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# Factors that Perpetuate Test-Driven, Factory-Style Schooling: Implications for Policy and Practice

**Karl F. Wheatley**
Cleveland State University
Cleveland, Ohio, U.S.A.

**Abstract.** This article analyzes the factors that perpetuate test-driven, factory-style schooling, despite evidence challenging the efficacy of that approach. Both empirical and anecdotal evidence are presented to illustrate the failures of test-based accountability in the U.S., including the failures of specific policies to improve student outcomes, as well as evidence of collateral damage resulting from those policies. Factors that perpetuate test-driven, factory-style schooling include personal and institutional inertia, ignorance of the historical roots of factory schooling, ignorance of alternative educational paradigms, and *The Overton Window*—a narrow range of acceptable discourse that precludes discussing more productive alternatives. Other factors perpetuating factory-style schooling include misleading language and media coverage, bureaucratic tendencies, the profit motive, self-fulfilling prophecies regarding student motivation, traditional academic objectives and linear curricular sequences, and flawed and misleading research. Accountability policies and practices are discussed as a strategic political initiative that benefits wealthy and powerful members of society in multiple ways. Based on extensive experience with progressive education, the author presents eight suggestions for helping others transcend the factory model of schooling.

**Keywords:** educational reform, paradigm change, accountability movement, progressive education, school organization

## Introduction

> Thousands of years of history suggest that the schoolhouse as we know it is an absurd way to rear our young; it's contrary to everything we know about what it is to be a human being. - Deborah Meier, vii, in Littky, 2004

There are multiple indicators that the policies that have gripped American education for the last decade are backfiring. These test-based accountability policies, despite being touted as "real reform," have actually intensified the most

problematic features of traditional, factory-style schooling. In this article, I survey evidence that our current policy approach is backfiring, and provide a conceptual analysis of the many factors that perpetuate test-driven, factory-style schooling.

## The Failures of Test-Based Accountability

> People who haven't darkened the door of a public school in decades have no idea how "accountability" has robbed those institutions of vitality, of zest, and of the intangible elements that make children want to succeed. There's only so much brow-beating, only so much drilling, only so many test-prep worksheets a small mind can endure without zoning out. Later, when the option is availed, that uninspired child will drop out.
>
> - John Young, Waco Tribune, 10/23/05

### Evidence of Failures

As a parent, countless other parents have complained to me that the high-stakes testing and increasingly standardized curricula and methods of the accountability movement have made their children's schooling more stressful and less meaningful. Valuable activities such as play, project-based learning, the arts, and even science and social studies are being crowded out for more test preparation, often focusing only on reading and mathematics. Parents say that "everything is about the tests," not real learning. With remarkable regularity, parents' comments about what is happening in schools begin with "It's crazy."

As a teacher educator, and as I have reported elsewhere (Wheatley, 2015a), when I now show my students videos of good teaching, their response has increasingly become to say, "I know that this is good teaching, and that this is what is best for children, and I would love to teach this way, but if I teach this way, I will be fired. I have to follow the mandated curriculum and teach to the tests." This situation seems not only unacceptable, but also unethical.

From a research perspective, graduation tests have not yielded any clear benefits (Musoba, 2011), high-stakes testing has increased student and teacher stress levels enormously, and reports abound of turned off learners and burned out teachers. Faced with seemingly-impossible performance demands, some teachers and administrators have even turned to cheating. Even for those with enormous faith in the meaning of test scores, in 2008-2012, during the most intensive period of test-driven schooling in U.S. history, the long-term trend scores for 17-year-olds on the National Assessment of Education Progress (NAEP) were flat in reading and mathematics, for both genders and all racial groups (National Center for Educational Statistics, 2013). And that lack of any discernible improvement came despite of, or perhaps because of, sacrificing other subjects and meaningful activities to focus narrowly on test preparation in two subjects. Making matters worse, creativity, often cited as the most important student outcome in the 21st century economy and world, has been declining since the beginning of the

standards movement (Kim, 2011), with the sharpest declines in the elementary years. Furthermore, student-initiated activities that allow students to practice the initiative and executive functioning required of adults in a participatory democracy and entrepreneurial economy have disappeared from many schools.

