

spotlight

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BUILDINGS DON'T TEACH STUDENTS

North Carolina should concentrate on what goes on *inside* the buildings

S U M M A R Y : Unfortunately for North Carolina's students, most of the adult debate over schools has focused on where to find the money to build the schools to accommodate its rapidly growing student population. Last year several NC counties passed bonded indebtedness of nearly \$1.5 billion and presently counties and the state are discussing more bonds totaling an additional \$3.6 billion.

Lost in this discussion is the fact that buildings don't teach students anything. A dramatic illustration of this concept is found in BASIS High School in Tucson, Arizona. *Newsweek* magazine ranked BASIS third among all high schools in the nation. BASIS achieved this prestigious ranking in a building that offers only 60 square feet per high school student compared to North Carolina's average of 168 square feet per high school student. BASIS's building cost \$9,242 per high school student compared to the North Carolina average of \$23,356 per high school student. At least in this case, this cramped and inadequate building did not prevent BASIS students from performing at an exceedingly high level.

This is dramatic evidence that what goes on inside school buildings is much more important than the size or the cost of the building. When North Carolina's adults learn this fundamental lesson, North Carolina's students will then and only then reap the high levels of educational performance they deserve.

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the pressure is on. The legislature and local school boards are under tremendous pressure to find more money to build schools for the rapidly growing North Carolina student population. In 2006, school bonds passed in six counties totaling nearly \$1.5 billion. Currently, three counties are considering additional bonds totaling nearly \$1.6 billion. The state legislature is considering state bonding for school construction in the neighborhood of an additional \$2 billion. As one national politician reflected about the federal budget: "A billion here, a billion there, pretty soon you're talking real money."¹

But lost in this clamor is the fact that school buildings don't educate children. Our students would be better off if more time was spent arguing about what goes on inside the school buildings than the construction of buildings.

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200 W. Morgan, #200
Raleigh, NC 27601
phone: 919-828-3876
fax: 919-821-5117
www.johnlocke.org

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Case in point. BASIS High School in Tucson, Arizona, earned third place in *Newsweek* magazine's ranking of the best high schools nationwide.² *Newsweek* ranks public high schools based on the number of Advanced Placement (AP) and International Baccalaureate (IB) exams given divided by the number of graduating seniors. Only one North Carolina school made the top 50 with five more schools ranked between 51 to 100 (see Tables 1 and 2).

In the 2004-05 school year when BASIS earned this ranking, the high school had 62 high school students educated in a building that provided them with only 60 square feet per student with no outside sports or physical education facilities. BASIS middle school was housed in the same building for a total of 298 students. Over the last three years, high school buildings constructed in North Carolina have averaged 168 square feet per high school student, with one Catawba County high school providing as much as 250 square feet per high school student.

Furthermore, the BASIS school building cost \$9,242 per student. Over the last three years, N.C. high school buildings have averaged \$23,356 per student, with one Chapel Hill-Carboro high school costing \$33,165 per student (see Table 3).

More importantly, no students are forced to attend BASIS in a building that, by North Carolina standards, is extremely cramped and inadequate. All parents of BASIS students voluntarily send their children to BASIS. As a public charter school, BASIS has no guaranteed enrollment and, as is the case in North Carolina, Arizona charter schools receive no capital funding for their buildings.

How is BASIS' success possible?

BASIS achieved its ranking of third in the country because of the vision of its founders, its demanding curriculum, its

Table 1. Number of Southeastern U.S. Schools in *Newsweek*'s Top 100 High Schools, by State³

Rank	State	No. of Top-100 Schools
1.	Florida	20
2.	Virginia	9
3.	No. Carolina	6
4.	So. Carolina	2
5.	Tennessee	2
6.	Georgia	0

Table 2. *Newsweek*'s Top 100 High Schools in North Carolina³ (Compared with BASIS)⁴

Rank	School	City	<i>Newsweek</i> Index [*]	Subs. Lunch % [†]	E and E % [‡]
3	BASIS	Tucson, Ariz.	9.909	N/A	100
16	Myers Park	Charlotte	5.047	20.7	41.3
53	Raleigh Charter	Raleigh	3.837	0	84.1
59	Enloe	Raleigh	3.732	16.4	54.8
66	Harding Univ.	Charlotte	3.619	48.9	28.7
72	Grimsley	Greensboro	3.448	28	49.5
94	N. Mecklenburg	Huntersville	3.212	20.1	N/A

* Number of AP and/or IB exams given divided by the number of graduating seniors.

† Percent of students receiving federally subsidized meals. (N/A = no school lunch program.)

