

An Analysis of the 2005 National Technology Plan: Better for Business than for Children

by

**Patricia H. Hinchey
Associate Professor
Penn State University**

Education Policy Research Unit (EPRU)
Education Policy Studies Laboratory
College of Education
Division of Educational Leadership and Policy Studies
Box 872411
Arizona State University
Tempe, AZ 85287-2411

August 2006

EPSL | EDUCATION POLICY STUDIES LABORATORY
Education Policy Research Unit

EPSL-0608-206-EPRU
<http://edpolicylab.org>

An Analysis of the 2005 National Technology Plan: Better for Business than for Children

Patricia Hinchey

Penn State University

Executive Summary

In January 2005, then-Secretary of Education Rod Paige submitted the Department of Education's revised National Education Technology Plan (NETP) to Congress in compliance with the No Child Left Behind Act of 2001 (NCLB). The plan, titled *Toward a New Golden Age in American Education*, recommends seven "Action Steps" urging schools to strengthen leadership for technology, to consider innovative budgeting, to support e-learning and virtual schools, to encourage broadband access, to move toward digital content, and to integrate data systems. NETP also urges improved "teacher training" to enhance teachers' ability to use technological products.

This report identifies, analyzes, and critiques assumptions underpinning NETP's recommendations. Assumptions are crucial to any policy; invalid assumptions create an unreliable foundation for any plan. In addition to identifying flaws in key assumptions, this analysis concurrently uncovers embedded advantages for business and privatization supporters.

This report examines four specific assumptions in terms of their roles as components of NCLB. The first assumption is that education ought to be run more like business. This precept is based on the idea that test scores equate to a traditional business

“product,” an equation that has been challenged by many critics. The second is that more technology will reliably result in increased student learning. This assumption lacks credible evidence and is undermined by recent large-scale research. The third, that extensive technological infrastructure is already in place, rests on a report with questionable methodology and is contradicted by an arguably more credible report. The fourth assumption, that students’ advice to NETP planners was reliable, is found unwarranted because of severe methodological weaknesses, including the fact that children too young to read were asked for advice on such issues as budget priorities.

Following this extended critique of the plan’s assumptions, a review of the proposed action steps within the context of groundwork laid by NCLB uncovers several ways government policy is opening new “markets” and providing other advantages for business and support for privatization. The analysis concludes that NCLB and NETP provide more benefits for business than for children—especially poor children. Educators who are considering expanding technology in light of NETP recommendations should proceed with great caution, insisting on evidence to support claims of improved learning and considering other consequences of a shift to primarily online instruction.

An Analysis of the 2005 National Technology Plan: Better for Business than for Children

Patricia Hinchey

Penn State University

Introduction

Overview of the National Education Technology Plan

In January, 2005, then-Secretary of Education Rod Paige complied with requirements of the 2001 No Child Left Behind (NCLB) legislation by submitting the Department of Education's revised National Education Technology Plan (NETP) to Congress. NETP's title— *Toward a New Golden Age in American Education*—indicates its authors' faith in technology and its power to transform education positively.

According to the Department of Education's press release announcing publication of the NETP, increasing use of technology outside of schools has prompted increased use within them. The plan authors attribute this change largely to increasing competition in the global economy and to students who have never known a world without the Internet.¹ The NETP home page² and its website segment "Student Voices"³ stress that the plan used substantive input from students because they understand the technological needs of tomorrow's schools better than their teachers or administrators.

The heart of NETP lies in seven "action steps" or recommendations.⁴ Together, they yield the following picture of changes considered desirable: Schools should become more data-driven (consistent with NCLB's emphasis on test scores and "accountability"),

and administrators and teachers should make decisions based on ever increasing amounts of data.⁵ Thus, schools will need “tech-savvy” administrators who can partner with businesses, “empower” students in planning processes, and implement comprehensive data systems.⁶ Such administrators are to consider “innovative” budgeting, looking specifically to realize “efficiencies” and “cost savings.”⁷ Teachers, too, are to use newly expanded data to “personalize instruction,” and teacher education programs are to become accountable for producing new teachers skilled in using data to identify appropriate “interventions,” or instructional strategies, for individual students. To be sure that new teachers have these skills, the “quality and consistency” of teacher education is to be improved through “measurement, accountability and increased technology resources” (extending NCLB’s plan for K-12 education and its focus on standardized test scores to higher education and teacher education).⁸

