

THE Center for Education Reform



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THE TEXTBOOK CONUNDRUM *What are the Children Learning and Who Decides?*

Introduction

With the quality of education in the United States now the biggest domestic concern, demands for accountability are in vogue. The drive for better schools however, is usually limited to issues of standards, testing, choice and teachers. Missing from most discussions is the role that textbooks play in the achievement of children.

A few facts to consider:

- In more than twenty states, the state (state board of education, department of education, secretary or commissioner of education, or another specially designated state textbook committee) picks the textbooks for every classroom in the state – either through outright text selection, or recommendations from a short list. To control curriculum, they tie funding to compliance with the states' textbook adoption policy.
- Textbooks supplied to three states, California, Texas and Florida – all of which give significant influence to state agencies for textbook selection – account for 30 percent of the more than \$3.3 billion K-12 textbook market in 1998, the most recent year for which statistics are available.¹
- Four publishers (McGraw-Hill, Houghton Mifflin, Harcourt, and Pearson) control 70 percent of the industry.

Size means money means influence in the textbook world. They are a strong, quiet interest group that works behind the scenes and through major education groups to ensure that the process favoring them stays exactly the way it is.

The process for putting books in front of children then, looks something like this: The “big three” states draw up textbook adoption policies to which the “big four” publishers try to align their textbook content. Their product, thus aligned to and adopted by these “content leaders,” then trickles out to other states wielding considerably less fiscal influence on the content development process.

In turn, the product rolls out to those districts and schools with local textbook adoption policies, which have essentially no power to influence content among the major content players – both states and publishers. Some would say, in fact, that the textbook industry is the closest thing to a national curriculum in the United States – and for many, it’s too close for comfort.

A Textbook Case

California has long been a trendsetter in curriculum adoption. It led the more or less cross-country wave in embracing Whole Language and shunning phonics in teaching reading, to disastrous results. Just as state and local leaders began to rectify that issue, similar red flags were being raised regarding the state’s math curriculum. In 1985, California’s math framework was vague, but it began the slide away from real math. The National Council of Teachers of Mathematics’ 1989 endorsement of trendy “fuzzy math” that emphasized the learning “process” over computational rigor and accuracy furthered the slide, which methods were codified in the state’s 1992 math frameworks.

In 1991, California rejected every elementary mathematics textbook submitted by every publisher. Then some of the publishers went to the California Department of Education and said, ‘Here are our books. We will make any changes you want.’ One publisher reports that a woman at the state department of education went through the books and made line-by-line changes. The publishers were forced to wag their tails, shuffle their feet and grovel.... Then the book companies foisted the same books off on the other forty-nine states.”

California was pointing toward the latest pedagogical trend, without relevance to, or even consideration of, measurable student achievement results. The next cycle of math textbook adoption, which hit in 1994, began the wholesale implementation of the new-new math – beginning with calculators in kindergarten. As a result, in the last decade the percentage of California State University freshmen drawn from the top 30 percent of the state’s high school graduates, who required remedial math more than doubled from 23 percent to 55 percent¹. There were no achievement gains from the changes – in fact, 1992 NAEP scores for California eighth graders came in at the 44th percentile, while fourth graders scored at the 27th percentile.

Despite the fact that state had acknowledged problems with their frameworks – and had tackled revising them ahead of schedule – school districts continued to purchase the textbooks that had been recommended in alignment with those frameworks. Said one concerned parent in a letter to Old Adobe Union Elementary School District alerting them to the review:

“The State Board of Education and Legislature now understand that these textbooks are badly flawed and that the framework is not working.... They won’t actually come out and say the textbooks are terrible ... [but] call for ‘balance’ in the curriculum. When they say ‘balance’ I assume they mean put some basic skills back into the curriculum – something lacking in *MathLand* and the other State approved texts.... State School Board Member Kathryn Dronenburg pointed out ... that it is clear that districts that are in doubt as to which books they want, or if they want any books from the state approved list, may want to delay until the new criteria are in place.” (<http://www.intres.com/math/beaversletter.htm>)

The parent’s detailed and well-documented research and analysis had little impact – the Old Adobe Union Elementary School District adopted and purchased *MathLand*, the subject of her complaint, anyway.