‡ Equity and Excellence percentage: Percentage of graduating seniors who had at least one passing grade on one AP or IB exam.

Table 3. N.C. High Schools' Construction Data, 2004-06⁵ (Compared with BASIS)⁴

High School	District	Square Feet per Student	Cost per Student
BASIS	Tucson, Ariz.	60	\$9,242
New High	Clinton	153	\$21,175
West Burke	Burke County	155	\$24,975
New High	Union County	130	\$22,539
Hickory Ridge	Cabarrus County	150	\$20,489
Mallard Creek	Mecklenburg County	149	\$20,489
High School #3	Chapel Hill-Carrboro	185	\$33,165
Jesse C Carson	Rowan-Salisbury	188	\$21,705
Ardrey Kell	Mecklenburg County	151	\$18,306
New Maiden	Catawba County	250	\$27,494
Holly Springs	Wake County	171	\$20,708
N.C. Averages		168	\$23,356

dedicated parents who choose to send their children to BASIS and its dedicated teachers who go the extra mile for the students.

Vision of the Founders

BASIS’s founders Michael and Olga Block met at a World Bank economics seminar in Vienna in 1992. Michael, a University of Arizona economics professor, was teaching the seminar and Olga was a student from the Czech Republic. They married in 1994 and when Olga was looking for a school for her 5th grade daughter, she assumed that American schools were similar to European schools. They demand competence not only in reading, writing and math skills, but core knowledge of subjects such as geography, history, and science. To her dismay, she could not find that kind of school in Arizona, including in the affluent city of Scottsdale.⁶ So she and Michael decided to start a public charter school based on the best elements of the American and European models.

BASIS Curriculum

In order to hold teachers accountable and to demonstrate to parents that their children were learning, the Blocks looked for objective output measures. The only one that satisfied their requirements was the College Board’s Advanced Placement (AP) subject matter exams such as English, European history, chemistry, physics, and calculus. Unlike other high schools that only offer these exams to their best students in their junior and senior years, the Blocks decided to build their entire high school curriculum around these exams starting in the 9th grade. No school in the nation had ever tried this approach. College Board official Trevor Packer noted that: “BASIS is a truly inspiring school led by administrators who...act on the belief that all students deserve preparation for and access to the sort of stimulating coursework found in AP classes.”⁷

Students must take seven AP exams to graduate: three history, two science and two English (see Table 4). The AP exam in calculus is encouraged, but not required. As an extra incentive to perform well on these exams, student course grades are based on their work in the course and their score on the AP exam. For example, a student who receives a C or D for the course and a 5 on the AP exam (5 is the highest score) will receive an A for the course. A sliding scale is used so that superior performance on the AP exam will help a student’s grade and a weak performance will hurt the final course grade.

While everyone at BASIS knows that academics are the highest priority, the school offers a well-rounded curriculum including art, drama, intramural sports, physical education, languages, and music. The fact that BASIS has no outdoor facilities does not prevent physical education or sports. The PE classes are conducted indoors, and Tae Kwon Do classes and intramural sports are practiced at a nearby park and a church basketball court. Music is offered as an elective class and as an after school program in strings, band, and electronic keyboards. Drama is an elective with student casts performing plays such as Neil Simon’s *Brighton Beach Memoirs*. Language electives are offered in Spanish, French and Mandarin Chinese. Computer skills are taught, and some students opt to take the AP exam in computer science.

Table 4. Advanced Placement (AP) Exams offered by BASIS High School

English Language and Composition
English Literature and Composition
European History
United States History
World History
United States Government and Politics
Comparative Government and Politics
Micro Economics
Macro Economics
Calculus BC (AB is included in this)
Statistics
Spanish Language
French Language*
Physics C
Physics B
Biology
Chemistry
Computer Science
Art Studio*

* First offered in the 2006-07 school year.

Table 5. Senior Projects at BASIS: A sampling of past and present projects

Remscheid, Germany	Student was an apprentice at the Schrick Company that designs and builds engines for the expensive (\$1.5 million) VW sports car, the Bugatti Veyron.
Mondragon, Spain	Student gained firsthand experience studying cooperative economics by working with a community cooperative in this town.
Dublin, Ireland	Student is researching nanoscale technology at Trinity College.
Reykjavik, Iceland	Student is learning the Icelandic language in order to research the social and political context in which the ancient Viking epic <i>Egils Saga</i> was written.
Algiers, Algeria	Student studied “fetla,” an ancient form of embroidery, while also becoming fluent in French.
University of Arizona	Student worked in the biochemistry lab dissecting mosquitoes as part of a larger project investigating how mosquitoes can carry diseases without contracting them.
University of California at San Diego	Student worked in the molecular bioengineering lab investigating the T-MOD protein in mice. He was the first high school student to work in the lab, and his mentors were very impressed with his lab skills and knowledge of biology.
Tucson, Arizona	Student is researching the history of hand-made books and interning at Chax Press.
Tucson, Arizona	Student interned with the president of Sparkle Cleaners learning about how to run a small business and writing his own business plan.
Houston, Texas	Student interned with the Houston ballet.
Washington, D.C.	Student is studying the relationship between Art and Math and working as a volunteer in the library of the Hirschhorn Museum.

