

Philosophy of Education

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## **The Real No Child Left Behind**

Educators love to ridicule No Child Left Behind (NCLB). Many have said the law, in fact, leaves behind the very children it was intended to help. American Federation of Teachers president Randi Weingarten said (2008),

These are the children who have the least opportunity outside the schoolhouse walls to be exposed to all the elements of a well-rounded education: the arts and physical fitness, the ability to think critically and to argue logically, the value of active citizenship, and a knowledge of different people and places. NCLB slams the schoolhouse door on what makes up modern civilization and replaces it with multiple choice questions. (p. 1)

I suspect complaining about educational policy is an ancient pastime. Even John Dewey got in on the game in 1938, saying, “Conservatives as well as radicals in education are profoundly discontented with the present educational situation taken as a whole.” (Dewey, 1997, p. 89)

NCLB’s implementation is flawed, but the intent is golden – how we can, as a nation, ensure that every child has access to the best education and educational tools. As the literature suggests, the biggest factors that prevent access are race/ethnicity and socioeconomic class. Another group of underserved students are those with divergent learning styles, especially those with learning disabilities.

My philosophy of education will first explain my understanding of mathematics then detail my thoughts on ensuring access for all and teaching to divergent learning styles. Finally, I will address using technology to maximum advantage.

## **What is Mathematics?**

Alternately, math has been “my worst subject” and “my strength.” Learning to think mathematically has been a journey for me.

Traditionally speaking, mathematics is the left-brain directed method of learning analytical, rational thought. I believe, however, that mathematics is much more. As an engineer who struggled with junior and high school mathematics courses, I think I'm in a special position to share "what is math?" with students.

As I will address in the Divergent Learners section, mathematics is often difficult for right-brained students and those with learning disabilities. Interestingly, these are just the types of students I serve at my school, Chrysalis Experiential Academy.

To me, mathematics is a mental exercise in thinking thoroughly and logically. Students tend to notice the calisthenics in geometry class more often than any other. This is unfortunate – they should be making these observations in algebra, as well.

Unfortunately, math has a bad rap with many of today's youth. Students want to know when they'll use *this* topic or *that*. I stress to them that what they're studying now isn't there merely for some future need. It's not like they're going to come across some problem at age 25, say "Aha! I'm glad I paid attention, learned, and remembered to factor this polynomial."

### **Serving the Underserved: Minorities**

There are three major underserved school populations of interest: 1) non-white racial/ethnicities, 2) lower socioeconomic classes, and 3) divergent learners, especially those with learning disabilities. NCLB was meant to help all three populations. My philosophy of education rests on reaching students from all three categories.

Dr. Erica Walker of Columbia University studied the attitudes and behaviors of successful students of color. Looking to the past, she noted that "the academic success of many African American students during the era of segregation...was largely due to an ethos facilitated by supportive social networks consisting of relatives, community members, and others." (Walker, p. 45) As a teacher, I could read this one of two ways: 1) I cannot influence students of

color to succeed because I'm not a relative or community member or 2) I can help students of color identify supportive networks from the community. I choose the latter option because it avoids cynicism and because it is a positive move.

Unfortunately, people of color often experience bias in mathematics classrooms and on standardized tests. When asked about racial/cultural bias in assessment, researcher Julian Weisglass quoted Brazilian educator Ubi D'Ambrosio, "... mathematics has been used as a barrier to social access, reinforcing the power structure which prevails in the societies (of the Third World). No other subject in school serves so well this purpose of reinforcement of power structure as does mathematics. And the main tool for this negative aspect of mathematics education is evaluation." (Weisglass, 2002, p. 37)

It is one thing to recognize bias in testing but is all together a different thing to rid a classroom of the bias. My philosophy of education calls on me to provide culturally relevant problems in my classroom and speak to my students' cultures rather than ignore them.

### **Serving the Underserved: Socioeconomically Disadvantaged**

A second community of learners that NCLB should be helping is the socioeconomically disadvantaged. Students from poor families can easily be trapped in a cycle of poverty but one way to break out is through success in school. As an educator, my philosophy is to reach these students through their own experiences. John Dewey reminds the reader that students are not empty vessels to be filled with "knowledge" by a teacher. Rather, they arrive in the classroom with a set of experiences.

In fact, Geneva Gay complemented Dewey's concept when she described *socioculturally centered teaching*, a paradigm "that teaches *to and through* their [underachieving students'] personal and cultural strengths, their intellectual capabilities, and their prior accomplishments." (Gay, 2000, p. 24) Her research showed that socioculturally centered teaching "does enhance

student achievement. This is especially true when achievement measures are not restricted solely to academic indicators and standardized test scores.” (Gay, 2000, p. 25)

Because traditional education has not worked for the socioeconomically disadvantaged, it is time educators employed non-traditional techniques. One method is authentic learning – using the “real world” to teach. In her article, “Participation, Knowledge and Beliefs: A Community Perspective on Mathematics Learning”, Jo Boaler suggests “students should encounter a need to use mathematics in situations that were realistic and meaningful to them.” (Boaler, 1999, p. 49) The key, then, seems to be finding these situations. Authentic learning experiences will provide such realistic and meaningful learning opportunities.