Meanwhile, experiments to use student test scores to reward teachers have failed in Florida, Texas, Chicago, New York, and Nashville (e.g., Springer, et al., 2010), and psychometricians and professional societies have repeatedly pointed out that so-called value-added assessments are not intellectually defensible and should not be used to rate or reward teachers (Amrein-Beardsley, 2014). Aware of the harm that these policies are doing, and the lack of progress even on narrow indicators of traditional academics, the prestigious National Academy of Sciences has scolded the policymakers for basing these test-driven accountability policies on ideology, not evidence.

None of these failures should surprise anyone broadly versed in educational research. There is voluminous research on the ways in which high-stakes testing backfires for students while fundamentally distorting education (Madaus, Russell, & Higgins, 2009; McNeil, 2000; Nichols & Berliner, 2007). Also, evidence of the distorting effects of high-stakes tests goes back centuries, to the civil service exams in China (Madaus, Russell, & Higgins, 2009). Furthermore, China, Singapore, and Korea, three countries with the most intensive high-stakes testing, are currently trying to escape the grips of such testing, because of the harms that testing has done to student learning, creativity, initiative, and mental health (Zhao, 2009). Moreover, for teachers, decades of research shows that merit pay does not improve performance in complex professions such as teaching (Perry, Engbers, & Jun, 2009). These findings call into question the core assumptions of accountability policies.

Thus, there is ample evidence that America's current policies, characterized by test-driven curricula within factory-style schools, are not merely unsuccessful, they are counterproductive on multiple fronts. These negative results could have been predicted from previous research and theory in educational psychology, motivation, curriculum, and comparative education. Indeed, many researchers and educators predicted these results before the accountability movement began.

## Understanding the Repeated Failures to Correct Course

When one accountability policy after another failed to improve education, U.S. policymakers seem to merely double down on the same approach, while educators and the public, despite believing that something is clearly wrong, often seem at a loss to propose coherent alternatives. Why? If, as the popular axiom says, "insanity is doing the same thing over and over again and expecting different results," then why does American education seemed locked in a vicious cycle of repeating the same mistakes over and over again?

As a researcher and teacher educator, much of my time over the last decade has been spent trying to provide empirical answers to this broader question, and this research has identified three important sub-questions. First, why did so many Americans initially go along with education policies that make schools even more like factories, with even greater authoritarian control, much greater standardization of curricula and teaching methods, and marked intensification of high-stakes testing? Second, what sustains those policies and practices, even where their failures are apparent? Third, what can be done to change this situation, and to steer American education in a healthier direction? I have addressed the initial acceptance of traditional schooling elsewhere (Wheatley, 2015b), and primarily focus here on the second question, with some attention to the third question. To better understand these questions, during the past decade, I read over a hundred books, hundreds of research articles, thousands of news reports and blog posts, and have observed and participated in live and on-line discussions and debates. During that time, I posted over a thousand blog responses regarding educational policy. Based on this earlier broad-based research, I developed advocacy tools that I tried out with my early childhood teacher education classes and also used in public advocacy work, and I have reported on the results elsewhere (Wheatley, 2012, 2013).

So, given this research, what explains the tendency of the American public and American educators to stick with test-driven, factory-style schooling even when its failures have become obvious—and perhaps even painful—to those directly involved in education? Numerous interconnected factors explain our continued use of a model of education marked by authoritarian control, factory-style organization, increasingly standardized goals, curricula, and teaching methods; and an almost singular focus on raising scores on high-stakes standardized tests in a few subjects.

## Factors that Perpetuate Factory-Style Schooling

The difficulty lies not in the new ideas, but in escaping from the old ones.
*- John Maynard Keynes, 1935*

It is evident that the factors promoting factory-style schooling are overlapping, reciprocal, and sometimes operate on a psychological, sociological, and political level. These factors are also deeply rooted.

### Inertia

Individuals and institutions have great inertia—they usually continue doing what they have always done, and one of the simplest explanations why American schools are organized like factories and focused on test scores in 2015 is that this is how they have been operated for a long time. Thus, unless some significant failure or epiphany creates the disequilibrium necessary to provoke a profound change, individuals and institutions only make incremental changes.

The role of alignment in recent policies is critical for inertia. The more that educational goals, curricula, teaching methods, assessments, and other policies are tightly aligned, as they are with current policies, the more difficult it is to change any aspect of education, such as teaching methods. This dynamic exists because any changes in one part of the system bring it out of alignment with other parts of the educational system (e.g., assessments), which generally elicits pressure for everything to become aligned again.

