A Market of One: Education as the World's First Structural Adaptation to AI

Spotify builds a unique playlist for every listener. Amazon greets each shopper with a different storefront. A cardiologist titrates dosage to the individual. A tailor takes a customer's measurements before cutting cloth. Across the modern economy, the expectation that a person will be met as a person, not as an average, has become so normalized that its absence looks archaic. Yet in the single domain that most shapes every other outcome in life, the industrial default still prevails: one teacher faces thirty students of varied backgrounds, interests, and pace, and delivers the same lesson to all of them. Artificial intelligence now makes it possible to end this exception, and to build a "market of one" in education, in which instruction is shaped in real time for each learner. Confronting AI's disruption of labor and society, the world should make this the central structural adaptation it pursues. For this to happen, there are three key public decisions: First, recognize that personalized learning is an investment in public infrastructure rather than a product; Second, create an integrated system that enhances rather than divides the common pool of knowledge; Finally, deploy personalized learning in those communities where the industrial system has most visibly failed.

The public conversation about AI and work has gravitated toward downstream remedies such as retraining programs, wage insurance, expanded unemployment benefits, and universal basic income. These are reasonable policies, but they treat the symptoms of displacement rather than its cause. The structural problem is upstream. Goldman Sachs Research estimates that 300 million full-time jobs globally are exposed to automation by generative AI, with roughly eighteen percent of global work automatable on an employment-weighted basis (Briggs and Kodnani). The World Economic Forum's Future *of Jobs Report 2025* projects that twenty-two

percent of current jobs will be disrupted by 2030 and that thirty-nine percent of workers' core skills will need to change in the same window (World Economic Forum). An economy whose occupational skill mixes rotate every five years cannot be served by a system that front-loads all formal learning into the first two decades of life, delivers it in standardized batches, and releases graduates into a labor market in which technological change repeatedly alters the skills workers need (Autor et al.). Fixing education is the precondition that makes every other adaptation, labor policy, industrial policy, social insurance, actually work.

1837 marks the beginning of Public Education as we know it today with the establishment of a Public School in Massachusetts by Horace Mann. Upon his return from Prussia, Mann developed a vision for what became the modern American Public School by establishing a system of education based on the concepts of: Graded Classes, Standardized Curriculum, Uniform Class Times, & Centrally Trained Teachers (Little). That model solved the urgent problem of how to extend basic education to every child when expert human attention was overwhelmingly scarce. It was a compromise. A single teacher cannot simultaneously meet thirty students at their precise level of readiness, in their preferred modality, with material calibrated to their interests. Mass schooling traded personalization for scale, and for nearly two centuries, there has been no serious alternative to that trade. Educational technologies have repeatedly promised to dissolve the trade and repeatedly failed: television, early computer-assisted instruction, and the first wave of online learning left classrooms fundamentally unchanged (Cuban).

What distinguishes AI is that, for the first time, the binding constraint has loosened. Adaptive systems can track a learner's pace across skills, infer misconceptions from the pattern of wrong answers, reshape material to connect with a student's interests, and shift

modality—text, visualization, simulation—when comprehension stalls. The same flexibility opens doors for students the standardized model has long underserved: English language learners who need scaffolded vocabulary, students with dyslexia who benefit from text-to-speech, and students with attention or processing differences who learn through interactive diagrams rather than dense paragraphs. The empirical evidence on personalized learning, even before the current generation of AI, is suggestive: RAND's multi-year study of sixty-two schools implementing personalized learning practices found that participating students made greater progress than matched peers, and that those who began behind grade level made the largest gains (Pane et al.). More recent work tests AI tutoring directly: a 2025 randomized trial at Harvard found that undergraduates using a pedagogically-designed AI tutor learned roughly twice as much as peers in an active-learning classroom, in less time, while reporting higher engagement and motivation (Kestin et al.). The idea of tailored instruction is old; what AI contributes is the economics to deliver it at scale, transforming personalization from a luxury into a baseline. A market of one is, for the first time, an affordable one.

Nonetheless, the technology itself will not provide the solution. There are three deliberate decisions that need to be made regarding which of these two competing scenarios will occur when conducting personalized learning using AI. The first choice must be to treat personalized learning as public infrastructure rather than a consumer product. With leaving it as a consumer product, the adaptive AI tools will not only be left to the private market; rather, they will be delivered to families that can afford them first, with a slow "trickle-down" effect until everyone else can afford them; thus, creating a widening gap over the span of a decade. The opposite approach would be to fund, standardize, and guarantee that the access to these tools was available in the same manner that public libraries, rural electrification, and the interstate highway

system were built in the 20th century, with guaranteed assurances from public entities and with no regard for the household's zip code or income. Thus, infrastructure is built one time, then shared by all; however, consumer products are sold only to those who can afford them.

The second choice is to build personalization so that it expands shared knowledge rather than fractures it. The strongest objection to hyper-personalized learning is that it could produce students with no common reference points, no civic vocabulary, no shared intellectual inheritance. The answer is that personalization should govern how things are learned, not what is learned at the foundational level. A student drawn to basketball and another student drawn to classical music can both be taught statistics, the history of their country, and scientific reasoning through examples and exercises that engage their distinct attention. The shared core remains; the path to it varies. Done well, this expands common intellectual ground rather than fragmenting it, because students who currently disengage from standardized instruction finally stay long enough to encounter it.

The third alternative involves using technology where it most obviously fails in the traditional industrial education system. Historically, educational technology has mostly increased the gap between high- and low-achieving students. For example, a 2024 study in PLOS ONE found that 28% of US children aged 6 to 17 never use the internet at home or school and that use is further segregated by income, race and geography (Pierce and Cleary). Furthermore, if adaptive AI is deployed in the same order as currently envisioned, first in affluent suburbs, followed by the last schools that serve Title I, rural or disabled students, it will deepen the inequalities that technology would otherwise dissolve. It is therefore both morally and strategically necessary to reverse this ordering of school deployment because the groups of

students most negatively impacted by the traditional industrial education system are exactly the same students who would benefit the most from personalized learning (Pane et al.).

The counterargument is that AI in education remains unproven at scale, and that restructuring public systems around an immature technology is reckless. Larry Cuban's study of Silicon Valley schools demonstrated that computers, despite decades of hype, failed to transform teaching because they were introduced without rethinking pedagogy, teacher training, or institutional structure (Cuban). But the proposal here is not wholesale replacement of schools with chatbots. It is directional: incremental restructuring of a system whose founding assumption, standardized delivery, was itself a compromise imposed by now-dissolving constraints. Moving too fast carries risks. Standing still carries a larger one: an industrial-era system trying to prepare students for an economy it was never built to serve.

Every other domain of modern life has accepted that individuals are not averages. Music, medicine, retail, news, and travel have each figured out how to meet people where they are. Education, the domain that shapes every other outcome, is the last holdout, and the one where the cost of remaining the holdout is rising fastest, because the gap between how education is delivered and what the labor market demands widens with each new capability of AI. The same technology that could make a market of one universal will, if left to default market logic, deepen the divides it could close. The choice is ours, and it must be made deliberately and soon.

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