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HARD HAT ZONE: TECHNICIANS UNDER CONSTRUCTION By Mike McGinty

Average won't cut it here. AEDF's revolutionary Equipment & Technology Institute at Gage Park High School in Chicago is one tough academic jobsite.

Fifteen-year-old Chris is a sophomore enrolled in AEDF's Equipment & Technology Institute at Chicago's Gage Park High School. Though classes just started in September, already Chris sees the potential of a career as a construction equipment technician.

Apparently, it all started making sense that Friday when he accompanied his classmates on tours of an impressive technical college and a sophisticated equipment distributorship, both in Chicago's western suburbs. The very next day he watched intently as a construction crew maneuvered a backhoe/loader on a street job near his high school, not far from Midway Airport on the city's south side. During a break, Chris approached the burly workers and told them, "Someday I'm gonna' fix that machine you're using." The hard-hats laughed. Chris didn't.

Only time will tell if he becomes an equipment service technician, or if this typical teenager decides to follow totally different education and career paths (*we assume the 15-year olds at your house change their minds, too!*).

But what is different for Chris and his 89 sophomore (10th grade) classmates is that they are one of the few groups of American high school students that sees a daily connection between tough academic work and an industry that wants them. Unlike many secondary school students who wonder where education is taking them, the institute students, according to their teachers, already understand that equipment technology in the 21st century will be a high-paying, high-tech, highly rewarding career opportunity that is worth their efforts now.

Further, they are discovering that equipment technology today is more brain power than muscle power, that technicians are highly valued by their employers, and that the skills they are learning now are just the beginning of a career that requires lifelong learning.

In fact, when Gage Park, one of the Chicago Public School System's nearly 70

secondary institutions, opened its doors for the new year to all 1,400 of its students on Aug. 28, the equipment and technology kids already had a jump on most 10th graders in Chicago, or anywhere else for that matter.

That's because the 90 students took a summer course in computer technology at nearby Daley College, one of several institutions in the city's community college system. Through a unique, cooperative arrangement with the college, these 15- and 16-year olds earned three full hours of certified, transferable college credit.

"Almost every one of them earned an A or a B in their introduction to microcomputers," says Gage Park principal Dr. Audrey Donaldson. "Earning the college credit in the summer after freshman year had a tremendous impact on their self-esteem. Some strut around here bragging that they've already been to college," she added with a laugh.

Also, according to Daley College instructor and department chair Dr. Prem Sud, "We weren't quite sure what to expect from these younger kids. But from their contact with the older students and experience with the college environment itself, they learned early that this is serious business."

HIGHLY CHARGED ATMOSPHERE

The AEDF Careers Committee toured Gage Park three weeks after the institute opened. It was a typical Friday that saw both teachers and students looking forward to the weekend. Despite balmy, summer-like weather in Chicago, Donaldson voiced proudly that institute students had achieved nearly perfect attendance since school began. (Anyone familiar with the problems faced by Chicago's schools in recent years knows that near-perfect attendance is generally regarded as unfathomable.)

"I am impressed at what's been accomplished here," whispered Careers Committee member Phil von Hemert of TRAMAC Corp., as he leaned forward on a lab table to hear technical education teacher Ed Bieryla's answer to a student's question about energy conversion. Then, the 20 institute students in this class on basic electricity followed along as one of their classmates

recited from her textbook: "Changing electric energy to mechanical or rotational energy with an electric motor is also a common conversion."

Their teacher, Bieryla, got his feet wet in the construction equipment industry during the summer. On much of his own time, Bieryla took a complete course in hydraulics at Universal Technical Institute ("I even passed," he jokes), and he spent hours in the equipment repair classrooms at Patten Tractor Co., the Caterpillar distributor in the Chicago area. He also traveled to Pittsburgh to become certified by Hitachi Construction Machinery America as a job training instructor.

He and the other institute teachers-Rochelle Brady (English), Phil Hasson (math.), Mike Lakey (science) and Frankie Smith (history)-spent a full week at Patten learning the construction equipment distribution business from the bottom up.

If the students have been enthusiastic for what will be a three-year course of study in the Equipment & Technology Institute, Donaldson points out that teachers, parents and administrators at the highest levels of the Chicago Public Schools are solidly behind the AEDF program.

"I have personal philosophies about the needs of school environment and the introduction of long-overdue changes," said the reform-minded principal, explaining that the institute, in many ways, has already carved a path toward fundamental school change.

