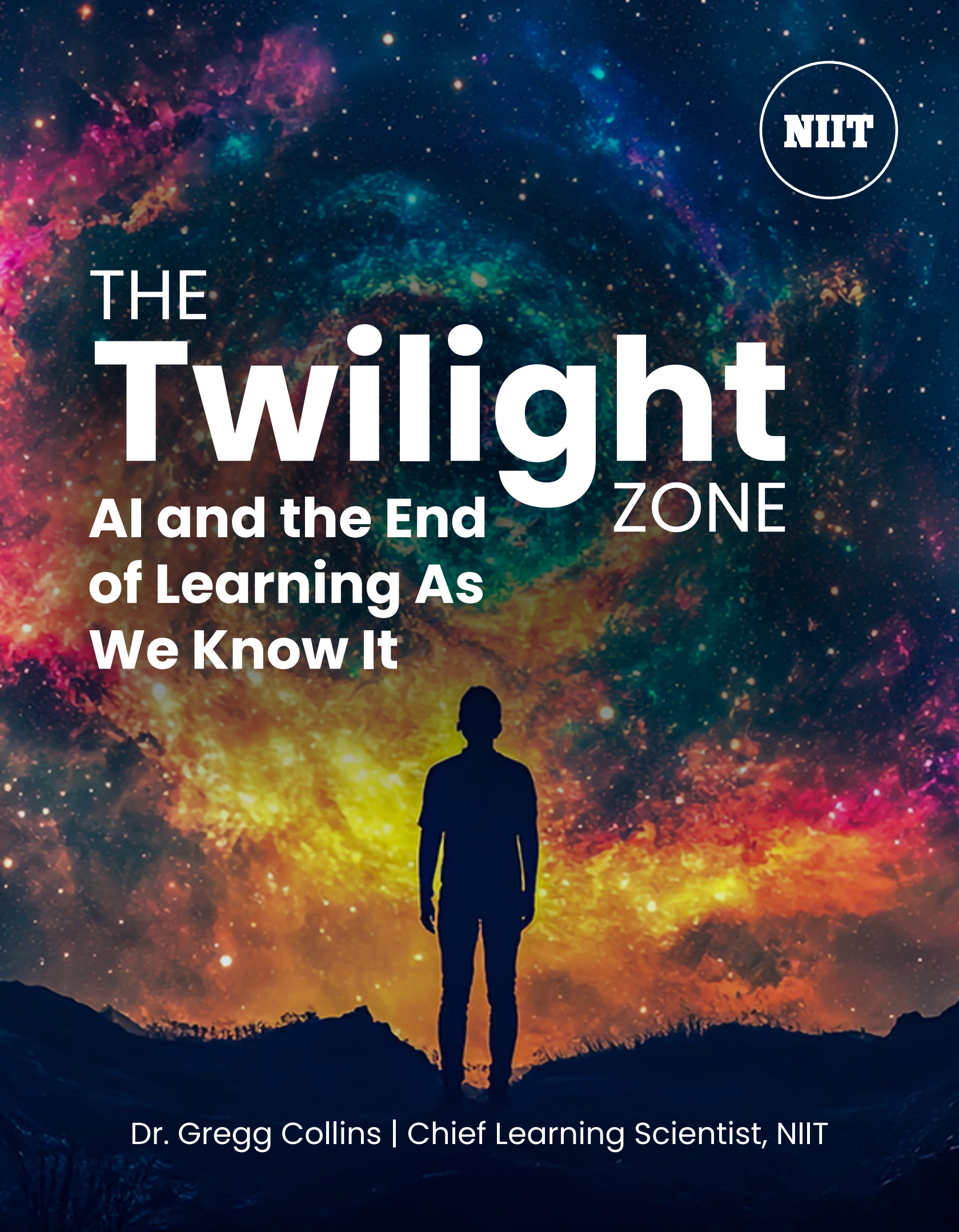
