



Engineering ACADEMY

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Evaluation of Haile Middle School Engineering Academy

Project Rationale



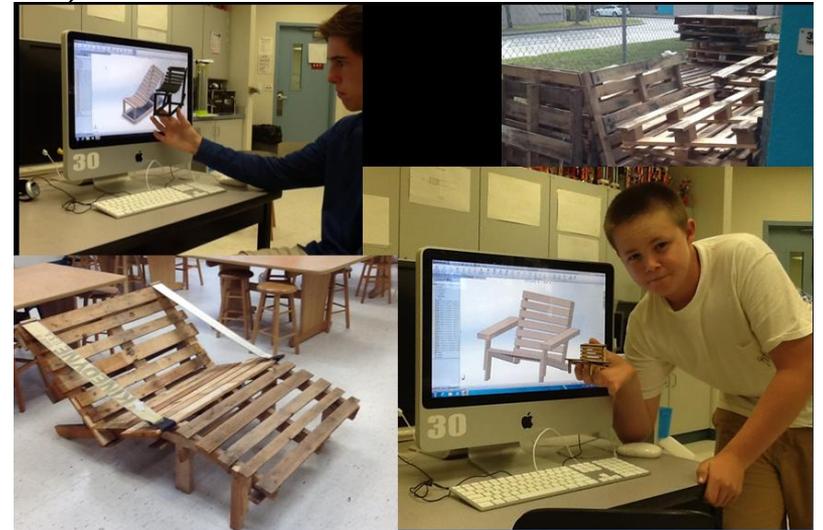
- The intent of this research is to discover avenues of continued improvement of the Haile Middle School Engineering Academy. The term continued improvement in this research can be narrowed to the impact of successful middle school programs enrollment and retention, and also community awareness and local employment preparation. Research was guided by the following three focus questions:
 - 1. Is the academy promoting retention in high school programs?
 - 2. Does the curriculum provide focus of career readiness?
 - 3. What actions are required to improve the overall success of the academy?

- Research has acknowledged that Career and Technical Education is momentous to a young person's education and can add value to the probability of their success.
- In 1995 there were approximately one-hundred thousand engineering graduates in the United States, and climbing to one-hundred and twenty thousand in 2005.
- The shocking comparison is that China generated one-hundred and fifty thousand graduates in 1995 and soared to five-hundred and seventy five thousand in 2005 (Davis, Yearly & Sluss, 2012).