It is popular with teachers because it is set-up to reduce class loads, class sizes and provide for individual tutorials, which allows teachers to work one-on-one with the students. Parents tell Donaldson that their children "seem more interested in school."

The institute's framework as a school-within-a-school, which encourages partnerships between businesses and education, also has a supporter in Paul Vallas, the CEO of Chicago Public Schools. It so happens that the plan for the AEDF Institute was exactly the kind of progressive school program that Vallas, a former business executive who has earned a national reputation for his commitment to higher academic standards, encourages throughout the city of Chicago.

IT'S WORKING

"I'm doing more teaching in this program, and it shows," says Bieryla. As an example of the institute's standards-driven approach to education, he explains that students who don't perform at an 80% grade level must attend

the tutorial sessions. "In 27 years I've never enjoyed teaching more than this because I have time to help each one that is having difficulty." All institute teachers report that students are completing homework, scoring well on quizzes, attending tutorials and keeping mandatory notebooks up to date.

What has made the difference? Why has the AEDF institute been a success story thus far with administrators, teachers, parents and students?

No one yet is claiming that this single program is the answer to the serious shortcomings of America's much berated "shopping mall high schools," nor is it something that, by itself, will cure the construction equipment industry's growing shortage of technicians.

But what it is proving is that close partnerships between industry businesses and schools stimulate a more targeted learning environment that may nourish the nation's hunger for a world-class technical workforce in the 21st Century, according to John Porter, a senior associate at the National Center On Education And The Economy (NCEE).

Frank Giannelli, AEDF's director of career programs, believes the commitment by the institute's business partners is the backbone of the Gage Park program. The 40 members of the Illinois Equipment Distributors Association, manufacturers including Volvo Construction Equipment, two-year colleges such as Universal Technical Institute and Daley, have all played unique roles in molding the institute as a school-to-career experience for the students.

Their contributions have ranged from attendance at monthly steering committee meetings and cash donations for classroom improvements, to designing technical courses and showcasing equipment on the school's grounds for an open house. Later, the business partners will provide mentors for each student, job shadowing experiences and guaranteed jobs upon completion of the program.

The NCEE's Porter is a former California high school principal who designs school-to-career academy programs at secondary institutions in several states (Gage Park chose the term "institute" over the more familiar term "academy"). In the most successful cases the business partners climb into the trenches with the school people to design courses, develop high standards and help students understand that hard work leads to a career in the industry and the opportunity for further education.

Porter recommended Gage Park High School to The AED Foundation because its faculty and staff volunteered to implement the European-style high standards that Porter's organization is developing for schools in Chicago and other cities. While AEDF's business partners prepared the technical education side of the institute's framework, Porter labored with the school system and Gage Park personnel on staffing as well as all the state, local and community educational and administrative requirements.

Unlike traditional vocational programs that conjure up memories of the old "shop" classes for average or below-average students, the hallmarks of the E&T Institute are high standards in technical education combined with significantly higher standards in academics. Graduates must meet high standards in math, science and language because today's sophisticated technical jobs require those proficiencies.

Porter, and school reform advocates generally, argue that American high schools must change the mindset of favoring top-of-the-class, college-bound students while offering what critics call "shopping mall," low-standards courses for kids who may have interest in technological skills. The changing shape of the economy is creating plentiful jobs in careers such as equipment service, computer electronics, medical and manufacturing technology, etc.

GAUGING SUCCESS

But the current reality is that there are not nearly enough qualified applicants for jobs that don't require a four-year degree. Porter says the nations of Western Europe and the Pacific rim are years ahead of the United States in recognizing the need for skilled workers, whose paychecks are getting larger and lifestyles more luxurious.

The AEDF Equipment & Technology Institute is trying to accomplish precisely what many of our competitor nations have already figured out. Great careers await these students if they work hard and learn what today's technology demands of them.

Graduates will have enough technical and academic skills to make good choices. Should they choose not to enter the workforce after completion of the program, they are encouraged to continue learning at a two-year technical college, such as Universal or Daley College, or four-year institution like Illinois Institute of Technology, which is also an institute partner.

But the encouraging opening of the institute, like a great tee shot in golf, doesn't guarantee an easy trip to the green. Like any new, untested program, tough educational programming and funding issues lie ahead as

the first class of institute students moves toward graduation in the year 2000.

