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DEMOCRACY AND EDUCATION YESTERDAY, TODAY, AND TOMORROW

A century after its publication, *Democracy and Education* remains relevant and influential far beyond its original context. This essay explores the breadth of its relevance through a study of the use of Deweyan methods and ideas at a community high school in a small, impoverished township 50 km outside of Johannesburg, South Africa. Through this example, we learn that the relevance of Dewey's ideas are not limited either to his time or to his place, but instead fit seamlessly in a context as different from Dewey's as we can imagine. In a modern world in which most children outside of the world's wealthiest countries receive an education woefully inadequate for both the professional and civic responsibilities they will face as adults, this successful example begs the question of how modern school systems around the world might become more successful by harkening back to the ideas expressed in *Democracy and Education.*

Democracy and Education remains as timely today as it was when it was published a century ago. A reader in 2016 is struck immediately by how many of Dewey's insights about education—including (and perhaps especially) his most context-specific observations about the challenges facing students and teachers and his proposed solutions—describe our current educational moment as accurately as that of 1916. We like to believe that we live in a unique time. Surely the unprecedented velocity of technological changes renders "old ways of doing things" obsolete. Surely the need for instant adaptation in the twenty-first century exceeds anything that has ever occurred in the history of the world. Dewey believed himself to be living in just such a moment. In chapter 9 of *Democracy and Education*, he wrote:

> As a matter of fact, industry at the present time undergoes rapid and abrupt changes through the evolution of new inventions. New industries spring up, and old ones are revolutionized. Consequently an attempt to train for too specific a mode of efficiency defeats its own purpose. When the occupation changes its methods, such individuals are left behind with even less ability to readjust themselves than if they had a less definite training.[1]

Educators and business people in 2016 talk as if it is only in the past few years that "rapid and abrupt changes" make adaptability paramount. The 2015 report of the World Economic Forum, *A New Vision for Education,* defined sixteen "21st-century skills" as indispensable for our fast-changing world. Dewey identified fifteen of them as indispensable for the fast-changing world of his own day. The sole exception is

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ICT literacy. Awareness of the importance of education for developing several of the other skills, including problem-solving, civic understanding, curiosity, social awareness, and determination is much older: it dates back at least as far as Aristotle.

As a founder of African School for Excellence (ASE), an organization dedicated to providing world-class education in low-income African communities, I have seen the value of these ideas firsthand. ASE has been frequently lauded for its innovative approach to education, an approach that has enabled its flagship school in a dusty Johannesburg (South Africa) township to produce exceptional academic results at a fraction of the typical cost.[2] More remarkably, these results have been achieved with a faculty hailing primarily from the same underprivileged township in which the school is located, many of whom lack university degrees.

Ironically, most of the "innovative" "21st-century" techniques and ideas that ASE uses to achieve these goals do not derive from the twenty-first century at all, but instead from the long history of progressive education research that many investors in education innovation ignore. Nearly all of ASE's most radical and successful ideas echo insights described in detail in *Democracy and Education*. It perhaps does not speak well of our progress in the last century that these ideas feel as fresh, as insightful, and as revolutionary today as they did one hundred years ago.

Given the timeliness as well as the timelessness of many of Dewey's ideas, and given the striking parallels between Dewey's era and ours as moments of rapid change, it should come as no surprise that many educational reformers today (including the aforementioned World Economic Forum) frequently advocate Deweyan methods, even if they rarely refer to him by name and sometimes seem unaware of his work. Because the reforms Dewey proposed struck many of his critics as revolutionary, they might be surprised by the degree to which the last century of scholarly research into learning and child development has validated many of his central claims. To Dewey, it was self-evident that students should construct their own understandings of the world; that learning in school should relate to learning outside school; that teachers should learn from their students; and that peers should work together to solve meaningful, complex problems. More recent researchers, who have tested these ideas using peer-reviewed control studies, have validated all of them. Dewey's educational theory derived from the combination of his pragmatist philosophy and his careful observation of children, a practice that has since become accepted as the single greatest driver of improved pedagogy and instruction.