However, while the tightly aligned model of factory-style schooling creates enormous pressure for individuals to conform and not attempt meaningful changes in any aspect of education (e.g., stopping giving mandated tests), this feature also suggests the potential for rapid, transformative change. That is, if a tightly aligned system fails dramatically, it is easier to imagine people saying that we don't just need to tinker with this or that aspect of the system: we need an entirely different approach to education. In this sense, better educating the public about the many ways in which the test-driven, factory-style schooling is backfiring for children, families, and the nation may well nudge the public to a tipping point at which they demand something substantially better.

**Ignorance of Historical Roots**

Largely lost in the mists of history is the fact that our factory model of K-12 schooling was never designed to educate students for creativity, critical thinking, problem-solving, "21st century skills," let alone for handling shared challenges such as terrorism or climate change. Rather, our school model was largely designed to assimilate disparate immigrants into a cultural uniformity and to educate the masses for dirty, mindless, and often dangerous factory work.

Here is William Torrey Harris, U.S. Commissioner of Education from 1889 to 1906, in *The Philosophy of Education* (1893), describing the purposes and effects of formal schooling:

> Ninety-nine [students] out of a hundred are automata, careful to walk in prescribed paths, careful to follow the prescribed custom. This is not accident but the result of substantial education, which, scientifically defined, is the subsumption of the individual.

There's also a troubling analysis in Gatto (2006), that reports that the historian Henri Remarque blamed the carnage of World War I on "the tricks of the schoolmasters," while German theologian Dieterich Bonhoffer said the Nazi atrocities were "the inevitable by-product of good schooling"—Prussian-style schooling designed to subvert moral judgment and action. In my experience, only a small minority of people knows of these obedience-oriented origins of our current education model. If more people were aware that our current factory model of school was intentionally designed to inculcate mindless conformity and train for factory work—rather than promote the broader goals we have for children and society today—we might be

more inclined to abandon the factory model and adopt a model better suited to our goals and modern world. Of course, there's another built-in obstacle. People educated in schools that were custom-designed to promote obedience often struggle to think outside of the box, and if they do think such thoughts, were never educated in how to take decisive action to challenge the status quo.

### Ignorance of Alternatives

Suggestions were made in the previous section about conditions that might lead the public to demand better education, but another obstacle to this occurring is that the public knows very little about truly alternative educational approaches. Thus, while I've observed countless people over the last decade speak articulately about what they dislike about high-stakes testing or the Common Core State Standards (CCSS), most get pretty quiet when asked to describe what we should be doing instead. At best, most propose only minor tweaks in the traditional model (e.g., less or different high-stakes testing), not fundamental changes in how children are educated.

The American public's knowledge of alternatives to factory-style schooling may well be becoming more limited over time. While some truly innovative alternative approaches to education were moderately common in the 1960s-1970s, most of the people who experienced those years are retired or even passed away. Constructivist approaches to subject matter teaching and authentic assessment made some inroads in the 1990s, but these advances were mostly washed away by the advocates of traditional instruction, and then were largely eliminated by the wave of test-driven policies beginning with the No Child Left Behind Act (NCLB). Thus, with every year that passes, fewer citizens and prospective teachers know about the very successful alternatives to traditional schooling. Having only experienced test-driven schooling, they find it difficult to imagine any other possibilities.

### Trapped Within The Overton Window

Because Americans are most familiar with test-focused and factory style schooling, and also have limited knowledge of alternatives, it is not surprising that more Americans cannot articulate a clear alternative to this approach. Furthermore, because our own education prized conformity, it is perhaps also unsurprising that when Americans know of such educational alternatives, they often do not advocate vigorously for them. But what is truly remarkable is the degree to which public discussions of education stay confined to an incredibly narrow range of educational alternatives. When an intense focus on academic content standards for two decades brings no clear successes, we hear more discussion of the need for better content standards, not a discussion of the possibility that we are simply thinking about education goals in the wrong way, or that perhaps content standards alone cannot improve education. When high-stakes testing fails to improve our educational trajectory, people discuss how maybe we need different or better tests, but rarely mentioned is the possibility that perhaps the very idea of high-stakes testing is counterproductive. When programs to reward teachers for student test scores fail repeatedly, we hear discussions of how these incentive systems need to be

modified, instead of discussion of the fact that such incentive systems reliably backfire. When $6 billion spent on implementing supposedly "evidence-based" reading instruction methods yielded no improvement in reading comprehension (Institute of Educational Sciences, 2008), and created substantial collateral damage, we heard from policymakers that the problem was that teachers weren't doing quite enough of the recommended practices. Why didn't we hear instead discussion of the possibility that perhaps our whole conception of reading instruction is flawed, and our approach to researching educational effectiveness may be similarly flawed?

