
Article published Apr 3, 2006

Upstate students may soon take a new route

JASON SPENCER, Staff Writer

GREENVILLE -- Hey, kids: Maybe it's time to get your learn on. A major part of this region's future is said to lie in automobiles.

Children today grow up in an age when information is a commodity, where knowledge is the basis of an economy.

It's easy for them to understand. Few have probably stopped to consider anything else.

But these boys and girls with their cell phones and iPods grow up in families that might still be used to old ways, with fathers and mothers who grew up in an Upstate rich in textile jobs -- when a high school graduate or a dropout with an equivalent degree could go to work immediately in a factory.

Educational institutions across Greenville, Spartanburg and Union counties say they want to prepare children and young adults here for a future in the automotive field.

But the automotive sector is relatively young -- meaning the thought behind work force preparation is even younger.

It's like three children feeling their way around a strange room in the dark. They're all going in slightly different directions, and approaching the problem in different ways.

And like anything new, it's not easy to master.

Those behind educating a work force for the automobile of the future say the crux of it lies in changing attitudes -- about the need for automotive engineers, about the importance of science and math, and about America's place in the global economy.

And "education," in this case, means anything from pre-kindergarten to graduate studies. It could include such simple things as field trips. It could be as complicated as targeted assignments for 5- to 20-year-olds.

High school students in Greenville County, for instance, will begin building working models of hydrogen cars in the next few years. Greenville has a unified school district and has embraced the magnet school concept. Spartanburg has neither, but a subtle move toward magnet schools might

come later this year.

It's just a few of the differences among three groups of people separated by lines on a map that, if not reconciled soon, could become separated by much more.

When you change, you change

The small, clear plastic car seems semi-intelligent as it bounces around a table at J.L. Mann High School. A dozen or so students from various grades watch excitedly.

"I want the one with the solar panel!"

"I want to race them!"

One girl flips through the manual that came with the model.

"See, I told you -- electrolytes!"

She nudges her friend and gives her a high five: "Gatorade," they say in unison, laughing.

The car has two cylinders on top of it. Water goes in one and is fed through a tube so -- when connected to a battery or solar panel -- hydrogen is created. The hydrogen powers the car and, through another tube, the water "exhaust" drips into the other cylinder.

Greenville County high school students soon will build these cars as part of the their class work (experiments along the way tie into physics, chemistry and engineering design). It's the latest of five student "challenges" sponsored by the Society for Automotive Engineers International.

"They're not only going to be learning about the fuel cell, but they'll also study the problems the automobile industry is facing: How do we design something to go around it, to make it go?" said Matt Miller, a program director for that group. "They're going to have to really take a look at designing a chassis that will hold, basically, a new engine. And the ways the cars look will be different, because we're providing power from a different source."

Automobile manufacturers such as General Motors and Toyota heavily fund the Society of Automotive Engineers, which will have an office at Clemson University's International Center for Automotive Research to complement its offices in Washington, Detroit and Warrendale, Pa.

Those companies are beginning to panic, Miller said, because of a decline in American engineering graduates. They want to create a "pipeline" of students studying science and math from adolescence to college age.

The program is called "A World in Motion." Materials are provided free. Schools just have to request them.

As of this academic year, 20 schools in Greenville County participate in other World in Motion challenges. Three in Union County do. Landrum High School is the only school in Spartanburg County that does.

Behind blue balloons that boast H, the symbol for hydrogen, U.S. Rep. Bob Inglis last week announced the new hydrogen-themed World in Motion challenge. He piggybacked that onto a separate announcement, new legislation that would create an "H-Prize" -- including a $100 million grand prize -- that he hopes will spur breakthroughs to a hydrogen economy.

"We are committing you to a race that has no end," Inglis, R-S.C., told the students. "You have to run faster and harder than anybody else in the world."

A frequent comparison is made to the space program in 1960s America.

David Bodde, Clemson University's director of innovation and public policy, tells a story of driving through Kansas as a young boy with his mother lecturing him on the importance of studying science and math "so we can beat the Russians."

With hydrogen research going on all over the world, those such as Inglis and Bodde say the same thing has to happen today.

Fields of attraction

Inglis chose J.L. Mann for the dual announcements because it is a magnet school for science, math and technology. Magnet schools carry a theme, in theory making them more attractive to students and parents.

The idea has been floated in Spartanburg for years.

District 7 administrators call it another part of a larger evolution of city schools -- a move that began with the recent, mildly controversial idea of creating neighborhood schools. But despite support from the Spartanburg Housing Authority and others, the idea has yet to take off.

In the preliminary discussion, Mary H. Wright Elementary is being considered as a magnet school for science and technology.

"If a student is interested in science, then we have to have the ability to link that student to science careers -- through learning beyond that student's core courses. You have to structure his electives around that," said Ernest Dupree, District 7 deputy superintendent for instructional services.

