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This issue...

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Is formalized
In Pennsylvania

Are the "Math
Wars" over?

Commonwealth
Education
Organization

90 Beta Drive
Pittsburgh, PA 15238
Phone 412-967-9691
Fax 412-967-9694
E-mail
info@ceopa.org
Website
www.ceopa.org

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Editor: E. Perlman

School-to-Work is mandated in PA ...and it's coming to your school district!

Back in 2003, an *Education Advocate* article asked: "Do students = human capital?" The Pennsylvania Department of Education recently gave the definitive answer: *Yes!*

Without a single vote from the state Legislature, two important education developments in Harrisburg are formalizing School-to-Work in Pennsylvania. As a result, all K-12 public school students will soon be involved in some form of School-to-Work program.

What is School-to-Work?

School-to-Work (STW) is an education system in which children are narrowly trained to meet the employment needs of regional businesses rather than broadly educated to prepare for a full life as a citizen in a free society. It is the merger of education and business under the direction of various state government agencies and non-government organizations, including the Departments of Labor and Education and regional Workforce Investment Boards. When fully implemented, the majority of high school graduates will be trained and certified to either enter the workforce immediately or enroll in two-year training programs. Only a small, select group of graduates will be prepared to continue their education in four-year colleges and beyond. In short, STW is the end of the American dream. STW systems mandate a narrower, skill-related training program for students who are considered human capital - cogs in Pennsylvania's economic machine.

Academic Standards for Career Education and Work

The un-elected Pennsylvania State Board of Education recently approved the *Academic Standards for Career Education and Work*,¹ a comprehensive document that establishes the framework for implementing career education for all students attending all public schools. Highlighting just a few of the mandated standards reveals the scope of this K-12 plan:

- By 3rd grade, children explore careers, identify their interests, understand the importance of having a career plan, and begin to learn "essential workplace skills."
- By 8th grade, students create individualized career plans and portfolios and demonstrate additional workplace skills and attitudes. In STW, this can be the critical point at which students are forced to select a "career pathway" that will determine their entire high school experience. Choices are determined not only by personal preference, but also by results from the state PSSA tests, interest surveys, and personality and work attitude assessments that students have taken throughout elementary and middle school. Each school district controls which of the approved Pennsylvania "career clusters" to offer students based on the particular economic needs of regional businesses.
- By 11th grade, students analyze, revise, and complete their career portfolios while most likely working, interning, or job shadowing during the school day. By graduation, students will be "certified" in career knowledge and specific workplace skills and attitudes.

Although the Career and Work Standards are a state mandate, every school district will develop its own variation. At this point, parental and community input becomes vital.

Pennsylvania's Project 720

When the Career and Work Standards are coupled with high school reforms mandated by Project 720, the school-to-work framework will be complete.

Referring to the number of days grade 9-12 students attend school, "**Project 720 is the umbrella for all high school reform initiatives in the state and encapsulates the state's thinking about high school redesign.**"² Presently, schools must apply for Project 720 funds. There is no doubt, however, that these reforms are destined for all public high schools.

In its third year, Project 720³ continues to provide millions of state tax dollars to over 100 school districts that have signed agreements to implement very specific mandates. While some have merit, such as improving core curricula and offering “dual enrollment” that allows students to take college courses, others clearly spur implementation of STW. Such mandates include:

1. Create “smaller learning communities” –usually a euphemism for “career pathways.”
2. Provide comprehensive career opportunities for all students by embedding career prep activities within core curricula, and by placing students in the workforce during the school day.
3. Give academic credit for work experiences.

What is wrong with STW?

America needs skilled workers. Our schools have long provided vocational education for students who want to learn a trade or earn a certificate. Voluntary vocational programs can successfully meet the needs of students who are not interested in comprehensive academic programs.

Problems arise when a STW system:

- **requires all K-8 students** to spend valuable academic classroom time focusing on career planning and workplace attitudes.
- **requires all 9-12 students** to select a career pathway that dictates their high school program, mandates workplace experiences during the school day, and narrows class selection.

In fact, this European-model STW system can be considered “un-American” as it deprives children of academic freedom by implementing a mandatory, business-driven education system.

What can parents do?

1. Educate yourself about Pennsylvania’s STW initiatives.
2. Find out the extent of your school district’s current STW program, and monitor implementation of the *Career and Work Standards* and *Project 720*.
3. Ask some important questions:
 - Should 14-year-old children be forced to select a career path?
 - What happens when a child’s interests do not coincide with offered career choices?
 - Can students change from one pathway to another? If so, at what academic cost?
 - Who decides which students will be prepared for 4-year college programs?
 - How much academic classroom time will be devoted to career prep in grades K-4? 5-8?

Most importantly, remember that you have the inherent right to direct the education of your children, and that the main stakeholder in your child’s education is your child – not Pennsylvania’s planned economy. ?

- 1 *PA Standards can be found at www.pde.state.pa.us/stateboard_ed/lib/stateboard_ed/FinalFormCareerEdWorkStds.pdf.*
- 2 *“Pennsylvania’s Project 720.” [Supporting Secondary School Redesign](#). Council of Chief State School Officers. Spring 2006.*
- 3 *More on Project 720 at www.project720.org. The CEO website details STW at www.ceopa.org.*

Are the “Math Wars” over?

The national media recently reported the end of the “Math Wars” and “fuzzy math” in America’s public schools. Before accepting this pronouncement, it is important to look behind the headlines.