Dewey began thinking about establishing a school designed to test his ideas about education even before he left the University of Michigan in 1894 to accept a position as chair of the new Department of Philosophy, Psychology, and Education at the University of Chicago. As he wrote to his wife Alice Dewey that year, "I sometimes think I will drop teaching philosophy directly, and teach it via *pedagogy*." That would be the most effective way to communicate the central insight of his developing theory of knowledge: individuals can reach understanding of ideas only by testing them in experience.[3] The process was the same for adults and children. "With the adult we unquestioningly assume that an attitude of personal inquiry," an attitude sparked by the need to solve "a problem which interests and absorbs, is a necessary precondition of mental growth." With a child, by contrast, we assume a "willing disposition which makes him ready to submit" to problems that are presented from an external source, the teacher,

rather than problems he feels the need to solve. "*Alertness* is our ideal in one case; *docility* in the other." Schools, instead of allowing "the evolution of problems out of immediate experience," force children into artificial and meaningless exercises that "allow next to no free mental play for selecting, assorting and adapting the experiences and ideas that make for their solution." Dewey's rhetorical question in his early essay, "Psychology and Social Practice," reveals his simple yet profound insight: "How great a revolution would be effected if we were to acknowledge that children, like adults, learn by wrestling with challenges they actually confront in their daily activities?"[4]

John Hattie's magnificent *Visible Learning* (2008), a meta-analysis of meta-analyses of education research, synthesizes the work of tens of thousands of education studies and sums up his findings with a sentence that could have come straight from Dewey. "The remarkable feature of the evidence," writes Hattie, "is that the biggest effects on student learning occur when teachers become learners of their own teaching, and when students become their own teachers."[5] This is exactly what Dewey proposed, nearly a century earlier.

Dewey's work has remained relevant for the last hundred years, and is likely to remain relevant for the next hundred, because of how astutely he challenged the unspoken assumptions of his time by returning to first principles: What is the purpose of school? Why do schools exist in the first place? Why do we consider it important to "educate" the young, and why do we have specific institutions set up for that purpose? What does this "education" mean—both in universal human terms, and in a democracy that relies on the people to govern? Only when we answer these fundamental questions and thereby define our goals can we hope to create institutions capable of achieving those goals. Dewey remains relevant because these fundamental questions remain relevant, and they are likely to remain so as long as children exist. We can be so confident of the unending relevance of education because, as Dewey argued, education and learning are fundamental to what makes us human. Everyone now living will be dead in little more than a century, and yet the knowledge we gain today will remain with the world, and people will build on it to learn even more.

Dewey's core insight into the nature of that learning, which separated him from the Enlightenment thinkers of a century and a half earlier, is that our social relationships are not merely ancillary to our intellectual learning. They are instead the core driver of all learning. A child learns the word "hat" because she needs to stay warm when going outside with a parent, and they are united by their shared activity. Even among the most specialized of groups (such as scholars of the Gilded Age and the Progressive Era), the emotional need to communicate with others is an essential motivator of learning. In the earliest human communities, Dewey wrote, parents and other community members provided these learning opportunities informally. As societies became larger and more complex, and people decided they needed more specialized institutions to perform this task, the goal remained the same: to integrate children into society and to prepare them to live rich, fulfilling lives. In cultures oriented toward traditional values and organized hierarchically, learning to obey orders was paramount. As self-government replaced autocracy and science established itself as a rival to religion, new sensibilities emerged, and Dewey believed that education should adapt to that changed reality.

Active participation in democracy requires critical thinking, the ability to analyze and assess arguments, and complex problem-solving done independently and in groups.

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Schools should not only prepare individuals for a world of work, they should prepare citizens for the challenges involved in governing themselves, both as individuals and as members of a polity. Dewey insisted that the best means to reach these ends were inquiry, discovery, and problem-solving connected to the student's daily life. He rejected the central practices on which teachers had relied for centuries, the memorization and regurgitation of unconnected facts, as mind-deadening exercises that contribute little to the education of independent individuals capable not only of competent performance but also of creative thinking.

