



# Opportunities for Broader Impacts Partnerships with High School Career and College Pathways Programs

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## Pathways: The Past

In the mid-20th Century, vocational education separated the college-bound elite from the trades, effectively shutting out most underrepresented minorities, at-risk or lower income students who might otherwise have been first-generation college students.



Linked Learning Los Angeles Regional Showcase, 2016

## Pathways: Now

Today, pathways in various forms throughout the United States show promise of engaging underrepresented minorities, at-risk students, and girls in STEM. Visher and Stern note: "College and career pathways – 'pathways' – are a range of models reforming hard and soft skills among high school students by creating a clear path for students to follow to attain an educational and occupational goal, while learning the skills – sometimes called twenty-first century skills or transferable skills – they need to succeed in both domains."



## Basic Premise

As NABI members and Principal Investigators (PIs) aim to achieve some of NSF's Broader Impacts criteria by creating custom outreach partnerships with high schools, we can find collaborators within the college and career pathways movement (also called Career and Technical Education or CTE). The goals of career pathways align with NSF's Broader Impacts criteria and may offer a PI or Broader Impacts office with helpful infrastructure and/or connections for creating meaningful, "out-of-the-box" STEM engagements with high school principals and pathway teachers. NABI members should seek out pathways innovators to collaborate on creative, original, and potentially transformative programs from over 1,000 certified CTE programs across the United States. We can also help these school partners integrate the new cross-cutting concepts of Next Generation Science Standards into their curricula and widen career possibilities to include STEM research or newer fields such as biomedical engineering.

## Pathways @ USC

University of Southern California's Viterbi School of Engineering's VAST (Viterbi Adopt-a-School, Adopt-a-Teacher) program assists PIs seeking to customize meaningful collaborations with local schools serving student populations with 99% underrepresented minorities and 68% enrolled in federally subsidized lunch programs. In Los Angeles Unified School District, the pathways program Linked Learning has evolved since 2006 into a systemic approach to high school reform that combines (1) rigorous academics, (2) career-based learning in the classroom, (3) work-based learning in professional settings, and (4) integrated student supports. With the help of Linked Learning's intermediaries, hired by various non-profit groups to oversee several pathway schools, VAST has been able to facilitate deep, multi-year partnerships co-created by the PI and high school principals with their pathway faculty in South Los Angeles.

## Finding Pathways Partners Around the U.S.

Visher and Stern offer a comprehensive overview of pathways approaches and models; additionally, there is a growing body of research on the impact of these revised college and career programs.

### Resources

- College & Career Readiness & Success Center at American Institutes for Research. <http://www.ccrscenter.org/>
- Hubbard, L., & McDonald, M. (2014). The Viability of Combining Academic and Career Pathways: A Study of Linked Learning. *Journal of Education for Students Placed at Risk (JESPAR)*, 19(1), 1-19. doi:10.1080/10824669.2014.943759
- Kazis, R. (2016, March). MDRC Research on Career Pathways. Retrieved April 10, 2016, from <http://www.mdrc.org/publication/mdrc-research-career-pathways>
- Visher, M., & Stern, D. (2015, April). New Pathways to Careers and College: Examples, Evidence, and Prospects. Retrieved April 10, 2016, from <http://www.mdrc.org/publication/new-pathways-careers-and-college>

Coordination through a Regional Hub:  
A Common Purpose Demands Common Solutions



**Broader Impacts criteria:**

- Full participation of women, persons with disabilities, and underrepresented minorities in STEM
- Improved STEM education and educator development at any level
- Development of a diverse, globally competitive STEM workforce
- Increased partnerships between academia, industry, and others


