



# Leveraging Kotter's 8 Stage Model of Organizational Change to Understand Broadening Participation in Computing

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## ABSTRACT

Broadening participation in computing (BPC) is a focus in industry and academia. Extant research focuses on *what* broadening participation in computing (BPC) efforts are pursued, while we propose focusing on *how* change happens. Our qualitative study applied John Kotter's (2012) eight-stage change framework to analyze interviews with faculty and staff engaged in BPC efforts. Illustrative examples from our interviews elucidate each of the eight stages and how they can be applied to pursue organizational change efforts that support BPC.

## CCS CONCEPTS

• **Social and professional topics** → **Computing education; Computer science education.**

## KEYWORDS

broadening participation in computing; organizational change; diversity, equity, and inclusion

### ACM Reference Format:

Kari L. George, Max Fowler, Vidushi Ojha, Morgan M. Fong, Kathleen Isenegger, Christopher Perdriau, Mariam Saffar Perez, Yael Gertner, and Colleen M. Lewis. 2024. Leveraging Kotter's 8 Stage Model of Organizational Change

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SIGCSE 2024, March 20–23, 2024, Portland, OR, USA  
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ACM ISBN 979-8-4007-0424-6/24/03.  
<https://doi.org/10.1145/3626253.3635541>

to Understand Broadening Participation in Computing. In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 2 (SIGCSE 2024)*, March 20–23, 2024, Portland, OR, USA. ACM, New York, NY, USA, 2 pages. <https://doi.org/10.1145/3626253.3635541>

## 1 BACKGROUND

Motivated by the need for inclusion to address both the social and economic opportunities of a diverse technological workforce [1], BPC efforts aim to increase the representation of people who identify as women, African American or Black, Hispanic or Latinx/a/o/e, Native American, Indigenous, and persons with disabilities [1]. Research on BPC efforts has illuminated a variety of approaches and initiatives that seek to support BPC goals such as curricular changes in introductory computing courses [5] and exemplar institutions [2, 3]. While prior work exemplifies *what* types of work computing departments have undertaken and the outcomes of these initiatives, people from underrepresented groups remain severely underrepresented in computing [7]. Hence, we propose refocusing on *how* change happens to increase our collective capacity for impactful change efforts. Applying a change framework allows us to examine how change occurs in computer science departments, who contributes to this work, and what motivates the work.

## 2 KOTTER'S CHANGE FRAMEWORK

We apply John Kotter's [4] eight-stage framework of leading change, to understand how BPC change occurs, who contributes, and what motivates the changes. This framework highlights the need to challenge or dismantle the existing status quo and to introduce and embed new practices into the culture [4].

### 3 METHODS

Using a practitioner research approach [6], we conducted interviews with 13 faculty and staff members across R1 and one R2 U.S. institutions via Zoom. Participants were recruited based on their BPC involvement. Audio files were transcribed and anonymized. We used inductive and deductive analytic coding.

## 4 OVERVIEW OF RESULTS

### 4.1 Stage 1: Establishing a sense of urgency

Stage 1 identifies two complementary goals of *removing complacency* and *creating urgency* to motivate the work of creating change. By ensuring that there are efforts to fight complacency and create a sense of urgency, a department can initiate change efforts. Kotter warns that skipping this or other stages may threaten the success of change efforts. Participants described how both internal forces (e.g., students' demands) and external forces (e.g., the murder of George Floyd) created urgency to engage in BPC and reduced complacency.

### 4.2 Stage 2: Creating a guiding coalition

Kotter emphasizes the need for a guiding coalition to lead change efforts and argues they need expertise, positional power, external trust, and internal buy-in and trust to effectively lead. Our participants leveraged coalitions of department chairs, faculty, staff, and students to use their connections and social capital to enact change. Within the coalition, participants spoke about developing internal buy-in and trust, such as letting student members drive the agenda.

### 4.3 Stage 3: Developing a vision and strategy

Kotter highlights the importance of crafting a guiding change vision to target and scope a change process that must be communicable, imaginable, flexible, desirable, focused, and feasible. Some participants include details on how they align their goals to reach their state's demographics or craft targeted sets of recommendations from existing strategic plans. Our participants' experiences demonstrate the collaborative, messy, iterative process of vision creation.

### 4.4 Stage 4: Communicating the change vision

Kotter argues for giving the broader organization time to process, adapt, and adjust the change vision. By involving stakeholders in abundant communication, Kotter argues the vision will be more easily understood, taken up, and bought in by the organization more broadly. Participants exemplified this stage by soliciting community feedback on their change vision and allowing ample time for individuals to reflect on the change vision.

### 4.5 Stage 5: Empowering broad-based action

Once the change vision is solidified, Kotter emphasizes the importance of empowering employees (i.e., faculty, students, and staff) to support change efforts through honest dialogue, training, and aligning incentives. Examples from one institution show that repeated discussions and scheduled training in diversity led to faculty feeling invested in change efforts. In another institution, funding incentives motivated a faculty member to get involved with BPC who had previously been unaware they could assist with the efforts.

### 4.6 Stage 6: Generating short-term wins

In this stage, Kotter emphasizes the need to plan for short-term wins and make deliberate progress towards them to highlight that progress is being made. Publicizing efforts ensures that supporters and skeptics are aware of the success of the endeavor. Our participants described examples of short-term wins, such as creating BPC-focused academic programs and fellowships.

### 4.7 Stage 7: Consolidating gains

Kotter highlights the importance of maintaining and building momentum by consolidating gains made in previous stages to pursue more change. Examples from one institution include both student and faculty-driven change efforts that built capacity to pursue more change. Kotter emphasizes that building momentum is critical in the later change stages as resistance and exhaustion can threaten to undermine progress and may lead to a regression if efforts are eased before changes are fully realized.

### 4.8 Stage 8: Anchoring approaches in the culture

Kotter's eighth stage describes ways in which institutions can anchor new approaches into their culture; one of which is bridging old values with new values. One participant discussed the values some faculty members had and how to align those values with the department's BPC values. Understanding the "*deep set beliefs*" people have is helpful for creating cultural change because change agents may find connections between old and new values.

## 5 RELEVANCE TO SIGCSE COMMUNITY

We present concrete examples of departmental change from our participants that will be useful to practitioners grappling with change processes at their own institutions. The poster format allows our team to have rich conversations with SIGCSE attendees to help them understand how the framework might apply within their context.

## ACKNOWLEDGMENTS

This work was partially funded by the National Science Foundation (Grants: 2030859, 2137647, 1821136, 2113955, 2144249, 2229612).

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