As Dewey wrote in chapter 3 of *Democracy and Education*, "Why is it, in spite of the fact that teaching by pouring in, learning by a passive absorption, are universally condemned, that they are still so intrenched [*sic*] in practice? That education is not an affair of 'telling' and being told, but an active and constructive process, is a principle almost as generally violated in practice as conceded in theory. Is not this deplorable situation due to the fact that the doctrine is itself merely told?"[6] This observation still rings true today: nearly every teacher at every level, from kindergarten through graduate school, has had the experience of sitting in a lecture hall while receiving "teacher training," listening to an earnest lecture about the ineffectiveness of lecturing, the irony entirely lost on the lecturer.

Another of Dewey's insights explains the persistence of this practice, the truth of which paradoxically prevents the insight from being widely understood. In chapter 12, "Thinking in Education," he wrote, "No thought, no idea, can possibly be conveyed as an idea from one person to another. When it is told, it is, to the one to whom it is told, another given fact, not an idea. The communication may stimulate the other person to realize the question for himself and to think out a like idea, or it may smother his intellectual interest and suppress his dawning effort at thought."[7] In short, a teacher cannot teach an idea. Teachers can inform students of facts. Tell a student, "Kampala is the capital of Uganda," and the studious pupil can recall the fact on a test. Teachers can also teach techniques. The best way to hit a golf ball is to hold your hands just so, keep your elbow like this, transfer your weight in this fashion, etc. The teacher can tell a student what to do, show her how to hit the ball, watch her do it, and correct her mistakes. Rinse, repeat. Repeated "deliberate practice" of this sort is the proven path to expertise in any technical field. Teachers can also directly teach procedures. "To add two fractions, first you find the least common multiple. Then you put that number here, on the left. Then you multiply each numerator and denominator by this number," and so on.

Because this form of direct teaching works so well with facts, techniques, and procedures, teachers are continually tempted to deploy this method with ideas and concepts as well. It was close and sustained observation of students and teachers, as well as personal experience, which convinced Dewey this method could not succeed. We cannot teach a child the concept of "proportionality" by explaining to her what proportionality is, just as we cannot teach a teenager or an adult the concept of "justice" through direct instruction, no matter how clever or well-structured the explanation. An education designed to lead students to deep, fulfilling lives will help them develop skills at problem-solving that allow them to adapt to changing social and economic contexts, and it will help them develop skills at reasoning that promote active participation in self-government. To reach those goals, educators must concern themselves with concepts and ideas, even

though they cannot be taught directly, in the same way that facts, techniques, and procedures can be taught. So what are teachers to do?

Dewey's answer, brilliant in its elegant simplicity, points toward the Laboratory School that he and his wife established at the University of Chicago, the school that continues to use many of his ideas to educate the children of intellectually ambitious parents (such as Michelle and Barack Obama). Adults can "consciously control the kind of education which the immature get," Dewey argued, only "by controlling the environment in which they act, and hence think and feel. We never educate directly, but indirectly by means of the environment." The question is whether we will "permit chance environments to do the work, or whether we design environments for the purpose." That, for Dewey, was the fundamental challenge of education. How do you create environments, and curricula, to accelerate students' development? How do you present the challenges that enable children to discover for themselves the ways of thinking conducive to lives of inquiry? Dewey insisted that such environments should relate to a student's everyday life. How else is a student to ask meaningful questions and pursue the answers to those questions with gritty determination? The best preparation for solving future problems, Dewey believed, is an education focused on solving the problems that matter to a student at her stage of growth, no matter how insignificant those problems might seem to observers unacquainted with child development.

A decade after *Democracy and Education* was published and half a world away in Russia, Lev Vygotsky echoed Dewey's idea. He pioneered research into the "Zone of Proximal Development," the area just beyond what an individual student knows, the "zone" in which she can learn by working with her peers and with those who are slightly more advanced on problems just beyond her ability to solve independently. In the 1980s, Michael Shayer and others built on this idea while developing what they called "cognitive acceleration" curricula. Their research showed that children could speed through Jean Piaget's cognitive levels more quickly if their environment provided frequent opportunities to wrestle with "cognitive conflict," situations in which their current understanding of the world was inadequate to solve the problem they faced. A young student, when asked why some things float and others sink, might respond that "heavy" things sink and "light" things float. This explanation reveals an understanding of "heaviness," or weight. When shown that some objectively "heavy" objects can float, and some "light" objects can sink, however, a student must come up with another explanation. "Heaviness" no longer suffices. The student's search for an answer will eventually (when the student's mind is ready to deal with the concept of multiple variables) reveal the concept of proportionality: "it is light *for its size*."[8]

