

**NATIONAL SCIENCE BOARD  
SKILLED TECHNICAL WORKFORCE LISTENING SESSION  
COMMUNITY COLLEGE INNOVATION CHALLENGE  
OVERVIEW OF THEMES DISCUSSED  
TUESDAY, JUNE 12, 2018**

On June 12, 2018 the National Science Board (NSB) hosted a Listening Session with faculty and students participating in the Community College Innovation Challenge (CCIC). Co-sponsored by the National Science Foundation (NSF) and the American Association of Community Colleges (AACC), the CCIC is a prestigious two-stage competition where community college teams utilize science, technology, engineering and mathematics (STEM) to innovate solutions to real-world problems, compete for cash awards, and earn full travel support (students and faculty) to attend an Innovation boot camp in Washington, D.C. NSB members met with 53 students, 10 faculty members, and 2 community/industry partners from 10 different community colleges.

Below are the key themes participants discussed at the listening session.

## **KEY THEMES**

### **Diversity of Pathways**

- There is a diversity of life pathways both into and out of community college. Several students described community college as a “pipeline” or “springboard” to a bachelor’s degree. For them, community college is an opportunity to clarify interests and explore options before investing in a costly bachelor’s degree. Others saw community college as an end in itself; they enrolled in a community college program to gain a specific skillset to enter an occupation of their choice (i.e. electrician, IT worker, skilled technician, etc).
- Still other students described a surprising change of plans upon enrolling in a community college program. For example, one student stated that she entered community college with the goal of securing an Associate degree, but after her first year she was inspired to pursue a four-year degree.
- Participants noted that community colleges can help people re-tool and engage in continuous lifelong learning. The flexibility offered at community colleges make them accessible and viable options for a diverse set of people and needs.

### **Real World Skills**

- Community College is a place where students can learn “real-world skills”. Community Colleges provide students with hands-on experiences that can be leveraged in the workplace.
- Students stated that they most enjoyed courses taught by faculty with industry experience because they learned applicable real-world skills.
- Students also stressed the value of developing ‘soft skills’, i.e. interpersonal and communications skills, and a broader perspective through general education courses.

- Others noted that the motivation and knowledge gained through life experiences, such as military service, is poorly understood by human resource, HR, hiring managers. Participants suggested that employers should focus on skills and content of a job applicant's resume rather than a degree as a proxy.
- Participating in CCIC projects helped students make connections between their classroom learning and broader applications. The experience of working as part of a team was also instructive in reinforcing concepts and time management. Students noted an interest in entrepreneurship.

### **Critical Role of Faculty**

- Participants noted the critical role that faculty play in shaping the community college experience. Faculty were described as dedicated high-quality instructors that have a sincere passion for working with students. At community colleges, students enjoy high levels of personalized attention and often small classes sizes.
- Participants noted that the high teaching loads that many faculty members face often result in high burnout rates.
- Difficulties recruiting and retaining faculty with the skill set needed to teach advanced STEM courses limits the number and range of STEM course offerings at community colleges.

### **Persistent Barriers**

- *Affordability*
  - Although community college tends to be less expensive than four-year institutions, the cost of tuition and books continue to be a barrier for many students. Students often work full-time or part-time while attending college and this in turn makes it difficult for them to participate in extracurricular activities such as CCIC.
  - Some states have created incentive programs to keep talent in high demand areas. A student at Western Dakota Tech stated that in exchange for a full scholarship, he agreed to remain in South Dakota for three years following graduation.
- *Limited Institutional Resources*
  - Funding for undergraduate research and research-based curricula at community colleges is scarce.
  - Research facilities and instrumentation is also limited. However, some schools have forged successful partnerships with industry and 4-year universities to enhance access to research facilities.
  - Travel funding to support participation at conferences is limited.
- *Negative Stigma*
  - As in other listening sessions, participants noted that there is still a tendency to undervalue community colleges and 2-year degrees. HR hiring managers tend to overlook people with 2-year degrees and experience. High school counselors

tend to promote 4-year degrees and do not mention CCs, technical education or apprenticeships as possibilities.

- *Accreditation*
  - The accreditation process was described as complex, lengthy, and expensive. Not all community colleges and programs are accredited.
  - The sudden loss of accreditation, or failure to secure accreditation, can render the degree/credits “useless” because employers often stipulate that a degree must come from an accredited college and other institutions will not recognize credits earned at unaccredited institutions/programs.
  - The Veteran’s Administration (VA) only pays for programs accredited by the VA. Non-VA accredited programs are not eligible to receive benefits. The number of eligible programs varies by region and can pose limits to educational access for geographically limited veterans.
- *Math Comprehension*
  - Math is a persistent barrier to entry. Faculty noted that there is a great need to revamp the mathematics curriculum. Math instruction should be contextualized for S&T work such as advanced manufacturing. Some community colleges are developing creative ways to build accredited math programs that compress the length of time needed to learn key math skills from Algebra I and Calculus.