Within three years, however, the district had moved away from *MathLand* and about 80 percent of Old Adobe’s teachers were using Saxon math. The result is that Old Adobe students showed significant improvements on the state Standardized Testing and Reporting program (STAR) – improvements the district director of curriculum attributed to the shift away from *MathLand*.

A National Curriculum?

In a 1996 *Brookings Review* article, historian Diane Ravitch noted “...despite the protestations about ... the impossibility and the danger of a national curriculum, the reality is that most American public schools already have one.... Concentration in the educational publishing industry has meant that a few large companies supply tests and textbooks to most school districts.... But this informal national curriculum is not good enough. It is mainly geared to minimal competencies, and expectations about what students should learn are frequently low and unchallenging.”

What’s the problem with a de facto national curriculum set forth by the nation’s publishing industry? Isn’t this, after all, the ultimate, and desirable, result of supply and demand? Well, not really – because in this particular relationship, the consumer is not the parents, or even the teachers at the schools, but a bureaucracy with little accountability for whether or not the right choices are made. After all, books influence what a child learns and states are currently measuring student achievement with the intention

of holding schools accountable for academic results. But that presupposes that they have control over all aspects of schooling, including books. In reality, schools only get to pick from previously approved lists in many cases, or their purchases cannot be fully paid for. In some places, however, that is just beginning to change, albeit slowly.

Back to California: In 1992, the state of California had a wake-up call. Having placed fourth from last (only ahead of Mississippi, D.C. and Guam) in student achievement on the National Assessment of Educational Progress (NAEP), some courageous leaders went back and looked at where they'd gone wrong. They found – and helped publicize – the fact that poorly written programs and non-research based curriculum in math and reading in particular had made their way into the state's classrooms thanks to the prevalence of those programs throughout the textbooks.

The State Board of Education took on the laborious and controversial task of rewriting the state's standards, and from there, revamped the list of approved texts from which districts could choose. For the first time, some smaller publishers with widely-acclaimed textbooks made it onto the list, meaning that for the first time, schools in the Golden State would have the chance to buy books aligned to the state's standards, which is, one assumes, better for their kids.

While that's more the case than not, the problems are not gone. For one, publishers created brand new books that had words and phrases consistent with California's dictates but not necessarily consistent with content guidelines, particularly in areas like reading and the need for phonics. But a close look reveals only a sprinkling of what real phonics proponents would find acceptable. The new books are wider, taller and thicker, and the math is often billed as back to basics. But without continual oversight by curriculum experts, the publishers can easily pull the wool over the schools' eyes. (See "Textbook Case Sidebar" for more details and history)

Textbook Errors:

While political textbook adoption policies drive the current direction toward watered down, bland content that emphasizes visual presentation and political correctness rather than in-depth content, another problem also pervades the textbook industry and degrades textbook quality: outright errors, as well as authorial misrepresentation.

Consider: Several years ago a seventh-grade girl stumped by a homework problem turned to her father for help. He soon ascertained that the problem incorrectly described a scientific law. The father wrote to the publisher, Prentice Hall, to point out the error, and in the six weeks it took for the publisher to respond, he compiled 34 pages of mistakes in that one text. Said one school board member: "If our students had the same number of mistakes, they would get a failing grade."² That textbook, according to the publisher, is the best-selling middle-school science text in the country – still. More recently, California textbooks up for adoption were reviewed by scholars who found errors pervading the texts – in one 200-page math text, for example, 50 of the pages had errors.

In response to concerns regarding errors, some publishing companies have prepared correction booklets, which are issued to those who recognize the inaccuracies and contact the publisher. These correction booklets, however, are not automatically offered to all states that have purchased the inaccurate textbooks. Meanwhile, some states have taken action by levying monetary penalties against publishers who issue error-riddled texts. Former Texas Commissioner of Education, Mike Moses, for instance, recommended two options that would impose fines up to \$25,000 (\$30,000 for repeat offenders in consecutive adoptions) plus either \$.25 per copy sold or 1 percent of first year sales in the state, per error. But such efforts must amount to more than a symbolic slap on the wrist by textbook adoption committees tabling responsibility in favor of expedience.