Of course, an environment structured in this way will have the desired effect only if the student wants to solve the problem. Dewey's "process of inquiry" unfolds only if the problem is connected to the world in which the student lives, and only if the teacher has created an environment in which inquiry and discovery are accepted and celebrated. Without these elements, even the best question will fall on deaf ears. When they are in place, not only can the student relate the problems of school to her daily life, but she can also relate her life outside of school to her in-class learning. Every moment of life then becomes an opportunity for learning, even when the teacher is not present. This situation stands in stark contrast to the frequently observed paradox of a student who can do fractions in math class but forgets them when she steps across the hall to chemistry class,

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an unfortunate but predictable result of a narrow focus on procedural learning. Although the student has been taught the procedure, she does not understand the idea or how to apply it.

By contrast, a Deweyan approach takes into account both students' contexts and ways of thinking. For example, at the African School for Excellence in Tsakane, a low-income township just outside Johannesburg, a Grade 8 science teacher recently proposed the following question to his students: *What is the difference between phutu, pap and umdoko?* While this question would make little sense to an American student, it made immediate sense to this teacher's class. "Phutu," "pap," and "umdoko" are all versions of a porridge made from ground maize, and are staple dishes in much of Southern Africa. All students in the class eat versions of this dish several times a week, and many cook them regularly. The three dishes feature the same ingredients: water, salt, butter, and maize-flour. Differences include the portions of each ingredient, and the cooking time and temperature. When a student replies, "uMdoko has more water," the teacher can respond, "How much more water?" When discussing the question, students soon discover that "we fill the water up to the line on my mother's pot" is not adequate to describe the differences in proportion: they must agree on common units of measurement. Students are forced to consider not only proportional reasoning but also experimental design, independent and dependent variables, and the importance of measurement units. Once acquired, students can easily and unconsciously transfer their understanding of these concepts to other contexts. Rather than memorize a trivial set of procedures, students have begun to learn how to think.

As Dewey pointed out, teachers benefit from this way of learning because class is never boring when students are given interesting questions and empowered to develop their own ideas. In a Grade 9 history class at ASE Tsakane, students were asked to transport themselves to 1961 and put themselves in the shoes of Chief Albert Luthuli. Chief Luthuli was president of the African National Congress, the country's lead anti-apartheid group and the current governing party of the country. Luthuli had won the 1960 Nobel Peace Prize, and his ANC faced a dispute between a group led by the South African Indian Congress that sought to continue the party's commitment to nonviolent resistance, and the Youth League, led by young firebrands Walter Sisulu and Nelson Mandela, who wished to create an armed-resistance wing. Through this question, students encountered historical movements as diverse as Gandhi's Indian independence movement, apartheid and the anti-apartheid struggle, and the civil rights movement in the United States. One student's contribution particularly surprised the teacher: "I don't think the fact that Luthuli won the Nobel Peace Prize should matter at all," this Grade 9 girl said, "because the Nobel Peace Prize is not legitimate. Think about it: These white people in Europe are oppressing people all over the world, from India to Africa and beyond, and using violence to do it. Then they turn around and award a prize to the people who don't fight back? What is that? Since they don't have the moral authority to give any prize for 'peace,' it doesn't mean anything and should be disregarded." A heated discussion followed, in which classmates debated the merits of the Nobel Peace Prize and the degree to which the actions of some members of a group could impact the legitimacy of other members. Such a discussion is impossible in an environment in which students focus narrowly on memorizing and reproducing facts. Only in an environment that encourages deep questioning can it occur.

Dewey-influenced constructivist learning methods have become particularly popular and common in the United States at the early-childhood level, where Dewey's influence, and that of fellow constructivist researcher-practitioners such as Maria Montessori and Lloris Malaguzzi, can be felt in mainstream early-childhood-education programs throughout the country. This philosophy has affected primary education as well, but by the time most American students reach high school, the only environments in which they are asked to direct their own learning, or make use of Dewey's idea of inquiry, is the occasional Socratic seminar.

