Lost in Space:

The Challenge of Deploying Vocational Education for the Future of the Huntsville Area

January 2009

Public Affairs Research Council of Alabama

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EXECUTIVE SUMMARY

The staff of the Public Affairs Research Council of Alabama (PARCA) has reviewed the literature on vocational education including more than fifty monographs and reports on vocational education programs using the Southern Regional Education Board's (SREB's) library of publications, comparing the findings in those reports to identify "best practices" for vocational education programs (See page 8).

Staff also toured the campuses of Bob Jones High School, Huntsville Center for Technology, and the Madison County Career Technology Center to see what is available in vocational education.

VOCATIONAL EDUCATION: MANY PURPOSES, ONE STANDARD

In comparing the vocational programs in the Huntsville/Madison County area to exemplary programs elsewhere, it is important to note the varied criteria by which vocational education programs are evaluated.

Vocational education serves a number of different objectives and different constituencies in public high schools. Some see vocational programs as a conduit, or pipeline for potential employees. Demand for vocational courses stem from a variety of forces, from the job market, from the students, and from parents. In some cases these forces do not align with job placement or specific employment criteria. There are reasons other than employment for offering vocational courses. In fact, the overwhelming bulk of the literature on best practices in vocational education argues that it works best when integrated as part of a rigorous academic curriculum, where high school students have the opportunity to apply learning in practical ways.

The best general source for modeling best practices in vocational education can be found in the Southern Regional Education Board's (SREB) *High Schools That Work* (HSTW) practices, which includes participating schools in the Huntsville area.

The SREB's evaluation of the implementation of HSTW practices does not rely on program-specific vocational attributes, but general characteristics and quantitative outcome data on student learning as measured by student test scores. The best vocational programs reinforce rigorous academic standards.

The central finding of the SREB studies is that where vocational education is academically well-integrated, rigorous, relevant, and encourages relationships with adults in a workplace environment, basic academic test scores are generally higher (See Appendix A for description). Test scores on the Alabama High School Graduation Examination is the standard that PARCA has used to examine the deployment of vocational education in the high schools in the Huntsville area. Rigor, as revealed by student performance on these exams, is the key indicator used to identify areas of relative strength and weakness in the Huntsville area.

COURSE OFFERINGS

Table 1 below identifies the available course offerings in the Huntsville area. Detailed course enrollment figures for Bob Jones High School were provided by Madison County Schools. Administrators at Huntsville City Schools' Huntsville Center for Technology (HCT) noted that it provides services for both middle and high school students, totaling approximately 8,000 students. Madison County serves approximately 4,500 students, with some attending courses within their local high school and others at the Madison County Career Technical Center.

TABLE 1

SUMMARY OF VOCATIONAL EDCUATION COURSE OFFEREINGS

	Bob Jones High School (Madison City System)		Huntsville Center for Technology		Madison Co. (CTC)* All Madicson County H.S.'s	
Occupational/Instrustial Area	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**	**Course Name/Description**	***Enrollment**
Business/Marketing Education	Computer Applications*	200	(Middle Sch.: Career Discovery/Teen L	NA	Business Education	NA
	Business Technology*	143				
	Integrated Computer Tech					
	Interactive Multimedia Design					
	Accounting 1	16				
	Accounting 2	4				
	Entrepreneurship & Mgmt.*	24				
	Administrative Principles					
	Financial Mangement	225				
	Marketing Dynamics					
	Internet Publishing					
Occupational/Instrustial Area	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**
Family and Consumer Sciences	Family Dynamics	99			Family Life	NA
	Food Dynamics	154			Family & Consumer Science	NA
	Housing Decisions					
	Interior Design	52	Early Childhood/Older Adult Svcs. Ed.	NA		
	Child Development	53	(Early Childhood Technology)		Teach Alabama/Child Care	NA
Occupational/Instrustial Area	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**
Culinary Arts	Culinary/Hopsitality 1	143	Culinary Arts	NA	Culinary Arts	NA
	Adv Culinary/Hospitality 2	40				
	Culinary/Hopsitality 3	12				
Occupational/Instrustial Area	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**
Fashion Design	Fashion Design 1	76				
	Fashion Design 2	20				
	Fashion Design 3	3				
Occupational/Instrustial Area	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**
Healthcare Science/	Kaleidoscope of Health Careers	49			Healthcare Science	NA
Allied Health	Health Science 1	76	Healthcare Science Technology	NA		
	Health Science 2	35				
Occupational/Instrustial Area	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**
Industrial & Agriscience Tech.					Engineering Academy	NA
					(Only at Sparkman & Buckhorn)	NA
	Welding	50	Welding	NA	Welding	NA
	Auto Mechanics	100	Automotive Technology	NA	Auto Service Technology	NA
			Collision Repair Technology	NA	Auto Collision Technology	NA
			Power Equip. Tech. (Small Engine)	NA		
	Woodworking	98				
			Computer Electronics Technology	NA		
			Drafting Design Technology	NA	Drafting Design Tecnhology	NA
			Precision Machine Technology	NA	Precision Machinging	NA
			Electrical Technology	NA	Electronics Technology	NA
Occupational/Instrustial Area	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**
Agriscience	Floral Design/Interiorscaping	26			Agriscience	NA
	Horticulture	23			Horticulture	NA
	Landscape Design/Management	42	Landscape and Turf Management	NA		
	Sports/Recreation Turf					
Occupational/Instrustial Area	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**
Personal Care			Barbering	NA		
			Cosmetology		Cosmetology	NA
Occupational/Instrustial Area	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**	**Course Name/Description**	**Enrollment**
Cooperative Education	**Coop Education Work Exp.				Cooperative Education	NA
	**Coop Education Related Study					
Total Enrolled/Served		**1,763**		**8,000**		**4,493**

** Requires approval/audition

VOCATIONAL EDUCATION ISSUES IN THE HUNTSVILLE AREA

Based on comparisons with exemplary practices in vocational education, available data on school performance, course offerings, and information from schools, we have identified three major issues.

In order of priority, these are:

Issue #1

Madison County's Career Technical Center is geographically isolated, deterring students who want to include extracurricular activities in the afternoon from participating. According to administrators, it is at approximately 50% utilization. Maps and calculation of the distance students from each high school have to travel to go to take a vocational class can be associated with low utilization rates.

Although Madison County's situation is the most severe, the deployment of programs in the Huntsville City Schools is geographically centralized in the same way. Eliminating the physical space between academic and vocational courses may improve integration in that system as well.

Issue #2

The pipeline of vocational students needs expansion across the board, throughout the area, with more rigorous academics and better recruiting for vocational programs. Only about one-third of 12^{th} grade students taking the Alabama High School Graduation Exam tested at the highest level, which would be the level at which they would be most likely to be prepared for work or college. That percentage should not be overstated as it does not account for dropouts who did not take the exam at all. Well delivered vocational programs could be a central drop-out prevention strategy for all the schools in the area, especially those with the lowest test scores.

Issue #3

The intensity of engagement with businesses and employers is uneven across vocational areas, though some industries have developed very good practices that can serve as models for others.

Allied health appears to be the strongest area of training among the various programs, with the courses at Bob Jones High School having clear standards of success and a track record of placement. There is a strong business connection with hospitals, there and at other schools. More connections are needed in other areas where employment opportunities are available and the occupational outlook is strong.

RECOMMENDATIONS

- Deploy vocational courses in Madison County high schools so that students do not have to travel to a single location.
    - Hamilton County schools developed academies for each high school and is moving toward an "open enrollment" for schools next year.
    - Integrate vocational education with academic education in all settings.

- The largest gains can be had in the lowest performing areas. The elementary and middle schools feeding those high schools with the lowest performance on the Alabama High School Graduation Examination should be targeted for the most intensive early engagement with vocational education courses.

- Improve student engagement and instruction at the elementary and middle school grades so that students can succeed in high school and perform at a level that provides opportunity to advance.

- Increase participation by parents and businesses in the educational process through providing resources, job shadowing opportunities, and support for educators seeking changes.

- Explore more partnerships with nonprofit and community service organizations to expand relevant service-learning, job shadowing, and on-site work experience for students.

- Recruit and supervise more adult professionals and craftsmen to provide adult relationships in real-life work settings.

- Utilize the High Schools That Work model and employ a full-time facilitator to negotiate changes with the school systems.

OVERVIEW

Enthusiastic staff and teachers were evident at all of the vocational education sites visited. Overall, the area of allied health area appeared to have the greatest demand and involvement with employers and job site experiences for students. The relationship between businesses, schools, instructors, and students is almost a textbook example of a best practice.

Healthcare Science/Allied Health

Elise Taylor, Director of Huntsville Hospital's Corporate University provided the following examples of the interaction between the hospital and the vocational programs in the area:

> "Huntsville Hospital's Corporate University team supports the vocational schools with a healthcare emphasis, by providing clinical experiences and lectures. The schools we currently have contracts with and work with directly include:
>
> - Sparkman High School
>   *Students rotate 3 hours a week in clinical areas throughout the school year*
> - New Century High School
>   *Students rotate 3 hours a week in clinical areas throughout the school year*
> - Bob Jones High School
>   *Students rotate 3 hours a week in clinical areas throughout the school year*
> - Madison County Career Academy
>   5 hours a week in the fall, 10 hours a week in the spring
> - Huntsville Center for Technology
>   *Students rotate 12 hours a week in clinical areas throughout the school year*
>
> The hospital also invites all high school students in the area to participate in our more inclusive programs:
>
> - **Medical Venturing** – which meets once a month, for 9 months a year
> - **Job Shadowing** – which provides job shadowing experiences for individual students interested in healthcare careers
> - **Ground Hog Shadowing** – which is in conjunction with the Chamber of Commerce and Junior Achievement; and provides a concentrated job shadowing experiences for students.
>
> We currently have a contract with Bob Jones, Sparkman High School, New Century High School, Madison County Career Academy, and Huntsville Center for Technology to augment their vocational programs with exposure in the healthcare field."

