



Pearson



Opportunity for **Higher Education** in the **Era of the** **Talent Economy**

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Foreword

Pearson recently conducted its first Global Learner Survey, so that learners ages 16-70 in nineteen countries could have their say on subjects such as the quality of their nation's education system, careers and the future of work and technology.¹ It's the first time the world has heard the collective voice of this many learners from across age groups – and from around the globe – on such a wide range of education topics.

Much has been written about “lifelong learning,” a term that is now commonplace in conversations about the future of work and education. But the voice of learners – of actual people making their way in this new landscape – has been frequently absent from those discussions.

Around the world, learners still place a great deal of faith in education to help them achieve success, but the way they choose to access and obtain it is evolving. In addition to enrolling in traditional educational institutions, learners are using a self-service approach, stitching together a range of education experiences based on what they can afford and what works for their lifestyle at a given point in their lives or careers. And they are turning in larger numbers to low-cost online resources.

Learners and employers are increasingly accepting of the promise of new learning options – such as stackable credentials and micro-degrees. However, both struggle to navigate and assess their true value.

These changes in learner behavior and expectations have taken place against the backdrop of the biggest economic change since the Industrial Revolution. Technology, automation, globalization and an unpredictable political environment are affecting everything about our world – especially work and education. We know from our own research on the Future of Skills, and the work of many others, that the combinations of skills needed for success in the future will be different than what's expected today.²

In a world characterized by faster change and greater entrepreneurship, a combination of hard and soft skills will be prized, and those who thrive will demonstrate strong technical skills alongside agency, purpose, and creative problem solving. As people live longer, they will need to skill, reskill, and upskill throughout their lives.³



Lifelong learning is a new reality; but the most effective ways to structure that learning so that it delivers the outcomes that learners need, are yet to be discovered.

This opens a new universe of opportunities to help people learn in more accessible ways, more affordably and with better outcomes. The learners in our survey embrace technology and online learning. They also want more vocational education, soft skills training and bite-size learning across the course of their lifetime.

People are changing what it means to be a learner, and, through their actions, driving a fundamental transformation in education that will, over time, impact all education institutions and their partners. This behavior change has huge implications for all of us in the education ecosystem.

Governments, employers and actors in the education ecosystem have a massive role to play in stewarding this transformation. But, **higher education institutions** – with their deep mastery of teaching and learning, and their centuries-long expertise in driving innovation through research – **are uniquely qualified to chart the new lifelong learning models that are needed today and in the future.** And, given other challenges that the sector faces, higher education institutions have much to gain from being tightly aligned to what learners want and need.

Drawing on the results of our Global Learner Survey and secondary sources, we've identified **three big learner-centric principles** that we believe will underpin the future of post-secondary education. All of us across the education ecosystem will need to grapple with these principles and collaborate in new ways to realize lifelong learning.

1. People will seek learning experiences at specific moments of need across their lifetime, delivered with the flexibility that their circumstances demand, so we must find ways to enable **continuous learning**.
2. As learning will be continuous over a lifetime, rather than concentrated at a young age, we must tackle the issue of cost in a new way, working toward a system which **distributes the investment in learning** - including money and time - throughout the course of a life, and build a sensible cost structure to match.
3. **Outcomes-based learning** will become the new normal. Education will increasingly need to develop the knowledge and skills that deliver the learning and employability outcomes that learners, and employers, seek. The divide between “learning for its own sake” and “learning for employment” will, therefore, close. There will also be demand for clarity about the knowledge and skills required for specific careers or jobs, as well as how to acquire, assess and refresh those over time.

In the remainder of this paper we discuss these three principles, sharing evidence from our Global Learner Survey and elsewhere, as well as our thoughts on possible, positive steps forward. This brief conversation starter is meant to further advance the dialogue about the future of higher education and lifelong learning.

1. Enabling Continuous Learning

Our Global Learner Survey shows that most people believe that learning no longer stops when they earn a diploma or a degree; they expect that **they will keep learning and retraining themselves throughout their careers** – from three quarters in India to 96% in China, and around 90% in all advanced countries.