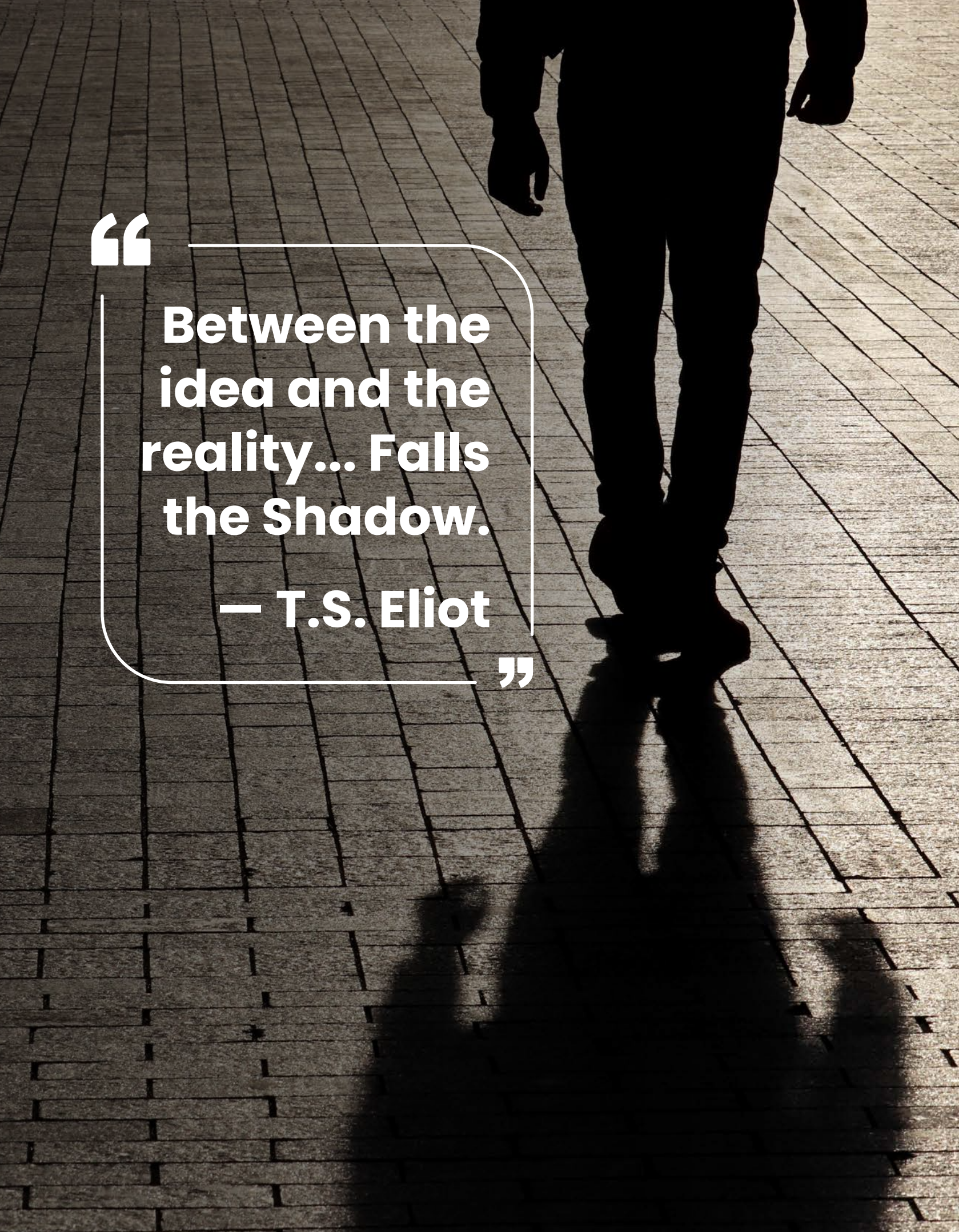