Involvement in developing educational materials and curriculum is also evident in the hospital's relationship with the schools:

> "[W]e have made recommendation on materials that will be helpful to youth interested in the healthcare field, and provided lectures when needed… Due to the advisory role we have in our relationship with the schools we serve, we… provide feedback on improvements. These programs provide invaluable exposure for students going into health care fields."

The results of these efforts are beneficial to the students and serve, in this case, as a pipeline for future employees in the healthcare field in the Huntsville area.

> These programs provide invaluable exposure for students going into health care fields, and help expand student understanding of the breadth of career possibilities in healthcare. The current vocational schools provide an important early start for students to enter healthcare careers, and gain exposure to the growth and stability of this important service sector in our community. Many of these students go on to tech, nursing, and other health care roles that are fed by our local colleges and universities.

Culinary Arts

The area of culinary arts also has business connections and is very popular among students. In each of the systems, the facilities were first-rate, with equipment in good repair and access to serving areas nearby.

Each site also provided projects or events for students to display their learning in a real-world manner.

Business/Marketing Education

Bob Jones High Schools offerings in this area are the most expansive and there are active relationships with business. Madison County has the next largest offerings. Although some relevant courses may be offered at each of the city's high schools, there are no such courses listed at the high school level for the Huntsville Technological Center,

Industrial and Agriscience Technology

This area is most commonly associated with the old-style "shop classes," though the technology and the equipment have changed dramatically over the past few decades. HTC and CTC have the latest equipment and display projects produced for NASA's HUNCH project. All three systems participate in the moon buggy competition.

Integration with academic math and science courses is an essential component of successful programs in this area. Increasing rigor in math and science, together with hands-on applications of academic lessons in these courses are powerful means of engaging students in work-related, adult relationships.

The mix of resources is different at each location. High quality precision machine equipment is more readily available at HTC and CTC than at Bob Jones, but Bob Jones has more large engines for students to work on. All three have substantial welding facilities and horticulture offerings as well.

Construction trades were noticeably smaller than the other industrial course offerings. Bob Jones High School is the only school offering woodworking, while CTC and HCT offer courses related to electrical or electronics training.

Family and Consumer Sciences

All three systems provide courses in child development and family dynamics. Bob Jones High School also has courses in interior design and fashion. The fashion curriculum has become popular and allows student to develop and show their own creations. Again, making presentations, with hands-on experience is a best practice.

Personal Care

Cosmetology appears to have good quality and is very popular among students and parents. Classes appear to be well attended in all locations. According to some experts, these courses may be of limited value in the market, but may nevertheless have a strong impact on reducing drop-outs.

The major gaps in vocational education for the Huntsville area are relate to the high relative demand for the machine shop and auto shop trades. While there appears to be high quality training available in each of the training sites, there are few students taking advantage of those offerings.

In the area of construction trades, only one site, Bob Jones High School, had documentation showing that there were students currently taking courses related to carpentry (in Woodworking). At the Huntsville Center for Technology there was a class on "Electrical" skills.

There is also wide variation among the vocational programs in the way they are geographically deployed.

THE SREB MODEL: *HIGH SCHOOLS THAT WORK (HSTW)*

The Southern Regional Education Board has identified a set of well-established, empirically-based practices for quality vocational education programs as outlined below.

HSTW Key Practices

High expectations — setting higher expectations and getting more students to meet them.

Vocational studies — increasing access to intellectually challenging vocational and technical studies, with a major emphasis on using high-level mathematics, science, language arts and problem-solving skills in the modern workplace and in preparation for continued learning.

Academic studies — increasing access to academic studies that teach the essential concepts from the college preparatory curriculum by encouraging students to use academic content and skills to address real-world projects and problems.

Program of study — having students complete a challenging program of study with an upgraded academic core and a major.

Work-based learning — giving students and their parents the choice of a system that integrates school-based and work-based learning. The system should span high school and postsecondary studies and should be planned by educators, employers and employees.

Teachers working together — having an organization, structure and schedule giving academic and vocational teachers the time to plan and deliver integrated instruction aimed at teaching high-level academic and technical content.

Students actively engaged — getting every student involved in rigorous and challenging learning.

Guidance — involving each student and his or her parents in a guidance and advising system that ensures the completion of an accelerated program of study with an in-depth academic or vocational-technical major.

Extra help — providing a structured system of extra help to enable students who may lack adequate preparation to complete an accelerated program of study that includes high-level academic and technical content.

Keeping score — using student assessment and program evaluation data to improve continuously the school climate, organization, management, curricula and instruction to advance student learning and to recognize students who meet both curriculum and performance goals.

From *Finishing the Job: Improving the Achievement of Vocational Students* (2000), by Gene Bottoms and Alice Presson.

The SREB provides an array of assessment tools for each of the Key Practices. This report relies on the final practice, keeping score, to assess the status of the vocational programs in Huntsville, Madison, and Madison County.

PROGRAM REVIEW

Below is a review of each of the three vocational education sites visited this past fall, highlighting their strengths, weaknesses, opportunities, and threats.

Bob Jones High School (BJHS)

Unlike the other schools in the area, Bob Jones High School contains both all academic and all vocational education programs under one roof. Programs are well integrated into the architecture of the building as much as they are into the curriculum. There is no one central areas for vocational programs; each occupies a place convenient to the academic classrooms. This avoids the stigma sometimes associated with segregating vocational programs.

Having vocational classrooms beside academic classrooms and inside the same building lessens the impression that it belongs somewhere else.

Allied Health

At BJHS, the allied health classes were packed, with no seat vacant. The school needs to hire another teacher to meet demand and the current instructor is stretched thin. Academically, it is important to fill that position, according to school officials, because of the sequence of courses that are required, creating a backlog of students. Placement of students in postsecondary and careers in health care has been high according to the instructor who keeps up with her graduates.

Culinary Arts

Similar stories were provided in the area of culinary arts, where the facility is adjacent to a dining area, as found at the other sites as well. The equipment was plentiful and well maintained at Bob Jones, though students were not present during the tour. Events were planned using the kitchen and adjacent dining room on special occasions, giving students a sense of the reality of working in the hospitality industry.

Auto Repair/Machine Shop

Equipment at BJHS auto repair and machine shop was a little dated, but appeared to be fully utilized. Welding equipment was limited and space was small relative to other facilities; however, there were a larger number of engine blocks for students to use than in any of the other facilities. Most of the items had been donated to the school. The school participates in the moon-buggy competition, along with the other two schools. HTC has won the competition several times.

Business Technology

BJHS reports that the only course offered this year is Business Technology Essentials; There are 125 students currently enrolled in the class. The class takes at least one field trip per year. Last April it was the business tour of New York City. This year the class toured the Mercedes Plant in Vance, Alabama. Students were impressed with the robots and teamwork, demonstrated by the team members. The class normally has at least one speaker per semester and students also participate in Career Day at Liberty, where they are exposed to at least three different careers. Since BTE is a required course, students are automatically enrolled in the class.

BJHS cites a number of supporting organization, including several business entities that provide support and resources. These include:

- Army National Guard
- Redstone Federal Credit Union
- Junior Achievement (Continental Corporation)
- American Society for Accountants
- Fins Marketing
- Superior Bank
- Cory Brown – Catbird Seat Nursery
- Rebecca Rich – Post-Airgas Welding
- Tish Stevens – Wholesale Florist
- Andy Anderson Huntsville Engine and Performance

They are also involved with community colleges in providing vocational education opportunities to students. These include:

- Calhoun sponsored Career Festival (all career tech areas at BJHS invited)
- Articulation Agreements
    - Accounting I & II
    - Business Tech Essentials
    - Interactive Multimedia Design
    - Co-Op Education

Among the challenges cited by the staff at BJHS are the following:

- Students have trouble fitting our courses into their schedule when faced with so many upper level courses offered at BJHS.
- Students often aren't able to enter a pre-requisite course until they are a junior or senior and this leaves them with little room for continuing in our area
- Many students aren't able to take BTE in the 9th grade so they are forced to wait until they're at BJHS to take it which again, limits their schedule for other courses
- Accounting – students have a misconception that it's all math related as well as many students aren't motivated to learn such an involved subject at this age
- Accounting II – students usually don't take Accounting I until they're a senior therefore the number of students eligible to take Accounting II is low

- Students have a difficult time choosing from the abundant electives offered here and when deciding between a class that is little to no book work verses a course that is more book based but is a life skill, at this age, they don't see the relevance and connection of the life skill
- Lack of parent involvement with guiding the students to choose classes that will give them life skills
- BTE and Computer Apps – students have a misconception that they already know all there is to know about computers because they surf the Internet and chat and blog, etc.

To summarize, BJHS has a good facility, an enthusiastic and engaged faculty, and appears to have integrated vocational education and academics very well. There are still challenges with regard to student preparation, parental involvement and some emerging issues related to technology.

Huntsville Center for Technology (Huntsville City Schools)

The Huntsville Center for Technology (HCT) serves the vocational education of approximately 8,000 middle and high school (7-12) students in the Huntsville City School System.

Among its strengths, HCT has well-produced advertising and a video-based sales pitch for its programs to present to parents, community groups, etc. The school's webpage features a video, and CDs are also available outlining the school's programs and its achievements.

All of the vocational programs for Huntsville City Schools are located at HCT, with students bused there from other high schools in the city.

- The course offerings include:
- Automotive Technology
- Collision Repair Technology
- Cosmetology
- Culinary Arts
- Computer Electronics
- Drafting Design
- Early Childhood/Adult Services
- Electrical
- Health Care Science
- Power Equipment
- Precision Machine

Precise enrollment figures for these courses were not provided; however, during the guided tour, there appeared to be more students and more activity in the areas of culinary arts, cosmetology, and automotive technology.