The simplest explanation for all this is that America's discussion of education is trapped within the very narrow confines of *the Overton Window*, a phenomenon identified by Joseph P. Overton (Lehman, 2014): In brief, the Overton Window refers to the limited range of ideas that are considered acceptable for discussion in politics at any given time. Despite frequent exhortations for all of us to "think outside the box," those who introduce ideas outside of the Overton Window are routinely ignored, ridiculed, or punished. Although initially used to discuss policy proposals from a conservative/libertarian perspective, the Overton Window has taken on a broader meaning in recent years.

As an active participant in many educational debates over the last decade, I have experienced how the Overton Window works firsthand. For example, for about five years, I regularly read and participated on the *Flypaper* blog, the education blog of the conservative Fordham Institute, an organization that played a pivotal role in promoting current market-oriented, and test-driven education polices. Interestingly, the Fordham education commentators were determined to keep the debate focused on what worked best to raise reading and math test scores fastest or what was the most efficient way to carry out factory-style, test driven education. When challenged about the very validity of test scores as evidence of educational effectiveness, or when it was suggested that test-driven, factory-style schooling was perhaps a less effective model overall, they seemed eager to not let the discussion go there. Why? These questions would expand the Overton Window dramatically, and shift the discussion to a range of issues they did not want to discuss, perhaps because the evidence regarding those issues was not on their side.

To illustrate other ideas outside of our current Overton Window in education, imagine if someone suggested that we would improve education by strengthening teachers' unions, reducing formal reading instruction by 50% in the primary grades, ending homework in elementary school, ending all high-stakes testing, and increasing play and student-initiated learning. Those ideas all fall well outside of the currently acceptable boundaries of educational discourse. However, all of those proposals were education reality in the 1960s-1970s in America, and there is substantial empirical evidence that those approaches work better for children, families, and the nation. If this claim is correct, then this suggests that America's current Overton Window is not well aligned with empirical reality. This raises the interesting question of how we got to this point.

## Misleading Language and the Media

> He who wants to persuade should put his trust not in the right argument, but in the right word. The power of sound has always been greater than the power of sense. —Joseph Conrad, *Lord Jim*, 1900

Language is power and politicians and the business community marketed our current education policies to us by using language that first described "failing schools," and then demanded "higher standards, academic rigor, measurable objectives, objective testing, data-based decision-making, performance incentives, sanctions, performance pay, evidence-based practices." The language of measurement and control implicit in these terms steers our thinking and actions towards traditional schooling, with top-down control, factory-style organization, a narrow focus on testable academic knowledge and skills, and rewards and punishments to ensure compliance. Notice how differently we might think about education if we said that the main problem with our schools was that they followed "an outdated factory model," and that the ways to improve them included "whole-child goals, real-world curriculum, substantial child-initiated learning, healthy intrinsic motivation, authentic assessment, and teacher autonomy." This shift in terminology would take one's thinking in an entirely different direction, but the business community, sympathetic politicians, and the media have repeatedly used the former set of words to describe what is wrong with schools and how to fix them. This intentional and strategic use of *conceptual framing* (Lakoff, 2004) trains the public to think about education in a certain way, a way that happens to fits very well the agenda that the business community and some politicians have articulated for education and America. As Lakoff noted, it is the acceptance of particular frames and the rejection or neglect of others that establishes the boundaries of our thinking: "Rigorous academics" and "whole-child education" simply frame educational solutions in very different ways.

Significantly, while the business leaders and politicians involved in educational policymaking are usually aware of how framing works, many educators, researchers, and the public at large are not. Thus, and quite ironically, many educators and parents who strongly oppose test-driven, factory-style schooling have gone along with the recent re-framing of educational debates, and now regularly use the very language that was designed to market the ideas they oppose.