Other nations have shown more willingness to adopt Dewey's ideas. "Japanese Lesson Study," a disciplined approach to the design and implementation of a particular day's lesson, is one of the most studied and copied pedagogical-improvement practices in place in the world today. Its early development in the 1920s drew direct inspiration from Dewey's pedagogical principles.[9] Schools in Finland, to cite another example, produce some of the best standardized test results in the world. They do not succeed, however, by adhering to the strict grade-by-grade achievement standards that Dewey decried, yet that many in the United States still consider essential today. For example, while the American education system demands that all children learn to read in kindergarten, the Finns believe that no student should be taught to read until she actively wants to do so. Finnish schools do not even teach the alphabet until the child asks to learn it. Perhaps surprisingly, reading scores among Finnish 15-year-olds far outpace those of their American counterparts.[10] The Japanese and Finnish examples, however, are unusual. The ways of learning common in the United States today—strict curricular requirements, frequent testing, drill-and-kill, etc.—remain the norm throughout the world. We must, then, re-ask Dewey's century-old question: why are the current ineffective methods, though so universally condemned, still so entrenched in practice?

One answer is inertia. Few educators, and even fewer administrators and policy makers, ask as many questions of our system of education as Dewey did. Most accept the basic premise that higher test scores equate to better learning, and that procedural knowledge and conceptual knowledge can be taught using the same methods. Our education system is a massive ship, and it cannot be expected to change direction on a dime. Even so, a century is surely enough time for effective methods to permeate the system. Inertia cannot be the only reason why reformers' alternative models have failed to transform the practice of teaching. One explanation often given is the "needs of industry," but individuals who can solve problems, analyze arguments, and communicate effectively are more valuable to employers than those who cannot, and they have been for a long time.

Our prejudices often cause us to doubt whether such goals are worth pursuing for all children. A familiar example of this line of thinking is Richard Herrnstein and Charles Murray's *The Bell Curve*, which argues not only that certain individuals are less able than others, but that certain races are inherently less intelligent than others.[11] The belief that some individuals are not capable of truly sophisticated thinking drives the push toward lower-order goals in education. Shayer's aforementioned research into cognitive acceleration contradicts the still-common belief in the determinative nature of IQ. He found that children could accelerate their cognitive development when placed in environments designed specifically to accomplish these goals.[12]

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If American schools do not offer students these rich environments, the fault lies with the schools, not the children. Dewey lamented this failure in our perception of potential, as well as the stultifying uniformity of our processes. "We lie under the incubus of a superstition. We have set up the notion of mind at large, of intellectual method that is the same for all. Then we regard individuals as differing in the quantity of mind with which they are charged. Ordinary persons are then expected to be ordinary. Only the exceptional are allowed to have originality." But no mind in general has ever existed. It is only "a fiction. How one person's abilities compare in quantity with those of another is none of the teacher's business. It is irrelevant to his work."[13] The common methods of "tracking" students by "ability" is left over from the sort of thinking that Dewey had rejected a century ago, despite the research that reveals it to be both unnecessary and often counterproductive. This "superstition" is indeed one of the reasons why ineffective methods persist.

The education debates in which we typically engage rarely help either. In fact, reviewing *Democracy and Education* makes clear that many of the controversies raging today, such as whether to teach "content" or "critical-thinking skills," date back at least a century. Dewey did not believe that a constructivist approach to learning meant a watering-down of content. Just the opposite: "To talk about training a power, mental or physical, in general, apart from the subject matter involved in its exercise, is nonsense."[14] We cannot learn "critical-thinking" or "problem-solving" in some general sense; we must learn inquiry through actually solving some specific problem. We cannot learn meaningless procedures in mathematics class, then learn to solve problems in some abstract "problem-solving" class.