Precision Machine

The precision machine class had just received a new piece of equipment that would allow students to do advanced computerized drafting that could be programmed into a machine to make parts. Estimated at $40,000, the equipment would be used in the school's projects related to NASA's HUNCH program, where students make parts for astronauts to practice on before they go into space. Examples of their work were on display, which is one of the often mentioned "best practices" for vocational education.

Cosmetology

The class with the most students was cosmetology on the day staff toured the facility. The instructor explained the course progression and how each of the students was developing a new skill. Students appeared engaged and challenged.

Electrical

A robot was being tested when we observed the electrical course. The students appeared to be engaged and inquisitive and the instructor was animated about the project. Materials and equipment appeared to be in good condition, if limited.

Culinary Arts

New equipment had recently been delivered for this course, which included a fairly large class of students in attendance during the visit. There were several different foods being produced and students appeared to be enjoying the work. The equipment appeared to be of good quality and well maintained. The overall kitchen facility was impressive.

Health Care Science

A moderately full class was observed in the healthcare classroom. As classes changed there was little opportunity to observe students in action, but there were a relatively large number of students who appeared to be taking a test in a health-related course.

Career Technical Center (Madison County Schools)

In addition to a number of general courses provided at each high school in the Madison County Schools and noted earlier in Table 1 (Page. 3), there are two engineering academies, at Buckhorn High School and Sparkman High School, and a health academy, also at Sparkman High School.

The Career Technical Center, like the Huntsville Center for Technology, is a stand-alone vocational education center for students in the Madison County School System. It contains classroom space for approximately 700 students according to administrators.

Currently, there are approximately 350 students attending the CTC. The facilities are very nice, but largely empty when PARCA staff toured.

The quality of instruction and facilities are overshadowed by the problems with location. Superintendent, Dr. Terry L Davis provides a cogent overview of the offerings at the CTC, noting that:

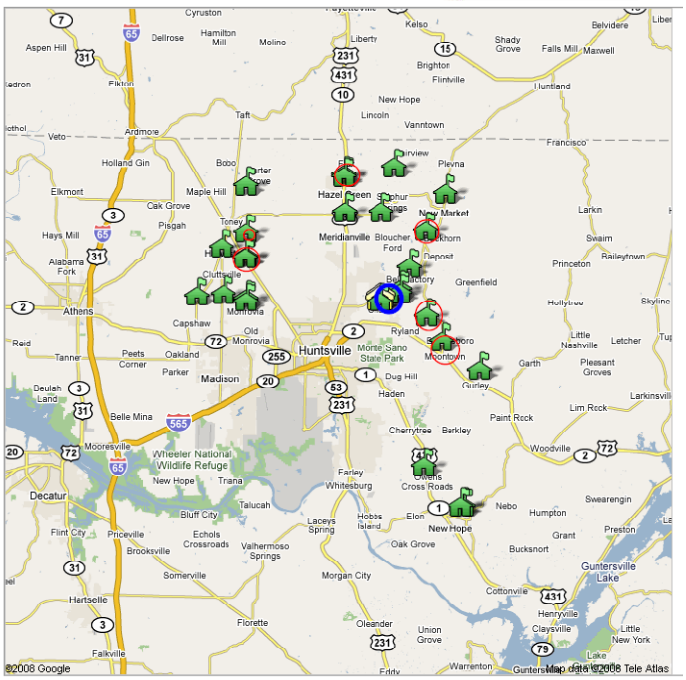
> "Each Career Technical program is Business and Industry Certified annually. This certification requires an Advisory Board made up of local business professionals. Professional development is required of the teachers in order for them to keep up to date in their profession. Technical update hours are required each year to keep current in industry practices and procedures. Each program must have available equipment necessary to teach the objectives in the state course of study, and documentation of daily teaching activities. Auto Service Technology and Auto Collision Repair Technology meet National Certification for NATEF. The Precision Machining class is certified through NIMS."

PARCA toured the facility and noted the following observations:

- Drafting and Machine Shops contain good equipment. Students were scheduled to use some of the computerized drafting and modeling equipment, though none were present during the visit.
- The school has an on-site day care that operates with student workers.
- The auto body repair class has a state-of-the art paint room and the instructor has taught students a variety of exotic auto painting techniques.
- The welding instructor uses donated materials from surrounding businesses, which can profit from the materials weighing more after use than when they were donated, creating a win-win situation for the school and the businesses.
- Administrators are eager to work with businesses to provide courses and expressed great interest in any innovative ways to get students to the facility.

The main obstacle in increasing the utilization of the CTC is distance from the other high schools and their student populations, as Figure 1 illustrates.

FIGURE 1



Depending on traffic conditions, some students may have a 45 minute drive to the campus and back to their schools. In the afternoon, that creates scheduling conflicts with extracurricular activities, where students have to choose between taking a vocational course or participating in those other activities. Based on the Google map above, Table2 shows the distance and time for a round-trip to and from each of the high schools in the system.

TABLE 2

Distance to Career Tech Center

School Name	Miles	Minutes
Buckhorn High School	7.9	17
Central School	4.7	12
Hazel Green High School	13.7	24
Madison County High School	7.6	12
New Hope High School	25.6	38
Sparkman High School	15.4	33
Average One Way	12.48	23
Average Round-trip	24.97	45

Table 3 show the cost to the average student based on the figures above and potential changes in gas prices and Table 4 shows the cost to and from each high school.

TABLE 3

180 School Days

Average Annual Cost Per Student	
Cost @ 20 mpg, $2.00 gallon	$ 449.40
Cost @ 20 mpg, $3.00 gallon	$ 674.10
Cost @ 20 mpg, $4.00 gallon	$ 898.80
Cost @ 20 mpg, $5.00 gallon	$ 1,123.50

TABLE 4

Average Annual Cost

School Attended	@ 20 mpg $2.00 gal.	@ 20 mpg $3.00 gal.	@ 20 mpg $4.00 gal.	@ 20 mpg $5.00 gal.
Buckhorn High School	$ 142.20	$ 213.30	$ 284.40	$ 355.50
Central School	$ 84.60	$ 126.90	$ 169.20	$ 211.50
Hazel Green High School	$ 246.60	$ 369.90	$ 493.20	$ 616.50
Madison County High School	$ 136.80	$ 205.20	$ 273.60	$ 342.00
New Hope High School	$ 460.80	$ 691.20	$ 921.60	$ 1,152.00
Sparkman High School	$ 277.20	$ 415.80	$ 554.40	$ 693.00

Madison County's superintendent, Dr. Terry Davis explains how distance affects the enrollments at CTC.

> "Current challenges include filling our classes at the Career Technical Center. Several classes are less than full in spite of the fact that industry is asking daily for trained workers from these classes. This may be due to a poor perception of Tech; that these students are not college bound. However the reality is that most Career Tech students go on take post secondary classes as well as being prepared to enter the workforce. Another problem is that if a student is taking classes at Tech they have to give up all other activities at their home school. Football, band, and ROTC are a few of the things that Tech students have difficulty participating in if they come to Tech."

The most promising aspects of the Madison County School Systems' vocational education programs are the academies, located at Buckhorn and Sparkman High Schools. Those in-house vocational education programs, like those at Bob Jones High School, are more convenient to the student body and less likely to be stigmatized as something different than academics.

ACADEMIES: PENSACOLA AND HAMILTON COUNTY

Academies, much like magnet schools of the 1970s and 1980s, following many of the same institutional precepts have evolved in several places around the country. Structured around a core theme, the academy generally seeks to foster a rigorous academic curriculum with a career focus. Implementation of the concept has centered on what has become known as the three R's: Rigor, Relevance, and Relationships (see Association for Career and Technical Education (2006)). While similar academies have many of the features associated with the HSTW model, the functioning of the institution may produce very different results. (SREB (2003) Academies in the Lead: Redesigning Leadership Academies for Student Achievement).

The intensity of implementing practices related to the academy concept varies from place to place. In some cases, structural changes may not engender what is sometimes referred to in terms of deep reform of educational practices. In others, it may be transformational. The comparison between Pensacola High School and Hamilton County High School is instructive in this regard.

Pensacola High School (Pensacola, Florida)

Pensacola High School (PHS) is known for the International Baccalaureate Program (IBP), which ranks among the top school programs of its kind in the world. See appendix B. It also had an honors program in Health Occupation Students of Americas (HOSA) and an English for Speakers of Other Languages (ESOL) Program. In 2007, a Law Academy was added.

In 2005, Newsweek published a list of the Top 100 High Schools in the U.S. (by ratio of number of IB and AP tests offered to each graduating senior). Pensacola High School ranked #8 in the country and #4 in Florida. In 2006, Pensacola was ranked #38 in the country and #9 in Florida. In 2007, Pensacola again ranked in the top50 high schools, being ranked #38 in the country and #9 in Florida. In 2008, Pensacola again ranked in the top50 high schools, being ranked #42 in the country and #9 in Florida. In 2007-2008 school year there are 1,567 students enrolled.

The criteria used to determine the awards by Newsweek were the percent of students *taking* the IB and AP test, **not** the percent who pass or do well on the tests. This is of critical importance when evaluating a program's impact.

Upon closer inspection, using data from the Standard & Poor's *School Matters* website, the performance of Pensacola High School appears less impressive than the account above would indicate (http://www.schoolmatters.com/schools.aspx/q/page=sp/sid=53450).

For example, the test scores for 10th grade high school students in Pensacola High School do not exceed the state average for math or reading. Put differently, Pensacola High School is performing below average for the public high schools in the State of Florida.