Lakoff noted that to counter misleading framing, one must stop using the problematic frames entirely, and design new frames for critiquing the ideas you oppose and promoting the ideas you favor. To give some sense of just how much new framing can influence our views on education, imagine if instead of referring to test-based accountability as being about "raising standards," everyone talked about test-based accountability as being about "lowering standards"—given the tendency of standardized tests to emphasize lower level knowledge and skills (Madaus,

Russell, & Higgins, 2009). It's difficult to imagine test-based accountability gaining traction with the public if it were widely viewed as being about "lowering standards." Whatever language they choose, to be successfully in their advocacy efforts, those who oppose traditional test-driven schooling would need to replace the current language of educational policy and practice with an entirely new vocabulary that concisely communicates their values

## Bureaucratic Tendencies

One of human's basic psychological needs is to feel a sense of control (Ryan & Deci, 2002). Reflecting that, many teachers feel a need to control their students, and many bureaucrats also feel a need to control teachers, and educational policy often reflects bureaucrats' need to control educators (Ravitch, 2010). Meanwhile, one of the most familiar complaints about bureaucracies is that they tend to respond to mundane problems with an ever-growing list of rules and regulations. Although understandable, a growing mountain of rules and regulations can become more problematic than the problems those rules were written to solve. Many believe that we have already reached that point with test-based accountability.

Of course, in cases like regulating pollution, substantial regulation may be warranted, because the profit motive doesn't naturally motivate corporations to ensure they are not releasing toxic chemicals into the environment. However, humans and hard-wired to learn, and the primary motive for teachers to go into teaching is to help students learn and make a positive difference in students' lives. Thus, if policymakers recognized these distinctive features of education, perhaps they would be more willing to reduce the controlling pressures and regulations that have ramped up during the accountability movement. However, it would first be necessary to persuade policymakers that no broad failure or malfeasance by educators has occurred, because as long as the aura of general educational crisis and failure persist, bureaucrats can be expected to respond with tight oversight, which would most likely mean a continuation of test-based accountability.

## Profit Motive

Another powerful factor sustaining test-driven, factory style schooling is the profit motive. As documented a decade ago, (Emery & Ohanian, 2004), the business community played a major role in the accountability movement. Significantly, test-based accountability transformed education in a way that is more profitable for corporations, because it restructures curricula, teaching, and assessment in ways that are much more heavily dependent upon corporate products than was true before. Standardized tests and related test preparation materials have made corporations hundreds of billions of dollars over the last decade—but to do things that teachers used to do for free.

Significantly, and in terms of political gain, current reforms have remade education in the image of corporations. We see this shift in the way in which education, which

used to be about developing strong individuals, and citizens, and workers, is now frequently discussed by policymakers as only being about training for jobs so that America can be more economically competitive. We also see this shift in the way in which business language has displaced education terminology, including the language of "benchmarks, performance incentives," and even calling superintendents "CEOs," while calling students "customers." Making schools more market-oriented benefits corporations politically because schools have traditionally been a source of ideas that pose challenges to the corporate worldview of the purpose of life and the proper organization of society. By increasingly taking over education, market forces are essentially removing one competitor. As Slouka (2009) commented regarding market-oriented, test-driven schooling:

> That education policy reflects the zeitgeist shouldn't surprise us; capitalism has a wonderful knack for marginalizing (or co-opting) systems of value that might pose an alternative to its own. Still, capitalism's success in this case is particularly elegant: by bringing education to heel, by forcing it to meet its criteria for 'success,' the market is well on the way to controlling a majority share of the one business that might offer a competing product, that might question its assumptions. (p. 33)

Just as they successfully sell so many things, the business community persuaded the public that the type of reform education that America needed was based on market ideals, factory-style organization, commercial testing and test preparation materials, and an emphasis on job training and economic competitiveness (but not citizenship). It seems unlikely that this was a coincidence. Thus, for those who believe that test-driven, factory-style schooling is counterproductive, high-stakes tests are not merely an isolated practice to change. High-stakes tests and other main features of current accountability policies are part of an overall reconceptualization of education, a strongly market-based reconceptualization that has also taken over substantial control of our politics (Hacker & Pierson, 2010) and our economy (Stiglitz, 2012). Thus, while there is growing opposition to current education policies, challenging current policies can be expected to elicit considerable and well-financed political pushback. Furthermore, successfully challenging test-driven, factory-style schooling may require a more comprehensive overall challenge to the idea that market-based thinking is an appropriate basis for education reform. Sachs (2012) has begun this discussion, documenting extensively how the heavy reliance on market thinking in the U.S. has created vast inequality, economic stagnation, and social dysfunction, while countries that have avoided being taken over by market-based thinking have fared much better. However, educators opposed to the application of market-based thinking to education would need to make a parallel case regarding the deleterious effects of market thinking in education.

