by Timothy Scott, Homer Tolson and Tse-Yang Huang

Haunted by High School Performance No More

In a 2009 issue of this publication, we went to great lengths to demonstrate that pre-college characteristics, such as high school rank and SAT scores (and respective sub-scores) could be used to accurately predict retention of mathematics and science majors at our institution (Texas A&M University). The results were significant and the findings dramatic. Since that time, this information has been used to advise incoming freshmen in the College of Science, in the hopes that we might openly and honestly provide information on our retention and prepare students (and parents) for the level of effort that may need to be expended to be successful in STEM majors and, for many, to be competitive for professional school (medical, dental, veterinary, etc.).

In the past few years, our college was awarded a scholarship grant from the National Science Foundation (S-STEM) to work in collaboration with a community college in our state. When we went to recruit students at the community college, we provided the information from the 2009 study utilizing pre-college characteristics to predict college success. Little did we know that we would exclude a large portion of the students that attend this two-year school by focusing so much on high school rank and SAT scores. We were challenged by our colleagues at the community college to run a study similar to the one performed with freshmen on transfer students. The results were equally as significant and dramatic, but not related at all to the findings of the freshmen study.

Rank in high school class and performance on SAT was not significant in determining whether students who transferred from two-year schools would be successful in four-year schools. In fact, SAT performance (as indicated by math and reading scores only) seemed to be in direct contradiction to what was found in the freshmen study. Students with an average SAT score of 1,099 graduated on time. Students with an average SAT of 1,112 were still enrolled in the university, but did not graduate on time. Students with an average SAT of 1,187 had dropped out of the university.

Using high school rank to predict success was slightly more logical in predicting retention and graduation, but was not found to be significant. Students who finished in the top 29 percent of their graduating class graduated on time. Students who finished in the top 23 percent were still enrolled at the university. The one student who transferred to the university that was in the bottom 27 percent of their high school class dropped out of the university.

Not surprisingly GPA from the two-year institution was the best predictor of success and was significant. The predicted shortage of STEM professionals in our society (*Rising Above the Gathering Storm*) is alarming. Because we represent a major STEM college on our campus, we looked more closely at the transfer GPA's and followed these students through the university.

Students who graduated from the College of Science on time (in two years) had a transfer GPA of 3.599. Students still enrolled in the College of Science had a transfer GPA of 3.527. Students who originally transferred to Science, but later transferred to another major on campus and either graduated or were still enrolled had transfer GPA's of 3.324 and 3.304, respectively. Students who transferred from two-year schools and dropped out of the university had a 3.150 GPA.

As four-year colleges examine recruitment practices with two-year schools and gauge potential for success, traditional information regarding high school rank and SAT scores have little or no bearing on potential for success at four-year schools. Additionally, transfer GPA seems to be very important and more reliable in predicting retention and graduation from four-year programs.

With an ever increasing focus on STEM students in the pipeline, it was interesting to note that the GPA from transfer institutions was very high and that students who earned a 3.15 or less were not retained at this research one institution. The good news for students attending two-year schools is that their high school performance and college admission exams mean very little; the sobering news is that they must perform very well to transfer successfully, be retained and graduate from four-year institutions.

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