



PATHWAYS IN TECHNOLOGY EARLY COLLEGE HIGH SCHOOL

Partnerships Provide an Apprenticeship Experience

Roscoe Collegiate: *An Innovative Idea*

ABSTRACT

Soft skills and STEM fields are topics of great interest in education and in the labor market. Soft skills are the attitudes and behaviors that lead to successful social interactions (Davis & Muir, 2004). These interactions include teamwork, communication, leadership, and problem solving (Ritter, 2018). STEM is commonly known as science, technology, engineering, and math, and it refers to a multitude of jobs that require specific knowledge and skill-sets. The supply of individuals with such knowledge and skills is not keeping up with the retirement of skilled STEM workers (Fifolt & Searby, 2010) or the increase of STEM related careers ("The Bayer Facts of Science Education XVI: "US STEM Workforce Shortage--Myth or Reality? Fortune 1000 Talent Recruiters on the Debate", 2014). The Bayer Corporation (2014) reported that workers with 2-year STEM degrees were in higher demand than workers without a STEM degree, and that workers with 4-year STEM degrees were in greatest demand. The dilemma facing public education is how to best equip graduates to be college and career ready, possessing both the soft and technical skills necessary to succeed in the STEM workplace or in college.

To meet these challenges, the Roscoe Collegiate Independent School District in rural west Texas has brought public education and private business into collaborative and mutually beneficial partnerships. These partnerships afford students the opportunity to work in a business as paid apprentices, thus exposing students to actual workforce problems that require both soft and technical skills. Apprenticeship opportunities have been established through a collaborative partnership with the local bar association, local industry, and innovative, non-profit businesses.

These public-private partnerships have provided the opportunity for students to grow in the fields of large and small animal veterinary work, welding, and drone flight which have very specific and local agricultural applications.

KEYWORDS

- *Work-based Learning*
- *Soft Skills*
- *Apprenticeship*
- *Partnerships*

BLUEPRINT ALIGNMENTS

P-TECH Benchmark 5:
Work-Based Learning

T-STEM Benchmark 5:
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How it Works

Students entering their junior or senior year of high school are eligible for placement into a paid, student apprenticeship. Students are made aware of the apprenticeship opportunities during the latter part of their sophomore year. They apply and interview for the apprenticeship that interests them and that falls in line with their educational pathway. Students work as apprentices during the summer, and depending on performance and availability, students may have the opportunity to continue the apprenticeship throughout the school year.

Students are paid by the businesses. Because these are paid student apprenticeships, students do not need to hold a part-time job as many students do in high school. This creates a true employer-employee relationship, thus avoiding the contrived feeling sometimes associated with non-paid apprenticeships.

Roscoe Collegiate 8th-11th grade students take classes to prepare for industry-recognized certification in the field in which they will work (certified veterinary assistant, FAA remote pilot license, various welding certifications, and Autodesk Inventor).

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How it Works

When they have completed seat and instruction time, they test for their certification (before their senior year), so most of the students entering an apprenticeship hold an industry-recognized certification. Since students have already proven that they have technical skills, the business partners can count on them to make a positive contribution to the business. The genuine work experiences along with the employer-employee experiences provide the student with great opportunities to practice both technical and soft skills.

Students are briefed on the expectations of the work environment that they will be entering. They are given assignments to complete throughout their apprenticeship experience that facilitate meta-cognitive reflection and reflection on their use of technical and soft skills.

Results to Date

The paid apprenticeship program was implemented during the summer of 2017 and has continued throughout the 2017-2018 school year. Three law apprentices worked in law offices during the summer. Four drone apprentices flew agriculture-related commercial missions throughout the school year. One veterinary apprentice worked for a neighboring veterinary clinic during the summer, and another veterinary apprentice has worked with the school's partner veterinary clinic during the school year. Both have had hands-on experience with large animals including bovine embryology work. Four other apprentices are researching and creating a new crypto currency and growing micro-greens for a local venture capitalist. Each of these apprentices has made formal and informal presentations concerning their apprenticeship experiences.

During the spring semester, the apprentices presented their work experiences to the student body in order to encourage the younger students to consider the apprenticeship for which they might apply during their junior or senior year. Although no soft nor technical skills evaluation has been used to measure improvement of skills, the anecdotal consensus through observations of mentors, teachers, and visiting schools is that the apprentices are better prepared for college and career than the average junior college graduate.

Future Plans

Students and business partners need to be better prepared for the apprenticeship experience. A preliminary orientation piece is being developed that will address workplace and apprenticeship challenges and opportunities in general. The school district was awarded a TEX2 grant which will pay teachers a stipend to serve as externs in local industry including the public-private partnerships that already exist. In addition to the possibility of forming more partnerships, this effort will aid the district in producing orientation materials, reflections materials, and evaluation instruments that are specifically tied to the work of the apprentice.



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Future Plans

The school district is working to develop a soft skills curriculum and evaluation piece (Ritter, 2018) that will provide students and partners with a guide for learning/teaching and provide the district with better data concerning the acquisition of soft skills. The school district will work to closely tie each student's capstone research to the student's apprenticeship experience as well as his/her educational pathway.

Resources Needed

Human capital and collaborative spirits (open minds) are the resources in greatest demand for this project to succeed. The school district has worked for two years to get the structure and partnerships in place to be able to provide paid student apprenticeships. Patience has been a necessary resource. One huge lesson that the district has learned is that in order to collaborate, each party must begin with open minds and explore how to do what is best for students. In order to pay students, businesses must be profitable. The school district doesn't pay, so the costs are minimal, but the educational gains are tremendous.

References

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