

## **BOARD # 403: NSF EHR Core Research: Exploring Faculty Accountability within Departmental Change Efforts**

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## **NSF EHR Core Research: Exploring Faculty Accountability within Departmental BPC Efforts**

### **Background**

In the last two decades, many computer science (CS) departments have undertaken diversity, equity, access and inclusion efforts to broaden participation in computing (BPC) for underrepresented populations [1]. Much National Science Foundation (NSF) funding has gone toward these efforts (i.e., 15+ years of BPC Alliances, the INCLUDES and ADVANCE programs) with little progress in changing the gender or racial representation of computer science students or faculty [2, 3]. Further, historically marginalized students report that exclusionary departmental cultures have not caught up with BPC intentions [4]. We posit that this stasis is rooted in departmental cultures and organizational values that inhibit change, and central to departmental culture are faculty attitudes and behaviors [5]. Yet little research has focused on faculty contributions to CS departmental cultures and what helps or hinders departmental progress towards equitable climates.

### **Study Design**

Our phenomenological qualitative research study explores faculty attitudes toward departmental broadening participation in computing (BPC) efforts [6]. The phenomenological approach focuses on understanding individuals' perceptions and experiences in order to make sense of organizational phenomena, in this case, BPC efforts [6]. We seek to understand organizational change through departmental BPC efforts by exploring participants' lived experiences of those efforts, especially their beliefs, attitudes, and feelings about these efforts. Through this type of study, we can explore the norms, values, and behaviors that support or hinder departmental BPC initiatives. Our research question is: *How does the locus of BPC efforts influence the norms of the department relative to DEAI?*

### **Methods**

#### ***Study Sites***

This project is funded through the NSF EDU Core Research program. Study sites were three computing departments in three different states. Site selection was based on (1) high undergraduate degree-production, (2) involvement in NSF BPC initiatives, (3) experiencing success in some BPC areas and lagging in others. To identify sites, we drew data from the National Center for Educational Statistics Integrated Postsecondary Educational Data Systems (IPEDS) database, including undergraduate degree completion trends for computer and information sciences (CIP 11) departments in public, doctoral-granting institutions in the last six years. We sought departments that were doing better than peers in graduation of women or underrepresented groups (e.g., Black, Latine). We compared findings from the IPEDS database with departments that were actively engaged in developing departmental BPC plans as an indicator that the department was involved in organizational change efforts related to BPC. We also sought departments that had experienced success in increasing degree completion of some underrepresented groups, though not others; for instance, a department that had improved the

graduation of women but not Black undergraduates. We selected these departments because success in select areas but not others would indicate a site where we could learn the most about affordances and obstacles to BPC-related change.

### ***Data Collection and Analysis***

The data sources are 63 semi-structured, hour-long interviews with faculty, staff, and administrators at each site. Most interviews were collected during week-long site visits to participating departments, and some interviews were conducted via Zoom. Interviews addressed supports and barriers to BPC efforts; departmental leadership; planning, implementation, and assessment of BPC efforts; and communication and decision-making processes related to BPC. The semi-structured interview protocol questions were based on prior research on organizational change from our theoretical framework (explained in the next section).

Analysis included generating first cycle codes to identify important departmental issues in the data, then second cycle codes to organize first cycle codes into larger patterns or themes. First cycle codes were generated deductively, based on our research questions and theoretical framework (e.g., leadership, BPC practices, diversity-related norms/values, etc.) and inductively, based on emerging issues salient to interviewees (e.g. perceptions of individual sphere of influence, student admissions, etc.). Second cycle codes identified overarching patterns and unifying themes, such as the three themes presented in this paper [7].

### **Theoretical Framework**

While our data collection primarily focuses on faculty, faculty work within organizational systems that help or hinder their ability to produce and sustain change in their departments. We use organizational change theory [8] to understand the role that faculty beliefs and actions play in responding to and co-creating departmental culture, and in turn, foster inclusive departmental climates for non-dominant populations. These theories examine how organizational structures, norms and values are formed and reproduced within organizations through everyday practices and interactions. This approach considers the roles the micro (everyday interactions and behaviors), meso (organizational structures, systems, and policies) and macro (larger societal economic, social, and cultural systems) play in supporting or hindering organizational change. These types of organizational supports and pressures comprise “opportunities and obstacles” to change. [8] Collectively, these theorists argue that mandated, top-down changes are ineffective, and faculty buy-in is essential for successful efforts. Using organizational change theory, we explore the individual perceptions and experiences of faculty, staff, and administrators in order to make sense of organizational phenomena, i.e., BPC efforts.

### **Results**

The three study sites share various institutional similarities, such as size of student body, not having control at the department level who declares a CS major, and they have some faculty and some staff highly committed to BPC efforts and visible both within the college and in the broader national BPC community. The three sites differ in climate and diversity expectations due

to their state laws and state demographics, their reputation, and their typical student composition. Their approaches to BPC efforts also differed considerably.

