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Designing the Future of Learning: A Partnership Approach

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Past Innovation Lab

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Designing The Future of Learning: A Partnership Approach

Smith PhD, Lori Trent PAST Foundation, 8/16/2016

Abstract

- Most of today's educational system teaches students standardized content that fails to represent the real world in which they live and will work.
- Often Educational practices lack a problem-solving methodology, and fail to engage students enough to choose a career in STEM fields.
- Subject matter is standardized across disparate communities, regions, and cultures and often students are disengaged and teachers struggle to make STEM come alive in the classroom.
- However, the PAST Foundation has revolutionized how we teach STEM today and are providing their innovative approach to schools across the state and nation.
- The new PAST Innovation Lab model can be used in every rural, urban, and suburban part of the state and across the nation.

Hypothesis

The model PAST has developed is replicable across the state and the nation. The PAST Innovation Lab, located in Columbus serves a number of school districts across Ohio in both urban, suburban, and rural settings. PAST in partnership with Metro Early College High School launched five industry-driven learning laboratories where students gain hands-on experiences, early college learning and college credit.

Methods

In partnership with Metro Early College High School:

- Design Learning Lab – explores the world of engineering, manufacturing, and robotics
- Bodies Learning Lab – explores the world of healthcare, medicine, and wellness
- Energy & High-Tech Learning Lab – explores the world of energy generation, transmission, and use and high-tech innovation
- Growth Learning Lab – explores the world of food and agriculture in urban areas
- Digital Learning Lab – explores the digital world of data, coding, industry and security
- Internships for all 125 students in all five Learning Labs with business and industry partners throughout Franklin County
- Capstone Programs for Seniors – Provides proof of knowledge and serves as authentic expression of learning to be used for college entrance meetings and industry interviews.

Results

Of the 105 Learning Lab students, 95 continued on to post secondary education, three entered the military after graduation, seven returned to their home school as seniors, and two graduated. An overwhelming majority, 92% graduated with mastery of their core concepts.



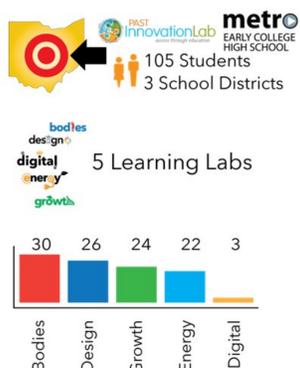
Terms

- PAST – Partnering Anthropology with Science & Technology
- TPBL – Transdisciplinary Problem-Based Learning
- STEM – Science, Technology, Engineering, and Math
- Learning Lab – Specific area of business and workforce development focused content learning
- Capstone – A project overseen by a teacher that is germane to the students area of research and is conducted offsite with a business and industry partner

Credits

1. myCollegeOptions and STEMconnector, Where Are the STEM Students?, USA, 2013
2. Junior Achievement USA and ING, 2013 Teens & Careers Survey
3. Science and Engineering Indicators 2014, National Science Foundation
4. Brookings Institution, Still Searching: Job Vacancies and STEM Skills, 2014
5. STEM: Good Jobs Now and for the Future, U.S. Department of Commerce
6. U.S. Bureau of Labor Statistics Occupational Outlook Quarterly Spring 2014, STEM 101: Intro to Tomorrow's Jobs

Data



- 105 students
- Three School Districts
- Five Learning Labs
- 105 Business and Industry Internships
- 31 Business and Industry Partners
- OSU and Nationwide Children's Hospital were the biggest sources

Discussion

- 57% of the 1 million high school freshman that declared an interest in STEM education lost that interest by the time they graduated high school and began looking toward college or full-time work (1).
- STEM career interest fell by 15% since 2012 (2). Why?
- Only 39% of science teachers nationwide feel well prepared to teach science (3)
- The number of U.S. companies reporting difficulty in filling positions because of a lack of skills grew from 14% in 2010 to almost 40% in 2013 (4).
- Yet over the past 10 years, growth in STEM jobs was three times as fast as growth in non-STEM jobs and the top 10 BA majors with the highest earnings are in STEM fields (5).
- Employment in occupations related to STEM will grow to over 9 million by 2022, with almost all of the 30 fastest-growing jobs requiring STEM skills (6).

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