Senior Research Projects

This curriculum is even more remarkable because all of the AP courses and exams are taken in the 9th through the 11th grades. BASIS students actually complete all of their state-mandated graduation requirements in three years. Those who wish to graduate with Honors or High Honors stay for a senior year. During the first two-thirds of the senior year, students take “capstone” courses in math, history, science and foreign language and may graduate with Honors at that time. Those students who want to graduate with High Honors may participate in a senior project during the last third of their senior year that requires them to write a proposal, to engage in an internship or study abroad and, on completion, make an oral presentation to the entire student body.

Students have worked on projects such as auto-engineering in Germany, ancient embroidery in Algeria, nanoscale technology in Ireland and Viking sagas in Iceland. Those who have remained in the U.S. have interned with the Houston ballet, worked in the molecular bioengineering lab at the University of California at San Diego studying T-MOD protein in mice, and learned how to run a small business in Tucson (see Table 5). The senior project is not only a “capstone” experience where students use their academic skills, but an important transition to college life. Students may apply for financial assistance to help them defray the costs of their student project.

Middle School Curriculum

To prepare students for this demanding high school curriculum, BASIS operates a middle school with similar high standards. In fact, students must successfully complete the BASIS middle school program before they are admitted to the high school. Instead of AP exams, the middle school uses subject-matter comprehensive exams at the end of every

school year. To move from one grade level to the next, students must pass these exams.⁸ Failing students are given the chance to attend summer school to make up their work.

The middle-school curriculum includes Algebra I at the 7th grade and Algebra II and economics in the 8th grade. Sixth-grade students are required to take Latin. The middle-school social studies curriculum consists of geography, world history from ancient times to the present and American history. The science program requires biology, earth science, chemistry and physics.

The high standards of the BASIS middle school curriculum are well known across Tucson. In fact, it attracts students who want to enter University High School (UHS), a college prep public high school that requires students to pass a rigorous entrance exam.⁹ Some students attend BASIS middle school because it offers the best academic preparation for this exam and many, if not most, BASIS students who take the UHS entrance exam pass it.

BASIS Teachers

BASIS teachers are hired based on their academic qualifications and their teaching abilities, not based on having a “teaching certificate.” Arizona’s charter school law allows public charter schools to hire teachers who do not have a teaching certificate. Therefore highly qualified individuals who have not jumped through the hoops of education schools can and do teach at BASIS. BASIS teachers are qualified in their subject matter with 24 of the current 30 teachers having advanced degrees in their subject matter areas. In addition to their qualifications, BASIS teachers care about their students and often go the extra mile to see them succeed. BASIS teachers offer after-school tutoring for students and teach summer school for those students who need extra help. In addition, BASIS teachers recognize the importance of the mission and goals of the school and are enthusiastic about the learning they impart to their students.

One would expect that a school founded by economists would have a teacher incentive program, and BASIS has one of the best. Teachers do not have tenure. Teachers negotiate and sign yearly contracts. One provision of the contract is a “task bonus” that is an assignment negotiated each year with monetary bonuses for successful completion of the task paid in December and May. The “performance bonus” is also part of the contract and is based on student performance measured by the state-mandated exam called AIMS. High-school teachers who teach the AP courses receive a reward for every student who scores a 4 or 5 on the exam, the two highest scores. For each AP score of 4 the teacher receives \$100 and for each 5 the teacher receives \$200. In order to solve the chronic teacher absenteeism prevalent in many public schools, BASIS provides teachers with a “wellness bonus.” Teachers start the year with five paid sick days and are paid for any remaining at the end of the year. Teachers who do not use any of their sick days receive a \$750 wellness bonus check at the end of the year.

