ACE TECH: the Fourth Year of CTE and Academic Integration

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Ingredients for Success

1. Organized Management Team
2. Focused Curriculum
3. Engaged Faculty
4. Empowered Student Body

It only takes an hour or two of roaming the halls of Architecture, Construction and Engineering (ACE) Tech Charter High School to detect an enduring attitude of accomplishment from both the teachers and the students. This atmosphere is intentional. The school, located in Chicago, was created specifically to hone the skills of individuals choosing to focus on architecture, construction or engineering as their career goal. The chief organizational emphasis here is on both fostering deep engagement with students and creating a context where accomplishments can be acknowledged and reflected upon. While many schools strive for this arrangement, the administration, teachers and students of ACE Tech achieve their goals in an exemplary form by making sure each student has an academic plan that specifically suits the career goals expressed by the student.

The main ingredients for the success of this institution include a focused curriculum, a well organized management team, an engaged faculty, and an empowered student body. It is the position of the authors that all these components make a quality learning community. Of course ACE Tech didn't just spontaneously emerge and develop on its own; it is a precursor to the Renaissance 2010 initiative created by Mayor Richard Daley to assist those who are involved in urban high school education. Additionally, ACE Tech is a school that wants the students to succeed and in turn the profession of teaching to succeed. And this, undoubtedly, requires hard work from everyone.

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Need for Structure

What accounts for the progress that is shown in the skills and abilities in a school that started in 2003? The first area that sheds some light on this question concerns the school's structure, which is given form by the many roles performed at ACE Tech. The chief educational officer is responsible for delineating tasks to each of the school's managers, who, in return, are held accountable to carry those tasks out. The structure at the school shows clear lines of management. Recently, when the dean of students conducted a disciplinary hearing for one of the students, he knew the background of the student's behavior, the issue in question and several alternative procedures that could be followed. As the meeting proceeded, it was evident that everyone in attendance had a clear understanding of what needed to be done in order to rectify the situation. Consequently, the student left the meeting with an accessible plan of action that would serve to get him on the path.

The board of directors meets once a month to focus primarily on the big picture in regard to finances, facilities, educational outcomes and student internships as well as job opportunities. The board is made up of architects, building trades labor leaders, owners of construction companies, and engineers who know what it takes to begin a successful career in the construction industry. There is an educational consultant on the board who has years of experience in urban schools, and the board directs and supports the school's activities.

A Focused Curriculum

How is this curriculum different from other high school experiences? In the past, curriculum was focused on a broad sweep of general knowledge. Now, curriculum follows the standards of the Illinois Board of Education, and along with these standards the school is infusing the industry standards into the curriculum. The teachers have already demonstrated their ability to incorporate some of the industry standards into the classes. In one chemistry class, the teacher directed the students to produce cement as a chemical experiment. They changed the amount of liquid in the cement and discussed what would happen on a highway if different amounts of liquids were used in the cement.

On another occasion a teacher was reading the book **House on Mango Street** by Sandra Cisernos. In discussing the book, the teacher engaged the students in a conversation about living in a poor neighborhood, and its effects on the family and school. The students responded with ease to this focus on the building trades. They pointed out the effect of using high-quality materials on the building, and how living in a well constructed home affects the family. This year we will instill the industry standards for architecture, construction and engineering in each of the major subject areas. In the first two years the students take general classes centered on the building trades, architecture and engineering. In the third year, they begin to specialize in a specific area.

An Engaged Faculty

Who develops and maintains this focused curriculum? An engaged faculty that knows the mission statement and outcomes of the school and adheres to them on a daily basis. This includes good planning, differentiated instruction, multiple and ongoing assessments, and collaboration among the grade level teams. Often it is perceived that this happens accidentally.

If a school has an engaged faculty it is because of time and effort on the part of the administrators. At this institution, the faculty is supported by the director of education and works in teams. These teams manifest at each grade level, with teachers spending time together talking, studying, researching and analyzing data. The data indicates what needs to be done in that grade level to maximize the talents of each student and to give them the

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ability to meet the expectations of the college they wish to attend after graduation.

Each Wednesday, the student body is released from school at lunch in order to provide professional development time for the teachers. During this time, faculty hold afternoon meetings where they discuss issues such as integrating the curriculum so that the English and history lessons form a dialogue that students can further sharpen their critical thinking skills. Of course the links established between English and history are not the only ones; connections between math and science are also forged so that students are able to ascertain how they will use the skills they are learning.

Other issues discussed are various aspects of assessment, oral presentations, the connection of all the subjects, the connection to construction industry standards and the understanding of the importance of aligning the skills they are learning with what the colleges require. The faculty also determines which students need added help in certain areas and gives them the opportunity to participate in after-school tutoring programs.

An Empowered Student Body

At ACE Tech, each grade level is given specific directives and expectations for each class. In the classroom, the goal for the day is on the front white board for students or teachers to refer to. When an observer comes to the door, that person is met by a greeter who explains to the observer what is happening in the class that day. If it is a math class, the student would explain that the class is working in groups on a formulation of the quadratic equation and that for the next 15 minutes the class will be working in groups. The observer is then invited into the class and given a place to sit.

The teacher periodically reminds the students of the purpose and goal of the class and focuses their attention on that goal. Students often work in pairs or in groups where they eventually present their findings orally to the rest of the class. In a recent observation of a drafting class, each student gave the history of a certain building in downtown Chicago; they discussed how that building was created, including the architect, builder and engineers involved.

Workplace Experience

The program director, in consultation with the director of education, empowers students by connecting them to the workforce through internships, job shadowing and supervised field trips. The students have taken field trips to building trades' apprenticeship schools and businesses to see exactly what the expectations are in the working world. This assists them in becoming even more focused on their work as they discover a purpose for learning the skills necessary to be an electrician, carpenter, architect or engineer. Also contributing to the success of the school is the fact that students have been offered summer internships from businesses and other community agencies. This assists them in understanding what their choice of career focus expects of them in the business world.

The Future is Bright

ACE Tech's students face many challenges, not the least being that 98 percent are eligible for reduced price or free lunches, and the school is located in a city with a less than stellar graduation rate of 56 percent. But ACE Tech's approach to learning is helping to dramatically improve student outcomes, and it is highly supported by architects, engineers and trade groups in the area. Its first senior class boasted a graduation rate of 85 percent. Furthermore, student tracking shows that the majority of students went on to two- or four-year colleges; others went to apprenticeship schools to become electricians, carpenters, pipe fitters; and some went on to paid employment.

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ACE Tech has opened its doors to offer insight into what's working. Several districts, including downstate Pana and other charter schools, have visited the school to observe. The visitors see the importance of structure, a good management team, an engaged faculty and clear expectations for the students. The authors have attempted to delineate a glimpse into what is making this school work. The adults involved in this enterprise have a deep seated respect for the mission and core values of the school. The understanding that each student can and will learn what is necessary to succeed is an awesome undertaking. There are times of discouragement, despair and setbacks, but these are far outweighed by the joy found in the empowerment that the students are beginning to manifest in their schoolwork as they reach graduation. T

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