Review of literature



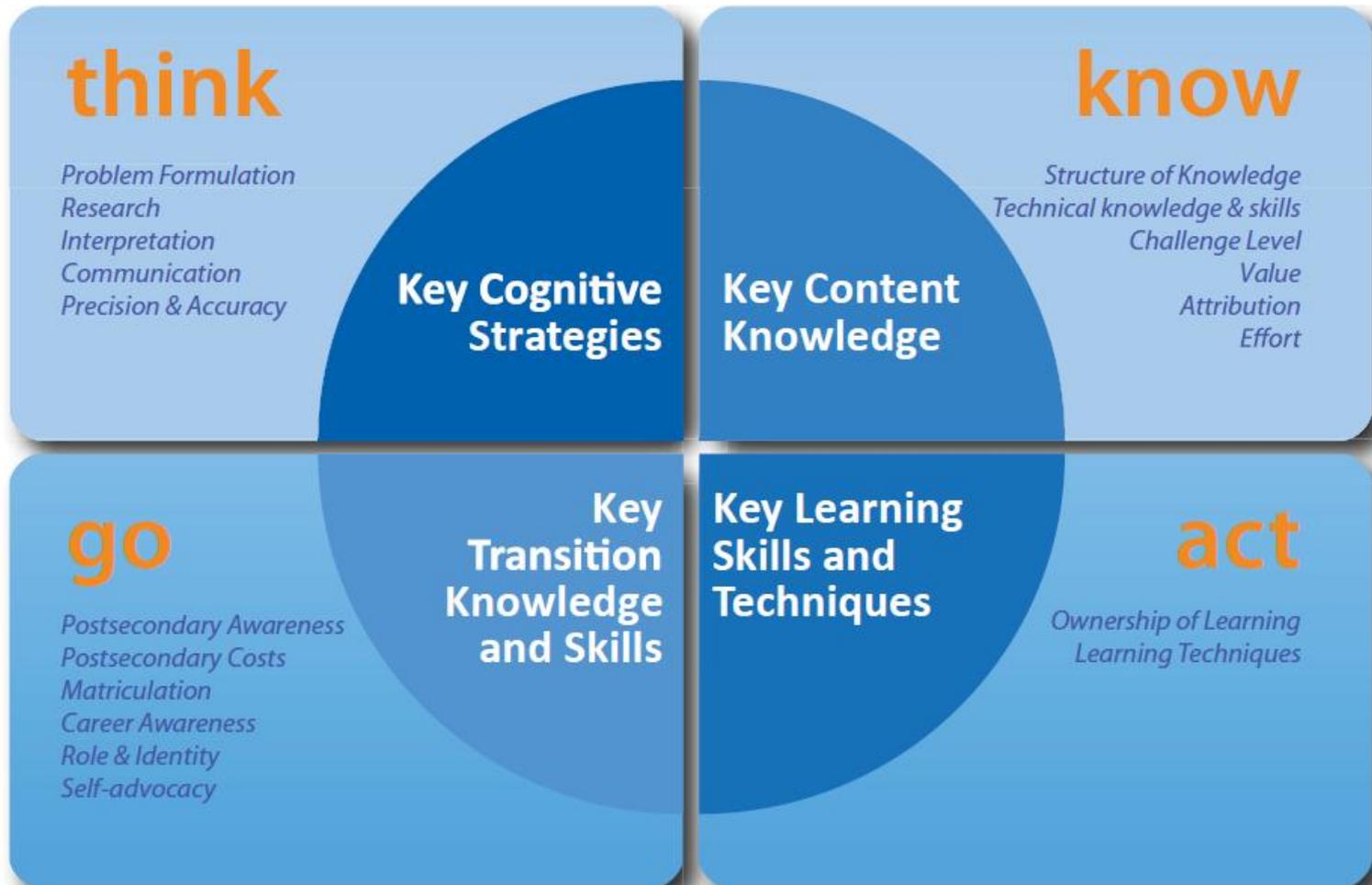
- In 2011, Estacion, D'Souza & Bozick conducted research of twelve Districts in the state of Florida. Of the twelve districts surveyed (332,010 students).
- 15 percent (49,795) were participating in career academies. (Estacion, D'Souza & Bozick, 2011)