Consider: Texas fined publishers \$60,000 in Fall 1998 – barely one hundredth of one percent of the state's nearly \$500 million textbook budget.³ Then there's the phantom authoring. William Bennetta, editor of *The Textbook League*, a newsletter which reviews middle school and high school textbooks, says that of the 300 or more textbooks he has reviewed "at least 75 percent have been so blatantly incompetent that I could say, with certainty, that the people who wrote them had no idea what they were writing about." In fact, many of the famous "authors" listed on the cover of textbooks do little more than outline topics for books; the actual writing and editing is done by committees of people who really do not know a lot about the subject matter.

An example of this occurred in a physical science textbook on which the lead author is identified as Anthea Maton, former member of the National Science Teachers Association. Maton had in fact never seen the book. She had done some consulting work and provided material for a previous textbook series for this publisher.

The only place this doesn't seem to occur is in the states where publishers must appeal directly to schools to buy their books. The scrutiny becomes more local, and efficiency is a larger concern, so monetary decisions are more intense. The local school is where accountability for learning seems to reign supreme.

UnSound Science: Why Kids Get it Wrong

Controversies over textbooks often erupt on controversial issues of interpretation: allegations of "political correctness," "evolution vs. creationism," "phonics vs. whole language."

But the textbook publishers get it wrong over indisputable facts, as well. A January 2001 study by investigators at North Carolina State University of 12 middle school textbooks found "many irrelevant photographs, complicated illustrations, experiments that could not possibly work, and diagrams and drawings that represented impossible situations."

Among the errors: Misstating Newton's first law of physics, and showing the equator as passing through Tucson, Arizona and Tallahassee, Florida.

In an October 2000 *Forbes* magazine story, David McClintick told of the science textbook adoption process in California – a process that began with the submission of 15 sets of science teaching material for consideration by the state Curriculum Commission. Among the errors :

- Publisher Scott Foresman, now part of Pearson Education, diagrammed an electrical current wrong. It did not explain the cause of hurricanes. It did not note that air temperature cannot be measured accurately when the sun shines directly on the thermometer. It did not show how to tell the difference between igneous, sedimentary and metamorphic rocks. Scott Foresman later claimed that, in an effort to correct their books, it had taken the advice of renowned California State University biologist Dr. Stan Metzenberg, prompting Metzenberg, who had never seen the material, to denounce Scott Foresman in a letter to state education officials.
- Holt Rinehart's submission said that protons are helium nuclei (they are hydrogen nuclei). It said that nuclear energy was first suggested as a possible energy source for the sun in 1899; it was in the 1930s. One witness to the Curriculum Commission noted, in one of the publisher's books, he had found 30 errors in 100 pages, and that in reviewing the panel's report, only three of the errors had been found.
- Textbooks published by Prentice Hall and already in use reversed two photographs, giving the wrong impression of how the moon looks as it passes through its phases; suggested that the moon had been formed when an asteroid struck the earth, although the theory had been discredited for 30 years; noted that the dark side of the moon was first photographed by a US space probe (it was the Soviets); referred to a "history book from around 800 B.C.", when books did not exist; and said the earth rotates around the sun (it revolves).

John Saxon of Saxon Publishers wrote to then President Clinton about the textbook conundrum in 1996. Saxon explained, "Twenty-two states have textbook adoptions at the state level, and the damage these states do is extreme because their actions prevent publishers from using their ingenuity to find a way to write the books that will produce the results we need. Instead of asking publishers to come to these states and conduct large-scale tests to prove their products, the adoption states specify methods and do not ask for results."

Parents are often the unknowing victims in the textbook mess. At a recent Back-to-School night, one parent reported that the teacher asked the parents to take out the math books in the children's desk. "They're new," the teacher exclaimed, "and they're much better. You can see they are bigger, but this is what they say the kids need to learn." Teachers and parents seem to think that if it's in the books, it must be the way our kids should learn. In the words of A. Graham Down, former executive director of the Council for Basic Education: "The public regards textbooks as authoritative, accurate and necessary. And teachers rely on them to organize lessons and structure subject matter. But the current system of textbook adoption has filled our schools with Trojan horses – glossily covered blocks of paper whose words emerge to deaden the minds of our nation's youth, and make them enemies of learning."