NIIT
THE
Twilight
ZONE
AI and the End of Learning As We Know It
Dr. Gregg Collins | Chief Learning Scientist, NIIT


“
Between the idea and the reality... Falls the Shadow.
— T.S. Eliot
”



The Confusion of the In-Between

AI is going to be transformative for learning—revolutionary, even. But it’s critical to keep this in mind: the revolution hasn't happened yet. The world we see today is still effectively pre-generative-AI. We are standing in a kind of twilight zone—after the technology has emerged, but before it has taken hold. And twilight plays tricks on you.

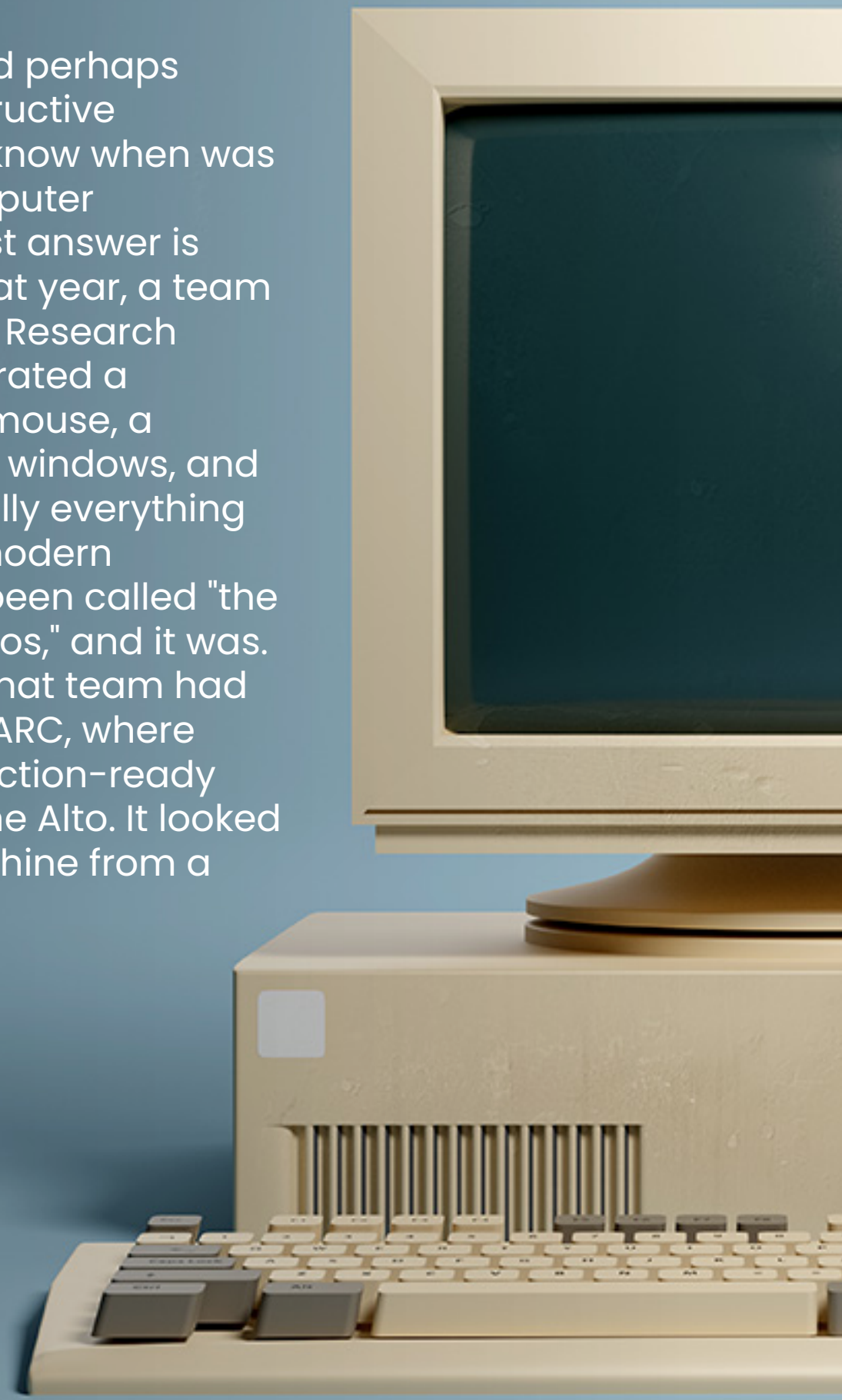
When you're in that in-between place, it's remarkably easy to get things wrong. You look at the clunky early implementations of the new technology, see some stumbles, hear about organizations that are getting by without it—and you tell yourself a comforting story that maybe the status quo will hold after all. That the future will be like the past. History is littered with people who told themselves some version of that story. From the vantage point of the future, they all look slightly ridiculous. Of course, they didn't think they were being ridiculous at the time. They thought they were being prudent, measured, sensibly skeptical. They were wrong.

A Brief History of Looking Ridiculous

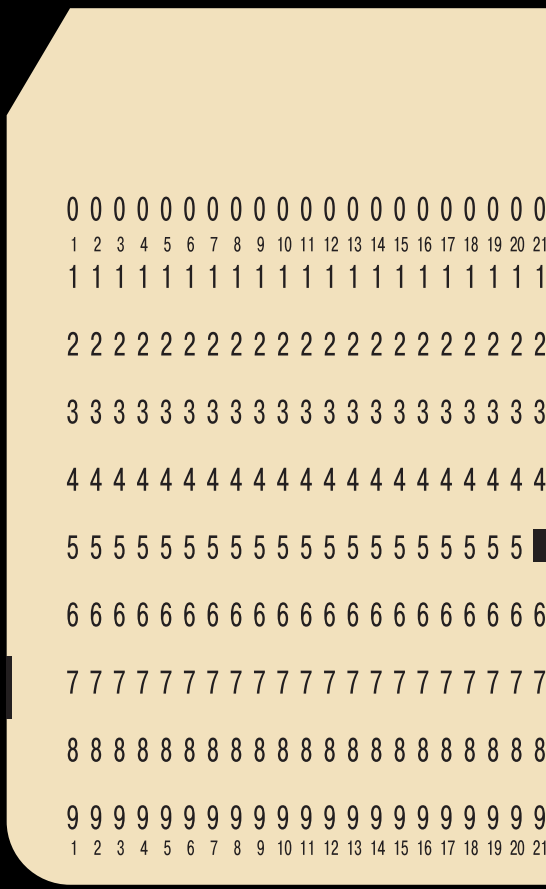
In 1905, Ford introduced the first mass-produced automobile. In 1914—almost a decade later—there were still 3,500 carriage makers in the United States. Horses still clopped down Main Street. Serious, respectable commentators called cars a passing fad, a toy for the rich, too expensive and too unreliable to ever replace the horse. By 1920? Ninety carriage makers remained. Nine-zero. The other 3,410 had learned the hard way that the future had no place for them.