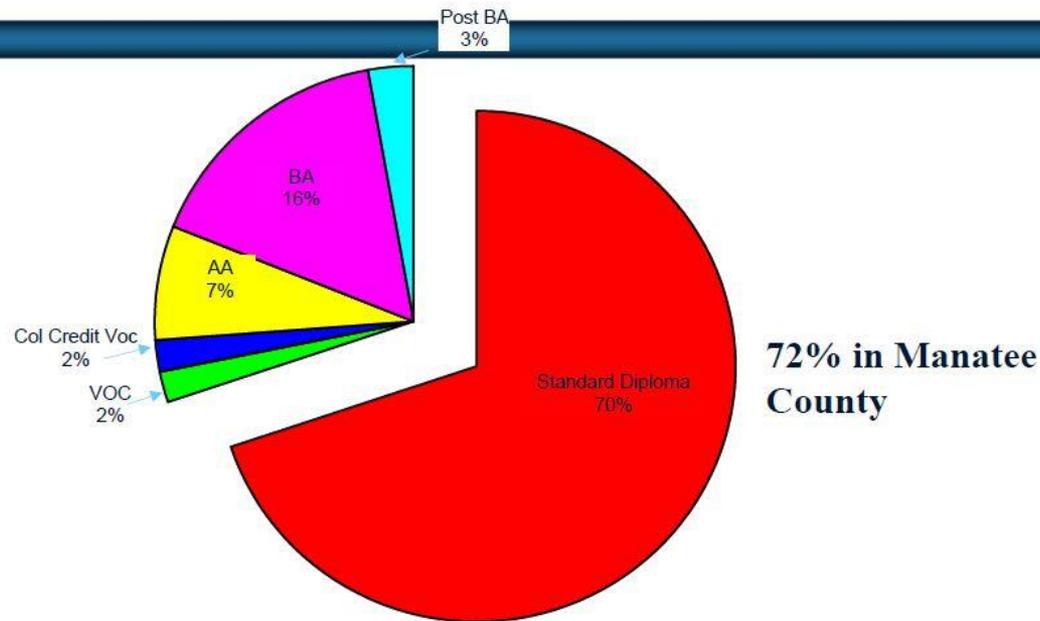
Career Readiness

- The primary focus of a secondary program should be for students to be given the opportunity to obtain knowledge and skills to prepare them for the workforce, with a measurement of success in the chosen occupation or postsecondary school preparation.
- “All schools have the ability to prepare students in a common core of foundational knowledge and skill while also acknowledging the strengths of students who have passions and interests in particular career pathway areas” (4).
- Students will be considered “ready” upon mastery of four key benchmarks of a) cognitive , b) content knowledge, c) skills and techniques, and d) transition of knowledge and skills (Conley, 2012).