The rancorous “Math Wars” pits parents, mathematicians, and education scholars against the National Council of Teachers of Math (NCTM).¹ At the heart of the battle are the 1989 NCTM math standards and reforms that are used in classrooms across the country and form the basis of most state assessment tests, such as the PSSA. After 17 years of NCTM math education, American students not only score near the bottom on international math tests, but also increasingly require remedial math courses as college freshmen.²

*New York Times*³ and *Wall St. Journal*² articles have reported that the NCTM now concedes that children **really do** need to know basic math “skills.” The recent NCTM report, *Curriculum Focal Points: A Quest for Coherence*, calls for a return to learning the basics in a more traditional



manner, with “quick recall” of addition, subtraction, multiplication and division facts.⁴ But are the new NCTM *Focal Points* moving toward proven, traditional math, or just another step in failed progressive math education?

A Math Education Timeline

As far back as John Dewey, modern “progressive” educators, along with psychologists such as E.L. Thorndike, promoted the idea that math should be taught only for practical purposes and math content should be determined by the needs and interests of the children.⁴

1940’s – “Progressives” declared that 60% of the population was incapable of college work. Math then should focus only on “real world” computations needed for consumer purchases and home budgets. Realizing that teaching “home, shop, and store” math would stigmatize these students, “progressives” recommended that utilitarian math be required for **all students**.⁴

1958 – Caught off guard by the Russian launch of Sputnik, Congress quickly passed the National Defense Education Act that increased funding for new math and science curricula, textbooks, and recruitment of math and science teachers. Calculus was introduced in high schools for the first time.⁴

1960's – Summerhill, a best selling book that detailed the ultra-progressive, liberal education policies of the Summerhill School in England, captured the attention of American educators and became required reading in colleges and universities nationwide. Here, children were encouraged to develop their intellect “naturally” by selecting what they wanted to learn. Long division was taught only to those expressing a desire to learn it.⁵ Summerhill also gave rise to the Open Education Movement and the failed “open classroom” fad.⁴

1983 – The federal report, *A Nation at Risk*, provided the impetus for school reform. The often quoted, “*If an unfriendly military power had imposed on America the mediocre education programs that exist today, we would view it as an act of war,*” gripped the public’s attention and fueled the momentum for reform, higher standards, and more accountability.⁶

1980-1989 – During this time, NCTM produced two reports⁷ that drastically changed math education. In the 1980 paper, *An Agenda for Action*, NCTM laid the groundwork for progressive “new-new” math. Their 1989 report, *Curriculum and Evaluation Standards for School Mathematics*, became the basis for development of school curricula and textbooks. Despite the fact that these standards and “progressive” teaching practices were not supported by peer reviewed research, they became entrenched in the public schools. The “Math Wars” ignited in 1999 when the federal Department of Education endorsed specific “progressive” math textbooks.¹

Some NCTM details

The NCTM standards and teaching practices changed *what* was taught and *how* it was taught.

The *NCTM Standards* emphasized:

- Discovery learning with hands-on manipulatives
- Process over accuracy with emphasis on estimation and ‘guess and check’
- Calculator use for all age groups
- Cooperative learning
- “Real world” or relevant math
- Emphasis on patterns, probabilities, and data organization
- Child-centered learning
- Student-written explanations on how answers were derived

...and de-emphasized:

- Teacher as authority using direct instruction
- Accuracy and correct answers
- Memorization of basic math facts (multiplication tables)
- Ability grouping
- Mental math and ‘paper and pencil’ computation, especially involving fractions

Under the NCTM reforms, algebra, geometry, and trigonometry were replaced with *blended math* that was “*a mile wide and an inch deep*” as it covered “*a little of this and a little of that.*” Only AP and Honors students were insulated from these progressive math practices.

Today, NCTM math is the norm in classrooms, textbooks, and schools of education. Embarrassing results on international tests as well as the National Assessment of Education Progress (NAEP) and state assessment tests have shown that the mounting concerns of parents, mathematicians, and education scholars are valid. Once again, America is faced with the task of reforming the reformers.

Will math education actually change?

The new NCTM report suggests that *they* will assume the task of *reforming their own reforms* by calling for a “new generation” of professional development, textbooks, teaching materials, and even “meaningful” testing.

The real question remains: Can the NCTM be trusted to make the reforms necessary to get math education back on the right track? Their *Focal Points* report indicates that they have not abandoned their “progressive” underpinnings.

Perhaps the newly formed National Math Panel⁸ will emerge as the defining force. Empowered by the federal Department of Education, these scholars, mathematicians, and respected educators have long argued against NCTM math. Having produced excellent math standards for California and other states, they have been given significant authority to create the math education curriculum that America needs to compete globally.

Despite the headlines announcing the end of the Math Wars, it is yet to be determined whether America’s students will actually get the math education they need and deserve. ?

1. “An Open Letter to United States Secretary of Education Richard Riley.” November 1999. www.mathematicallycorrect.com.
2. Hechinger, John. “New Report Urges Return to Basics in Teaching Math.” *The Wall Street Journal*. September 12, 2006.
3. “Teaching Math, Singapore Style.” Editorial. *The New York Times*. September 18, 2006.
4. Klein, David. “A Brief History of American K-12 Mathematics Education in the 20th Century.” www.mathematicallycorrect.com.
5. Neill, A.S. *Summerhill*. New York, NY: Hart Publishing Company. 1960.
6. *A Nation at Risk: The Imperative for Educational Reform*. 1983.
7. For NCTM documents, go to www.nctm.org.
8. Go to www.ed.gov/about/bdscomm/list/mathpanel/about.html.

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