

Results

Middle School Teacher Perspectives

An interview method was used to gather opinions from core teachers regarding the academy and career readiness education. A meeting was called to order in March of 2013 in order for Haile Middle School departments to collaborate more closely to promote STEM education and career readiness. The meeting consisted of a member from each core department (math, science, language arts and reading). Teachers felt if more collaboration was achieved, the academies career education would be become a better reflection of what the core teachers were teaching. Core teachers were excited to have the opportunity to also promote career readiness in their classrooms along with a stronger emphasis on technology. The group also agreed the opportunity of alternative assessments coming into their classrooms from use of equipment and technology within the engineering program would better promote research, value added efforts, career awareness and ownership of their work.

High School Teacher Perspectives

Three high school teachers were surveyed to attempt to gain an understanding of their feelings of their middle school feeder programs. 100% agreed that the current middle school structure added value to their programs. 100% of the teachers surveyed hold a current industry certification. High school teachers believe that the middle school programs are building a foundational knowledge which is helping accelerate the leaning path. Middle school programs are teaching available industry options while in a career focused environment. One teacher felt there needed to be a stronger emphasis on basic skills such as reading a ruler. All three teachers agreed there was great value in students entering high school programs already certified.

When asked to describe their opinion of negative aspects of middle school career academies, teachers felt there a) are not enough of them, b) there is too large of gap in knowledge and skills gap between students coming from different middle schools. However, 100% of the teachers have students earning multiple certifications, and all teachers agreed that their programs were reaching benchmarks for current industry needs. 66.7% state students in their programs enroll for 2-3 years. 33.3% of the teachers stated they have 10-20 students which enroll in college level programs and 66.7% have 20-30 students which enroll in college level programs. Two of the teachers have 10- 20 students who utilize their industry certification directly out of high school, while one teacher has 20-30.

Student Data

Information was first gathered to gain some insight of the currently enrolled 8th graders in the academy program. 70.8% of the students answered yes, when asked if someone in their family or someone they know was an engineer. 100 % of the students surveyed felt their enrollment in an academy course will further advance their learning beyond their peers. 87.5% of the students plan on taking 4 years of engineering in high school and only 12.5% plan on entering the workforce immediately after high school. 45.8% plan on choosing engineering as a career.

100% of the Students surveyed stated they were going to attempt to obtain an industry certification in middle school, while only 91.7% of students stated they would attempt a second certification in high school. It was clear students comprehend the connection of learning and careers when questioned as to why they felt an industry certification was important to their future and responses were as follows; so I can possibly obtain a job, so I can have the opportunity to get to University of Florida, So that I can get a good job over the summer, Because our world is turning into computers and technology, so I can be a engineer when I grow up because I like to design stuff and create the thing I design, To get a job in high school, I enjoy making changes to things to better them, and I want a good job that is fun, because I want to find work in the industry, Because I have fun doing SolidWorks and it would be cool to have an Engineering job, I am attempting to earn an industry certification because I want to be an engineer when I grow up, Because it can help me get better, higher paying job. Also because it is something I enjoy, for a computer engineering degree.

115 high school students were given a similar survey to attempt to discover a connection from middle to high school engineering programs. Bridging this relationship could help better understand if the middle school academy programs are effectively preparing students for high school and the workforce. Typically, 66% of a freshman cohort is unprepared to enroll in college (Bridgeland, DiIulio & Morison, Civic, 2006). Only 44% of the students in high school stated that someone in their family or someone they knew was an engineer. 90% felt their involvement in the academy was advancing their education experience. 72% plan on completing 4 years of engineering in high school, and only 5% will enter into the workforce after completing high school.

Industry Certification

In regards to industry certification and high school students, survey results and opinions varied from the middle school students. Further research may be needed to see if current middle school academy students are similar in opinion once they reach high school, or further along in their high school years. Of the 115 students surveyed, 72% planned on obtaining an industry certification, and of those 72%, 80% will attempt to acquire a second certification. Responses when asked why they were attempting industry certification were similar to middle school as far as career opportunities and career focus; however there were student responses which displayed much more interest in obtaining a certification for resume purposes. Some of the responses included; I am attempting to receive an industry certification because it would look great on a college application along with all of the sports I participate in. so I can put it on my resume and possibly use the programs in a career, I'm not sure I just chose the class because it's a plus to be certified in these fields, I love engineering I'm a more hands on person just give me something to do and I'll get it done getting an industry certification will also help me when getting into a college and look good on a resume because I want to become an engineer., I'd like to have experience, qualifications and I think this could help to getting a good job, I enjoy the challenges and paths that engineering can bring me and already has, Because I am in the class and I have to, To get a better starting salary out of high school, It is important to develop skills in high school that are applicable in the real world.

The final set of questions asked to the high school students was an attempt to a) better understand their middle school experience and b) to see if their experience would have changed

if there had been the opportunity to be in a middle school academy. When asked if an engineering course in middle school influenced your high school experience, 50% stated yes. 78% felt they would have enrolled in an engineering academy at the middle school level.

Pre-test results

A ten question performance based exam was administered to academy student to better understand levels of knowledge and understanding in regards to content area industry certification exam. In 2011, a total of 9 SolidWorks industry certifications were administered. 8 students successfully passed with an average score of 85%. The average pre-test score of current academy enrollment was 54.4%. The test consisted of 4 multiple choice drafting theory questions and 4 software performance based questions. 53% percent of the students answered drafting theory questions correct and 46% of the students answered the performance questions correctly.