FIGURE 2

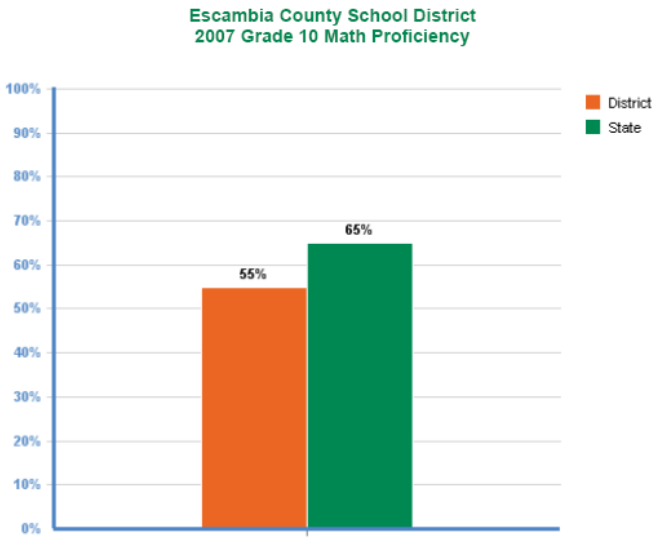
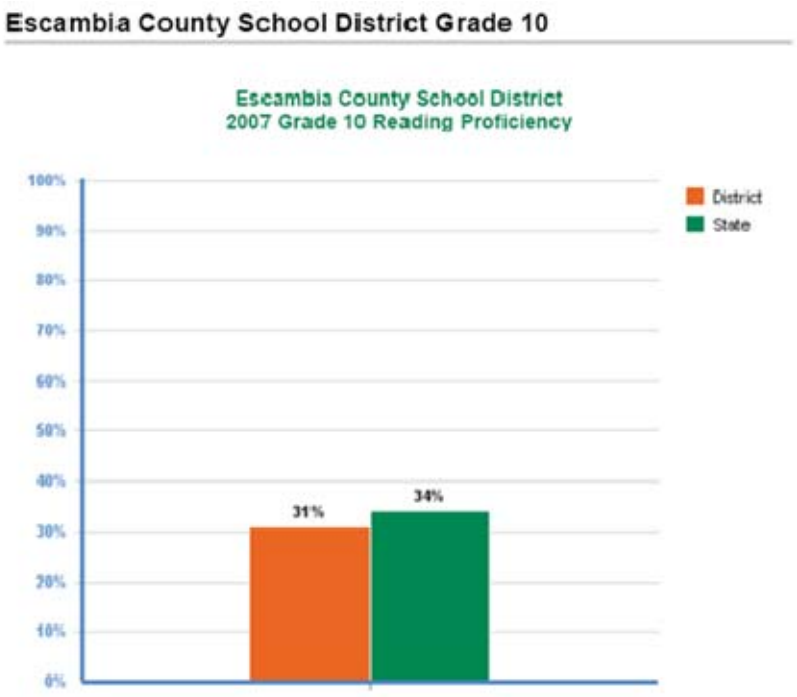


FIGURE 3



What is even more important from the standpoint of implementing innovative teaching practices is that the system performance is relative stagnant.

FIGURE 4

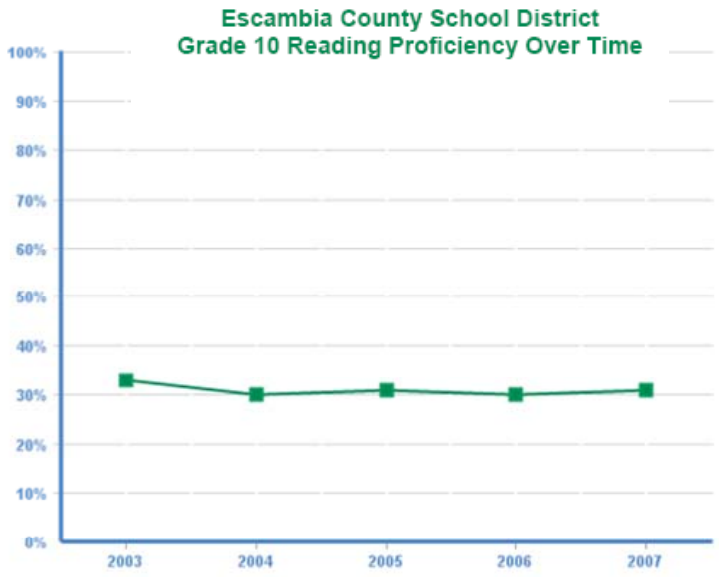
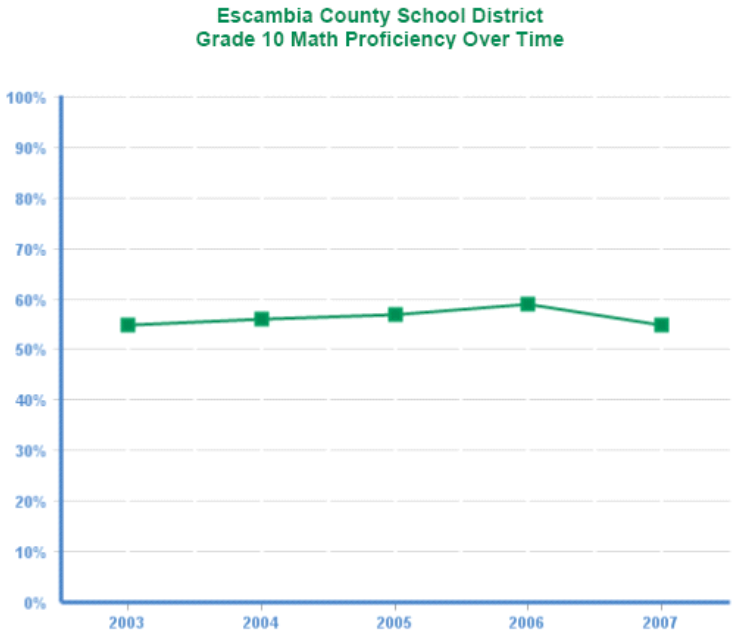


FIGURE 5



By comparison, the story in Hamilton County Tennessee (Chattanooga) is quite different.

Hamilton County Schools (Chattanooga, Tennessee)

In 1997, Chattanooga and Hamilton County merged with approximately 9,500 high school students as of 2008. For several years, the two systems remained quite distinct, with the city being largely urban, low-income, and black. The county was suburban, middle- to higher-income, and mainly white. Schools in the system reflected this difference as well.

As Jesse Register put it, "The county was satisfied with being better than the city." Unfortunately, neither was very good.

The city schools had become comfortable with the *status quo*, and there was an academic culture that tolerated low performance and did not convey high expectations. The schools were characterized as having a few teachers with long tenures and many teachers with short tenure, who tended to burn out quickly.

Dr. Register began a process of reorganizing the system, changing school assignments, appointing academic "deans" of instruction for high schools and elementary/middle schools. The focus was on instruction, professional development, and raising the teaching standards within the system.

Embedded as part of the reorganization process was the engagement of the community, parents, and employers in the following developments:

- Ninth Grade Academies
- Career Focused Academies
- Pathway Clusters
- Directed Studies
- Advisory Groups
- Magnet Schools
- Single Path Diplomas
- College Access Program (Dual Enrollment)
- Middle-to-High School Bound Transition Programs

These efforts required negotiations between a number of stakeholders, including teachers' unions, business leaders, parents, community leaders, and elected officials over the course of several years. The difficulty of negotiating among these groups should not be underestimated. Finding areas of agreement and bargaining among groups requires a long-term commitment and a willingness to accept and expect change to take place. The process of reforming school practices costs money as well.

From 1998 to 2005, the Hamilton County system received approximately $45 million in funds from 12 federal programs. Additionally, another $35.9 million in private funds were provided to support these endeavors by the following external foundations:

- Annenberg Foundation
- Gates Foundation
- Benwood Foundation
- Carnegie Corporation
- Lyndhurst Foundation
- Maclellan Foundation
- Community Foundation
- Obsorne Foundation
- Public Education Foundation

Hamilton County also enlisted the assistance of the University of Tennessee at Chattanooga (UTC) that creased a specialized Master's degree and professional development schools as well as an alternative certification program. UTC also assisted in developing downtown magnet schools.

The Mayor of Chattanooga also provided support for differentiated pay for highly effective teachers and special benefits for teachers "Benwood Schools," who had completed the UTC programs and professional development. These efforts were supported by Allied Arts, Urban League of Chattanooga, and the Community Impact Fund. Much of the focus of the reform was on instruction. The key factors were to recruit, retain, and support quality teachers through intense, embedded school-based staff development and quality instructional leadership teams driven by data from student testing.

Community Academies

One of the innovative approaches to reorganizing the school system in Hamilton County was to create academies, dubbed "magnet schools" at various levels.

Initially, there was a magnet school for each high school service area, where the high school would be a kind of specialized school for that neighborhood. This has evolved to an "open enrollment" system wide in the 2010 school year. Extensive negotiations and meetings with parents and community leaders resulted in the adoption of a variety of school concentrations, including health care, performing and fine arts, a high school for those who had dropped out, and even a NASCAR high school, certified by NASCAR, that builds a racecar each year.

One of the important features of the NASCAR focused high school is that students there, according to Jesse Register, had higher score on math exams then the AP math students. That is where the combination of rigorous academics reinforces the rigor of vocational education and vice versa.

The experience in Chattanooga reinforces the lessons learned and documented by the SREB's David Hill (2003):

"Cutting-edge academies work with school leadership teams and they target their efforts not only on the state's weakest performing schools, but on struggling schools with potential for rapid improvement. In addition, Hill says, successful leadership academies must:

- Have a curriculum that prepares school leadership teams to apply research-based knowledge and processes to real problems that are creating barriers to comprehensive school improvement in their schools.
- Support school districts in identifying potential leaders with demonstrated leadership ability, knowledge of curriculum and instruction, and a proven record of high performance and involve them in academy training.
- Recruit instructors to serve as teachers and coaches who have knowledge about what it takes to transform low-performing schools and who can help schools apply research-based knowledge to improve school and classroom practices.
- Work with universities or state agencies to offer academy-based leadership programs that count toward professional leadership certification and/or renewal.
- Conduct school-based research to determine if the academy program is producing leaders who are improving student achievement.
- Work with networks of school-site leadership development teams in ways that allow them to learn from one another.
- Create an advisory board that meets frequently and includes state educational leaders involved in comprehensive school improvement, business leaders, and successful school and system leaders who have made significant gains in student achievement."