Teachers as well as students are to engage in online learning⁹; schools are to move away from textbooks to digital content and to support the growth of “virtual” schools.¹⁰ To enable such technological expansion, schools are to pursue broadband access.¹¹ Finally, administrators are to be sure that any technological products they purchase are certified to comply with the School Interoperability Framework (SIF), a set of standards that ensure data will transfer easily among schools, districts, and others.¹²

Overview of this analysis

This report identifies, analyzes, and critiques several assumptions underpinning NETP’s recommendations. Assumptions are crucial; invalid assumptions create an unreliable foundation for any plan. On the whole, the analysis examines the plan’s

assumptions and uncovers several embedded advantages for business and privatization proponents.

Four specific assumptions are discussed, frequently in terms of the plan's role as a component of NCLB. The first assumption is that education ought to be run more like business; the second, that more technology will reliably result in increased student learning; the third, that extensive technological infrastructure is already in place; and the fourth, that students' advice to NETP planners was reliable. Finally, an extended discussion section finds NETP far more likely to benefit for-profit businesses and privatization efforts than to enhance the learning of children, especially poor children.

Analysis of Assumptions

If the assumptions underpinning a policy are in error, then its recommendations are likely to be faulty—a criticism that is, in fact, often levied against NCLB. For example, many critics reject the assumptions that more testing will improve teacher and student performance, and that high-stakes test scores are reliable assessments; as a result, they find NCLB a fundamentally unsound strategy for improving student learning.¹³ The soundness of NETP is similarly open to the same kind of criticism if its underlying assumptions are not reliable. This analysis of the plan, then, begins by detailing and analyzing four of its key explicit and implicit assumptions.

Assumption 1: Education ought to be run more like business

Introductory material in the plan criticizes schools for maintaining habits from earlier agricultural and industrial eras. It stresses the increased use of technology in the

business arena where “leading organizations” use technology for such tasks as streamlining transactions, expanding markets, and tailoring services and products to customer need. Implying that there is little or no difference between schools and profit-centered activities, the plan asserts, “The same transformation needs to occur within our schools.”¹⁴ That is, schools need to behave more like businesses, where computer generated reports are used to measure productivity and technology upgrades are necessary to stay ahead or keep up with competitors.¹⁵

Interestingly, similar calls for schools to be run more like businesses are also coming from the business segment itself. A key voice has been the influential Business Roundtable, an association of leaders of major corporations which together comprise nearly one-third the value of the U.S. stock market.¹⁶ The organization, which did a great deal to promote NCLB,¹⁷ issued a 2003 press release that hailed the publication of the initial list of schools needing improvement. Insisting that more testing and data is imperative, Chairman Tucci asserted, “You can't manage what you don't measure. . . . No executive can run a business without accurate, granular data that explains what's working and what's not. Our school systems should be no different.”¹⁸

This kind of “granular data” comes from testing of all kinds—the high-stakes tests already in place for accountability provisions of NCLB, and an increase in other, preferably technological, assessments that NETP increasingly suggests schools need. In his remarks at the plan’s launch, for example, former Secretary Paige noted his desire to have real time data, online assessment, and integrated data systems available to teachers.

NCLB laid the groundwork for the image of school-as-business with its emphasis on “accountability.” Since every business sells *something*, a necessary precursor to

forcing schools to behave more like businesses was to identify an easily quantifiable “product.” The test scores mandated by NCLB accountability provisions provide this product. According to the NCLB paradigm, if teachers teach well, then students inevitably learn and the product of this process is high test scores. Thus, the scores are considered data that measure student learning and, by implication, the “productivity,” and “efficiency” of school personnel. Conversely, if scores stubbornly stay low, then the schools and personnel are at fault—and so NCLB outlines a series of escalating punishments, including eventual state takeover and total school restructuring. Just as workers on an assembly line or sales representatives in the field might be fired if their output falls too low, teachers and administrators are to be punished by economic sanctions and possible job loss. Officials have managed to make this model attractive to parents by first making the undeniably valid claim that parents are entitled to receive feedback on their children’s learning, and then linking it to the specious claim that high-stakes test scores equate to reliable summative assessment of that learning.