They will keep learning because it's required: career paths are changing, and workforce needs are changing. Employers echo this commitment. One of the biggest challenges most companies will face over the next ten years is the continuous need to upskill and reskill their workforce.

An equally strong majority of learners we surveyed expect their career path will be significantly different from that of their parents and grandparents; around two thirds see the idea of working for the same employer throughout one's career as old-fashioned, and think that at some point in their path they will have to change not just employer, but career field.

People, therefore, want to access education opportunities at different stages of their lives and careers, in different personal and professional circumstances. This desire for continuous learning, available on-demand whenever needed, is of paramount importance to learners today, and to our society going forward.

For example, a learner that starts her first job as an apprentice, or after a traditional undergraduate degree, will know that her education path is far from complete. After a few years on the job, she will start taking advantage of short targeted courses; some will be delivered online, accessible while she works full time; others will require taking a week or more off from work. As she progresses, she will perhaps decide to take a one- or two-year career break to pursue an additional specialization that will open up a different career path, or she may stack the credits she's accumulated over time into a new type of degree. The informal learning she acquires on the job, and through formal channels, will interplay and shape each other through her life.

This shift to lifelong learning is already happening, embraced by people around the globe. The share of learners who have needed further education in the last two years ranges from one quarter in the UK and Canada to three quarters in India. It is uniformly higher in emerging markets, with an average of about two thirds, whereas advanced economies range from a low of 24% in the UK to 43% in continental Europe.



What's driving the shift to lifelong learning?

The introduction of new technologies (including new software)

About one third of those who had to gain additional skills over the previous two years were pushed by the need to keep up with new technologies introduced in the workplace; the share was over 40% in continental Europe and India, and close to one half in China.

The appeal of self reinvention

Between 70% and 90% of people like the idea of reinventing themselves at work every few years by acquiring new skills – and the share is noticeably higher in emerging markets, with China, South Africa and Hispano America at around 90% and India, Brazil and the Middle East at over 80%.

New attitudes on retirement, associated with a longer lifespan

A majority across all countries and regions (with a high of three quarters in South Africa and India) see the traditional notion of retirement as old fashioned, and at least half respondents see retirement as an opportunity to launch a new career, work part-time or keep learning for their own curiosity and betterment. Emerging market learners have a particularly strong entrepreneurial approach: the share of respondents who look forward to retirement to launch their own business stands at nearly 40% in South Africa, 30% in Hispano America and about 25% in India, Brazil and the Middle East. An additional 20% in South Africa, Brazil and India; 25% in the Middle East; and 28% in China plan to start a new career doing something they love.

More effective ways to deliver learning throughout a person's life, responding to these three drivers, could also help unleash the potential of the "talent economy." Just as they take control of their education path, people will exercise more agency over their careers and the time they spend at work; they will build new skills over their lifetime and leverage their talent to fuel flexible career paths that suit the different stages of their lives.



A Shared Stake

Employees and employers have a shared stake in continuous, lifelong learning: employees need to upgrade their skills to keep up with innovation in their current jobs, to be promoted or to pursue outside opportunities. Employers need to augment the skills of their workforce to deploy new technologies and boost productivity. Both will need to be engaged in education and learning.

Employees and employers are currently driving their own upskilling and reskilling efforts: learners rely mostly on short training courses offered by their employer or through bootcamps, enrolling in professional certification programs, or self-teaching material found on the internet. Recourse to professional certification programs is especially high in China and India. Employers frequently lead their own learning and development efforts, selecting partners where needed, often without solid guidance as to their quality; they may also offer reimbursement for programs selected by learners.

Although investment in upskilling is high, employers and learners are typically not clear whether such investment will deliver the desired outcomes (see section 3: Developing Outcomes-Based Learning). In addition, employers don't necessarily have the metrics in place to truly evaluate the programs they fund, and, therefore, value them. Of employers we've studied, 62% rely on employee evaluations or surveys to evaluate learning programs; only four in ten use formal assessments or KPIs.⁴ The feedback cycle that could be offered by solid program evaluation is lacking, and that also limits the outcomes for employees.