This pedagogical flavor of the month – or of last month, as the case may be – seems to pervade state-level curriculum selection, in part because it pervades state-level standards efforts. Prior to Virginia’s own standard-setting process, the state showed its preoccupation with form over substance in this example, when a pre-Algebra textbook was rejected in Virginia for not meeting National Council of Teachers of Math Standards: “The text is not reflective of the NCTM Standards, especially in the area of technology. The use of calculators is not allowed,” said the rejection, even though the use of calculators was not a standard the state or any schools necessarily adopted. The critique also raises another objection: “The text would not attract the attention of the average ninth grader because it has no color or real people.” (For more on the “standards setting” efforts of NCTM, see sidebar, “The Math Wars.”)

This last point is also illustrative. Textbook adoption committees set requirements for books, which aren’t always limited to content or pedagogy. In the 1998 version of the Scott-Foresman third grade math book, there are 21 multicultural advisors listed in the front pages. These individuals were paid to advise on how best to balance different races and cultures throughout the math text, both in pictures and in math problems. That’s why a child may read problems like “Juan had ten baseball cards and Jose had five. How many did they have together?” Rather than focus on math, these advisors add to the heft of the book by extending it far beyond the smaller, straight math books of a few decades ago.

Publishers don’t dare defy such “requirements” or their texts, once published, won’t be purchased. Thus each year the textbooks of the big four become more and

State Textbook Adoption: Death by Committee

Here’s how textbook selection works in California:

- The **State Board of Education** is charged by the state constitution to select textbooks for elementary grades.
- The **Curriculum Development and Supplemental Materials Commission**, an advisory body to the State Board of Education established by the legislature, appoints a committee to write curriculum frameworks and textbook criteria. The final decision on membership of this committee is decided by the State Board of Education.
- The framework, including the textbook criteria, is then approved or modified by the **curriculum commission**, which then submits it to the State Board for approval and/or modification.
- **Textbook publishers** customarily then shape their materials to meet these criteria.
- **Evaluation panels**, also recommended by the Curriculum Commission and approved by the state board, review curriculum materials and make recommendations to the Commission.
- As of 1999, textbooks are also scrutinized by **Content Review Panels**, made up of volunteers – scholars in the relevant field – who check for content accuracy, depth of coverage, alignment with state standards and scholarship.
- **Legal compliance committees**, composed of volunteers throughout the state, evaluate the “social content” of the curriculum materials. All instructional materials that contain print or pictures require a legal compliance review, examining such factors as male/female depictions in the books, ethnic distributions, occupational representation, etc.
- There are also provisions for public display of materials and “citizen review and participation.”
- Based on these evaluations, which “are to be considered and modified, as deemed necessary and appropriate,” the Commission makes recommendations to the Board, accompanied by an evaluation report.
- The Board makes final selections.
- Materials in California are adopted on a six-year cycle.
- The State Board of Education has established an Instruction Materials Fund (IMF) expenditure policy such that:
 - 70 percent of those state funds in grades K-8 must be spent on “state-adopted instructional resources,” although districts may apply for waivers.
 - The rest may be spent on “non-adopted instructional materials,” including reference materials, testing and other “learning resources.”
 - For the 98-99 and 99-00 school years, schools could spend up to 100 percent of their state IMF on material appropriate for the Structured English Immersion program. Such materials require local board approval and must be in alignment with state board language arts content standards.
- All print or picture curriculum material, regardless of funding source, must pass a legal compliance review.

The emphasis is on visual presentation, pedagogical method and political correctness, with, more recently, a push for content standards (contingent on the efforts of scholar volunteers); at no time are textbook publishers required to submit evidence of achievement gains resulting from the use of their curriculum.

more alike, without necessarily focusing on the kinds of curriculum that yield results. The trends in fact, are alarming.

Teacher Mary Pecci wrote a reading textbook, called *At Last: A Reading Method for Every Child*, modeled after a reading program she created that helped students, won the support of her teaching colleagues, and earned complimentary letters from book publishers. However, without a “name” author, six years of pursuing publishers resulted in wonderful letters – but no publishing contract.