## Self-Fulfilling Prophecies Regarding Motivation

Just as the human body has an internal drive to keep itself healthy, given appropriate sleep, exercise, and diet, the human mind is hard-wired to learn, to

make sense of experience, and to master challenges (Hirsch-Pasek & Golinkoff, 2003). However, just as unhealthy eating and lack of sleep or exercise short-circuits the body's healthy-promoting capacities, an unhealthy psychological environment and failure to meet basic psychological needs can short-circuit individual's natural motivation to learn. Unfortunately, traditional schooling is not usually based on intrinsic motivation, but rather, assumes that motivation is something teachers do to children through rewards and punishments. Research reveals that when educational systems are based upon the assumption that children have this innate motivation, then students' intrinsic motivation and positive attitudes are sustained (Walberg, 1986). However, research is also quite clear that under conditions of traditional schooling, there is a steady erosion of children's intrinsic motivation (Lepper, Corpus, & Iyengar 2005; Walberg, 1986; Wheatley, 2012). Recent experimental research also confirms that, compared to more student centered approaches to learning, traditional teaching yields reductions in children's curiosity, creativity, independence, and initiative (Bonawitz, et al., 2011; Buchsbaum, Gopnik, Giffiths, & Shafto, 2011).

Because very traditional schooling creates conditions in which initiative, intrinsic motivation, creativity, and healthy independence are unlikely to be observed, teachers in such schools understandable claim that "these children aren't motivated." Once children's natural motivation for learning has been squelched and is no longer a viable driving force for education, it is quite understandable that educators think they should arrange the learning in a logical order, set up inducements to motivate children to learn it, and set out to directly teach it to them. Of course, this teacher-directed and one-size fits all approach often fails to elicit much student engagement (as documented above), and even engenders some student resistance, and thus the assumptions of traditional schooling seem to be confirmed to teachers following that approach. This is especially true at the upper grades, whose teachers may see students so long after most apparent passion for learning has been dimmed that claims of innate motivation to learn may seem like fiction. However, having taught children of all ages in a variety of settings, and without using rewards or punishments, I have experienced a very different self-fulfilling prophecy, one that reveals that children have enormous motivation to learn—motivation that can be a driving force for education. Nevertheless, to tap into this powerful force, educators must first take a leap of faith and design and implement education based on the assumption that this underlying wellspring of healthy student motivation exists just beneath the surface.

## Traditional Academic Objectives and Linear Curricular Sequences

Just like the subdivision of larger tasks into discrete steps in factories, traditional, factory style schooling divides life into subjects, divides those subjects into hundreds of objectives, determines one sequence for learning those objectives, and then assumes that better learning is indicated by faster learning of the prescribed sequence of target objectives. All of this is simply assumed, but once one defines education as being about mastering discrete academic objectives in a pre-

determined order, accepting traditional factory-style schooling may be inevitable. Why? Even the most intrinsically motivated learners, under optimal conditions, would not learn school subjects in the pre-specified order found in American textbooks or academic content standards. Those learning to read in a more interest-based way will still learn to read, and are more likely to love reading, but their learning will not follow a standardized and prescribed skills sequence. Indeed, I know children who learned to read without any formal reading instruction at all (Wheatley, 2013), and they love reading and read very well, but they did not learn in the order specified by our reading content standards. In fact, I discovered upon closer examination that two of these skilled and passionate readers (at ages 10 & 12) had learned to read without ever learning some of the grade-level targets that America's new Common Core State Standards (CCSS) claim are essential reading knowledge for kindergartners! Of course, learning in such non-standardized and learner-initiated ways direct conflicts with the assembly-line logic of academic standards, textbooks, and high-stakes tests. Thus, education organized around pre-determined learning sequences and high-stakes tests (as in the Common Core initiative), typically fosters a factory-style organization of schooling, one that is tightly focused on the academic objectives that appear on the tests.

