PIPE

Program Improvement Process for Equity™

Case Study

Introduction

Samuel Johnson School District (SJSD) has three high schools and a Career and Technical Center where 11th- and 12th-grade students who are interested in any of the offered CTE programs attend a half-day program. Each of the comprehensive high schools also offers CTE programs such as agriculture, business education, introductory industrial technology, and computer technology courses. The Career Technical Center offers a wide array of CTE programs including cosmetology, health professions, child development, business administration, agriculture, construction, auto mechanics, auto body, drafting, precision metal working, welding, engineering, and computer networking. The computer networking program is a CISCO Academy program and has received many accolades throughout the community for producing students who are able to access high-wage jobs upon graduation. SJSD also has Project Lead the Way (PLTW) programs in all the middle schools and high schools.

Mead Community College (MCC) is located in the area and is typically the 2-year postsecondary education choice for students graduating from one of the SJSD's high schools. The SJSD has developed articulation agreements with MCC for many of the CTE programs offered at the comprehensive high schools and the Career Technical Center. MCC has a pre-engineering program and computer technology program that were developed in response to a growing information technology and manufacturing industry sector that is highly supported by the community economic development agency.

When Perkins III was implemented, with the requirement that agencies collect data on students participating and completing nontraditional careers, SJSD and MCC identified their nontraditional programs and began to collect data and report it to the state. They were confident that their programs were open to all students and that there were no barriers to student access based on gender. They regularly sent a representative from the school district to the State Department of Education's professional development conferences on gender equity and nontraditional programs. They were careful to include representation of males and females in all promotional materials. Every year the district and the community college partnered to hold a career fair at the MCC campus and were equally involved in the planning. They always did their best to find nontraditional speakers for the represented careers.

At the end of each year, SJSD and MCC completed their annual performance reports for their Perkins funding and submitted them to the State Department of Education. This went on for 6 years without a hitch. Suddenly, with the implementation of Perkins IV, the state returned information to both SJSD and MCC indicating that they were not meeting the state's performance measure for the nontraditional core indicator. As a result the state required them to develop a plan that identified how they would improve their performance—or they might lose their Perkins funds.

What performance data should SJSD and MCC review to help identify the problem?

Problem

The data review revealed some informative trends and gaps regarding participation in nontraditional programs at the high schools and community college. The SJSD and MCC discovered some disconcerting problems:

- The CISCO Academy program at the Career Technology Center had less than 5% female enrollment in its best year in the past 3 years.
- Female enrollment in computer technology courses ranged from 15% to 20% at each of the three high school campuses.
- Female enrollment in the MCC computer technology program hovered around 18% but their completion rate was 6%.
- The Project Lead the Way program had approximately 50% female enrollment at the middle school but 10% at the high school. Eighty percent of the PLTW female graduates had all gone on to 4-year institutions; none to MCC.
- The industrial technology program at one of the high schools had greater than 20% female enrollment every year, while the other two high schools had from 0 to 5%.
- The construction technology program at the Career Technical Center also saw a steady increase in female enrollment over the past 5 years from 0 to 15%.
- However, the construction technology program at MCC saw a steady decline in female enrollment over the past 5 years from greater than 25% to 5% with a marked decrease in 2007.

What self-assessment strategies should the schools implement to discover the root causes for the problems they have discovered?

After conducting a thorough self-assessment process SJSD and MCC determined that the following root causes were leading to their lack of performance on the nontraditional core indicator:

Root Causes

CISCO Academy/Computer Technology Program:

- The female students enrolled in the computer technology program at the comprehensive high schools knew very little about the CISCO Academy Program at the Career Technology Center. They had, however, developed the opinion that the program was for computer nerds, although they could not explain why. They had little exposure to hardware maintenance or networking, as the courses offered in the computer technology program at the comprehensive high schools were primarily software solutions courses.
- Trigonometry and Calculus were only offered in the afternoons at two of the three comprehensive high schools and at the same time as the CISCO Academy courses at the Career Technology Center. Trigonometry and Calculus are not offered at the Career Technology Center.
- The female completion rate for the introductory courses in MCC's computer technology program was good, but the second-year courses lacked returning enrollment and had high dropout rates for females. The faculty (all male) conducted a survey of students who had dropped out either between years or during the second year and discovered that the students needed more academic and personal support and greater access to instructor time for additional assistance. Some students indicated financial problems, transportation, and child-care as barriers to completing the program.

Project Lead the Way

- The Gateway to Technology course at the middle school was required for all 8th graders as part of a STEM initiative implemented by the middle school. The course was co-taught by the industrial technology instructor, a young woman who recently left the engineering industry to teach, and the math instructor, a young man who coached the girls' basketball team. The middle school program sponsored students to attend a summer camp for students in engineering at MCC that focused on increasing the diversity of the engineering program. The camp was directed by students of the Society for Women Engineers college chapter.
- The PLTW program at the high school was relatively new. The courses were taught by the former industrial technology instructor in the old shop facilities that have been partially upgraded. When female students who had taken the prerequisite math and science courses for the PLTW sequence were asked why they did not consider taking these elective courses, they explained that they thought that they were just "shop" classes and of no interest to them. They were not familiar with the PLTW curriculum and had not been informed of its content. One student indicated that she had asked the guidance counselor about the program and had been discouraged from considering it.

- The engineering program staff at MCC interviewed the female graduates from the PLTW program from the past 2 years and discovered that they were not aware of the program at MCC. Many of the girls indicated that they were told that they must attend a 4-year institution to pursue a degree in engineering and were never offered the community college option for consideration.

What strategies could SJSD and MCC implement to increase participation of females in either the CISCO Academy/Computer Technology program or the Project Lead the Way Program at the high schools and the pre-engineering program at the community college?

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