In our educational debates, now as in 1916, we too often caricature opponents' positions rather than engaging with their arguments. Thus, "constructivist learning" is seen as a learning process in which the teacher does nothing, and the student is expected to reinvent the entire subject on her own. Dewey rejected this false choice: "The assumption that there are no alternatives between following ready-made rules and trusting to native gifts, the inspiration of the moment and undirected 'hard work,' is contradicted by the procedures of every art."[15]

To Dewey, "education" was an end in itself, rather than a means to an end: It is our desire to educate ourselves and each other that makes us human. Specific areas of subject knowledge, on the other hand, are indeed means to an end, even though they are frequently viewed as ends in themselves. Thus, mathematics is worthy of space in the curriculum only to the degree to which it is a means for students to develop the skills and the habits of mind necessary to lead fulfilling, meaningful lives. It should be taught with an eye toward this goal, rather than the goal of maximizing the number of otherwise-meaningless mathematical facts a student knows.

Part of the problem stems from the demand that the educational system measure the success of each of its parts. It is easy for a single progressive school or teacher to say, "these tests don't tell me what I really need to know. I have a trained eye; I can better understand how my students are learning by observing them." Many of the most prestigious independent schools in the United States do just that. An education system that seeks to provide all of its citizens with a roughly equivalent education, however, finds it hard to trust all of its teachers. It must measure how well it is accomplishing this task. "Assessment drives instruction" is one of the core truths of education.

Unfortunately, our measurement systems are limited by what we *can* measure, and what we can measure at a massive scale. It is a lot easier to measure whether every 8-year-old knows basic addition facts than whether these 8-year-olds understand the concept of additive reasoning, or whether they spend their days in environments that promote both their curiosity and their accelerated cognitive development. So we provide a standardized test that measures whether second graders can add two-digit numbers, our teachers focus their class time on teaching this multistep procedure, and the resulting environment often actively retards our children's intellectual progress. Students cannot understand the subject matter without the procedures, but we must be very careful to not limit our students' horizons. "Routine action," Dewey wrote, or action that is merely "automatic, may increase skill to do a particular thing." To that extent it might be thought to have "an educative effect." Because it does not lead to new understandings or new connections, though, "it limits rather than widens the meaning-horizon." Despite the efforts we make to teach techniques and procedures, "the vaunted 'skill' turns into a gross ineptitude."[16]

Dewey understood, as have the many researchers who have followed his lead, that learning is not linear. We assume that is it. We assume that as techniques build on one another, as facts build on one another, the child gradually becomes more and more prepared to succeed. This assumption is sometimes true, but it misses both the difference between ideas and procedures, and the socioemotional nature of learning. For example, the primary driver of reading skill at age fifteen is not reading ability at age ten—it is reading *enjoyment* at age ten. The driver of reading enjoyment at age ten is not the ability to read at age six—it is *love of stories* at age six. Similarly, the ability to solve nonroutine algebra problems stems both from our mastery of the basic routines of algebra and from our ability to reason abstractly, to comprehend concepts at what Jean Piaget called the "formal operational" level. The process to our ultimate goal is not, in either case, a linear one. A measurement system that assumes linearity and a uniform path to achievement drives ineffective teaching methods.[17] "Were all instructors to realize that the quality of mental process, not the production of correct answers, is the measure of educative growth," Dewey wrote, it would bring about "something hardly less than a revolution in teaching." Unfortunately, measuring the production of correct answers is a lot easier than measuring the quality of mental processes. Lacking the ability to measure mental processes throughout the education system, we have continued to focus on correct answers to trivial questions.

Until recently, technology has not been much help. It has mostly provided ways for teachers and students to do the same things they have always done in slightly more efficient ways. This should not be surprising. If the key measure of success is procedural knowledge, the system will demand tools to drill procedural knowledge, and the technology providers will develop these tools. Hence, the most effective education-technology tools have been those that provide rapid feedback and procedural instruction, such as Khan Academy. Only over the last few years have schools begun to realize that technology can help us measure the things we want to measure, rather than merely those that are easiest to measure. These tools can help us define the true learning drivers and pathways to success, rather than forcing us to assume linearity and uniformity of development. San Francisco-based Minerva University and AltSchool are two technology-driven institutions attempting to gain greater insight into the true learning pathways. Both depend on

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proprietary tools developed using large venture-capital investment. African School for Excellence (ASE) in Johannesburg, South Africa, is doing similar research using mainly publicly available tools (such as those provided by the Google ecosystem) to design an education model and appropriate measurement system that can fit within the budgets of developing-world schools. ASE tracks the quality of the learning environment, as collectively judged by students, teachers, parents, and visitors, using carefully designed questions. It then relates these measures to holistic measures of cognitive and character growth, which it hopes to then relate to its long-term goals. This focus results in a group of teachers who, for example, care more about their Grade 8's enjoyment of reading and quantity of reading than about their improvement on standardized reading comprehension exams. A class in which the teacher sees her goal as building a passion for reading looks and feels much different from a class led by a teacher aiming to maximize reading scores.