The Chattanooga story embodies all of these factors, but more importantly it produced results that are transformational. Unlike Pensacola, where the performance trajectory was flat, Hamilton County was able to move the needle, as they say, from low performing to a new trajectory.

Results: Improving the Pipeline of Capable Students

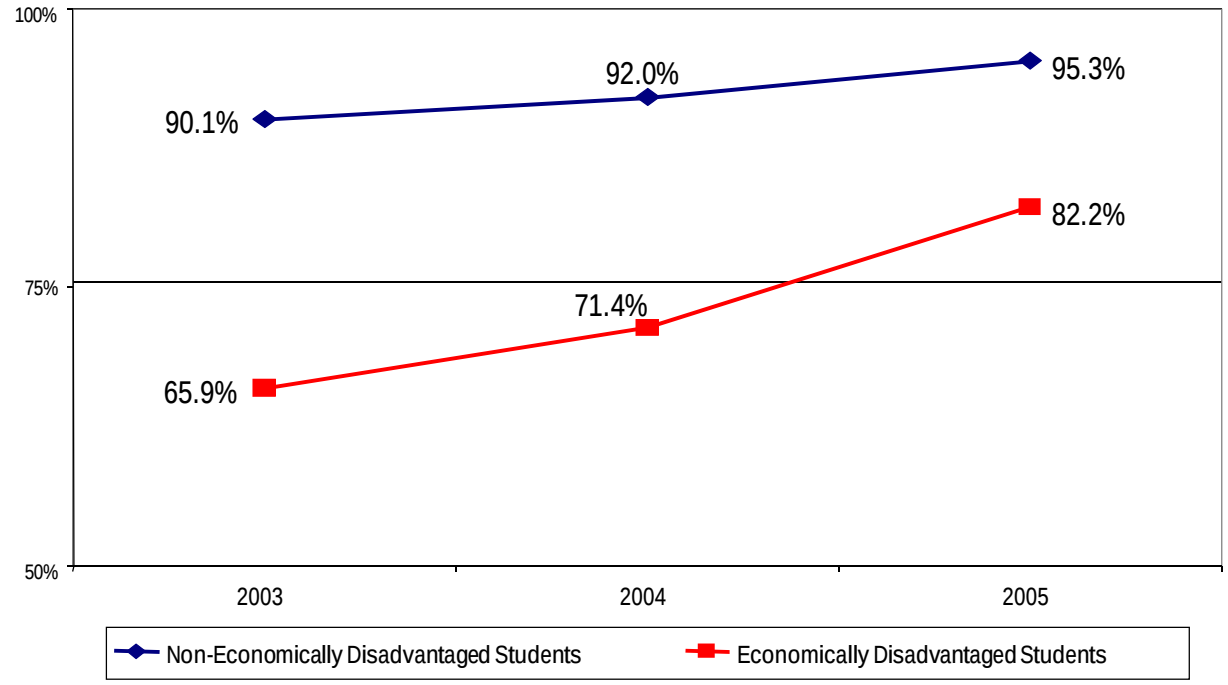
Increasing the number of students who are ready to advance into employment or continued education can result in increased inequality among students. Aside from the issue of equity, such an outcome is undesirable for at least two practical reasons. First, it eventually diminishes the potential to increase the supply of job ready or college ready students, and second, it tends not to improve the overall position of the school relative to competitors who close the gaps where there are significant differences in student preparedness as measured by educational test scores.

The results of the reforms in Chattanooga included closing the gap between economically advantaged and disadvantaged students, thereby increasing the overall supply of students who are better prepared for the workforce or continued education.

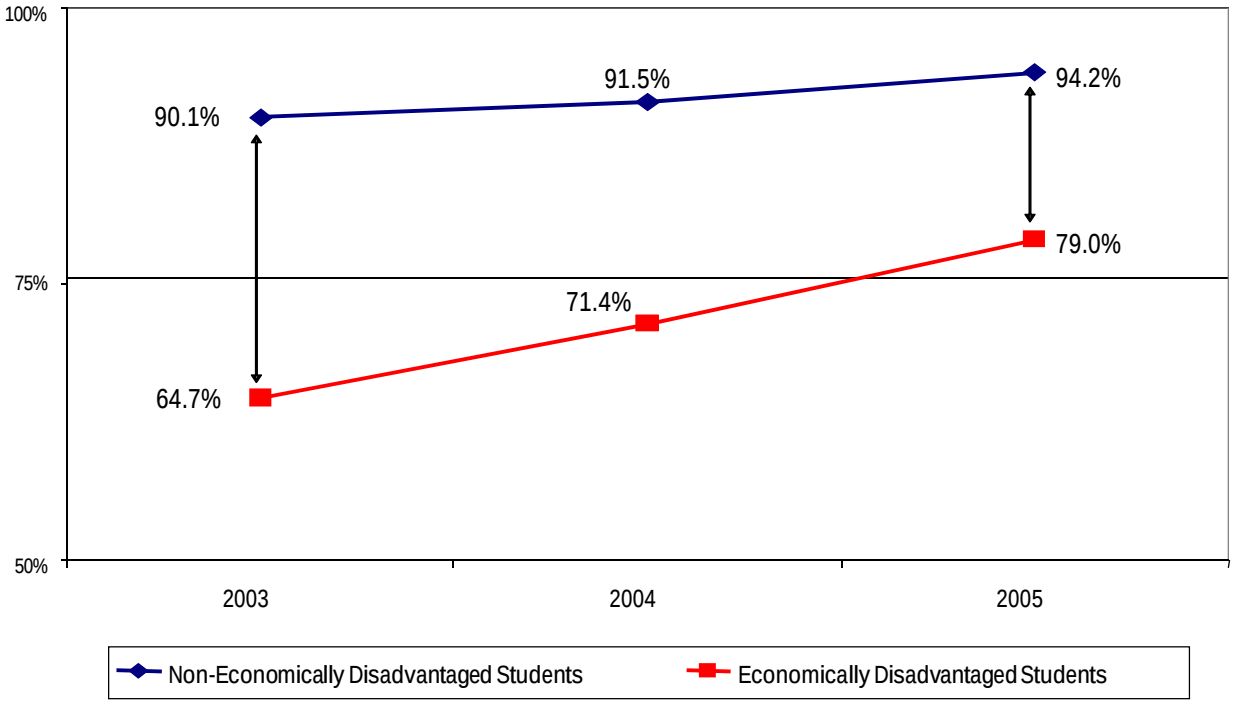
Figure 6 illustrates the impact of the reforms on student test scores in the Hamilton County School system. It is worth noting that both the economically disadvantaged and the non-economically disadvantaged students improved.

FIGURE 6

Reading/Language Arts Test Results



Math Test Results



Source: Jesse Register, Ed. D.

PIPELINE PROBLEMS: RESULTS FOR THE HUNTSVILLE AREA

Most people who study workforce development are familiar with the concept of a “pipeline.”

Sometimes it is referred to as a funnel, or a screening process, but the central concept is the same: only a few individuals reach a point where they are employed for a particular job, though many others began the process with that same individual, at some previous point in the “pipeline” to this or that career or job.

There are a variety of calculations that are used to estimate how many engineers, truck drivers, teachers, and doctors will be available in the future, based on the number of qualified candidates that are being generated through schools and colleges. Hypothetically, so many eighth graders need to take Algebra, and do well, to go on to become engineers. Most, but not all of those, who do not do well in Algebra will not be going down that same pipeline.

Test scores can be used to estimate how the schools in the Huntsville area are performing relative to producing graduates who are prepared to take jobs or continue their education. For several years PARCA has been monitoring school performance in Alabama, scoring school systems on their test results on the Alabama Math and Reading Test (ARMT) and the Alabama High School Graduation Exam (AHSGE). Each spring, students in grades 3 – 8 of Alabama's public schools take the Alabama Reading and Math Test (ARMT). The test is matched to Alabama's curriculum, and student performance is categorized into one of four levels:

- *Level I:* Does not meet academic content standards for the grade level
- *Level II:* Partially meets academic content standards for the grade level
- *Level III:* Meets academic content standards for the grade level
- *Level IV:* Exceeds academic content standards for the grade level

A student can be said to "pass" the ARMT by scoring at either Level III or IV, and large majorities of students perform at these levels in every grade from 3 to 8. In the most recent published results, from spring 2008, 75 percent or more of students tested in grades 3 through 5 were rated at Levels III and IV in each subject. The "passing" percentages in grades 6 and 8 were a little lower, ranging from 61 to 86 percent. Since on average three of every four students are rated in Levels III and IV, there is a limit to what we can learn by comparing test results in these terms. They provide only a "pass-fail" picture of performance, and most students pass.

Focusing on the percentage of students scoring at Level IV on the ARMT provides a much better indicator of a school system's success at moving students to higher levels of performance. These results also are a better indicator of how well Alabama students compare with their peers in other states. Likewise, the AHSGE has a “passing score” and “passed advanced,” also reported as Level IV by the Alabama Department of Education.

In recent years, results have been made available for socioeconomic groups of students within the schools. These details focus attention on eliminating the historical performance gaps among such groups, with the ultimate goal of ensuring that "no child is left behind."

The analysis in this report compares the performance of black and white students and students from poverty backgrounds with the performance of students from non-poverty backgrounds. In previous research on test scores, PARCA has consistently found that a higher level of student poverty in a school system was associated with lower test scores. With more detailed information, we can directly compare the test scores of students in each socioeconomic group within every school system. The results show that some school systems are succeeding at higher-than-expected rates with students from poverty backgrounds. This validates the concept that all students can learn at higher levels if taught effectively and directs attention to the practices that make high-performers successful.

The following color codes are used to quickly identify how school systems and schools compare with the state average for comparable subgroups.

COLOR CODING

School % at Level IV is 10 or more points above target.