***Finding 1: BPC Standalone Programs May Relieve Faculty of Responsibility for BPC***

When BPC efforts were located outside of central departmental work (e.g., the core curriculum or research), those efforts were not generally integrated into the mainstream of the department and were seen as separate and optional. Many of these efforts were programs led by staff or faculty who held relatively marginal roles in the department. As one interviewee summarized, “There’s this problematic notion that [diversity programs] are the ones that should set the tone. Or anytime we need to talk about diversity, let’s bring them in.” This reliance on certain individuals means that the burden of making change is carried by just a few people, as opposed to being shared by other members of the department. These individuals were tasked with more service work than faculty or staff who were not involved in those programs. Additionally, these individuals were often staff or non-tenure-track faculty with less status and influence within higher education hierarchies that confer more influence to tenure-track faculty. In a nod to these systemic challenges, this interviewee concluded: “A lot of our [department] is looking towards [the diversity programs] and [teaching] faculty...to solve these problems. And that’s impossible to do without larger structural change.”

All study site departments also housed BPC outreach programs to K-12. These programs were largely seen as fulfilling their BPC goals. This was true even when those programs did not result in an appreciable number of incoming students from backgrounds different than the department’s typical CS students. In departments where there is a standalone BPC program, or other BPC-related interventions that are run by specific staff and faculty, there may be less participation from faculty not directly involved in those efforts. It is also more likely that these efforts address only one or two factors that lead to change, such as K-12 outreach, rather than undertaking strategic, department-wide efforts towards systemic, equity-centered change.

***Finding 2: Low Faculty Accountability Impedes BPC Efforts***

In all three sites, a lack of accountability for faculty surfaced as a theme. This was due to different factors, including: faculty had high research dollars and became largely untouchable, or they had lost personal connection with the department, or they had tenure and receded from departmental involvement, or they found a second home in a different department more comfortable for them. Interviewees observed that many of their tenure-track peers were disengaged from BPC initiatives. As one interviewee observed, “There’s definitely some people in the department who either don’t care or who only say, ‘...DEI [diversity, equity, and inclusion] is only important if I have time.’”

Although abundant resources were available in all three departments to promote student and faculty-related BPC efforts, there were no consequences for not engaging in these efforts. For example, across departments, interviewees observed that their faculty hiring committees did not use any resources to promote diversity in hiring, even though they knew about them. Consequently, there was great variability in how much hiring committees considered BPC in the hiring process and used best practices to promote a diverse hiring pool and ensure an equitable

search. As one interviewee noted: “There’s tons of best practices out there. And then they go and it’s almost like they start from scratch every year with the search committee and they don’t use any resources... But they want to hire from the same schools. You can’t expect to diversify who you’re hiring if you’re hiring from the same methods every year.” Low faculty accountability for participating in departmental efforts is a major impediment to greater success in BPC.

### ***Finding 3: A Wide Swath of Departmental Activities Normalizes BPC***

In contrast to the standalone BPC program scenario, when diversity-related activities were interwoven throughout the department, interviewees talked about a wide variety of policies, processes, and programs. In those scenarios, many faculty and staff were involved in BPC efforts, at minimum being on hiring committees and going through training on how to develop more diverse candidate pools. Some became part of outreach or retention programs or curricular reforms designed to retain more students from historically excluded groups.

The multiplicity of BPC efforts occurred within and outside the formal curriculum, and touched upon all aspects of teaching, research, and service. A recent curricular innovation to promote greater equity resulted in summer faculty professional development and trainings for hundreds of graduate teaching assistants. An interviewee stated, “The department chairs bought into the idea we need to train faculty so that our students are better educated.” Departmental efforts may foster the most widespread engagement when they are distributed across all aspects of the department and when they align with the values and mission of their university.

### **Significance**

We conclude that *where* BPC efforts are located in the structure of the department influence the culture and norms related to DEAI. The locus of activities also influences who becomes involved in BPC efforts and how they are valued within the department. A wider array of integrated activities leads to broader engagement of more faculty and staff, creates a climate where BPC-focused attitudes are the norm across practices in the department, including recruiting, hiring, and student-facing pedagogy. In scenarios where the BPC efforts stand outside of those departmental structures and processes that include faculty, there seems to be less success in departmental reform. Our findings suggest it is important, therefore, to locate BPC activities within teaching, research, *and* service in order to maximize successful outcomes.

Observations of low accountability are more difficult to tackle since tenure-track, and particularly tenured, faculty have much autonomy and are rewarded for their research achievements, rather than teaching, service, or BPC efforts. In these situations it is important to cultivate shared values and community, and to provide incentives for faculty participation.

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