Review of literature

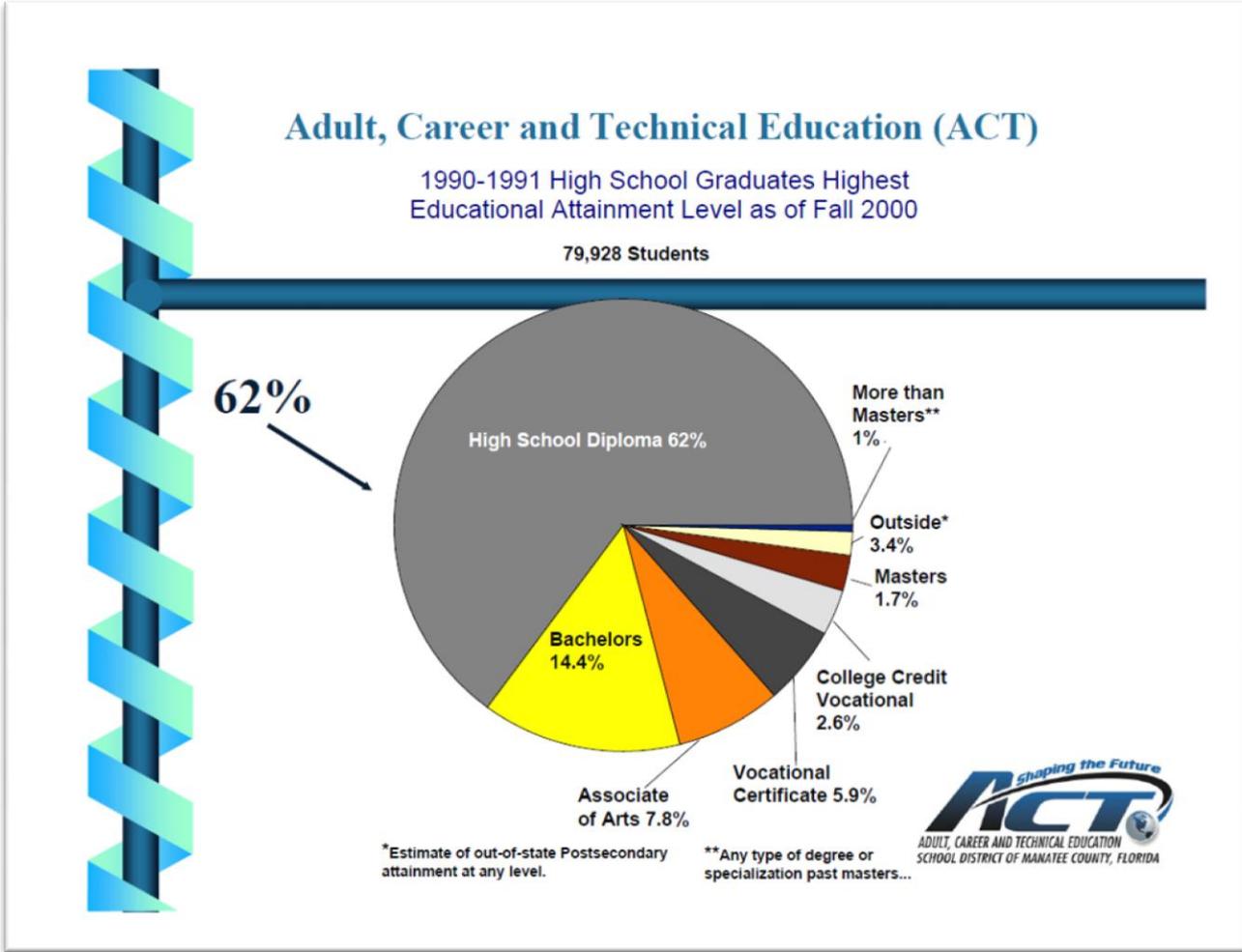


Florida 1995-96 High School Graduates: Highest Educational Credential Attainment as of 2005



89,461 Standard Diplomas
(15,973 Never Enrolled)

Source: PK-20 Education Data Warehouse



- Examining the potential effects of a successful implementation of an engineering career academy at the middle school level could encourage student success and learning through
 - (a) choosing engineering as an elective in high school.
 - b) intent of further industry certifications.
 - c) further pursuit of engineering related careers.

Method

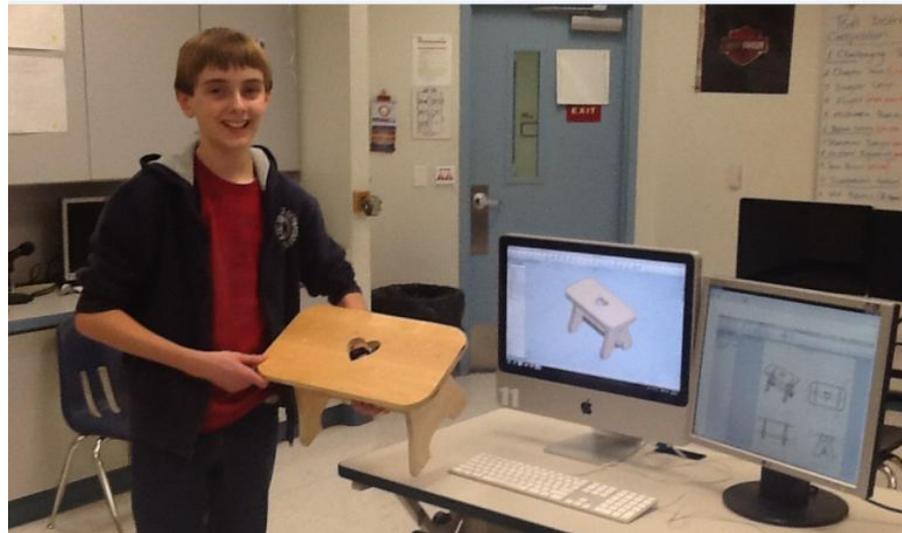


- A survey research method was utilized to better understand the current status of the academy.
- Activities were developed to complete research involving the school districts Quick Query system to research student data such as reading levels, ethnic background, state testing scores, age, and gender.
- Middle and High school teachers participated in program survey
- Annual review of academy was conducted

Haile Middle School



- 44 full time teachers with an average teaching experience of 8 years
- a total of 336 students eligible for free and reduced lunch
- Enrollment consists of 974 students
- 22:1 student/teacher ratio



Results

Middle School Teacher Perspectives



- 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



- 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 learning 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

Middle School Student Data



- 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 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.
- 12.5% plan on entering the workforce immediately after high school.
- 45.8% plan on choosing engineering as a career.

