

COMMENTARY
Students Must Be Prepared to Reinvent Themselves
What will the job market look like in 2030?
By Christopher Dede
December 11, 2017

In my 45 years as a professor of learning technologies, I've had just one "career," yet I've had to reinvent myself many times. Thanks to the rise of social media, my instructional goals and teaching methods have completely changed in the last decade. On-the-job learning is familiar to most adults; many of us take on roles that fall outside of our academic training.

But our children and students face a future of multiple careers, not just jobs. The average lifespan of the next generation is projected to be 80-90 years, and most people will need to work past age 65 to have enough savings for retirement. When my students agonize about choosing career paths (designer, entrepreneur, policymaker, scholar), I point out the real issue is not which path they want to take, but which one to take first as a foundation for the others. Educators today are faced with the challenge of preparing young people for unceasing reinvention to take on many roles in the workplace and for careers that do not yet exist.

What will the future of employment in 2030 look like? A 2017 report from Pearson and the U.K.-based innovation foundation Nesta **predicts what the working world will be like** in the United States and United Kingdom when the current elementary school students begin their careers. This time period spans only the initial stage of their employment, yet researchers project a future—a little more than a decade away—quite different from the present: a workplace strongly shaped by globalization, data-intensive decision making, advances in digital tools and media, and artificial intelligence.

While pundits today are making wild claims about AI's displacement of jobs, the report stresses that many aspects of human performance are unlikely to be replicated by machines. Though researchers predict that roughly 7 in 10 people are currently in jobs with unknown futures, public sectors jobs and non-tradable services (such as those in education, health care, food preparation, and hospitality) are predicted to grow. In preparing students for the future, we should think less about AI and more about IA, or intelligence amplification: The idea that digital devices complement our human strengths to enable accomplishments beyond what either machines or people can do alone. For example, in my lifetime, physicians moved from house calls to office visits, from treating illness to promoting wellness, and from paper-based systems to technological ones.

Furthermore, success a decade after high school graduation in a global, innovation-centered world will be as much determined by students' character and their ability to work with others as by their intellectual capabilities. A 2012 report by the National Research Council posits that a combination of cognitive, intrapersonal, and interpersonal skills—flexibility, creativity, initiative, innovation, intellectual openness, collaboration, leadership, and conflict resolution—are essential for keeping up in the

21st century. I would argue that instead of preparing students for careers, we should focus on inculcating skills that are transferable across many roles.

Yet today's curriculum standards, industrial-era teaching practices, and drive-by summative assessments emphasize content acquisition and recipe-like procedural skills. These are exactly the aspects of work machines are taking over. Similarly, today's education system focuses on individual accomplishment; yet, collaboration, communication, and conflict resolution are central skills for a future dominated by complex situations that will require multidisciplinary contributions. As my Harvard colleague John Richards and I discuss in our 2012 book *Digital Teaching Platforms*, today's industrial-era classrooms too often use one-size-fits-all, presentation-based instruction to prepare students for the past rather than the future. We are modeling how to turn the crank on a player piano when students must learn to improvise in a jazz band.

While modern digital tools and media are driving challenging shifts like globalization and automation, they also offer powerful ways to prepare students for a lifetime of amplified collaborative intelligence. Blended physical and digital makerspaces and creative-computing languages like SCRATCH offer opportunities for students to be producers, thereby inculcating innovation, initiative, and teamwork.

Immersive media empower classroom-based simulations that enable students to "wear the shoes" of many occupational roles before stepping into them. In contrast to our current focus on isolated disciplines, problem-based learning shows students the relevance of their classroom preparation and the multidisciplinary ways academic knowledge can improve the real world.

The biggest barrier we face in this process of reinventing our (what will soon be) obsolete educational models is not learning, but unlearning. We have to let go of deeply held, emotionally valued identities in service of transformational change to a different, more effective set of behaviors. This is both individual (a teacher transforming instructional practices from presentation and assimilation to active, collaborative learning by students) and institutional (an organization transforming from degrees certified by seat time and standardized tests to credentials certified by proficiency on competency-based measures).

A central challenge of our time is creating the intellectual, emotional, and social supports that empower students for the difficult task of continually unlearning the old ways, while simultaneously learning new ones. If education succeeds, students will soon be the inventors of a bright future.

*Christopher Dede is the Timothy E. Wirth Professor in Learning Technologies at Harvard University's Graduate School of Education. He is the co-editor of *Teacher Learning in the Digital Age* (Harvard University Press, 2016) and *Virtual, Augmented, and Mixed Realities in Education* (Springer, 2017).*