School % at Level IV is 1 to 9.9 points above target.

School % at Level IV is within +/- 1 point of target.

School % at Level IV is 1 to 9.9 points below target.

School % at Level IV is 10 or more points below target.

School subgroup gap is below AND both subgroup scores are higher than target.

This coding scheme is used to compare student performance in four subgroups at each school to the system- and state-level performance of those same subgroups, using the percentage of students at Level IV as our measure of success. For example, Black student performance at a given school is compared with Black student performance for the school system as a whole, and with Black student performance statewide. Then the gap between White and Black student scores in the school is compared with that same gap at the system and state levels. Gaps that are narrower at the school level than at the system or state level are color-coded "gold," and the total of the gold comparisons is presented as well.

In compiling the percentages, we have not counted blank cells, where there were an insufficient number of subgroup members and no data were published by the state.

There is a table with details for each system and each high school within each system. This table shows school-level test results in four tables, one for each of the four major student subgroups – White, Black, Non-Poverty, and Poverty. The White and Black subgroup comparisons are across the top, and the Non-Poverty and Poverty subgroup comparisons are across the bottom of the table. There are two comparisons for each student subgroup. The first compares school-to-

system, and the second compares school-to-state. The color-coding is shown in the "System" and "State" columns. Note that it is possible for a school's results to be higher than the system target but lower than the state target, and vice versa.

TABLE 4

System Name	Subject	% Level IV All Students	Subgroup %	Level IV % White	State% IV	Subgroup %	Level IV % Black	State% IV	System Gap	State Gap
Madison City	Math	36.4	70.2%	42.2	26.8	18.7%	16.7	9.5	25.6	17.23
Madison City	Reading	33.3	70.3%	39.0	23.9	18.7%	12.5	6.5	26.5	17.44
Madison City	Science	31.5	70.2%	36.9	31.7	18.7%	14.2	9.0	22.7	22.71
			Non Poverty			Poverty				
Madison City	Math		89.4%	38.6	26.2	10.6%	17.7	11.4	20.9	14.77
Madison City	Reading		89.4%	35.7	23.1	10.6%	13.2	7.9	22.5	15.27
Madison City	Science		89.4%	33.9	30.2	10.6%	11.8	11.7	22.1	18.42
System Name	Subject	% Level IV All Students	Subgroup %	Level IV % White	State% IV	Subgroup %	Level IV % Black	State% IV	System Gap	State Gap
Huntsville City	Math	32.5	61.4%	44.4	26.8	32.2%	8.2	9.5	36.3	17.23
Huntsville City	Reading	29.2	61.5%	39.7	23.9	32.1%	9.1	6.5	30.6	17.44
Huntsville City	Science	34.9	61.3%	48.5	31.7	32.2%	8.6	9.0	39.9	22.71
			Non Poverty			Poverty				
Huntsville City	Math		81.9%	37.6	26.2	18.1%	9.9	11.4	27.6	14.77
Huntsville City	Reading		81.8%	33.9	23.1	18.2%	7.8	7.9	26.1	15.27
Huntsville City	Science		81.8%	40.3	30.2	18.2%	10.3	11.7	30.0	18.42
System Name	Subject	% Level IV All Students	Subgroup %	Level IV % White	State% IV	Subgroup %	Level IV % Black	State% IV	System Gap	State Gap
Madison County	Math	26.5	74.0%	19.5	26.8	19.3%	7.9	9.5	11.6	17.23
Madison County	Reading	22.7	74.0%	26.9	23.9	19.2%	7.9	6.5	19.0	17.44
Madison County	Science	16.9	74.1%	30.5	31.7	19.2%	12.4	9.0	18.1	22.71
			Non Poverty			Poverty				
Madison County	Math		86.2%	18.1	26.2	13.9%	9.6	11.4	8.5	14.77
Madison County	Reading		86.2%	24.9	23.1	13.8%	8.9	7.9	16.0	15.27
Madison County	Science		86.1%	28.6	30.2	13.9%	13.7	11.7	14.9	18.42

First, note the yellow-shaded area of Table 4. It contains the results for the entire school system, for all students, across all subgroups**.**

The highest percentage of students achieving Level IV results was Madison City Schools (Bob Jones High School), with 36.4 percent.

If this is true, then 73.6 percent of those taking the graduation exam in 12th grade were not well prepared to go to work or to college. It is worth recalling the fact that only those who were taking the test in 12th grade are counted. Estimates vary about the number of dropouts who never reach the 12th grade at all.

Essentially, one third or less of the students taking the test in 12th grade are attaining Level IV. If we look at the differences between white and black students, and poverty and non-poverty students, we see more clearly where our problems are across the three school systems.

Table 5, below, examines the results of the school-by-school analysis, looking the percentage of times a school achieved a certain level, given the number of opportunities available (some schools did not have certain subgroups to compare, but those null opportunities were not counted against them).

TABLE 5

Performance of High Schools in the Huntsville/Madison County Area

System	School	Green	Gray	Red
Madison City	Bob Jones High School	92%	8%	0%
Huntsville City	New Century Tech. Demo HS	89%	11%	0%
Huntsville City	Virgil Grissom High School	83%	0%	17%
Madison County	Buckhorn High School	67%	17%	17%
Huntsville City	Huntsville High School	58%	17%	25%
Huntsville City	Lee High School	58%	17%	25%
Madison County	Hazel Green High School	50%	17%	33%
Huntsville City	JO Johnson High School	33%	0%	67%
Madison County	Sparkman High School	25%	25%	50%
Huntsville City	Columbia High School	25%	8%	67%
Huntsville City	The Seldon Center	22%	0%	78%
Madison County	Madison County High School	17%	17%	67%
Madison County	New Hope High School	0%	0%	100%
Huntsville City	SR Butler High School	0%	0%	100%

Data source: Alabama Department of Education

The results are that approximately half of the schools exceed state averages and the other half does not. Bob Jones High School achieved the highest percentage of green colored results, while New Hope High School and S.R. Butler High School were completely below the state average.

TABLE 6

System	School		Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Madison City	Bob Jones High School	M	70.2%	42.2	26.8	18.7%	16.7	9.5	25.6	17.2
Madison City	Bob Jones High School	R	70.3%	39.0	23.9	18.7%	12.5	6.5	26.5	17.4
Madison City	Bob Jones High School	S	70.2%	36.9	31.7	18.7%	14.2	9.0	22.7	22.7
			Non Poverty			Poverty				
Madison City	Bob Jones High School	M	89.4%	38.6	26.2	10.6%	17.7	11.4	20.9	14.8
Madison City	Bob Jones High School	R	89.4%	35.7	23.1	10.6%	13.2	7.9	22.5	15.3
Madison City	Bob Jones High School	S	89.4%	33.9	30.2	10.6%	11.8	11.7	22.1	18.4
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Huntsville City	New Century Tech. Demo HS	M	50.0%	42.3	26.8	32.7%	11.8	9.5	30.6	17.2
Huntsville City	New Century Tech. Demo HS	R	50.0%	34.6	23.9	32.7%	5.9	6.5	28.7	17.4
Huntsville City	New Century Tech. Demo HS	S	50.0%	46.2	31.7	32.7%	11.8	9.0	34.4	22.7
			Non Poverty			Poverty				
Huntsville City	New Century Tech. Demo HS	M	82.7%	27.9	26.2	*	*	*	*	*
Huntsville City	New Century Tech. Demo HS	R	82.7%	25.6	23.1	*	*	*	*	*
Huntsville City	New Century Tech. Demo HS	S	82.7%	34.9	30.2	*	*	*	*	*
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Huntsville City	Virgil Grissom High School	M	87.6%	50.1	26.8	2.7%	16.7	9.5	33.5	17.2
Huntsville City	Virgil Grissom High School	R	87.6%	43.4	23.9	2.7%	16.7	6.5	26.8	17.4
Huntsville City	Virgil Grissom High School	S	87.7%	58.1	31.7	2.7%	16.7	9.0	41.4	22.7
			Non Poverty			Poverty				
Huntsville City	Virgil Grissom High School	M	96.4%	51.6	26.2	3.6%	6.3	11.4	45.4	14.8
Huntsville City	Virgil Grissom High School	R	96.4%	43.7	23.1	3.6%	6.3	7.9	37.4	15.3
Huntsville City	Virgil Grissom High School	S	96.4%	58.2	30.2	3.6%	18.8	11.7	39.4	18.4

TABLE 6 (Cont.)