Among the most urgent questions in global education today is this: what does the school of the future look like? Some people worry that computers will replace teachers; others rejoice at that possibility. Concerns about the changing needs of the economy lead to soul-searching about the relevance of today's curriculum. It is thought that changes in technology will upend everything that we think we know about educating our children, and that we will be left with a future that none of us can understand or predict. As we continue to wrestle with this question, we would do well to follow Dewey's example and return to first principles. What is the purpose of school? If we cannot agree on the answer to that question, then all of the questions that follow (What should be in the curriculum? Who should decide? How should we measure success? How should we recruit and train our teachers?) become unanswerable.

Dewey believed that, in a democracy, a school cannot follow strictly utilitarian ends. Yes, graduates need to be able to become economically productive, but that should not be the ultimate goal. A society that values all of its citizens cannot limit its educational aspirations to the hope that a certain part of the population will be prepared to do the jobs demanded of it by another part of the population. All individuals must be enabled to develop the skills and, more importantly, the habits and dispositions necessary to be productive and equal members of a democratic culture—socially, politically, creatively, and morally, as well as economically. This goal should shape how we teach every subject. Children studying science should learn how to hypothesize, and test their own hypotheses, in order to answer the questions that they have about the world. That goal is much more important than mastering some arbitrarily defined set of knowledge. In history, students should question and come to understand how their own world came to be, rather than learning predefined names and dates from a textbook. Dewey cautioned against the common, overly reverential approach to education that prevailed in his day and persists in ours: "Nowhere is there a greater danger that subject matter will be accepted as appropriate educational material simply because it has become customary to teach and learn it."[18]

An example of how this idea works in practice can be found in a Grade 10 history class at African School for Excellence. Students spend the entire second half of the school year grappling with two basic questions: *How should I live my life?* And *How should we organize our society?* In answering these questions, they consider everyone from Jesus and Buddha to Socrates and Confucius, from John Locke and Thomas Jefferson to Adam

Smith and Karl Marx, from the ancient African concept of Ubuntu to the transcendentalism of Ralph Waldo Emerson. None of these thinkers appear in the course because they are part of a canon passed down from unimpeachable authorities. They appear because they help answer important questions necessary for active participation in a democratic society.

Our understanding of the nature of learning should also shape our ideas about the role of a teacher and the proper form of a school. As Dewey saw, learning is primarily a social experience, and the most valuable learning does not come directly, from teaching facts, techniques, and procedures, but instead indirectly, from a carefully constructed environment that coaxes students toward inquiry. Developments in technology will not change these two facts. The fundamental requirements for intentionally designed environments and deep social relationships mean that the teacher's job is not at risk. We will always need individual teachers to shape and adapt environments for the specific purpose of developing unique young people. This conception of the teacher's job, however, is fundamentally different from the one held by many teachers and administrators today. Most teachers spend much of their time cataloguing facts, transmitting information, explaining procedures, and assessing their success in doing so—activities that require less and less human intervention and were never at the heart of effective education in the first place. As technology becomes capable of more and more, the teacher's essential roles as environmental steward will become clearer and clearer. This change will also lead us to question whether the "school" as currently constituted, with grades and subjects, specialized faculties, vast student bodies, and massive brick buildings represents the best possible environment for students' growth and development. Dewey would see the fact that we require constant "disciplining" of bored and uninterested students as a sign that perhaps we can do better.

At its core, Dewey's philosophy of pragmatism is a version of the scientific method applied to life. He certainly believed that we should apply methods of experimentation and hypothesis testing to our educational process. First, we have to be clear on our goals. Next, we must figure out ways to measure to what degree we are reaching these goals. Finally, we must create hypotheses and devise experiments to find new ways of improving our schools. The "success" of a single experiment is unimportant. The goals we choose, and the measures we choose, make a great deal of difference. They should be considered very carefully, continually tested in practice, and endlessly refined.