State Rep. Harold Mitchell, D-Spartanburg, calls the gradual overhaul of city schools part of a 35-year-old battle, one brought upon in part by institutions that were never desegregated.

Those issues must be resolved if this area doesn't want to miss the boat with ICAR, he said.

"You're talking about a world-class automotive research campus that people around the world are looking at," Mitchell said. "And so far, I haven't heard any plans or anybody looking at preparing our kids in science, engineering and technology. I've heard folks in Greenville, and Columbia and Charleston, talking about plans for their youth. This is in our back yard. I don't want it to be again that we miss out on opportunities for the future, for our kids."

Beginning next fall, District 7 will begin surveying students and parents to see where their interests lie, and teachers to see where their abilities lie, both in the case of what can offered beyond core

learning.

Administrators one day would like to work with companies like BMW in developing their curriculum, Dupree said.

BMW, Michelin, Timken and others already have given their input in Clemson's new graduate program in automotive engineering. But people like Tom Kurfess -- director of the now-under-construction Carroll A. Campbell Graduate Engineering Center at ICAR -- regularly talk about planting seeds much earlier, like in elementary school, so that children grow up excited about cars.

The six other Spartanburg County school districts are doing different things in terms of developing a workforce for this industry, but no common theme or focus binds them.

"We're all in varying degrees along that path," said Lynn Batten, District 7 superintendent and head of the countywide superintendent association this year. "Somehow, we have to make our curriculum more relevant for our young people. They have to learn early on about setting goals."

About $2.7 million would be set aside for the new Education and Economic Development Act under the state House budget, for instance. That program would allow high school students to declare a major and earn college credits.

Shooting for that goal is what's guiding Spartanburg School District 7's magnet school discussion, Batten said.

Technically speaking …

All three Spartanburg County vocational schools have automotive engineering programs for the 10th-, 11th- and 12th-graders they serve.

Many students who go through them become automotive line technicians. Did you know today's "mechanic" with a two-year degree can make an average of $53,000 a year?

"We're trying to pique their curiosity," said Rick Griffin, the automotive instructor at the Daniel Morgan Technology Center.

"But the hardest thing isn't turning the kids on to it. It's informing the parents. If your kid comes home and says, 'I want to go into automotive technology,' you say, 'But I want you to go to college.' It's like the innate fear of snakes we all have."

Griffin speaks proudly of his few students who have gone on to Clemson, or the University of North Carolina in Charlotte, or other four-year institutions.

The cornerstone of what he and his counterparts in Inman and Moore say is that they want a seamless transition from high school to technical school.

The problem is, the industry is changing almost as fast as cell phone ringtones.

Hydrogen-powered cars and gasoline-electric hybrids are discussed so students have some familiarity with them when they enter the world of work.

"We're putting the seed in students' heads," Griffin said. "We want to expose them to what's coming, because they've got to get the mindset.

"Let's say a new hydrogen car comes out next year. When new technology comes out, the average technician is 47 years old. And they get set in their ways, and get fed up and leave. And that leaves us with a shortage of qualified technicians."

But the industry focus in the Upstate, largely because of ICAR, will be on research and development just as much as it will be on the technical side. Many jobs will be in-between "engineering technicians."

And the kind of broad change being talked about is societal. The occasional reminder is given that just because you understand hydrogen or automobiles doesn't mean you have to be an engineer. You could go into politics or education.

It's a subtle placement of allies so one day, when decision time rolls around, the "right" choice will be made.

Or at least, they say, an informed one.

One of the decisions that local and state political, business and education leaders will have to make: Do they want to usher in an age of white-collar professionals, or are they content with a blue-collar work force making comfortable, middle-class wages?

Training for the future

Griffin at the Daniel Morgan Technology Center and Spartanburg Technical College's Jeff Hunt will meet with ICAR officials for the first time this month.

The meeting, while potentially fruitful, illustrates how early in the process of updating the regional education system really is.

"There needs to be more communication between the different institutions," said Hunt, Spartanburg Tech's automotive department head. "We have a good working relationship with our local career centers … but then, we need more cooperation between Greenville Tech and Spartanburg to help support the automotive industry."

Hunt likens the state of today's automotive training to what schools were going through at the dawn of the computer age: scrambling to keep up with and get ahead of technology so that enough people will understand it once it becomes widespread.

Clemson's Kurfess says those conversations will happen, but he and his colleagues at ICAR need to be ready to present a plan to regional educators. Good ideas with nothing to back them up wastes everyone's time.

Once the Campbell center is up and running, ICAR will be a focal point for such issues, he said.

"I do not think that we are going to define the needs of the work force, but we will work with our industrial partners to define them," Kurfess said. "Of course, input from our educational partners will

be critical. Basically, we will get all parties -- industry, government and academic -- together to work out the details.

"The reality is that we are charting unknown waters, and we will successfully navigate them as a team."

Jason Spencer can be reached at 562-7214 or jason.spencer@shj.com.

-