System	School		Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Madison County	Buckhorn High School	M	73.0%	15.8	26.8	19.5%	8.8	9.5	6.9	17.2
Madison County	Buckhorn High School	R	73.0%	29.1	23.9	19.5%	8.8	6.5	20.3	17.4
Madison County	Buckhorn High School	S	73.0%	44.9	31.7	19.5%	23.5	9.0	21.4	22.7
			Non Poverty			Poverty				
Madison County	Buckhorn High School	M	83.9%	13.7	26.2	16.1%	10.7	11.4	3.0	14.8
Madison County	Buckhorn High School	R	83.9%	27.4	23.1	16.1%	14.3	7.9	13.1	15.3
Madison County	Buckhorn High School	S	83.9%	42.5	30.2	16.1%	17.9	11.7	24.6	18.4
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Huntsville City	Huntsville High School	M	84.0%	47.9	26.8	12.7%	9.3	9.5	38.6	17.2
Huntsville City	Huntsville High School	R	84.3%	42.1	23.9	12.5%	7.0	6.5	35.1	17.4
Huntsville City	Huntsville High School	S	84.0%	43.8	31.7	12.8%	4.7	9.0	39.2	22.7
			Non Poverty			Poverty				
Huntsville City	Huntsville High School	M	93.8%	44.2	26.2	6.2%	19.1	11.4	25.1	14.8
Huntsville City	Huntsville High School	R	93.9%	39.3	23.1	6.1%	4.8	7.9	34.6	15.3
Huntsville City	Huntsville High School	S	93.8%	40.8	30.2	6.2%	4.8	11.7	36.1	18.4
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Huntsville City	Lee High School	M	39.1%	18.6	26.8	59.6%	12.2	9.5	6.4	17.2
Huntsville City	Lee High School	R	39.1%	28.8	23.9	59.6%	12.2	6.5	16.6	17.4
Huntsville City	Lee High School	S	39.1%	35.6	31.7	59.6%	14.4	9.0	21.2	22.7
			Non Poverty			Poverty				
Huntsville City	Lee High School	M	64.9%	17.4	26.2	35.1%	11.3	11.4	6.0	14.8
Huntsville City	Lee High School	R	64.9%	22.5	23.1	35.1%	11.3	7.9	11.1	15.3
Huntsville City	Lee High School	S	64.9%	27.6	30.2	35.1%	15.1	11.7	12.5	18.4
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Madison County	Hazel Green High School	M	81.4%	16.7	26.8	10.6%	10.7	9.5	6.0	17.2
Madison County	Hazel Green High School	R	81.4%	25.1	23.9	10.6%	7.1	6.5	18.0	17.4
Madison County	Hazel Green High School	S	81.4%	25.6	31.7	10.6%	17.9	9.0	7.7	22.7
			Non Poverty			Poverty				
Madison County	Hazel Green High School	M	84.1%	14.9	26.2	15.9%	16.7	11.4	(1.8)	14.8
Madison County	Hazel Green High School	R	84.1%	23.0	23.1	15.9%	19.1	7.9	3.9	15.3
Madison County	Hazel Green High School	S	84.1%	25.2	30.2	15.9%	23.8	11.7	1.4	18.4
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Huntsville City	JO Johnson High School	M	*	*	*	97.9%	10.1	9.0	*	*
Huntsville City	JO Johnson High School	R	*	*	*	97.9%	9.4	6.5	*	*
Huntsville City	JO Johnson High School	S	*	*	*	97.9%	5.8	9.5	*	*
			Non Poverty			Poverty				
Huntsville City	JO Johnson High School	M	51.8%	5.5	26.2	48.2%	7.4	11.4	(1.9)	14.8
Huntsville City	JO Johnson High School	R	51.8%	9.6	23.1	48.2%	8.8	7.9	0.8	15.3
Huntsville City	JO Johnson High School	S	51.8%	9.6	30.2	48.2%	10.3	11.7	(0.7)	18.4
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Madison County	Sparkman High School	M	65.0%	26.6	26.8	30.2%	6.5	9.5	20.1	17.2
Madison County	Sparkman High School	R	65.1%	31.7	23.9	30.1%	8.1	6.5	23.7	17.4
Madison County	Sparkman High School	S	65.1%	32.6	31.7	30.0%	8.9	9.0	23.6	22.7
			Non Poverty			Poverty				
Madison County	Sparkman High School	M	90.3%	22.1	26.2	9.7%	7.5	11.4	14.6	14.8
Madison County	Sparkman High School	R	90.3%	26.3	23.1	9.7%	2.5	7.9	23.8	15.3
Madison County	Sparkman High School	S	90.2%	26.8	30.2	9.8%	7.5	11.7	19.3	18.4
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Huntsville City	Columbia High School	M	40.5%	26.5	26.8	53.6%	6.7	9.5	19.8	17.2
Huntsville City	Columbia High School	R	40.5%	20.6	23.9	53.6%	11.1	6.5	9.5	17.4
Huntsville City	Columbia High School	S	40.5%	23.5	31.7	53.6%	2.2	9.0	21.3	22.7
			Non Poverty			Poverty				
Huntsville City	Columbia High School	M	73.8%	16.1	26.2	26.2%	13.6	11.4	2.5	14.8
Huntsville City	Columbia High School	R	73.8%	16.1	23.1	26.2%	9.1	7.9	7.0	15.3
Huntsville City	Columbia High School	S	73.8%	11.3	30.2	26.2%	9.1	11.7	2.2	18.4
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Huntsville City	The Seldon Center	M	60.0%	16.7	26.8	43.5%	14.3	9.5	2.4	17.2
Huntsville City	The Seldon Center	R	57.9%	18.2	23.9	43.5%	14.3	6.5	3.9	17.4
Huntsville City	The Seldon Center	S	60.0%	25.0	31.7	43.5%	0.0	9.0	25.0	22.7
			Non Poverty			Poverty				
Huntsville City	The Seldon Center	M	95.0%	15.8	26.2	*	*	*	*	*
Huntsville City	The Seldon Center	R	94.7%	16.7	23.1	*	*	*	*	*
Huntsville City	The Seldon Center	S	95.0%	15.8	30.2	*	*	*	*	*

TABLE 6 (Cont.)

System	School		Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Madison County	Madison County High School	M	85.3%	13.5	26.8	8.2%	10.0	9.5	3.5	17.2
Madison County	Madison County High School	R	85.3%	21.2	23.9	8.2%	10.0	6.5	11.2	17.4
Madison County	Madison County High School	S	85.3%	26.0	31.7	8.2%	10.0	9.0	16.0	22.7
			Non Poverty			Poverty				
Madison County	Madison County High School	M	84.4%	14.6	26.2	15.6%	0.0	11.4	14.6	14.8
Madison County	Madison County High School	R	84.4%	23.3	23.1	15.6%	0.0	7.9	23.3	15.3
Madison County	Madison County High School	S	84.4%	28.2	30.2	15.6%	5.3	11.7	22.9	18.4
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Madison County	New Hope High School	M	80.7%	16.4	26.8	*	*	*	*	*
Madison County	New Hope High School	R	80.7%	17.9	23.9	*	*	*	*	*
Madison County	New Hope High School	S	80.7%	17.9	31.7	*	*	*	*	*
			Non Poverty			Poverty				
Madison County	New Hope High School	M	79.5%	21.2	26.2	20.5%	5.9	11.4	15.3	14.8
Madison County	New Hope High School	R	79.5%	19.7	23.1	20.5%	0.0	7.9	19.7	15.3
Madison County	New Hope High School	S	79.5%	19.7	30.2	20.5%	5.9	11.7	13.8	18.4
			Subgroup %	Level IV %	State% IV	Subgroup %	Level IV %	State% IV	System Gap	State Gap
			White			Black				
Huntsville City	SR Butler High School	M	14.4%	-	26.8	74.0%	5.2	9.5	(5.2)	17.2
Huntsville City	SR Butler High School	R	14.2%	6.7	23.9	74.5%	3.8	6.5	2.9	17.4
Huntsville City	SR Butler High School	S	14.3%	20.0	31.7	74.3%	3.9	9.0	16.2	22.7
			Non Poverty			Poverty				
Huntsville City	SR Butler High School	M	50.0%	5.8	26.2	50.0%	3.9	11.4	1.9	14.8
Huntsville City	SR Butler High School	R	49.1%	9.6	23.1	50.9%	3.7	7.9	5.9	15.3
Huntsville City	SR Butler High School	S	49.5%	5.8	30.2	50.5%	5.7	11.7	0.1	18.4

Obviously, the lower ends of the scales contain very low percentages. Essentially, based on the earlier interpretation of the scores, less than 20 percent of S.R. Butler's 12th graders are prepared for the job market or for college.

These are the holes in the pipeline that vocational education programs are needed to fill. Fully engaging students in relevant, real-world experiences with adults, where they are responsible for making presentations, getting feedback, and showing their work are essential elements of an improved educational experience.

CONCLUSION

Clearly, the school systems in the Huntsville area need to make major improvements to be competitive with other places in Alabama and elsewhere. There are dedicated educators who care about their students and would like to see better results. Perhaps the most obvious problem related to vocational education is the placement and/or deployment of the vocation programs in Madison County. Distance prevents many students from participating. In the future, if gas prices spike again, as many suggest, the transportation costs for students may be prohibitive. Deploying those educational resources in each high school, like they do all vocational programs at Bob Jones High School, and the academies at Buckhorn and Sparkman would benefit many more students. The problem for that solution is likely to be cost (See Appendix D for comparisons of per pupil expenditures).

Recruitment for vocational education classes is also a major challenge. The problem is so pervasive that the National Governor's Association recommends that governors use the bully pulpit to promote career technical education (CTE). Huntsville Technological Center is a leader

in developing recruitment materials. Sharing their expertise and combining their resources to promote recruitment for all the systems may be an effective way to increase utilization of instructional resources.

Educational professionals and business leaders need to address the misperceptions about vocational education, and emphasize how vocational education reinforces academic performance.

Ultimately, the basic academic performance of students arriving in the area high schools needs improvement. Improving access to vocational education can be an important strategy for improving both the number of graduates and the academic performance/job readiness of high school graduates in the Huntsville area. It should not be set apart from academics, but given standing as an important element in the educational experience of Huntsville area students.

APPENDIX A

The Six A's of Project-based Learning

Authenticity

Is the project based on a problem or question that is meaningful to the student? Is the problem or question one that an adult might tackle at work or in the community? Does the project provide the student with opportunities to produce something that has personal and/or social value beyond the school?

Academic rigor

Does the project cause the student to acquire and apply knowledge related to one or more disciplines or content areas? Does the project challenge the student to use research methods from one or more disciplines? (For example, does it cause him or her to think like a scientist?)

Applied learning

Does the student develop higher-order thinking skills? (For example, does he or she search for evidence or seek a different perspective?)

Active exploration

Does the student solve (e.g., design a product, improve a system or organize an event) a problem that is grounded in life and work? Does the project require organizational skills and self-management? Does the project cause the student to learn and use skills (such as problem solving, communications, technology and teamwork) that are expected in the work? Does the student spend a significant amount of time doing field-based work? Does the project require the student to use various methods, media and sources to conduct an investigation? Is the student expected to make a presentation to explain what he or she has learned? Does the student meet and observe an adult who has relevant expertise and experience?

Adult relationships

Does the student work closely with -and get to know -at least one adult? Do adults collaborate with each other and with students on the design and assessment of projects?