BASIS Parents

None of this would work without the parents. The Arizona charter-school law trusts parents to make the right decisions for their children and recognizes that no school is right for every child. This fundamental fact is why assignment to schools by geographic area is a system that is not in the best interest of students. Therefore parents in Arizona are confronted with a large array of public charter schools that offer many different types of curriculum. BASIS attracts parents who want a solid academic education for their children and who recognize the value of a school that requires students to work hard to achieve academic excellence. One parent remarked: “The workload is hard, but it brings a sense of satisfaction and prepares children for the real world.”¹⁰

Parents support the school through a BASIS Boosters organization. Parent volunteers are involved in supporting the sports, music and other after-school programs. Parents also lend a hand by holding student parties and dances.

Results

In addition to the third in the nation ranking by *Newsweek*, BASIS is the only Arizona school to have median math scores on the Stanford 10 exam above 90 percentile for all grade levels.¹¹

BASIS graduates have been accepted to some of the top colleges in the country, including University of California at Berkeley, Claremont McKenna College (CA), Rochester Institute of Technology (NY), and Savannah College of Art and Design (GA) (see Table 6). Many students have received substantial merit scholarships, with some receiving full scholarships paying all of their college costs. Two students have been offered full merit scholarships by Claremont McKenna College and Emory University.

But perhaps more important than these measurable outcomes is the BASIS “culture.” Parents, students, teachers and administrators are all working toward common goals in a spirit of community. One student noted that BASIS students “feel like brothers and sisters.” The students feel the support network of parents, teachers and administrators. At BASIS, “It is cool to be on the honor roll, and even cooler to be on the high honor roll.”¹²

One fact demonstrates powerful nature of the BASIS school culture. When some parents and students have had second thoughts and transfer out of BASIS, many students find that they are bored with the less rigorous pace of the typical public high school. There are numerous examples of these students transferring right back to BASIS, not only for the academic rigor, but also to rejoin the community spirit that BASIS exudes.

Lessons for North Carolina

Schools are defined by what happens on the inside of a building, not the building itself. Of course, an adequate building is necessary — one that is clean, has adequate lighting, heating, cooling and ventilation. The square footage and the cost are not as important. BASIS demonstrates that a school can achieve extremely high standards of student academic performance in a building constructed for less than half of the cost of the typical high school constructed in North Carolina, and with sixty-five percent less space.

It is unfortunate that so much time and effort by school boards, county commissions, school officials, and parents is expended in the school construction debate. Literally hundreds of thousand of man-hours have been expended state-wide. The students in North Carolina would be better off if just half of that time and effort had been spent creating schools such as BASIS and by freeing up teachers and parents to create these schools.

Dr. Michael Sanera is Research Director and Local Government Analyst for the John Locke Foundation.

Table 6. Universities Admitting BASIS Seniors

University of California, Berkeley
University of California, Santa Cruz
University of California, Santa Barbara
University of California, Davis
University of California, San Diego
Colorado College
St. John’s College
Tulane University
Willamette University
Babson College
Boston University
Mount Holyoke College
Claremont McKenna College
Brandeis University
Lewis and Clark College
Savannah College of Art and Design
Rochester Institute of Technology
University of Oregon
Baldwin-Wallace College
Wesleyan University, Nebraska
Woodbury College
Champlain College.
<i>Honors Colleges at:</i>
University of Arizona
Arizona State University
Northern Arizona University
University of Colorado, Boulder
University of Colorado, Colorado Springs

Notes

1. Often attributed to the famous Illinois Senator Everett Dirksen, but he denied it saying: "Oh, I never said that. A newspaper fella misquoted me once, and I thought it sounded so good that I never bothered to deny it." See the discussion of the misattribution at the Dirksen Center web site, www.dirksencenter.org/print_emd_billionhere.htm.
2. "The Complete List: 1,200 Top U.S. Schools," *Newsweek*, May 23, 2006. The index for BASIS was 9.909, meaning that during the 2004/05 school year 119 AP exams were taken by BASIS students at all grade levels divided by 12 graduating seniors.
3. *Newsweek*, May 23, 2006.
4. E-mail to the author from Michael Block, Chairman, BASIS School Board, Jan. 24, 2007.
5. "Costs of Recent School Projects," School Planning Division, Department of Public Instruction, August 1, 2006.
6. Jay Mathews, "Learning the BASIS for Advanced Placement Courses," *The Washington Post*, May 25, 2004.
6. *Ibid.*
7. Students also take the state AIMS exam and the Stanford 10 exam each spring.
8. Even though University High School is a public school that is part of the Tucson Unified School District, it was not ranked by *Newsweek* because it accepts only students who have passed the entrance exam.
9. U.S. Dept. of Education, "Innovations in Education: Successful Charter Schools," December 28, 2006.
10. *Ibid.*
11. *Ibid.*