Only a minority of learners surveyed pursue further education and training by enrolling in university-level programs, with China and India again showing a higher share. This may be, in part, because the bulk of higher education institutions deliver primarily degree programs or longer certifications, and may not offer shorter, more "just-in-time" learning touchpoints.

But universities possess unique expertise in program design, development and evaluation, formative and summative assessment and teaching and learning. This is expertise from which employers and learners can benefit. Through partnership and the right set of offerings, institutions and employers can together design learning experiences that deliver the workforce development outcomes that employers require. They can help learners to assess their own knowledge and skills, as well as refine the outcomes they seek, routing them to learning that will get them where they want to go.

In doing so, higher education institutions - and employers - will begin to enable the continuous learning required in our society. Importantly, universities will also expand their customer base, further bolstering institutional resilience and sustainability.



Upskilling and reskilling: An ecosystem approach

Upskilling and reskilling are a global challenge for employers, and one that higher education institutions have the capabilities to tackle.

Our own research suggests that employers **struggle to identify the right learning opportunities and to evaluate the effectiveness of their retraining and upskilling programs.** They strive to support employees' continuing education through online courses, bootcamps and training programs within and outside their company. And, they are looking for help on this front: employers are interested in outside support for everything from identifying the employees to engage (47%), to measuring the outcomes of learning and development programs (47%) to developing content and curriculum (43%).⁵ This is a prime scenario to build an ecosystem of the right players, including higher education institutions.

Some large employers have launched wide-scale and high-profile upskilling initiatives: Amazon announced plans to retrain about 100,000 workers, over one-third of its US workforce. AT&T launched a \$1 billion "Future Ready" reskilling initiative. Other prominent examples include Walmart, JP Morgan and Accenture. Some programs target technical or vocational skills; but some aim to build advanced, higher education-level abilities. Amazon's program will include machine learning courses for employees with a computer science background.

Employers have a clearer and earlier line of sight into the new technologies coming to the workplace—but they have limited expertise in setting up training programs and assessing their efficacy. **With a more collaborative ecosystem approach, higher education institutions could apply their human resource and expertise to deliver effective training.**

Alongside institutions, other private sector partners can bring to the table strong expertise in assessing employees' skills and evaluating the efficacy of upskilling and reskilling efforts.

New technologies can help: AI-driven predictive people analytics platforms can leverage data to assess performance, identify best practices and provide insights and recommendations for building and improving skills. But these data-driven approaches will be most effective when combined with the human expertise accumulated in this area by education institutions and other private sector partners.

A collaborative effort bringing together these different partners could best develop the right training modalities and deploy the most effective learning assets.

Moreover, retraining initiatives led jointly by higher education institutions and private sector partners and employers can provide invaluable support to small and medium companies that do not have the scale and resources to build in-house retraining efforts.⁶



Building a Waze for Lifelong Learning

To make lifelong learning effective and successful, learners will need better navigational tools and services to map their learning path; think of this as a Waze for learning.⁷ Clearly AI-powered, such a learning tool could help learners identify their strengths and weaknesses, and suggest methods and resources to build skills more quickly.

These AI tools could be combined with sophisticated labor market analytics yielding more granular insights into how jobs, skill requirements, and career opportunities are evolving. This information would help learners to identify career opportunities, acquire new knowledge and build requisite skills. These digital tools, paired with the expertise and experience of professionals in higher education institutions, would, in time, guide each learner through an optimal individualized learning path.

They could also prove an invaluable tool for employers who continue to rely on static, or one-dimensional, reads on skills and assessing knowledge. Our research on employers indicates that the bulk rely on resumes or CV (71%) and interviews (70%) to assess new candidates. When assessing the skills of their existing workforce, the majority rely on annual performance reviews (63%), and yearly check-ins with line and/or HR managers to assess skills among their existing workforce (56%).⁸

To make this idea a reality would require collaboration between the private sector and institutions of higher education. Together they can develop tools that will help learners design a well thought-out and structured lifelong learning path, which would be much more effective in building up their human capital over time than the current self-assembled set of individual abilities.

