Broadening Participation

Why We Need an ACM Special Interest Group for Broadening Participation

A proposal for an international group focused on broadening participation.

OPENING REMARKS TO the Communications Broadening Participation column series set forth the reasons why broadening participation is important to the computing field—the increasing worldwide demand for computing professionals, the importance of equal opportunity, and the significance of diversity for driving creativity. Since then, computing and informatics continue to drive innovation and economic growth in almost every societal and business sector, exacerbating the need for a larger, more diverse computing workforce. Yet there continue to be disparities in the participation of women, persons with disabilities, and underrepresented minorities in computing, in the U.S. and globally. Although the declining enrollments experienced by U.S. computer science undergraduate programs since 2000 have finally reversed, the participation gap persists (see National Science Foundation data, http://www.nsf.gov/statistics/wmpd/). In this column, I argue for the creation of an ACM Special Interest Group for Broadening Participation (SIGBP) to help solidify the BP community and amplify advances made by other BP organizations that only focus on a piece of the problem.

BP Community

A community for broadening participation has been built up over the past decade thanks to the efforts and support from the ACM, IEEE, the Computing Research Association, and the National Science Foundation, among others. The community is interested in research and innovation to identify new approaches for BP as well as in implementation to replicate and scale up effective practices. The community is raising the awareness of the need for BP and providing professional development to support students and professionals.

For example, the ACM’s Committee on Women in Computing (ACM-W) sponsors events, supports ACM-W student chapters, and collects data to advance women in computing. The Computing Research Association’s Committee on the Status of Women (CRA-W) similarly supports women’s participation in computing research. ACM, CRA, and IEEE co-sponsor the Coalition to Diversify Computing (CDC)—which organizes the Tapia Celebration of Diversity in Computing conference for college students. CDC also sponsors Collaborative and Distributed Research Experiences for Undergraduates programs (CREU and DREU) to encourage underrepresented undergraduates to continue on to graduate school (see http://www.cdc-computing.org).
In 2001, NSF encouraged computing researchers to address the need for BP by introducing the Information Technology Workforce (ITWF) program and housing it within the Computer & Information Science & Engineering (CISE) Directorate. ITWF called for systematic research efforts to address the underrepresentation of women and minorities in computer science and engineering. In 2005, NSF CISE established the Broadening Participation in Computing (BPC) program, calling for large alliances to design and carry out comprehensive programs for BP. The BPC program funded 13 statewide or national alliances and over 100 smaller projects. The important impact being made by the alliances was summarized in this column last year.1 From 2006–2010, NSF hosted annual BPC Community meetings with over 300 participants from various sectors.

Two national organizations advance the participation of women in computing. The Anita Borg Institute for Women and Technology (ABI) hosts the Grace Hopper Celebration of Women in Computing (GHC), an annual conference with over 3,000 student, faculty, researcher, and industry attendees (see http://gracehopper.org). The National Center for Women and Information Technology (NCWIT) builds networks throughout its Academic Alliance, Workforce Alliance, and K–12 Alliance to broaden the participation of women (see http://www.ncwit.org). The Center for Minorities and People with Disabilities in Information Technology (CMD-IT) is emerging to provide a similar community for minorities and persons with disabilities (see http://www.cmd-it.org).

The ACM, IEEE Computer Society, NCWIT, Computer Science Teachers Association, Microsoft, and Google are guiding an advocacy coalition called “Computing in the Core” to raise awareness among federal and state policymakers about the need for a larger, more diverse computing workforce. The group promotes a set of principles underpinning K–12 CS education, including that “ethnic and gender diversity in the information technology field and computer science classrooms is crucial to the long-term success of the field” (see http://www.computinginthecore.org).

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Proposed SIGBP Rationale
Given the infusion of resources invested in BP over the past decade, one would expect the participation gap to be shrinking. While the literature reports positive outcomes from individual BP initiatives, collectively we are not closing the gap on a national or international level. I suggest the key reasons include lack of coordination to create a strategy for widespread change, lack of a referencing mechanism to enable BP efforts to build upon prior work, and lack of awareness or appreciation of BP issues.