It is precisely in this definition of “test scores” as “product” that the assumption that schools can and should operate like businesses breaks down. Educators have been arguing since the debut of the legislation that a test score is not a comparable “product,” and that mandated high stakes testing is not a reliable indicator of anything useful.¹⁹ An examination of the validity of test scores is beyond the scope of this report, but even a simple outline of a main criticism indicates it is not reliable to assume that schools, like business, should make decisions based on “granular data.”

Essentially, test scores are contrived assessments that contrast with authentic assessments. That is, tests are a unique, school-based activity, but test scores are

accepted as measurement of students' actual abilities outside the classroom. A major criticism of high stakes testing argues that test scores tell most about students' test-taking skills and least about their real world abilities.²⁰ A reading test, for example, may ask students to answer multiple-choice questions—something readers do not do in real world tasks. A child who answers every multiple-choice question on a test correctly may have learned how to take tests, but the test might not be a reliable indicator of how well that child can read independently. There is no way to know if the child understood the passage, or guessed well, or simply learned test taking strategies to eliminate incorrect answers.

This is the reason there SAT courses and other courses to prepare for standardized tests exist: to help students understand test-taking strategies. Chief among these is how to avoid selecting distracters, or answers that make a great deal of sense but that test makers decide are not quite the best answer for a specific question. Savvy test takers know that tests frequently and specifically ask for “the best answer,” not a good answer; they are often frustrated by having to choose between two answers when both make sense.

In contrast, an authentic assessment of a student's reading ability might involve a teacher listening to a student read a story aloud. In this case, the assessment can be far more flexible and accurate; perhaps, for example, the child might say “woman” instead of “lady”—substituting a word with the same meaning for the word actually in the text. While in a test any apparent confusion like this might lead to an “error,” a professional teacher listening for comprehension would know that the child has focused on meaning and has understood the text. Readers paraphrase in making meaning constantly, and

such a child would be demonstrating the habit of a skilled reader. For this reason and others, despite the apparent objectivity of test scores, authentic assessment is a more reliable indicator of student learning and a tool for school improvement.²¹

Still, many find the idea that schools should run more like businesses appealing because it suggests that schools will have to implement more rigorous requirements and that student achievement will surely improve. Certainly, everyone would like every education nickel to be spent wisely, and everyone would like children to learn as much as possible. But the school-as-business model is not an appropriate metaphor to move toward those goals: schools are *not* businesses. The goals of nurturing growth in children and increasing net profit are not analogous because learning cannot be measured in the same way that the number of widgets produced and sold can be counted. Children are not the equivalent of raw material being fed into a manufacturing process, and scoring well on a test is not the same as being able to perform in the real world, or of understanding connections between disciplines, or being capable of completing independent research, or constructing a personal argument, or displaying a host of other characteristics that together comprise *learning*.

Assumption 2: Technology is good. More and more technology will result in more and more good

NETP's action steps/recommendations send the clear signal that the more technology in place, the better a school will be. Schools are to hire leaders well-versed in technology; to increasingly support online learning activities (including both digital content and virtual schools); to expand and centralize computerized testing and data

keeping; and, to install broadband access to support these efforts. “More” is presented as a self-evident good.

However, NETP offers no evidence to support this direction. Despite the insistence on “science” that permeates so much NCLB rhetoric, there is no mention of scientific evidence that establishes a correlation between more technology and more student learning. Perhaps the plan’s lack of references is not surprising, however, since technology’s potential to increase student learning has not been persuasively demonstrated. In fact, a 2004 large-scale international study is discouraging.²² The study analyzed results from achievement test administered in 2000 to 15-year-olds in 32 countries, including the United States, Mexico, Canada, most countries in Western Europe as well as some in Eastern Europe, Japan, and South Korea. Researchers from the University of Munich looked at reading and math assessment data, controlling for the impact of family and school characteristics. They found that once other factors were taken into consideration, the positive relationship between student achievement and computers at school was so slight as to be statistically insignificant, while achievement was affected significantly *negatively* by a computer in the home. NETP makes no mention of this major study, however.

