

WHAT WORKS

BUILDING ENGINEERING & SCIENCE TALENT (BEST)

The national interest now calls for a far more robust effort to recruit and train a scientific and engineering workforce that reflects America’s new demographic realities.

BEST — A Bridge for All: Higher Education Design Principles to Broaden Participation in Science, Technology, Engineering, and Mathematics. - 2004

BEST— The Talent Imperative: Meeting America’s challenge in science and engineering, ASAP. 2004

Best is a public-private partnership dedicated to building a stronger, more diverse U.S. workforce in science, engineering and technology by increasing the participation of under-represented groups. Its efforts reflect the growing realization that historically America has drawn upon a small segment of its population — and imported S&T — to meet most of its needs for scientific and technological talent. Further, BEST argues that, given changing demographics, the single most important test for American higher education over the next decade will be to develop *an emerging domestic talent pool that looks different from that in decades past*. Unless it can do so, the primacy of American innovation will be lost, even as employers access international technical talent or move operations offshore

BEST has sought systemically those higher education programs that are *pockets of success where the talent of under-represented group is being nurtured, deployed and retained*. The “A Bridge for All...” report details the process and the outcome of that search, distilling eight design principles that underpin them. The report stresses that these design principles comprise a single yet comprehensive package; that they are not an a la carte menu. Further, BEST leaders remind us that failure is part of the learning curve, that execution spells the difference, and that context is critical.

BEST found effective programs share a core set of characteristics [that] are not full explanations of success, but they are a first step toward what it will take to succeed over time to expand the nation’s talent pool in science and technology.

In the face of national economic realities, BEST advocates that:

- ◆ More institutions will have to commit to making diversity in science, engineering and technology a defining priority.
- ◆ The leaders of higher education will have to reframe the issue as capacity building rather than securing competitive advantage.
- ◆ Higher education will have to apply its formidable human resources ore strategically in community-based science and engineering workforce partnerships.
- ◆ Policy, practice and research will have to be more closely aligned to ensure that knowledge and resources are used as productively as possible.

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So, what works?

1. *Defined Outcomes:* Successful programs rest on a shared understanding of goals. Students, parents, and staff all have a clear idea of what is to be accomplished. Success is measured against the intended result, creating the basis for continuous improvement.

2. *Persistence:* The history of modern American education is littered with short-term experiments and fascination with “the next new thing.” Successful interventions to improve math and science performance last long enough to take hold, produce results and adapt to changing circumstances. Persistence requires active leadership, sufficient resources and determination in the face of setbacks.

3. *Personalization:* Students count as individuals in effective programs. At their core are student-centered teaching and learning methods, along with mentoring, tutoring, and peer interaction.

4. *Challenging content:* Effective programs have clearly defined curriculum that related to real-world applications. They demand more of students than just bare minimums, and are anchored in local, state, and national standards. Students understand the link between their classroom challenges and their futures beyond school.

5. *Engaged adults:* Some successful educational programs are begun by charismatic individuals, but when the leader departs, the program withers. Effective programs have [leaders] who provide support, stimulate interest and create expectations by acting as teachers, coaches, mentors, tutors, and counselors. Active family support is another plus.