Cooperation. There is strong evidence that a positive intervention at one stage does not insulate a person from getting derailed at a later point when a chilly climate is encountered.2 So, if one middle school teacher adopts innovative approaches to engage girls in computing, her gains may be lost if the girls find no CS classes or male-dominated classes in high school. If one technology department adopts effective practices for mentoring diverse new hires, the gains may be lost for lack of mentors at mid-career. What is needed is widespread systemic change. Yet each existing BP organization is focused on one or a few under-represented groups, pipeline stages, or geographical regions. No organization addresses the general issue of BP or the collective needs for people of all ages and in various settings. No organization convenes leaders of other BP organizations or sits at the table with ACM SIG leaders, with goals to connect similar efforts, identify gaps, and strategically plan for the future. There is little international collaboration around BP.

Referencing. A central referencing mechanism is not available to enable BP researchers and implementers to build upon existing work. Many smaller groups are undertaking independent grassroots approaches to create programs, with limited knowledge of similar work. No organization serves as a primary reference for BP research and practice in general. Though computing researchers are making important advances in BP, the literature is scattered among journals and conferences within computing, engineering, science, education, and the social sciences. Though a number of BP portals are emerging, only www.BPCPortal.org aims to serve all audiences, but falls short due to a lack of awareness of its existence.

Awareness. There continue to be students, educators, professionals, and policy makers who are unaware or remain unconvinced of the need for BP. While many initiatives are demonstrating “effective practices,” too few schools, colleges, and companies are integrating these practices into their core mission. As such, many existing BP activities are producing islands of change, but there is no unified effort to connect these islands and to ensure they are not washed away when a program’s funding ends or a program’s champion moves on. In some cases, this requires policy changes in organizations and at the state and federal level. No organization serves as the central voice for BP advocacy.

What is needed is an overarching community to connect, support, and amplify BP initiatives worldwide, and a computing publications venue to provide referencing to practices and research. The ACM SIGs are a well-recognized model for fostering international communities around computing related areas. A SIGBP would serve as a central resource for all of the BP efforts of other organizations. SIGBP meetings would be a gathering of the leadership of these organizations to coordinate and plan for the future. A SIGBP could serve to connect the islands of BP activity to magnify and accelerate the outcomes of these activities.

Proposed SIGBP Activities
The formation committee to create an ACM SIGBP was formed in 2009. Members include leaders of the ACM-W, CRA-W, ABI, GHC, CDC, Tapia Celebration, NSF, and NSF BPC Alli-
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BP will provide greater opportunity for computing researchers to publish in a computing venue. This will provide a referencing mechanism to research with an explicit focus on BP, research on broadening participation in science and engineering that is relevant for computing, and publications in the many disciplines that inform BPC research, such as education, psychology, gender studies, ethnic studies, educational technologies, student services, and human resources. SIGBP peer-reviewed publications will make the outcomes of BPC research more visible to computing researchers and practitioners who are not already connected to BPC activities.

- Evaluate and promulgate effective practices for increasing participation. The SIGBP will provide a central community to find information about organizations, activities, publications, awards, other communities and portals with a BP mission. Examples of BP practices to be disseminated include models, frameworks, and strategies for recruiting and advancing people along the pipeline from K–12 to college to the workforce.
- Advocate beneficial institutional or government policies. The SIGBP will raise awareness among policymakers and the public at large, by seeking to inform and engage the computing community in emerging efforts to address policy.
- The SIGBP will advance the academic and career development of students and professionals in computing by providing an index to the many opportunities to participate in programs with goals to broaden participation.
- SIGBP activities will include:
  - Sponsor an annual SIGBP symposium, co-located with an existing conference, publishing peer-reviewed papers.
  - Publish a newsletter that reports on recent activities, advertises events, highlights new results and articles, and includes descriptions of member organizations.
  - Co-sponsor existing conferences, events, and publications that focus on BP or have a broader engagement component.
  - Partner with other ACM SIGs to enhance and promote their broader engagement initiatives.
  - Provide a central portal to organizations, activities, publications, awards and other portals with a BP mission.

The SIGBP will collaborate with other related ACM SIGs, including SIGACCESS, SIGCSE, and SIGITE. The SIGBP might best be compared to the SIGCAS (Computers and Society) and SIGUCCS (University and College Computing Services), because of the multipoint focus that includes research, sharing best practices, professional development, and raising awareness.

Computing and technology are game-changers for the 21st century, impacting how we work and live. The need to involve all voices to inform change and provide equitable access to jobs is urgent. We cannot bring about systemic change through islands of activity. An ACM SIGBP will connect these islands to accelerate systemic change. Express your support at http://bit.ly/sig-bp-form.

References


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