African School for Excellence is one institution engaging in this process today. It has goals in line with Dewey's ideals, and has set up a measurement framework designed to measure the quality of its environments and the holistic growth of its students. Its teachers design learning environments and tasks with these goals in mind, resulting in accelerated cognitive and character development compared to other schools. In addition to those already mentioned, these tasks include individualized student gardens, investigations in number patterns, studies into the potential causes of the next World War, and a project to capture traditional African fables in both English and vernacular languages. As it continues to experiment, it looks to create a better way to produce the best possible learning environment by launching small (~100 student) schools, with school leaders given considerable freedom in pursuit of the defined goals.

For Dewey, education in a democracy could not limit itself to trivial tasks such as memorizing state capitals or using the quadratic equation. It struck to the core of life

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itself: "There is an old saying to the effect that it is not enough for a man to be good; he must be good for something. The something for which a man must be good is capacity to live as a social member so that what he gets from living with others balances what he contributes." The surest measure of that contribution was not "external possessions, but a widening and deepening of conscious life—a more intense, disciplined, and expanding realization of meanings." For Dewey, "education is not a mere means to such a life. Education is such a life." The schools of the future will set expansive goals—and continue to experiment and improve—in a never-ending effort to produce what Dewey called a "more intense, disciplined, and expanding realization of meanings" for all of its students.[19]

NOTES

[1]John Dewey, *Democracy and Education*, 1916. Reprint (New York: Free Press, 1997), 119.

[2]References to African School for Excellence's innovative education approach have appeared in several South African newspapers and magazines, including the *Mail & Guardian*, *The Times*, *The Star*, the *Independent School Association of South Africa Magazine*, *Cambridge Exams Magazine*, and more.

[3]John Dewey to Alice Dewey, Nov. 1, 1894, Dewey Papers, Southern Illinois University, Carbondale,

[4]John Dewey, "Psychology and Social Practice," *Middle Works* 1: 134–135, quoted in Robert B. Westbrook, *John Dewey and American Democracy* (Ithaca, NY: Cornell University Press, 1991), 97–98.

[5]John Hattie, *Visible Learning* (New York: Routledge, 2009), 22.

[6]Dewey, *Democracy and Education*, 38.

[7]Dewey, *Democracy and Education*, 159.

[8]Michael Shayer, "Cognitive Acceleration through Science Education II: Its Effects and Scope," *International Journal of Science Education* 21:8 (1999): 883–902. Michael Shayer, "Not Just Piaget; Not Just Vygotsky, and Certainly Not Vygotsky as Alternative to Piaget," *Learning and Instruction* 13 (2003): 465–85.

[9]Masami Isoda, "Where Did Lesson Study Begin, and How Far Has It Come?" in *Japanese Lesson Study in Mathematics: Its Impact, Diversity, and Potential for Educational Improvement*, eds. Masami Isoda, Max Stephens, Yutaka Ohara, and Takeshi Miyakawa (Singapore, Asia: World Scientific, 2007), 12.

[10]Timothy Walker, "The Joyful Illiterate Kindergarteners of Finland," *The Atlantic* 1 (October 2015). Web.

[11]Richard Herrnstein and Charles Murray, *The Bell Curve* (New York: Free Press, 1994).

[12]Michael Shayer and Philip Adley, "Accelerating the Development of Formal Thinking in Middle and High School Students IV: Three Years after a Two-Year Intervention," *Journal of Research and Science Teaching* (April 1993).

[13]Dewey, *Democracy and Education*, 172.

[14]Dewey, *Democracy and Education*, 65.

[15]Dewey, *Democracy and Education*, 170.

[16]Dewey, *Democracy and Education*, 78.

[17]See "Research Evidence on Reading for Pleasure," Education Standards Research Team, UK Department of Education, May 2012. See also Clarke and De Zoysa, "Mapping the Interrelationships of Reading Enjoyment, Attitudes, Behaviour and Attainment," National Literacy Trust, London: 2011.

[18]Dewey, *Democracy and Education*, 210.

[19]Dewey, *Democracy and Education*, 359.

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