While few such large scale studies have been conducted, studies that do exist generally cast significant doubt on the government’s assumption that more technology will inevitably benefit students. An overview of relevant research compiled by *Education Week’s* Research Center uncovered no evidence to indicate that substantive Internet subsidies in California from 1996-2000 positively affected achievement there.²³ It also reported that while one study did find a strong correlation between specific

software and student achievement,²⁴ another found only a small positive affect.²⁵ Even here, however, the supporting evidence is weak at best, with even the original researchers urging caution about the use of results. In the study showing the strong correlation, for example, authors cautioned readers that only a few studies were included in the review and that several had significant methodological flaws; factors other than technology could not be eliminated as possible causes of positive results.²⁶ Simply put, to date large-scale, sound studies have not demonstrated a significant positive correlation between technology use and student achievement (even if one accepts test scores as reliable indicators). This is especially true in such areas as higher-order thinking, creativity, and research skills, which are particularly difficult to measure. As Ringstaff and Kelley have warned, there is no "magic formula that educators and policymakers can use to determine if this 'return' is actually worth the 'investment.'"²⁷

Thus, the research on the impact of technology in the learning process is neither sufficient nor even sufficiently encouraging to indicate that NETP planners adhered to the goal professed for other educators, to "routinely seek out the best available research and data before adopting programs or practices that will affect significant numbers of students."²⁸ While NCLB exhorts educators at every level to do nothing that is not "science-based," NETP makes no effort to offer scientific support for its recommendation to saturate schools with expensive technologies.

Moreover, there is no attention to the fact that when technology does appear in classrooms, it can be used very differently—especially in different socioeconomic contexts. Some researchers have found, for example, that while students in higher-income schools often use computers for "more sophisticated, intellectually complex

applications,” students in lower-income schools use them instead for “repetitive practice.”²⁹ Although NCLB claims that its intent is to be sure that poor children finally receive a comparable education, in fact the technology push may instead perpetuate or exacerbate existing inequalities. While it may be *possible* for technology to be used in delivering creative, higher-order learning experience, scant evidence suggests this is routinely the case in schools. In fact, the evidence suggests that technology, especially for poor children, is instead more likely to provide traditional skill-and-drill pedagogy.

Assumption 3: Extensive technological infrastructure is already in place in schools

A third assumption, based on the findings of a much-vaunted 2003 U.S. Department of Education report to Congress, *Internet Access in U.S. Public Schools and Classrooms*,³⁰ is that schools largely have extensive technological capacity, but educators lag behind students in using what is readily available. The report claims that 99 percent of schools are connected to the Internet with a 5:1 student to computer ratio.³¹ Based on these statistics, NETP claims that educational use of technology is nonetheless lacking—not because of access, but because of ill-equipped faculty: “Today’s students, of almost any age, are far ahead of their teachers in computer literacy.”³²

The *Internet Access* report, however, does not sufficiently support the claims NETP blithely makes about student access. One of its endnotes acknowledges that “considerable skewness” in the 5:1 ratio exists among schools and that 11 percent of public schools had no instructional computers with Internet access as late as 1998.³³

Additionally, one researcher has drawn a more finely grained picture of “skewness” by analyzing one of the report’s tables,³⁴ demonstrating that a student who attends a school in which 75 percent of the student body is eligible for a free or subsidized lunch has a 1 in 5 (20%) chance of having no Internet access in any learning space.³⁵ Even in a school having “access” in every instructional room, there may be only one computer, used only by the teacher to report such data as attendance and grades. Or, “instructional area” might mean a single small and antiquated computer lab serving hundreds of students. Or, every classroom may have a computer—that doesn’t work. Thus, the selective numbers NETP chooses to base its assumption on are misleading, at best. In fact, the single mention of “skewness” in a note obscures the fact that important access differences still exist among different groups of students—the situation commonly referred to as the “digital divide.”

Yes, access for all students, and notably for African American and low-income children, has increased dramatically in recent years. However, a 2003 Corporation for Public Broadcasting (CPB) report, *Connected to the Future*,³⁶ paints a far more discouraging picture than the Department of Education report, noting that despite enormous gains, historical disparities between rich and poor “persist, sometimes to exceptional degrees.”³⁷ The many statistics in the CPB report include that:

- Slightly less than a third of low-income, African American, and Hispanic children have access to the Internet at school.
- Low-income students’ Internet access at school is significantly lower than high-income children’s. Despite gains in access, at the time of the report low-