Middle School Student Data



- 100% of the Students surveyed stated they were going to attempt to obtain an industry certification in middle school.
- 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.

High School Student Data



- Typically, 66% of a freshman cohort is unprepared to enroll in college (Bridgeland, DiIulio Morison, & Civic, 2006).
- 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.
- 5% will enter into the workforce after completing high school.

High School Student Data



- 72% planned on obtaining an industry certification, and of those 72%, 80% will attempt to acquire a second certification.
- 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.

Conclusion



- Career academies will continue to be a “viable” source for students to develop the skills needed to be qualified for tomorrow’s high skilled, high waged jobs (Kemple, 2004).
- Aligning the academy standards and best practices with the National Career Academy Coalition Standards is vital to the success of the program.

Academy Department of Education Annual Assessment



- The Haile Engineering Academy scored 43 out of 50. This review positions the academy at “Meets Requirements” status.
- The Assessment is a review of the ten standards of practice developed by the district and aligned with the national career academy coalition.



Middle School Academy Annual Self-Assessment



Ensuring that an academy remains high quality requires engaging in a regular, well-defined, objective self-examination. Improvement elements include the examination of an academy's mission, design and implementation, planned refinements, timetables, and measurable outcomes.

Standards of Practice

I.	Define Mission & Goals	0	2	3	4	5
II.	Academy Structure	0	2	3	4	5
III.	Host District and Middle School	0	2	3	4	5
IV.	Faculty and Staff	0	2	3	4	5
V.	Professional Development	0	2	3	4	5
VI.	Governance and Leadership	0	2	3	4	5
VII.	Curriculum and Instruction	0	2	3	4	5
VIII.	Employer, Higher Education and Community Involvement	0	2	3	4	5
IX.	Student Assessment	0	2	3	4	5
X.	Cycle of Improvement	0	2	3	4	5

TOTAL POINTS EARNED: _____

0=No evidence presented

2=Partial evidence presented

3=Adequate evidence presented

4=Exceeds requirements of evidence

5=Evidence presented is exemplary

Maximum Points Potential = 50

45-50 = Exemplary status

40-44 = Meets requirements

35-39 = Meets minimum but requires action plan

34-0 = Does not meet minimum requirements

Please review pages 15-24 within the, *Standards and Guidelines For Middle School Career Academy Development and Implementation in the School District of Manatee County*, to review an explanation and coordinating numeric indicator which describes the level of evidence presented for a particular standard. Each POS will be assessed with a numeric indicator which best describes the level of evidence presented for a particular standard. Each POS will be assessed. An individual school will be given until the end of the first year to rectify any deficiency. All academies must earn 40-44 points to continue the next school year.

School Name _____ Academy Name _____

Academy Department of Education Annual Assessment



- Discussion and data analysis of Standard 4 exposed that the faculty and staff did not have enough awareness regarding the academy and the value added to the school.
- Standard 8 was the lowest rating as there is no evidence of an advisory committee to drive the focus of the program to meet community needs.
- Post review recommendations were to establish an advisory board consisting of teachers, community members, parents, and students.
- This committee leadership will ensure that the academy is preparing students to meet the demands of the local workforce.

Immediate action required



- Implementation of a proficient advisory committee which will create a stronger connection between school, community and the k-12 engineering structure.
- This action plan will have to consider the impact of adopting National Common Core Standards by all districts.



Impact



- If the study was prolonged to 3-5 years, students could be surveyed after completing college or a technical school to see if they enter into a high skilled engineering career that their middle school academy had an impact on.
- A review will be conducted to see if the addition of the advisory committee added value to the further success of the academy.

End of year results



- 13 Students earned professional industry certification.
- 78% of 8th grade academy students enrolled in engineering programs in high school.
- Advisory council implemented.

<http://www.linkedin.com/groups/Engineering-Technology-Education-Advisory-Group-4943564>

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