So Pecci created a publishing company to market the book. In spite of a sheaf of laudatory letters from teachers that had bought and used the book, her approach with California’s adoption process led to yet another rejection (despite a note from one adoption committee member saying she was using the techniques in her own classroom and getting great results).

The ostensible reason for rejection? The book did not comply with legal requirements for submission. When confronted with the legal department’s own written acknowledgement of compliance, lawyers for the adoption committee declared “It was a mistake on our part. The law can be interpreted either way, and we have chosen to interpret it *this* way. Why don’t you just drop it and accept the fact that your book wasn’t adopted – like everyone else does?”

Consider the fact that of the top 10 states on the NAEP report, only one has a state adoption policy. Of the bottom 10 states, nine have state level textbook adoption policies. But even indirectly, the choices of California, Texas and Florida ripple into the other 47 states by squelching competition from smaller publishers who are unable to gain a foothold in the market.

Furthermore, the cyclical calendar of these adoption committee decisions means that books choices – as the late publisher John Saxon said, too often essentially a “giant, pedagogical bad guess,” – are locked in for anywhere from four to eight years. And with the stiff price of textbooks, those decisions are locked in even longer for schools that can’t afford to replace last decade’s pedagogical trend with the latest selections – be they good or bad.

Solutions to the Textbook Crisis

What can be done? States could put in place a variety of policies that would improve the textbook selection for the children in their states, including:

- Permit districts to petition to have textbooks added to the state list.
- Eliminate state adoption policies and their attendant curriculum committees entirely.
- Put rigorous and meaningful standards focusing on content rather than process in place at the state level, and push curriculum development and textbook adoption down to the local level.
- Create proper accountability and rigorous assessments at the state level, in conjunction with those state standards, and leave districts and even schools with the responsibility for determining how best to meet those assessments. Districts, schools and teachers would determine what gets

taught and how, while the state would insure, through high stakes assessment, that basic proficiencies are attained.

Yet, even pushing the decisions down to the district level may not be enough to force the changes necessary. Local textbook adoption recommendation committees, while sometimes providing for a modicum of parent representation, are dominated by staff members of the local school district. They, in turn, continue to get their direction from the decisions of the “Big Three” states, and from such national organizations as the National Council for Teachers of Mathematics (NCTM) and the National Council for Teachers of English (NCTE), who have been widely criticized throughout the last several years for their fixation with unproven, less results-oriented approaches.

For example, in 1986, the NCTE officially opposed reading and vocabulary lists; in 1985, it opposed the use of grammar and usage exercises; and in 1977, the NCTE rejected teaching sequenced and isolated reading and writing skills. All of these “standards” were used in the development of textbooks.

The NCTM standards also help explain the difficulty with math textbooks. Its 1989 standards claimed that “experience with problems helps develop the ability to compute” and that “knowledge often should emerge from experience with problems.” Instead of learning the “times tables” or simple addition in the primary grades of kindergarten through fourth grade, the NCTM standards of the day claimed, “At this level, mathematical reasoning should involve ... informal thinking, conjecturing, and validating ...”

Although local school boards in non-state adoption states have responsibility for adopting textbooks and approving the criteria for those books, their own sources of information are often limited to that provided by the district staff. Local board members have often been discouraged from conducting their own research and, at times, have been circumvented in the criteria-approval process.

“When you put committees together, lots of times they don’t take the time to read through everything. Much of it comes down to how it’s packaged, ease of use, comfort level.... They didn’t necessarily look at the research base, what’s best for kids.” Robert E. Schiller, former interim city schools chief, Baltimore, MD.⁵

Meanwhile, choice policies such as charter schools and Opportunity Scholarships or vouchers offer the same hope for breaking up the textbook monopoly. They already allow for the truest local curriculum development, both through relief from state textbook adoption policies and a more fluid consumer relationship that has at its core academic accountability: if you don’t please parents and students, you close down for lack of enrollment; if you don’t meet state standards and assessments set forth in charter goals (or scholarship accountability measures), you lose your right to operate with public funds.