As is my style, I will continue to eschew teaching from the textbook (exclusively), partly because I recognize it does not provide situations that are meaningful to poor students. In fact, there’s another reason: Schoenfeld felt that “teaching methods that focus on standard textbook questions encourage the development of procedural knowledge that is of limited use in nonschool situations.” (Boaler, 1999, p. 42)

### **Serving the Underserved: Divergent Learners**

I am one of the fortunate ones – I was able to learn math in the traditional way. My students at Chrysalis Experiential Academy struggle with mathematics for a variety of reasons: nonverbal learning disabilities, dyscalculia, and just plain math-phobia.

Growing up in the Space Age – and on Florida’s Space Coast, no less – I saw how mathematics acts as a gatekeeper, referred to so often in the literature. Mathematics was considered difficult and those who excelled were the “smart kids”, destined for success in life. As observed by Robert Moses, founder of the Algebra Project, “Algebra was assigned a certain role, a certain place in the education system...as one of the gates through you entered college” (Moses, p. 13)

Reaching students with mathematical learning challenges requires nontraditional teaching. John Dewey's words inspire me to reach my students via curiosity: "If an experience arouses curiosity, strengthens initiative, and sets up desires and purposes that are sufficiently intense to carry a person over dead places in the future...every experience is a moving force." (Dewey, 1997, p. 38)

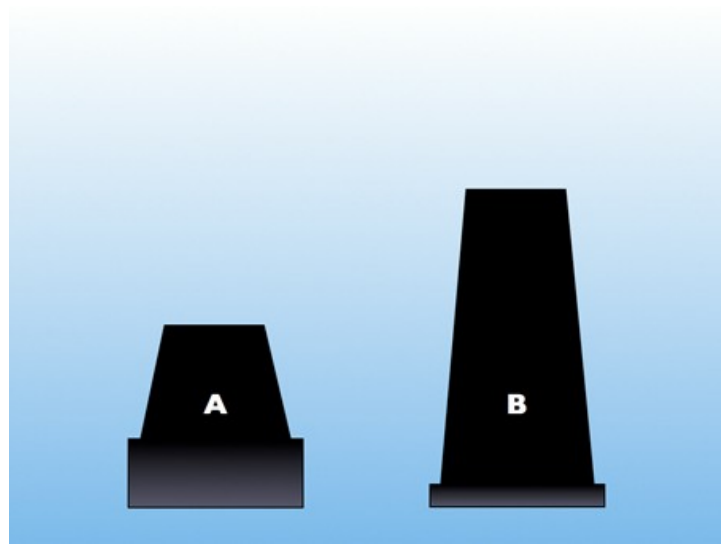
I believe there are two elements to arousing curiosity: peer reinforcement and owning the problem. I have observed that the best learning takes place in my classroom when I am silent. When one student shows another how to solve a problem, both take something positive away from the experience. All of my students – rich or poor, black or white, high achieving or not – can benefit from peer reinforcement.

What does it mean to own a problem? Hungarian mathematician George Poyla said that "An essential ingredient of the problem is the desire, the will and the resolution to solve it. The problem that you are supposed to do and which you have quite well understood is not yet your problem. It becomes your problem, you really have it when you decide to do it."

## Technology in Professional Practice

Technological tools such as computer projectors and blogs can greatly enhance a teacher's practice in the classroom. Used well, technology can engage students, can enhance their learning, and can nudge the students higher up Bloom's Taxonomy.

The projector, a piece of technology found in many public school classrooms, offers teachers a chance to share engaging warm-ups, for one. Dan Meyer, a math teacher and blogger shared a story involving



his digital projector that captures the importance of this tool. He put a slide on the screen in his classroom (pictured right) and asked his students, “How many Styrofoam cups would you have to stack to reach the top of your math teacher's head?” (Meyer, 2008)

The beauty of Mr. Meyer’s technology use is that it works in a classroom with only one computer. In my opinion, this kind of technology use is incredibly valuable precisely because it requires little in the way of resources.

A second technological application is the blog. The term blog is short for weblog, a journal of sorts published on the web. Weblogs in their current form began appearing in 1997 when the term was coined.

In the mathematics classroom, I use a class blog (<http://axiomatics.wordpress.com>) to publish assignments, share related videos, and communicate with the class and their families. It is that last application that I believe will serve me well to involve parents in the class.

## **Conclusion**

My philosophy of education rests on four topics: a working definition of mathematics, serving racial/ethnic minorities, serving divergent thinkers, and using technology to maximum advantage. Poorly implemented but conceived of high ideals, NCLB as an ideal is my touchstone.

No child should ever be left behind by the American education system. Not because Johnny’s of African American heritage, or Susie’s from a poor family, or Billy has dyslexia. I believe that I use progressive, experiential, and constructivist ideas to their utmost to keep Johnny, Susie, and Billy with the rest of the class.

I have based my philosophy on great thinkers, including that hero of progressive education, John Dewey. One author my cohort read during Summer 2008, Denise Mewborn, wrote about a reflective thinking study she conducted. She closed her paper by agreeing with

Seymour Papert, “Better learning will not come from finding better ways for the teacher to instruct but from giving the learner better opportunities to construct.” (Mewborn, 1999, p. 340) I could not agree more.

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