Significantly, the assumption that educators need to tightly focus instruction on linear learning sequences does not hold up well when viewed from the perspective of broad, long-term educational effectiveness. For example, effectiveness is defined as faster short-term acquisition of testable reading subskills, linear, factory-style direct instruction targeted to the reading skills on reading tests is clearly superior (Institute of Educational Sciences, 2008). However, if the research question is what works best in the long run for simultaneously achieving reading comprehension, love of reading, writing, positive conduct, and cross-curricular learning, then the answer appears to be progressive and non-linear approaches such as whole language and free voluntary reading (Coles, 2003; Krashen, 2004, Wheatley, 2015a). Similarly, if we compare academic and play-based kindergartens, of course academic kindergartens targeted at a list of pre-specific objectives do better at boosting test scores on those objectives than do play-based kindergartens that reject the very idea of traditional objectives and linear, standardized instruction. However, if we research what happens overall in the long run, we get a different answer, as Germany discovered in the 1970s. Contemplating a switch from play-based to academic kindergartens, two sets of German researchers studied the long-term effects of the contrasting approaches on similar children. Interestingly, the children from the play-based kindergartens did better than the children from academic kindergartens on every single indicator by age 10—social outcomes, cognitive outcomes, language outcomes, and industriousness and creativity (see Tietze, 1987). This is a pattern observable across studies of comparative effectiveness, with traditional linear instruction appearing superior when effectiveness is defined narrowly in terms of short-term test scores, but progressive education approaches appearing superior when effectiveness is defined in terms of broad and long term effectiveness, (see, for example, Chamberlin, Chamberlin,

Drought, & Scott, 1942; Walberg, 1986). In sum, the very acceptance of traditional objectives and learning sequences sets in motion a self-fulfilling prophecy that pressures educators to adopt a linear, factory style organization of schooling arranged in to mirror those objectives, a tendency that is amplified by high-stakes testing. However, once we abandon the idea that we must have such numerous and carefully sequenced learning targets, the perceived need for such linear instruction may be reduced sharply or even eliminated.

### Misleading Educational Research

Significantly, as is also true of traditional, factory-style schooling, most educational research assumes that faster short-term learning of testable pre-specific academic objectives proves greater educational effectiveness. The criteria for scientific education research focus overwhelmingly on technical details of studies (sample size, validity of research tools, acceptable statistical analysis), but are silent on the issue of broad and long-term developmental systems effects. This steers educational research in the direction of a reductionist stance in which educational methods can be judged to be evidence-based if they reliably make one testable academic skills better in the short run, even though they might make many other valued educational outcomes worse in the long run. That is, methods can be judged to be effective even if there is good evidence that, overall, they do more harm than good in the long run. As noted earlier, traditional teaching methods are better suited to achieve narrow, short-term academic test score gains, while progressive alternatives appear better suited to achieve broad and long-term educational effectiveness. Thus, current definitions of scientific education research implicitly but unintentionally bias educational research to overestimating the true effectiveness of traditional instruction and underestimating the overall effectiveness of progressive alternatives. Given this intellectual context, there is a vast array of research findings that appears to support traditional, factory-oriented, test-driven instruction, and thus, the phrase "research says" has reinforced the American tendency to organize schooling along factory lines.

## Discussion and Implications

What happened in American education over recent decades is a perfect illustration of the *shock doctrine*. That is, as Klein (2007) documented, in many countries in recent decades, free market advocates and sympathetic political leaders used real crises or manufactured crises as a pretext for pushing through a series of controversial and sometimes exploitative policies. Distracted by the emotions or demands of the crisis, people were too busy, uninformed, or too weary to mount any opposition to such policies. Companies and wealthy individuals have clearly learned how to profit financially and benefit politically from these real or imposed crises (Freeland, 2012).

In the case of education, the educational accountability movement can be viewed as a systemic political initiative—an initiative that simultaneously achieves multiple