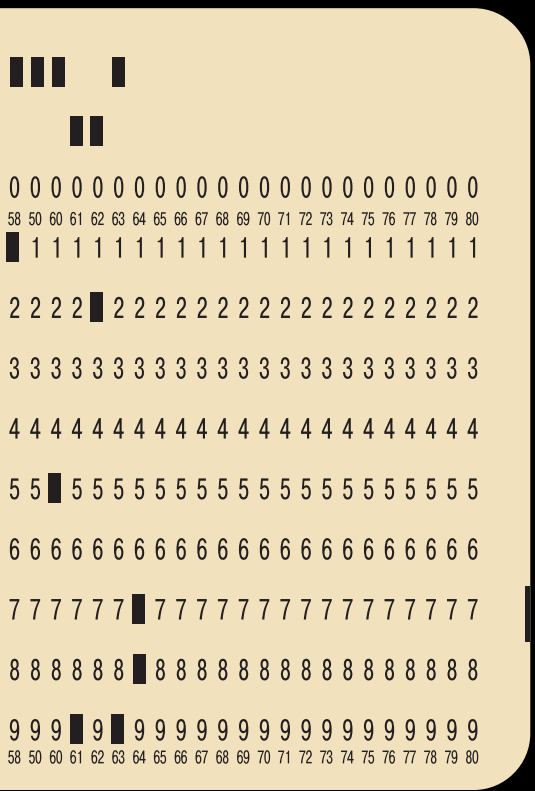


A more recent and perhaps more directly instructive example: do you know when was the personal computer invented? The best answer is probably 1968. That year, a team from the Stanford Research Institute demonstrated a computer with a mouse, a graphical display, windows, and hypertext—basically everything we think of as a modern computer. It has been called "the mother of all demos," and it was. By 1972, much of that team had moved to Xerox PARC, where they built a production-ready machine called the Alto. It looked like an Apple machine from a decade later.



I actually got to try one of these machines when I was a teenager. At the time, I was learning to write Fortran programs on punch cards. Many readers will have to look this up to know what I am talking about, but you would literally write your program in the form of punched holes in a deck of paper cards, turn that deck in to a guy behind a window, and come back the next day to see whether it ran. The Alto seemed like something from another century. A miracle. Surely no one could miss the power of the invention.





But people did miss it. In fact, *Xerox* missed it. After experimenting through the mid-1970s, they decided they weren't interested in the computer business. They were happy making copiers.

What makes this such an astonishing case study is that Xerox wasn't just any old company—they were the *perfect* company to sell personal computers. They were a giant in the industry, the preeminent office equipment company. They had sales teams in every major corporation. They had service relationships, supply chains, and the trust of the buyer. This wasn't a case of losing out to a better competitor. This was walking away from the future because it didn't look like the past.

One more twist of the knife: the computer eventually destroyed most of the copier business. Once you have computers, you share information electronically. You don't walk down the hall to make copies. And when you do need a hard copy, you print it. Xerox, as it happens, also invented the laser printer.

They walked away from that too.