So how might we begin to enable continuous learning? Some potential steps forward include:

- **Align and articulate universities' learning offerings to the outcomes that learners seek at different points of their professional lives: early career, mid-career, late career, career changing, or upskilling in the same career.** Universities are well positioned to lead this effort by developing a range of flexible learning experiences that enable learners of all ages to access courses, certifications, campus resources and more. Employers and industry bodies can support the effort by partnering with universities to ensure these offerings are best aligned to outcomes.
- **Deepen partnerships between universities, local employers and governments to further align these learning experiences to the needs of local economies.** In the US, 80% of students who enroll in online education choose a college or university within 100 miles of their home.⁹ This underscores the importance of the role that higher education institutions play in local communities: proximity allows online learners to also access physical facilities; a closer relationship with local employers gives institutions a better understanding of employers' skill needs; and employers understand the value proposition of the university programs. Employers have a role to play in being actively engaged in education and learning. Governments have a role to play in ensuring that the right community-based incentives and policies are in place to support a thriving economy. Furthermore, in this effort, universities have the added benefit of focusing their expertise in teaching and learning in certain subject areas – those that are in demand locally – rather than trying to be all things to all learners.
- **Enhance investment in technology to further expand access to, and the quality of, digital learning experiences and navigational assistance.** Online courses already help make learning more accessible to a wider range of students. However, the promise of digital lies also in improving the efficacy of that learning. This includes developing a better understanding of how people learn, in order to develop more effective ways to teach and learn hard and soft skills, and to enable just-in-time micro-assessments that power bespoke learning experiences. Likewise, technology can underpin navigational tools that can help guide lifelong learning (e.g. Waze for Learning). Partnerships between universities and the private sector are needed to deliver fully on the promise of digital in learning; with such investment universities will be better equipped to take their expertise online and meet the needs of learners and employers.
- **Establish new cross-institutional models of collaboration among colleges and universities.** Universities can benefit from creating new models of collaboration to support their collective efforts to provide continuous learning. This could range from pooling resources to develop the technological infrastructure required to support online instruction, creating navigational tools (e.g. enhanced academic and career advising), enhancing course offerings so as to reduce duplication and build richer education menus playing on each other's strengths, and sharing insights on the efficacy of new learning experiences.¹⁰



2. Distributing Investment in Learning

A continuous system of learning implies a distributed investment of the time and money learners will spend on learning across their lives.

This is different from the traditional model whereby people invested a significant amount of time and money during their twenties to earn a degree that would power most careers to retirement, with graduate degrees – often earned in mid-career – providing further specialization.

Today, in most countries, even those with free tuition, the cost of a degree has been ratcheting up, with the student loan debt rising accordingly.¹¹ The US stands out, with student debt at about \$1.5 trillion.¹²

Not surprisingly, then, our survey shows that the US has the highest share of learners who feel that a degree is getting increasingly out of reach for the average person, at 67%. Canada and Australia are not far behind, however, at 64% and 61% respectively; about half of respondents in the UK, Europe, South Africa, India and Hispano America share the same concern. Younger generations are even more convinced that access to higher education is becoming restricted to elites.

Higher education has, for over a century, fueled rising living standards. Across countries, higher levels of education go hand in hand with higher per capita incomes, better health outcomes and stronger democratic institutions.

This “education premium” has been documented in both advanced and emerging economies: college graduates earn substantially more over their lifetimes than those without a college degree, and post-graduate education provides a further boost.¹³ (Similarly, high school graduates enjoy better economic prospects than those without a secondary degree).

