

Research Briefs

KEY FINDINGS

- Half (50%) of Starr County middle and high school students had some knowledge about what engineering is.
- 14% of Starr County middle and high school students were very interested in engineering careers; another 19% are somewhat interested.
- 60% of Starr County middle and high school students agreed that they would like to earn a two-year associate degree in engineering by the time they graduate from high school.

IMPLICATIONS

For Practice:

- Increase awareness in STEM careers among Starr County high school students.
- Advise Starr County parents on the benefits of a dual academy to their children.

For Policy:

- Explore other areas of STEM for development of additional dual enrollment academies.

For Research:

- Periodically assess interest in DEEA to gauge the potential for program viability.



Interest in STEM (Science, Technology, Engineering and Math) Careers Among Starr County Middle and High School Students

Spring 2011 Survey Results

South Texas College (STC) partners with numerous school districts in its service area to relentlessly promote a “college-going” culture. The high school programs and services department of the College continuously provides access to college courses with affordability to all high school students through its innovative approaches. One of such, a dual enrollment academy prepares students for higher education while completing associate degrees before they graduate from high school. In this study, survey data were collected and analyzed to make an initial assessment of demand for a Dual Enrollment Engineering Academy (DEEA) at the College’s Starr County campus.

Background

STC leads the transformation of the region to a “college-going” culture whereby attending and completing higher education is expected for all. This strategic direction was a key factor in the focus on dual enrollment. In compliance with STC Board policies and Texas Higher Education Coordinating Board (THECB) regulations, STC’s dual enrollment program provides eligible high school students the opportunity to earn college credits prior to graduation from secondary school. The dual enrollment opportunity amplifies motivation to become college ready early since high school students must be eligible to participate in the program to receive college credit and must meet the same requirements as all other college students within the guidelines established by THECB. College credits earned upon successful completion of the courses may be applied towards an Associate Degree at STC or may be transferred to other colleges and universities.

Dual Enrollment Academies take this effort to the next level by



providing the opportunity for high school juniors in Hidalgo and Starr counties to earn an Associate of Science degree by the time they graduate from high school. STC currently offers Dual Enrollment Engineering Academy (DEEA) at Pecan and Mid-Valley campuses, Dual Enrollment Medical Science Academy (DEMSA) at Pecan, Mid-Valley, and Starr County campuses, and Dual Enrollment Computer Science Academy (DECSA) at Starr county campus. These academies are designed to encourage students into the engineering, health care or computer science fields, respectively. DECSA will start at Pecan and Mid-Valley campuses in fall of 2011.

A previous study provided evidence that overall the course rigor in dual enrollment courses is clearly being maintained at the same level of rigor of other college courses ([Dual Enrollment/Early College Participation: Findings from a Survey of Texas Community Colleges](#)). Moreover, dual enrollment students have been shown to do very well when they transition to institutions of higher education ([Significance of Dual Enrollment Programs in Designing Student Success: Becoming College Ready Early](#)). This study is undertaken to assess the demand for DEEA at the Starr County campus, which will increase not only the college-going rate but also the number of

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Table 1 - Percent of high school and middle school students who are very or somewhat interested in STEM careers

STEM AREA	High Schools			Middle Schools		
	Very	Somewhat	Total	Very	Somewhat	Total
Science	37%	26%	63%	26%	25%	51%
Technology	18%	18%	36%	18%	22%	40%
Engineering	18%	16%	34%	13%	20%	33%
Mathematics	10%	19%	29%	11%	22%	33%

Hispanic engineers in the region.

Purpose of Study

This study was designed to assess the degree of interest in STEM careers among Starr County middle and high school students. More specifically, the College wanted to know if the amount of interest would also translate into sufficient, long-term enrollment in DEEA at its Starr County campus, should the College open such a program on that campus in the near future.

Methodology

A survey was developed to help determine the desire for STEM careers among Starr County students. In January of 2011, it was administered at three high schools to ninth and tenth graders and at five middle schools to eighth graders. Parental consent was obtained by using a form for parents/guardians to sign on the reverse page of the one-page survey. The survey was in English but the consent form was both in English and in Spanish. A total of 3,967 surveys were distributed. The number of surveys returned with student responses and signed parental consent form was 815, yielding an overall response rate of 21%. The average response rate was 7% for three high schools and 47% for five middle schools.

Research Questions

This study attempted to answer the following research questions:

1. Does the target student population know what engineering is?
2. Are they interested in engineering careers?
3. Would they like to enroll in a dual enrollment program which would enable them to earn a two-year associate degree in Engineering by the time they graduate from high school?

Findings

Overall, 87% of surveyed students have agreed that they have thought about what careers they would be interested in. This proportion is 91% among surveyed high school students (n=192) and 86% among middle school students (n=623).

Half (50%) of the surveyed students marked that they at least have some knowledge about what engineering is. Only 7% marked that they have a lot of knowledge. Overall, 80% of surveyed students agreed that they enjoy mathematics and science classes (24% strongly agreed).

Fourteen percent (14%) of students responded that they are very interested in engineering careers; another 19% said they are somewhat interested. An additional 27% said they might be interested but that they need more information about engineering careers. Reported student interest in STEM careers are summarized in Table 1.

Sixty percent (60%) of students agreed that they would like to earn a two-year associate degree in Engineering by the time they graduate from high school (although only 33% said that they are somewhat or very interested in engineering careers).

Implications for Further Research

STC's dual enrollment academies are encouraging high school students to become college ready very early on and allow them to earn an Associate of Science degree in Engineering, Biology, or Computer Science which they complete during the senior year of high school. The College is planning to bring DEEA to its Starr County campus. The findings of the survey suggest that there is adequate interest in DEEA from Starr County students. By and large, students are very drawn to the possibility of earning an associate degree in Engineering by the time they graduate from high school. At the same time, only one third said that they are somewhat or very interested in engineering careers. Since only 7% of respondents said that they know a lot about Engineering, the College's High School Programs and Services department should work together with high school counselors to increase awareness of Engineering careers among Starr County high school students through information sessions. Parents should be informed of the benefits of a dual academy for their children. The interest can be gauged periodically and sign-up sheets, especially from students who would be in the eleventh grade in fall of 2012, would provide a more precise assessment of demand. The academy application packages should be tracked to guide these students and also to guarantee the academy's viability.

Based on survey results, there is an abundance of middle school students in the education pipeline who are interested in Engineering careers. In the meantime, securing appropriate classrooms for DEEA classes and planning for equipment purchases should be under way. STC should also explore other areas of STEM for development of additional dual enrollment academies.