At the battle for influence over school reform continues in the 21st century, Mr. Gibboney finds that Edward Thorndike maintains the upper hand over John Dewey.

One cannot understand the history of education in the United States during the twentieth century unless one realizes that Edward L. Thorndike won and John Dewey lost.

— Ellen Condliffe Lagemann

IN THAT brief statement, historian Ellen Lagemann provides a useful scaffolding for understanding the problems education faces today, nearly a century after Dewey published Democracy and Education (1916). In the juxtaposition of these two figures, we can see one of the primary reasons that 80% of education reforms proposed and implemented over the past half century have yielded such poor results.

The mechanistic view of learning espoused by Thorndike dominated the last half of the 20th century in so-called school reform. With the signing of the No Child Left Behind (NCLB) Act in 2002, Thorndike’s ghost marched at the head of the reform parade while the chief marshal, President George W. Bush, flanked by legislators of both parties, waved approvingly from the reviewing stand.

In what did Thorndike, who died in 1949, believe? In short, he believed in the possibility of a science of education so powerful that experts alone would be able to decide what to teach, how to teach it, and how to evaluate it. In The Transformation of the School, Lawrence Cremin describes Thorndike’s faith in numbers as “unbounded.” Indeed, he believed that such value-laden matters as setting the aims of education could be done efficiently by experts, using the kind of science he was developing. Thorndike’s little band of experts (mostly psychologists) included no informed teachers.

Thorndike’s research also led him to believe in the specific nature of the transfer of learning. This meant that learning to think in one subject, such as physics, did no more to increase general intelligence than learning in any other subject. According to this view, subjects such as bookkeeping or Latin appeared to be equal in their effect on intelligence. This view led many educators to question the value of academic subjects, a position about which Thorndike himself had some doubts.

Dewey’s ideas on the transfer of learning were fundamentally more humanistic than Thorndike’s. Dewey believed subject matter in schools exists to make the quality of democratic life as good as it can be under given conditions. He asserted that a teacher ought to try to arouse a continuing interest in learning throughout a student’s life. Dewey argued that people within the broad span of normal human abilities had a vast capacity for learning and that a critical intelligence was essential for democratic life. In Democracy and Education, he stated, “Since growth is the characteristic of life, education is all one with growing; it has no end beyond itself. [One can judge the value of a good school to] the extent in which it creates a desire for continued [learning] and supplies means for making the desire effective in [practice].” Notice that, where Thorndike takes a cramped, narrow path between subjects and confounds transfer of learning with intelligence measured by tests, Dewey takes an expansive, generous view of transfer. He includes all normal citizens within his view and argues that the goal of schools ought to be developing an attitude — the love of learning. And ultimately schools should be judged on how well they meet this difficult goal. In other words, what is transferred when a student learns something that is truly important is intangible and immeasurable by tests. It is an attitude, the desire to learn. Subject matter is but one among many means used to attain this central objective, which is sadly overlooked in today’s race for higher test scores.

To put the distinction sharply, Thorndike saw humans in the image of the machine; Dewey saw them in the image of life.

Why has America, at the beginning of the 21st century, chosen the machine over life as the template for educating our biological and cultural replacements? Thorndike is famous for his statement that anything that exists, exists in some quantity. I wish that more teachers, policy makers, and education reporters would remember his next sentence: “To know [something] thoroughly involves knowing its quantity as well as its quality.” In these words, there is reason to believe that even Thorndike had some intimations that numbers and measurement were not, by themselves, enough to “thoroughly know a thing,” such as the full context of a student living in poverty or a student living in affluence.

There is no doubt that Thorndike’s stimulus-response theory was mechanistic and...
fragmented. But Dewey argued that human behavior could not be explained by piling up layers of S-R connections like so many layers of sedimentary rock. Dewey insisted that a sentient human being being perceived — and thus reshaped — the stimulus itself. One’s aims and beliefs were thus part of the S-R context and so had to be considered in any comprehensive theory of learning.

Thorndike found a specious certainty in tests and numbers, which oversimplified the basics of learning. Dewey sought reality in uncertainty and change, and he knew that practice is always richer and more complex than theory. He believed that a life lived (one’s experience) presented problems that could not be solved for all time but could nonetheless be intelligently addressed by acting in the world — that is, by doing something. The real-world results of our action come back to us, via snail mail, as consequences — to our pain, confusion, or delight. The usefulness, worth, or truth of an idea-in-action is determined by our evaluation of its consequences. William James expressed a similar idea when he said that “truth happens to an idea.” That is, an idea is made true or untrue by events.

Stripped to essentials, both Dewey’s and James’ thinking reflect the core of the modern scientific method. Thorndike’s view I would describe as “scientistic,” in that too much value is attached to what can be easily counted.

The last half of the 20th century witnessed a blizzard of ideas in curriculum development, and our ideas for reforming schools have embodied the conflict between Dewey’s humanistic thinking and Thorndike’s mechanistic thinking. In The Stone Trumpet, I considered dozens of reforms promoted from the 1950s through the 1980s. I judged their worth according to two criteria, derived from Deweyan theory and from my own experience in school-based progressive reform work over the course of a decade. These two criteria are:

• Does the reform support democratic values?
• Does the reform cultivate the intelligence of teachers and students?