More recently, however, productivity growth has slowed in most advanced economies, causing incomes to stagnate. As income growth has slowed, the cost of higher education has risen. There has been a decline in the relative earnings of graduates.¹⁴ Inequality has also risen, and even learners who attend and excel at university, but who come from lower-income backgrounds, often don’t achieve the same premium as their more privileged peers.¹⁵ In addition, the education premium for students who complete some college but don’t earn a degree is significantly decreased, meaning that there is a large group of people who have made a significant investment for a small return.¹⁶

These trends combined make the financial risk and the potential returns from higher education significantly less attractive than they used to be, further explaining why learner’s confidence in them is wavering.

In the US, the rising cost of an undergraduate education has contributed to a substantial reduction in the education *wealth* premium: higher student debt can offset much of the benefits from higher earnings.¹⁷ The rising cost of a degree has therefore had a double negative impact: higher tuition costs make education less accessible to lower-income students, undermining equality of opportunity; and they reduce the net financial return from education, especially for learners who need to borrow and therefore incur a substantial debt burden up front.

At the same time, higher education institutions in some countries have seen a decline in enrollments and public funds that puts their own financial model under severe stress.¹⁸ Financial pressures have already driven a determined effort to reduce labor costs (relying more on adjunct faculty and less on tenured faculty), optimize financial aid, and in some cases adopt online course delivery. These trends have been most pronounced in the US, but have played an important role in other countries as well.

In addition to the changing skills landscape, and the accelerated pace of innovation, these issues of cost are taking place in the context of another major trend: *people around the globe are living longer lives.*

Over the last 60-70 years, average life expectancy has increased by 10-15 years in the US, the UK, Canada, Australia and Continental Europe, to around 80-83 years. In emerging markets the increase has been even more significant, thanks to important improvements in health care: it has nearly doubled in India, from 35 years to 68; it has risen by 33 years in China, to 76; and it has jumped from 50 to 70 years in Brazil. Improvements in health indicators imply that the healthy and active lifespan has also increased commensurately. And in order to ensure the financial sustainability of old age pension system, people today need to keep working longer into their lives – and keep upgrading their skills.¹⁹

Longer lifespan is quickly changing the shape of our lives, effectively creating a shift from a three-stage life (schooling, career, retirement), to a multi-stage life: schooling, career, breaks in career, reskilling, career, etc.²⁰

People today are taking control of their learning and, in doing so are finding new ways to develop themselves inside and outside of traditional institutions. In time, this change in behavior will likely cause further financial pressures for institutions of higher education, as well as other education ecosystem partners. Increases in tuition and fees, and related costs, will no longer close financial gaps; institutions, and their partners, will be forced to rethink their cost structure to sustain themselves.

We think of this as an opportunity to reframe the conversation on cost around developing an approach to distributed investment in learning.

In a world of lifelong learning, education becomes a service to be consumed as needed in a gradual way throughout one's life and career. As institutions of higher education and employers partner to develop a corresponding broader and more flexible range of education options, they will need to develop a new cost structure; these new education options will need to be priced in a way that is competitive and that reflects their ability to deliver the outcomes that learners seek at each point in time.

There are steps that can be taken today to give learners the opportunity to distribute their investment in learning across time:

- **Unbundle Degrees.** Degrees are still important, however, they typically require a significant investment of time and money. Learners seek a path to a quick return, and, in the spirit of lifelong learning, know that they will be back to learn again soon. One way to support them would be to unbundle degrees. For example, rather than offer just multi-year degree programs, which are typically finished through continuous enrollment over that time, universities can pull apart these programs into separate years of learning. At the end of each year, a distinctive credential would be earned, and, importantly, signal to employers the combination of knowledge and skills acquired. Learners could then decide whether to learn for a year or more, progress to work, and then either return to continue progress toward a degree, or not. Either way, they've earned a credential that has credibility with employers. This model would enable learners to distribute their learning investment in time and money over a lifetime. Further, a richer range of shorter tertiary credentials (or micro-degrees) would help build a new generation of augmented vocational skills while fleshing out the education space between high school degrees and college degrees. This should be seen as a priority in countries with a weaker tradition of vocational education—the US is a case in point. By concentrating on demand for skills needed by employers, this unbundling of degrees would also be clearly outcomes-focused.
- **Create university subscription models.** Following the consumer trend away from ownership, institutions of higher education can offer subscription type models of access - either at the institutional level, or across a network of institutions - to everything from their courses, technology / labs, facilities, subject matter experts, career services and more. Rather than solicit donations from alumni, give them an ongoing deeper connection to the institutional community: access to lifelong learning. This enables their continuous learning, distributes their investment of cost and time, and, for the institution, provides a way to lock in lifelong customers, further enabling their own sustainability.
- **Change how employers can fund learning.** Employers will increasingly play an important role in funding the learning experiences of their employees, including higher education programs. This funding is often paid for directly by the employer (as they're offering the training) or via employee reimbursement programs. This constitutes an investment in human capital that is analogous to firms' investment in physical capital - in that it will pay off over several years. This type of investment is also arguably similar to investment in R&D, as it raises the quality and productivity of employees who might work for other companies in the future, and therefore has a positive externality effect. This suggests that **investment in human capital should have similar tax treatment and incentives as investment in machinery and R&D, allowing the funding of learning as a capital expense to be amortized rather than expensed, and potentially incentivizing it with tax credits.**²¹