Many smaller publishers believe that educators should have the last word. Suggests Frank Wang, head of Saxon Publishers, "Let educators choose their own instructional materials and let the forces of the marketplace take over. Have all publishers and curriculum content providers compete to see which instructional materials produce the best results in the classroom and on tests.... What we currently have is a system where instructional materials, which form the core of a typical students' education, are created to satisfy the whims of a relatively small number textbook committee members in a handful of large textbook markets."

The Math Wars ⁷

The academic community appears generally torn as to whether or not traditional mathematics teaching and reformed math are compatible. Most parents don't care, except when it comes to whether the approach actually succeeds with their children. In that case, it is vitally important that we all know the score. Herewith is a quick, brief, and unscientific (though reliable) primer on what ails the math profession – the real and direct effect it is having on state, and therefore nationwide, textbook selection processes – and thus why our children can't do basic math effectively at just about every level.

1) The Theory

The National Council of Teachers of Math (NCTM) issues guidelines for math policy that have a deep effect on just about every textbook on the market and standards-setting processes. Independent math professors and scientists have begun to question the NCTM's approach and argue convincingly that the guidelines are not relevant to children learning math at required levels. [California State Northridge Math Professor David Klein argues that NCTM reforms have actually "crippled K-12 math education."](#)

NCTM officials view math learning as relative. They argue for a more conceptual approach to math teaching using the following reasoning:

"We live in a different world. We have different kids. We don't know how to measure success. We have to learn to connect math to our children and to respect their ideas, and it's important to think about how we deliver math as a community."

This philosophy - "constructivism" - invites students to reach conclusions in math neither through predetermined routes nor equations but by constructing their own thinking. "Kids have to personally make sense of things," says University of Wisconsin-Madison professor Gail Burrill, a former NCTM president.

On the opposite side, the critics of NCTM argue that the successful math approach involves the direct instruction of arithmetic to children.

2) The Practice

Teachers of math - most of whom are not trained in math - are given textbooks at school with this orientation or trained to think that way during education school.

They're told that substance matters, but exploration matters more. Teachers of math are often taught that it's more important for children to understand rather than to do, math.

Those who succeed with students tend to use explicit programs and be well grounded in mathematics.

3) The Result

Remedial math education is the norm in U.S. higher education. According to the National Research Council, 60 percent of college students are taking **high school** math courses. The Third International Math and Science Study showed us the poor state of U.S. math and science instruction. A majority of less advantaged children continues to perform below basic levels in math in most states. Indeed, even middle class and more affluent children are being hoisted forward with inflated grades and demonstrate little grasp of mathematical concepts once they reach college or the workforce.

4) The Effect

One would think that would be enough to challenge conventional wisdom about "reform" oriented math approaches. Yet despite the failure, the U.S. Department of Education (ED) granted "exemplary" status on fuzzy math programs that run contrary to the research. In fact, University of California/Berkeley math professor Hung-His Wu refers to one of the "exemplary" programs - MathLand - as "execrable."

Another ED sanctioned program - Connected Math - is under attack by communities from California to Maryland. It advises teachers to allow children "to bump into the answer" in pairs or groups, as if there's nothing scientific about math.

Just as unscientific as these fuzzy math programs, the federal ED conferred "exemplary" and "promising" status on eight others that have been assailed by scientists, mathematicians and researchers nationwide. Never mind that curriculum decisions are not within the mandate of the ED. Washington's affair with vested interest groups like the NCTM is well known. That cozy relationship has now resulted in the federal government's imprimatur on programs that couldn't past muster among reputable experts. Rather than produce rocket-scientists, ED just contributed to more lousy math instruction.

End Notes:



ⁱ American School Board Journal, December 2000

1. "No Such Thing as Malpractice in Eduland," Debra J. Saunders, *San Francisco Chronicle*, February 2, 2000
2. ABC News' 20/20, "Mistakes in our Children's Schoolbooks," September 26, 1999. Interview by Sam Donaldson
3. "States setting strategies to Reduce Mistakes in Textbooks," *Education Week*, by Kathleen Manzoo Kennedy, June 2, 1999.
4. "It's in the book and its Wrong," by Marego Athans and Gary Gohn, *The Baltimore Sun*, January 1, 1999
5. According to the Education Commission of the States' website and the California Department of Education website
6. See No. 2 and 4
7. *Oct 1999 Monthly Letter to Friends*