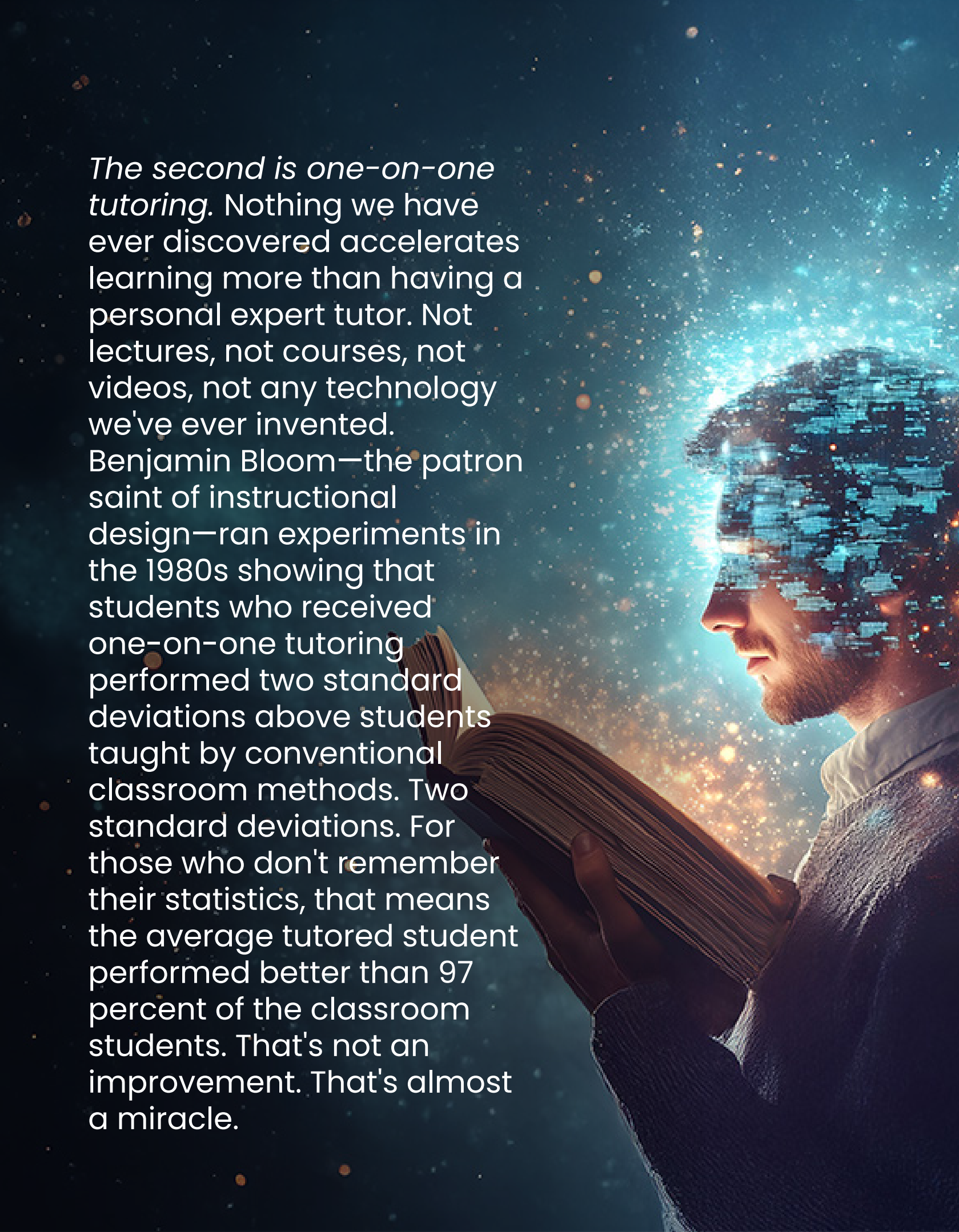
The Three Fundamental Ideas

What does this have to do with learning? Everything. We are standing in the twilight of generative AI right now, and to find our way we need to stop thinking about AI as a way to make what people already do a little faster, a little cheaper, a little more efficient. To understand what the future of learning will look like, we need to go back to fundamentals. In my view, there are exactly three fundamental ideas in learning. Just three. If you can fully realize these three ideas, everything else is details.



The first is simulation. Skills are developed by doing. This has always been true and always will be. You cannot lecture someone into competence. But doing is often dangerous—or at least bad for business—until you're already trained. So you need simulation: a practice space where failure is safe and cheap, and the only thing at stake is learning.

The second is one-on-one tutoring. Nothing we have ever discovered accelerates learning more than having a personal expert tutor. Not lectures, not courses, not videos, not any technology we've ever invented. Benjamin Bloom—the patron saint of instructional design—ran experiments in the 1980s showing that students who received one-on-one tutoring performed two standard deviations above students taught by conventional classroom methods. Two standard deviations. For those who don't remember their statistics, that means the average tutored student performed better than 97 percent of the classroom students. That's not an improvement. That's almost a miracle.





The third is sharing lessons learned. People learn lessons from the field constantly—every day, every mistake, every save, every close call, every unexpected success. A truly effective learning organization makes sure that when one person learns something, everyone learns it. You use the sheer size of the organization as an accelerator. One technician's hard-won insight becomes every technician's knowledge. The organization gets smarter every time anyone gets smarter.

If these three ideas are so powerful—and they are—why isn't this what we do?

Why isn't every organization built on simulation, personal tutoring, and systematic lessons learned? We've known about these ideas for decades. In some cases, centuries.

The answer is obvious: none of them scale.



The Tyranny of Scarcity

Building simulators has always been brutally difficult and expensive. Flight simulators cost tens of millions of dollars. Medical simulators are elaborate, specialized, limited. And for soft skills—leadership, negotiation, difficult conversations, customer interactions—simulation has been essentially impossible. Because you can't simulate human behavior. Not really. Some of us have spent decades beating our heads against this particular wall. Progress has been made, but simulation remains confined to a handful of domains where the stakes are so high that we had no choice but to try.



One-on-one tutoring obviously doesn't scale either. Bloom knew this. That's why he titled his famous paper "The Two Sigma *Problem*." Not the two sigma solution. Not the two sigma opportunity. The *problem*. He had discovered something miraculous, and he knew we couldn't use it.

And organizational lessons learned? Modern organizations are absolutely drowning in data. Incident reports. Near-miss reports. Customer complaints. Service records. Internal investigations. Performance dashboards. Post-mortems. A gold mine for anyone who wants to figure out how to train their people. But it just piles up in databases like sediment, unread, unanalyzed. Why? Because there is no one to analyze it.

