challenge narrative* identified ways the enrollment growth constrained diversity and inclusion initiatives. These were almost entirely focused on how the increased student population impacted the classroom climate and general atmosphere for women and Black, Latin*, and Indigenous students. One chair noted that, despite the institution knowing that a "high student-to-faculty ratio [is] not conducive at all to the diversity of the department," there department was still struggling to get additional teaching resources. A couple students and staff observed that the larger class sizes were alienating for women and Black, Latin*, and Indigenous students because "when you're sitting in [a 300-400 student] class, you look around and there are very few students that look like you." One participant remarked that this dynamic limited "interactions with peers, interactions with instructors or faculty members" and created a "chilly" climate for Students of Color. Another student noted that this alienation continued even in advanced courses, which she described as still "mostly white men." This participant noticed that there were even fewer Black, Latin*, and Indigenous students and women in advanced courses than in introductory courses because they were retained at lower rates.

There were also participants who identified the enrollment growth as a challenge because it limited faculty's bandwidth to prioritize diversity initiatives, given their "overwhelming" teaching and departmental responsibilities. This was most directly stated by one faculty member who, when asked whether the department was discussing more inclusive pedagogical strategies noted, "we have so many students, we can't deal with it, we're drowning. This is not the time to try to figure out how to do things better." An academic advisor similarly noted how, "with increasing and surging enrollment, all you can do is put out the fires every day...it's very difficult to come up for air and think about things strategically."

Multiple faculty members and academic counselors/advisors expressed that with the increased enrollments, their department or institution provided little to no additional resources and assistance, which affected various departmental diversity and inclusion initiatives. For example, as departments made efforts to accommodate their larger student population, the urgent need for additional faculty and larger lecture halls often took precedence over priorities such as providing diversity training to TAs, which one participant felt the "department lacked sufficient funding for." This participant's statement echoed the concerns of several stakeholders who felt the diversity initiatives were on the "back burner" as the department's resources were allocated toward other salient concerns, such as securing teaching resources for courses. Participants expressed concern that resource constraints "could hurt the efforts to recruit diverse populations into the program."

Null Narratives. Lastly, a small number of stakeholders, when prompted to reflect on how the enrollment boom was impacting diversity work, felt there was little to no impact on departmental diversity and inclusion initiatives. Within this group, there were some who noted that the growing enrollment was not differentially affecting the experiences of women, Black, Latin*, and Indigenous students, noting it was "[n]either positive or negative." Others reflected on the *null* relationship between enrollment growth and their own diversity work, as one participant noted, "I've noticed the growing enrollment, but not in a way that has a tangible effect on my diversity efforts."

6   DISCUSSION AND IMPLICATIONS

The findings from this study highlight how various stakeholders in computing departments view the enrollment boom and understand its connection to the diversity work in which they engage. As mentioned previously, perhaps the most surprising finding of this study was that few participants connected the enrollment boom to their experiences with diversity and inclusion work until prompted to do so in our interviews. Prior research has highlighted that external dynamics, including enrollment growth, directly shape how computing department chairs conceptualize and execute their broadening participation plans [25], and that during periods of enrollment boom, gaps in participation tend to increase [9–12]. Hence, we expected that individuals involved in computing departments would be thinking about their BPC efforts in concert with surges in student enrollment. However, the participants in this study largely did not relate these two phenomena in narrating their diversity work. This finding aligns with the previous research showing that computing departments are not factoring possible DEI impacts into decisions about enrollment management [15, 17], and extends it by demonstrating that stakeholders are not always proactively thinking about these two areas (i.e., managing enrollment and BPC efforts) as mutually informing. The ability to think through how these priorities are interwoven, and narrate them in relation to each other, is a necessary precursor to equitable decision making.

Participants across the four institutions in our study recognized the importance of broadening participation and were active in departmental efforts to do so. Nevertheless, we observed that departmental responses to the enrollment boom often lacked cohesiveness with their broadening participation goals. For example, faculty who saw the booming enrollments as a *challenge* or *opportunity* described adapting through innovations in teaching, such as offering online versions of introductory courses and expanding the number of TAs and discussion sections. However, interviewees rarely spoke about developing innovative strategies that would simultaneously advance departmental equity goals or gathering data about how enrollment management strategies were impacting the experiences of women and Students of Color in the department. Instead, enrollment pressures were most often framed as a *crisis* that sapped faculty's energy for diversity work and prompted immediate actions to curtail and manage the surge of students, including, at one institution, capping enrollments. Roberts [26] argued this type of "capacity collapse" fueled the "boom-and-bust cycle" that computing experienced in the 1980s; that is, degrees awarded in computing fell dramatically from 1984 until 1991, not as a result of declining student interest, but because computing departments restricted admissions into computing majors to curtail enrollment. We now understand that these policies to restrict admissions disproportionately impacted women and Students of Color, thereby widening the participation gaps.

This history points us to a key challenge that remains present among the institutions in our study: the need for data-driven approaches that integrate innovation and planning with key equity and retention outcomes [27]. We argue that there is a significant opportunity for computing departments to rethink the way they approach DEI work in light of the external dynamics that shape the daily workings of an academic department. The Inclusive Excellence model points to the need for synergy across dimensions to truly engrain DEI work into the fabric of institutions [20]. So, in the case of the enrollment boom, the IE model suggests that inclusive excellence requires plans for managing student enrollments to be made with significant consideration for their impact on BPC efforts. Thinking across dimensions is particularly important now, as computing departments face several external forces, notably the global pandemic and increased calls for racial justice, that will shape decisions made across their departments and institutions. An institutional scorecard accompanies the IE model that may serve as a tangible resource to departments seeking to do this work, including specific indicators that may help departments identify successes and challenges [20]. For instance, departments might consider how increased enrollments and/or online courses may shape student learning around skills to work in diverse teams [20]. To be successful in creating inclusive departments, we must hold the many competing imperatives driving decisions about computing departments together and simultaneously with DEI efforts. External forces that demand attention are a constant; to make progress on broadening participation in computing, leaders cannot allow external circumstances to sideline DEI work. Instead, departmental leadership must be strategic in developing data-driven approaches that are aligned with BPC goals. As one participant summarized:

> There will be no question on whether we need to [address] diversity issues. You might think, 'Well, students are going to come, so we don't have to worry about it,' but it is not getting students here, it's keeping them here, it's helping them find their place and staying here to graduation. I think growing enrollments are only going to require that we do more.

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