Assessment

Does the student use project criteria (that he or she helped establish) to gauge what he or she is learning? Do adults from outside the classroom help the student develop a sense of real-world standards? Is the student's work assessed regularly through methods such as exhibitions and portfolios?

Source: The Six N's of project-based learning are taken from the 1997 book Real Learning, Real Work: School-to-Work as High School Reform, by Adria Steinberg, cited by SREB.

APPENDIX B

About the International Baccalaureate:

The International Baccalaureate was founded in Geneva, Switzerland in 1968 as a non-profit educational foundation.

A group of talented, forward thinking teachers at the International School of Geneva, with assistance from several other international schools, created the IB Diploma Programme. What started life as a single programme for internationally mobile students preparing for university, has today grown into three programmes for students aged 3-19.

The programme in the early days consisted of a common pre-university curriculum and a common set of external examinations for students in schools throughout the world, seeking to provide students with a truly international education. Although the first IB schools were predominantly private international schools, they included a very small number of private national institutions and schools belonging to state education departments. This has changed over the years and today over half of all IB World Schools (authorized to offer one or more of our programmes), are state schools.

Although the first IB schools were predominantly private international schools, today over half of all IB World Schools are state schools.

Carrying forward the ideals and dreams of the IB founders, the organisation exists to provide high quality education for a better world, as expressed in our mission statement:

"The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.

To this end the organization works with schools, governments and international organizations to develop challenging programmes of international education and rigorous assessment.

These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right."

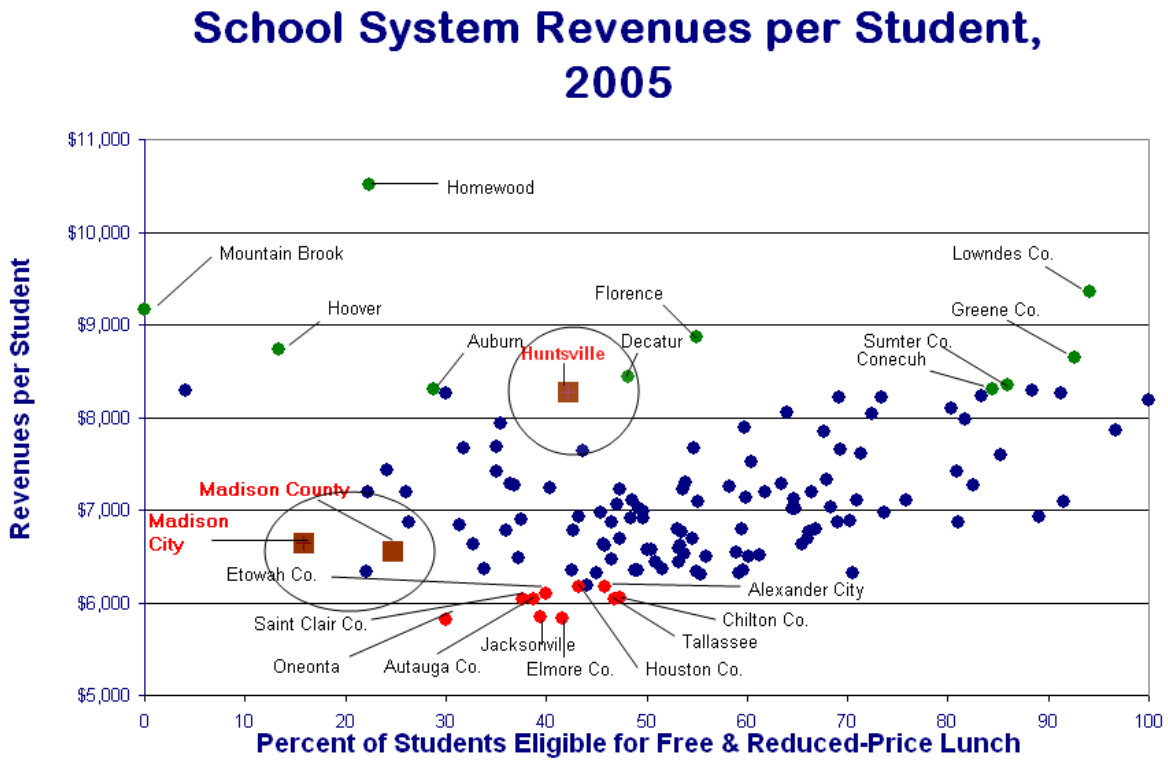
IB Programmes continue to encourage this international mindedness in students and educators through the IB learner profile; a set of values that represent our mission and principles.

Source: www.ibo.org

APPENDIX C

RESOURCES

One of the issues related to any consolidation or contractual relationship between school systems would likely be the relative benefit to the students in each system. Local taxes support differing levels of funding between the three systems. This is not uncommon, but raises the issue of one side subsidizing the other in equally provided services. This should be understood by all parties and negotiated in advance.



This year will be particularly difficult for policymakers in education. With dwindling revenues, deep cuts are planned for the current fiscal year and may be even deeper in FY 2010. As the chart above shows, Madison County is not well positioned to make large-scale outlays relative to other school systems. As resources tighten, investments in operational changes may be deferred.

Such news is not entirely bad. Making long-term investments in operational changes takes planning and collaboration. If appropriate steps are taken in the next year or two, implementation may be a realistic option when economic conditions improve.

APPENDIX D

Best Practices in Education

Excerpt from The Appalachian Regional Commission, Online Resource Center: (http://www.arc.gov/index.do?nodeId=974#voced)

Businesses Mentoring At-Risk Students: the Swain County Career Club

The Swain County Career Club is a school-to-work mentoring program for at-risk high school students. Students are placed with mentors employed in the occupational fields the students wish to pursue after high school. The students also attend weekly life-skills and leadership classes. The program's partnerships with area industries and businesses are empowering the students to become employable and self-sufficient.

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Swain County Family Resource Center
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Improving Training in Health Care: Joint Vocational School

In an area with high unemployment, growth in health-care–related jobs offers students hope for a stable financial future. Discouraged by the small number of students enrolling in medical or dental training programs at the Scioto County Joint Vocational School, area health-care advisors recommended that the school emphasize health-care training and upgrade its equipment to meet training needs. With support from the Appalachian Regional Commission, the school purchased new equipment, including an X-ray machine, dental chairs, treatment consoles, and dental lab stations. As a result, 225 eleventh- and twelfth-grade students and 495 adult students are benefiting annually. High school students and an expanded group of adults are enrolled in curricula such as nurse assisting, administrative medical assisting, dental assisting, practical nursing, diversified medical occupations, and nurse aide/home health aide–phlebotomy.

Increasing Work-Based Skills: Clay County Public Schools

High school students in rural Clay County had little opportunity to develop work-related skills, either in school, local businesses, government agencies, or community organizations. Only 25 percent of eligible students received work-based experience in the existing school-to-work program, and only 2 percent were able to do so at sites within the county. Clay County school officials decided to employ a work-site facilitator to identify potential work sites, train work mentors, and develop a format for individual training plans to enhance student learning. In addition, 12 computer workstations were purchased to improve in-school work-related training. Now, about 175 students annually have access to workplace computer simulation, and approximately 100 students a year can obtain paid or volunteer work experiences at sites off campus.

Keeping Computer Skills Up-to-Date: Swiss Hills Vocational School Computer Lab

Local companies in Monroe, Belmont, and Noble Counties need employees with skills and experience using current business software. But the Switzerland of Ohio Local School District has limited donated computer equipment that cannot accommodate current operating systems or common spreadsheet, word processing, or graphics applications. In each of Swiss Hills Vocational School's three business labs, students have to share five outdated computers. So the district used grant funds to purchase 45

computers and related peripheral equipment, sufficient to provide every student a computer with local network and Internet access, as well as current business software. Not only do high school students benefit, but 105 adults also can be accommodated in seven adult-education classes offered in the new computer labs. And local companies that once had to send employees to a distant location for specialized training can now use the vocational school facilities.

Learning by Exporting: Calhoun High School Youth Apprenticeship Program

High school business education is not always relevant and interesting to students. But at Calhoun High School, in Gordon County, students literally have a stake in the business and the value of their investment, which depends on their business management skills. Derris, Inc., was established as an import/export company in 1997, taking advantage of Calhoun's relationship with a secondary school in Scotland. The student-run company, which helps produce and market local handmade crafts such as jewelry and keychains, is expanding its international networking while selling numerous products to peers, teachers, and others in their community. Student employees maintain bookkeeping and personnel records, produce semi-annual reports, communicate with local media and community organizations, maintain a Web page and alumni newsletter, and work with the local business community. Above all else, students carry out business—allocating capital, negotiating for best prices, expanding product offerings and sales outlets, and reviewing job applications of interested juniors and seniors. So far, their investment has paid off; shares that sold for $10 each in 1997 are now worth over $34.

Linking Students: Whitesville School Business Partnership

Once a solid farming community, the rural hamlet of Whitesville in southeast Allegany County has fallen on hard economic times and offers limited job opportunities to its high school graduates. To stimulate stronger ties between students and local businesses, the Whitesville Central School District created a special school-business partnership that links art and technology classes with the needs of small businesses in the area. Equipped with computers and special software as a result of an Appalachian Regional Commission grant, the school's print shop provides students with an opportunity to learn the basics of commercial printing, graphics, and advertising while producing brochures and pamphlets for area businesses. The students not only gain valuable work experience, but also have a chance to develop personal ties with local businesses.

Preparing High School Seniors for Life After Graduation: the Senior Transition Program

Senior Transition is a highly individualized course designed to address the needs and interests of high school seniors as they prepare for the next steps after graduation. The course emphasizes self-assessment and self-direction, team building, leadership skills, independent living, job shadowing, and service learning. In one component of the program, student teams develop and generate funding for community service projects with the help of business and community partners. The project was recently recognized by the U.S. Department of Education as an exemplary practice.

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