political and organizational goals valued by the business community. Specifically, the accountability movement has been profitable for education corporations, has weakened the teachers' unions that are one of the biggest supporters of Democratic candidates, and has re-made education more in the corporate image. Perhaps most significant for the wealthy and powerful, claims of "failing schools" and a "skills gap" have been used as a pretext for a weak economy, high unemployment, weak wages, high and growing economic inequality, outsourcing jobs, and a sharp reduction in social mobility in America. Thus, the mantra of "failing schools" has been employed strategically and frequently as a rhetorical tool that distracts many citizens from the real causes of America's current political and economic struggles. Specifically, as documented by political scientists (Hacker & Pierson, 2010) and economists (Sachs, 2012; Stiglitz, 2012), the specific problems above result directly from policies that the rich and powerful have pursued and achieved over recent decades, including lower taxes; weaker regulations, unions, and worker protections; and liberal policies governing globalization. Reflecting its harmful effects on workers, nations, and the environment, Sachs (2012) simply referred to this cluster of policies as a "race to the bottom." However, these policy changes have made the super-wealthy far richer and more economically powerful, as illustrated by the Oxfam report that the 80 richest people on the planet (who could squeeze onto a single school bus) have as much wealth as do the 3,500,000,000 poorest people on the planet (a group that, if holding hands, could stretch around the earth roughly 100 times). What would happen if the public as a whole were to conclude, as many researchers have, that it is not the quality of education, but rather public policy that is the overriding cause of these negative changes in most American's life circumstances? One distinct possibility is that the public would come to see substantially raising taxes on the wealthy and more strictly regulating corporations as the most likely route to improving the economy and social mobility in America.

If that were to happen, the rationale for current accountability policies might evaporate. However, given all of the foregoing factors that promote test-driven, factory-style schooling, one can imagine that teachers and administrators would still feel enormous pressure to continue using a factory model of schooling. Educators' language, types of objectives, research results, and view of motivation all steer the field in that direction. Also, the framing of education debates and their lack of awareness of alternatives seemingly leave them without viable alternatives to test-driven schooling, and pressure from the media and business sector also strongly pressure education in that direction.

If, as was argued here, progressive education models are broadly superior in the long run for the range of goals parents, society, and employers value, then what might be done about all these factors that pressure educators and the public to think, talk, and act in ways that perpetuate test-driven, factory-style schooling? Having taught over 2000 teachers and prospective teachers, I have studied the factors that seem to facilitate or obstruct change in my students, and have experimented extensively with trying to educate them about progressive

alternatives to factory schooling. In my experience, there are eight main factors that promote such changes in thinking and actions: 1) challenging the "failing schools" mantra, 2) re-framing the problems with American schools as one of "being on the wrong mission," 3) grasping the impact of out-of-school factors on students, 4) embracing broad, long-term effectiveness as the standard for judging quality education, 5) observing and experiencing progressive alternatives, 6) learning a new language for framing educational discussions, 7) learning to let go of control and share control with leaners, and 8) studying and documenting the long-term, whole-child benefits of progressive education.

Thoroughly discussing each of these factors is beyond the scope of this article, but I provide here a quick snapshot of each. First, when my students learn that U.S. K-12 pupils are doing pretty well in terms of test score outcomes once our much higher rates of child poverty are taken into account, they stop believing media claims that U.S. public schools are generally failing at their assigned mission, Second, my students know that schools often aren't very impressive, but when they understand how factory-style schooling creates learning and development problems, they re-interpret many of the disappointments they observe in schools as resulting from schools pursuing the wrong mission. Third, once students realize that out-of-school factors can account for 60-100% of the variance in test scores, and that tests are not real measurements of what matters most in education, they stop taking tests so seriously as indicators of quality learning and teaching. Fourth, once people think about it, and when they understand how methods that work in the short term often backfire in the long run, they agree that teachers, research, and policy should focus on broad, long-term effectiveness. Fifth, seeing videos, hearing stories, and observing progressive classrooms helps my students understand the practices and possibilities of progressive education, and also unearths misconceptions and details that need to be cleared up in order for them to be persuaded. Sixth, when people stop using accountability language such as "measurable objectives, sanctions, and greater accountability," and start using progressive language such as "meaningful outcomes, healthy motivation, and mutual responsibility," an entirely new discussion emerges. Seventh, teachers and parents new to progressive methods need to practice and become comfortable with letting go of control and sharing control with leaners, and discovering that everything will still be OK. Eighth, by studying broad and long-term research and documenting the healthy progress their own children and pupils make when progressive approaches are used, my students become persuaded in the most important and powerful way.

The challenges in overcoming factory schooling are psychological, social, political, economic, linguistic, emotional, and experiential. Even our stress and lack of time make new learning that is needed more challenging. However, just as America is rapidly learning that the best foods are natural ones that are not made in factories, we might also realize something that I repeatedly tell the future teachers I teach, "Kids are not cars, and learning is not manufacturing, and great education is only possible if we don't get confused about that."

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