Further, the ultimate test of the program's success can't be measured for at least four years. That's when AEDF and the other supporting organizations will be asking employers and professors of technical schools and colleges if the institute graduates know more and perform better than students emerging from the traditional, general academic high school disciplines.

"We're not afraid of the challenge," says AEDF executive director Patricia Jordan. "This program has developed a life of its own and we have the commitment of some terrific business and education partners who won't settle for anything less than the success of this program.

As the institute develops, the staffs at both AEDF and NCEE are documenting each step so that the concept can be shared with businesses and schools in other cities wanting to develop similar high school programs. Several AED members have already asked for preliminary input for clones in other parts of the country.

"It's very possible," Porter suggests, "that the AEDF program could spark a movement that sees various industries sponsoring institute-like programs at every high school in Chicago." NCEE considers the Gage Park institute a flagship program because AEDF is one of the few national organizations to support such an endeavor.

"Our philosophy behind this is quite simple," adds Jordan. "If industries and schools can work together to make all the students smarter, then everybody benefits."

And it appears that some 90 students are already benefiting. Chris, for example, is doing very well in his studies. In just a few short years, maybe those same construction workers will be surprised when Chris drives up to the jobsite in a sophisticated service truck and says, "Remember me? I'm here to fix that backhoe."

PARTNERS ARE INSTITUTE'S BACKBONE

Space prohibits listing all of the contributions from the businesses and schools involved in the launching of the AEDF Equipment & Technology Institute. Following is a sample of the wide range of time, energy and resources devoted to the program by partners:

The 40 members of the Illinois Equipment Distributors Association (IEDA): A formal letter of support to Gage Park High School and a commitment to raise more than \$30,000 to modernize and re-equip the school's outdated (circa. 1938) technical classroom.

IEDA member Patten Tractor Co., Inc., Elmhurst, Ill.: Hours of Steering Committee attendance, hosting facility tours for students and a week of on-the-job training for Gage Park teachers.

McAllister Equipment Co., Alsip, Ill., and Volvo Construction Equipment North America, Inc., Asheville, N.C.: Teamed with Patten to deliver equipment units that sat on the high school's grounds for a week to help promote public engagement meetings about the institute.

West Side Tractor Co., Naperville, Ill.: Through an employee's connection with a now defunct trade school, the donation of a Vega Hydraulics Trainer that has a new life in the technical classroom at Gage Park.

Burch-Lowe, Inc., Atlanta, Ga.: A \$1,000 contribution to the endowment fund.

AED: A \$50,000 endowment fund authorized by its board of directors and earmarked for support of the high school program in the name of former AEDF president Lester Heath.

Universal Technical Institute: Tours for students and curriculum design for courses in electricity/electronics, engines, hydraulics, power train and safety.

Richard J. Daley College: In addition to providing college credits to high school students, this city college is developing new courses connected to the equipment technology program at Gage Park.

Chicago Public Schools: Full support of AEDF and commitment of funds for administrative expenses and upgrading of the institute's academic classrooms.

NCEE: Some expenses and fees for consulting work on program design, standards and administrative issues.

A DAY IN THE LIFE OF AN E&T INSTITUTE STUDENT

Judith Chavez and Dawan Lewis are sophomores at Gage Park High School and in their first year of AEDF Equipment & Technology Institute. Here is a typical day for these 10th graders. Under each class is a sample from many performance-based standards that students must master before moving on. First bell rings at 8 a.m.; final one at 3:21p.m.

Period 1. English II

One of 13 standards: Analyze author's style and literary form and their effects upon the reader, making connections within and across the texts.

Period 2. Geometry

One of 13 standards: Identify, describe and apply geometric relationships (parallel, perpendicular, similar, congruent, symmetric, proportional) in one, two and three-dimensional models.

Period 3. Chemistry

One of 13 standards: Know and apply the concepts, principles and processes of technological design.

Period 4. American History

One of 22 standards: Define and explain key economic concepts (supply and demand, taxes, trade, consumption, banking) which make up systems and how their interactions affect shortages, surpluses and consumer prices.

Period 5. Electricity (1st semester)

One of 12 standards: Understand the fundamentals of capacitance, inductance, AC and DC voltage.

Period 6. Hydraulics (2nd semester)

One of 11 standards: Identify hydraulic schematics and their symbols in relation to the components which they represent. The rest of the day typically includes a tutorial period, advisory, physical education or ROTC, work toward a required 45 hours of voluntary service and, of course, lunch!