So we compromised. We invented mass education. Classrooms. A teacher talking to thirty students at once. One-size-fits-all lessons. Teaching by telling, because telling is the only thing one person can do for thirty people at the same time. We invented courses.

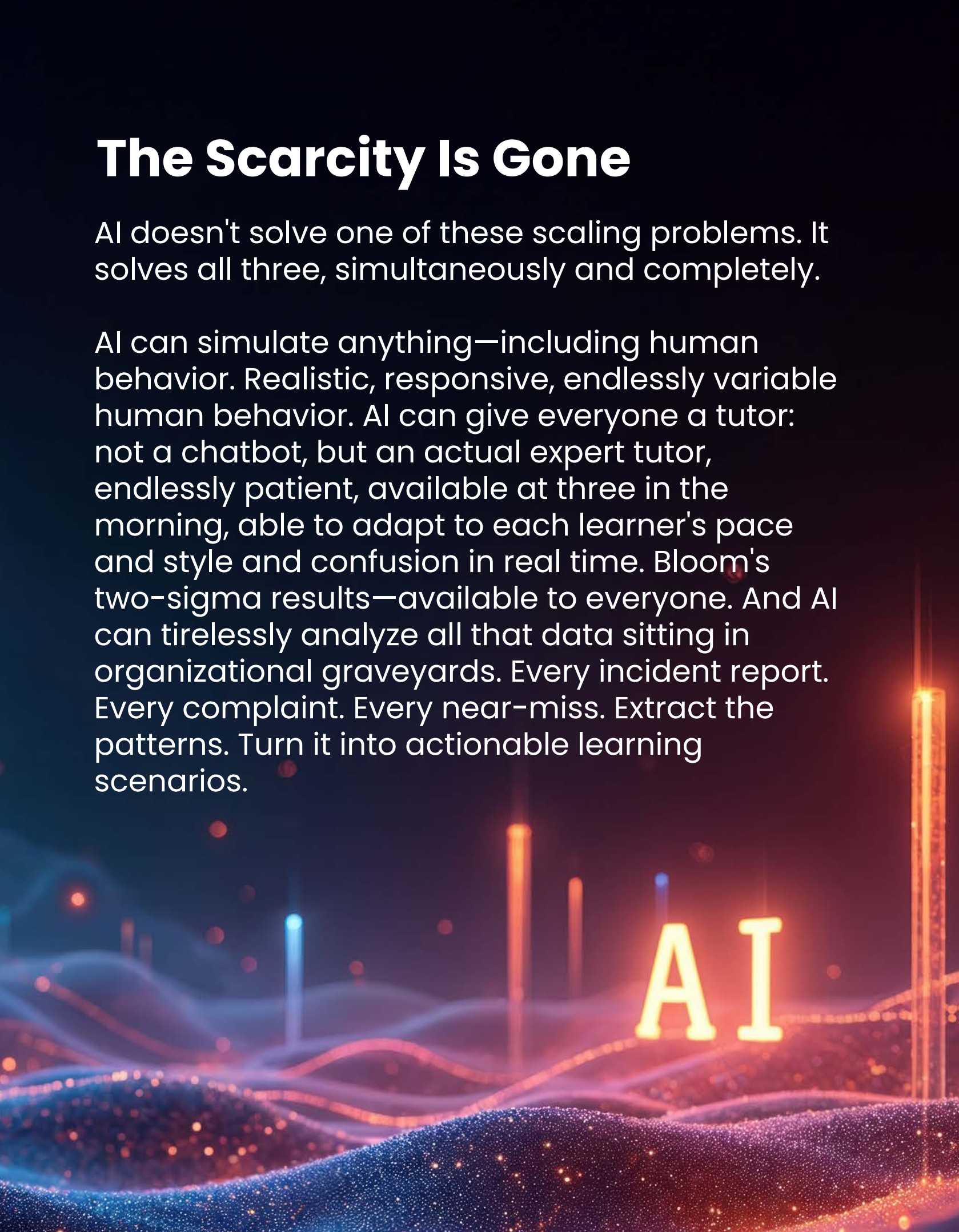
Courses are what all of us in the learning business grew up thinking we make. It's our product. It's almost our identity. But let's be honest about what a course actually is. A course is a compromise. It's one size fits many. And the learners showing up have different contexts, different goals, different starting points, different ways they learn best. Courses exist because of scarcity: few teachers, many learners. That's been the basic arithmetic for three hundred years.