Just six reforms I analyzed met both criteria. The six were the Trump High School, open classrooms, nongraded schools (of the type endorsed by John Goodlad and Robert Anderson), team teaching, the Coalition of Essential Schools, and the Paideia proposal.

A few met one criterion or the other. For example, the new math and science curricula of the 1960s certainly cultivated the intelligence of students and teachers, but, because they were mostly taught in white, affluent schools, they failed to support democratic values. Most of the reforms of the last half of the 20th century embody the dominating influence of Thorndike’s mechanistic view of learning and so have worked to weaken the world’s oldest, most diverse, and most democratic system of public education.

Today, we could add the No Child Left Behind Act to that list of reforms, and there would still be just six that met both the intellectual and the democratic criteria. Indeed, judging from the remedial reading programs funded under Title I of the Elementary and Secondary Education Act (1965), NCLB, and most state accountability programs, it seems clear that many legislators, public school educators, and university professors have fully embraced a Thorndikean style of behaviorism.

As Ellen Lagemann points out in the quote with which I began this Centennial Reflection, Thorndike and his successors surely won the minds and hearts of their countrymen. Dewey, ignored in the rough and tumble of legislative halls and teachers’ meetings, has lived on in a few protected scholarly havens.

What’s worse, few public media offensives have been mounted by state or national teacher organizations or by other organizations of educators to inform the public about this latest curricular assault on the minds of children and teachers. Surely there must be a law somewhere that prohibits wantonly limiting the growth of teachers’ and students’ intelligence by curricula known to be hurtful.

But I can hear readers mumbling that the goals of NCLB are above reproach. Even the public, as recent PDK/Gallup polls have shown, approves of them. Don’t we all want to
narrow the achievement gap? And doesn't NCLB, in requiring the disaggregation of the scores of various population groups, require schools to face facts and do a better job with these groups than ever before?

Yes, but what are the facts? The fundamental social fact of life in the U.S. is that child poverty creates school failure. It is a fact that disadvantaged students — whatever their color or ethnic background — consistently score low on tests. Students attending schools in wealthy communities scored 571 on a recent international science test; students from high-poverty communities scored 461. The U.S. average was 527; the international average was 473. In fact, there is no scientific evidence in the past one hundred years (sticking with the centennial theme) that any public or private school can consistently raise the achievement of 75% or more of poor white or minority students to the level routinely achieved by 90% of upper-middle-class students. Poverty — not public schools — is the cause of school failure. Few want to face the social and political implications of this truth.

There is a built-in conflict in NCLB between purportedly Deweyan ends and Thordikean means. And this is a conflict that is so fundamental that no tinkering around the edges will resolve it.

While NCLB garnered nearly universal support from federal legislators because the rhetoric surrounding its ends was persuasive, in the real world, we can't separate ends from means. And while the global goals of NCLB — reducing the achievement gap, directing improvement efforts where they are most needed — are certainly democratic in their intent, we have only to look at the way success in reaching these goals is specified and at the means employed to enforce them to see the shadow of Thorndike's machine looming over us.

To cite just the most striking example of NCLB's mechanistic means, the law requires 100% of children to reach "proficiency" by 2014. (Of course, proficiency won't really be measured by anything other than Thordike's numerical test scores.) NCLB's insistence on the illusory goal of 100% proficiency ignores the reality that minority children living in poverty fail miserably, while children living in wealthy communities achieve wonderfully. And no simplistic technical fix — be it methodological, managerial, or organizational — will remove the destructive effects of poverty on innocent children.

The public schools in middle- and upper-middle-class communities do not need the radical and punitive demands imposed by NCLB. The first schools to falsely "fail" under NCLB's contrived standards will be schools serving children of the poor. And those schools will also be the first to feel the harsh sanctions the law imposes. For example, NAEP mathematics scores had been rising for a decade when Gerald Bracey reported that Robert Linn projected that to reach 100% proficiency in fourth grade would take until 2056 and in eighth grade, until 2060. In 12th grade, the finish line moves all the way to 2166. Linn further suggested that to reach 100% proficiency by 2014 would have required that we ratchet up improvement in fourth and eighth grades by a factor of four — in 12th grade, by a factor of 12!

Given that NCLB is based on such an unrealistic premise, what should we educators of a democratic bent be doing? Certainly, those who make their living criticizing our public schools have not been shy in speaking their minds. And we should not be shy now. In place of the eerie professional silence of recent years, we need to call forcefully for a two-generation, New Deal kind of effort to bring at least half of poverty-level families into the middle class by 2050. If we sit idly by, the testing machine that is NCLB accountability will lead relentlessly to the "failure" of 100% of our public schools.

Yes, in the 20th century, Edward Thordike won, and John Dewey lost. Concerned educators need to make it clear that, in the 21st century, we demand a rematch!

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