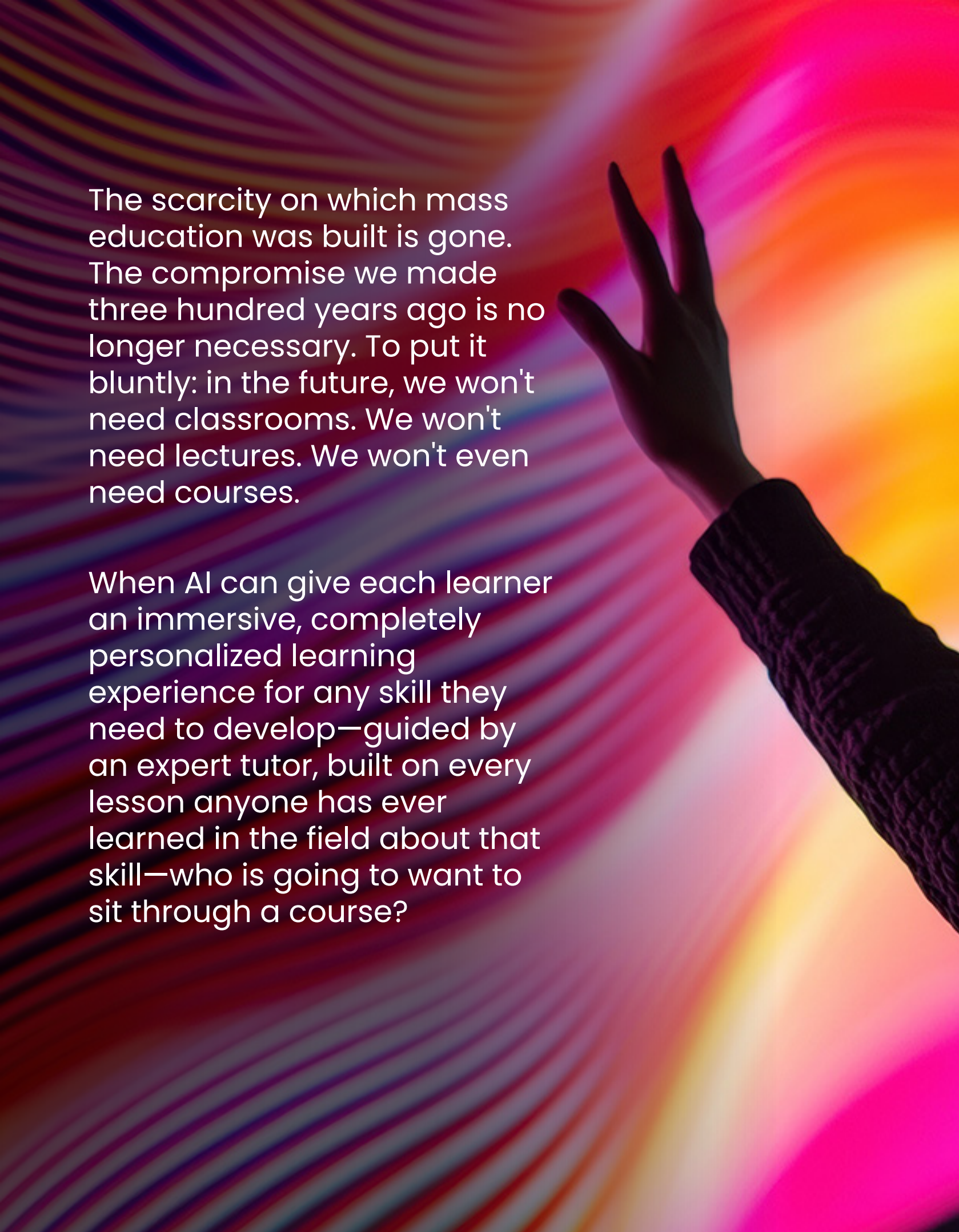


The Scarcity Is Gone

AI doesn't solve one of these scaling problems. It solves all three, simultaneously and completely.

AI can simulate anything—including human behavior. Realistic, responsive, endlessly variable human behavior. AI can give everyone a tutor: not a chatbot, but an actual expert tutor, endlessly patient, available at three in the morning, able to adapt to each learner's pace and style and confusion in real time. Bloom's two-sigma results—available to everyone. And AI can tirelessly analyze all that data sitting in organizational graveyards. Every incident report. Every complaint. Every near-miss. Extract the patterns. Turn it into actionable learning scenarios.





The scarcity on which mass education was built is gone. The compromise we made three hundred years ago is no longer necessary. To put it bluntly: in the future, we won't need classrooms. We won't need lectures. We won't even need courses.

When AI can give each learner an immersive, completely personalized learning experience for any skill they need to develop—guided by an expert tutor, built on every lesson anyone has ever learned in the field about that skill—who is going to want to sit through a course?

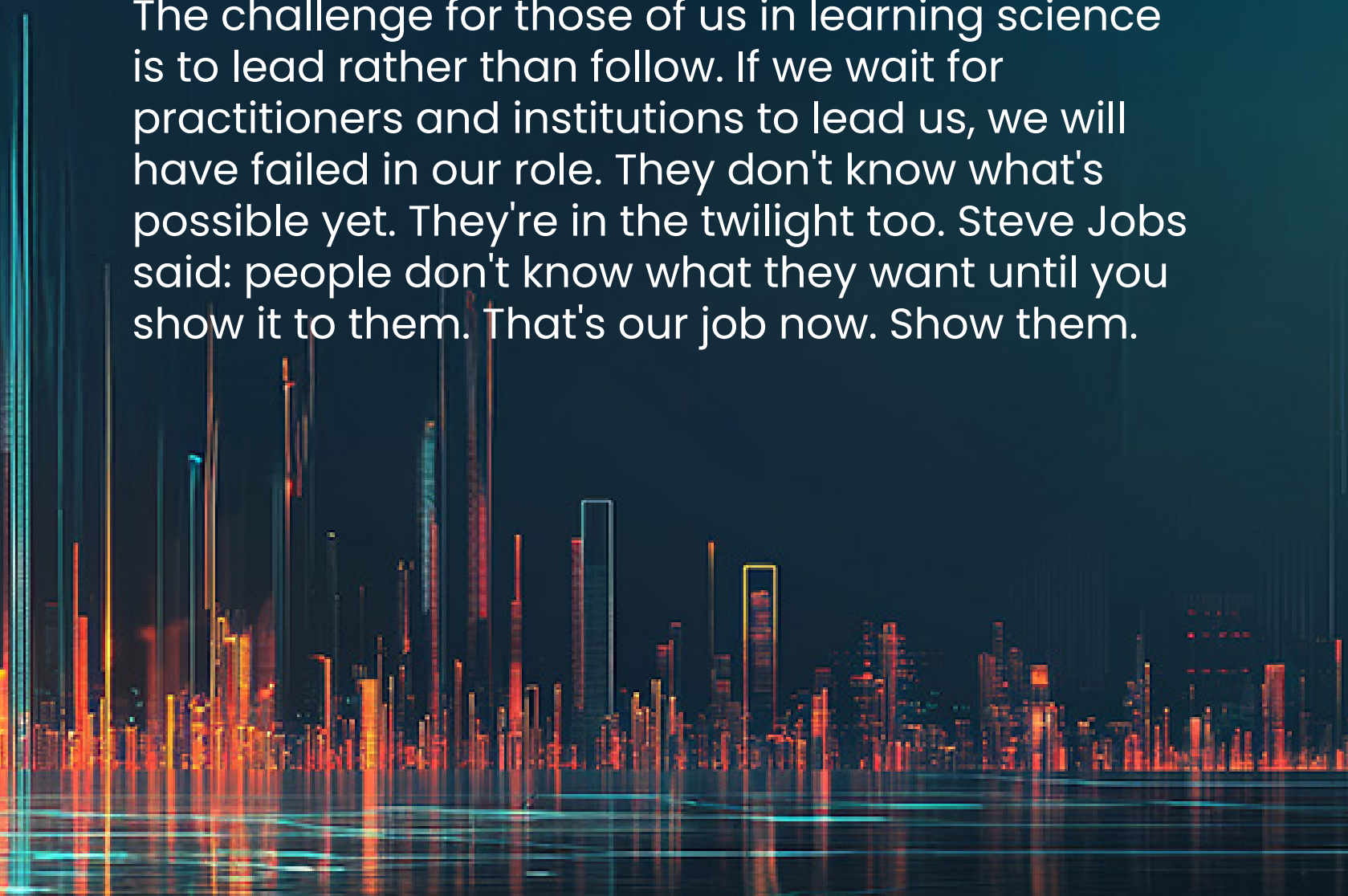
The Pivot Point

Everything we currently think of as "education"—classrooms, curricula, courses, credits, semesters—is going to turn out to be an artifact of a brief period in human history. A few centuries between the emergence of the idea that everyone should learn, and the arrival of the technology that actually makes that possible. We are the generation standing at that pivot point. It's an amazing privilege.



But it’s also a little uncomfortable, because we can't just stop what we're doing tomorrow. The old world is still here. People still need courses. The immediate future still exists. So those of us who study learning—learning scientists, instructional designers, educational researchers—have to achieve a kind of productive schizophrenia: one eye on the present, serving the need that's in front of us, and one eye on something completely different. A future that doesn't look like today at all.

The challenge for those of us in learning science is to lead rather than follow. If we wait for practitioners and institutions to lead us, we will have failed in our role. They don't know what's possible yet. They're in the twilight too. Steve Jobs said: people don't know what they want until you show it to them. That's our job now. Show them.



And above all, we must not get so comfortable in the old paradigms that by the time we're ready to embrace the future, the future has already passed us by. We must not be the ones who glimpsed the future and decided they weren't interested.

We are standing in the twilight. But I promise you—the sun is coming up. Let's not be the ones who look ridiculous from the future. Let’s embrace this amazing new technology before it is forced on us.



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Ready to talk about AI?

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