- **Develop a Learning Passport.** As learning becomes more distributed, people will need help keeping track of the knowledge and skills they acquire along the way. **Imagine a world where everyone had a Learning Passport: a record of an individual's education and training that included all degrees, badges, credentials and certifications AND the knowledge and skills acquired in each, as well as in their careers.** This would benefit learners, employers and institutions:

- Individuals could design a more deliberate and effective path towards their desired career or job, and more easily articulate their interests, skills and talents.
- Employers could better assess whether an individual has the requisite knowledge and skills to enter a particular job with success, including any further training from which they could benefit.
- Education institutions could better understand a student's background, and, therefore, which learning experience could help a learner to achieve the outcomes they desire.

To make a Learning Passport a reality would require dynamic change and collaboration across the system and with the private sector. This includes a more uniform and transparent way of assessing the content and quality of different badges, credentials and academic programs, across institutions and other education providers, as well as the development of a commonly recognized way of assessing the skills that they confer to the learner, and the efficacy with which that's achieved (see *Defining Quality in the New World of Credentials*). Investment in technology would also be required, as a means to house the information, but also to support the assessment of skills which could be offered as a benefit to the individual. One step in this direction, launched earlier this year, is the Digital Credential collaboration, comprised of nine universities and aimed at creating a shared system to issue and verify credentials using blockchain technology.²²





Defining quality in the new world of credentials

One of the most critical aspects of our future lifelong learning system will be to provide clarity to consumers and employers about the quality of the new credentials that have, and will, emerge. This is important as both groups are increasingly struggling to navigate the sea of choices and verify those that will truly deliver the outcomes that they seek. Likewise, governments need such indicators to inform the use of national student loan programs.

People are used to accessing metrics of quality when it comes to institutions of higher education: tools like the Teaching Excellence & Student Outcomes Framework (TEF) available through UCAS in the UK,²³ the US Department of Education's College Scorecard, or the ubiquitous US News & World Report Rankings.

But who defines quality in a world of new credentials?

Looking ahead, institutions of higher education are well positioned to help define, and standardize, quality. Through MIT's Digital Credentials group, nine universities have started an effort to do just this. They also aim to provide the "design and governance of a technology infrastructure for academic credentials" moving towards making the idea of a digital Learning Passport a reality.

But with employers as a key stakeholder and partner in lifelong learning, they must be engaged in defining both the learning outcomes associated with employability, and the quality of the programs that aim to prepare their workforce. This then creates a (typically missing) feedback loop between the workplace/industry and the classroom/education provider.

Looking ahead, it is this feedback loop that will help to ensure that learning experiences developed by education providers align to the learning and employability outcomes that matter for life and work, a distinction which is increasingly blurring. Likewise, this feedback loop will inform how the quality of such experiences are verified, providing much needed guidance for learners and employers. And, over time, make quality learning experiences a baseline for all providers.



3. Developing Outcomes-based Learning

People of all ages expect, as a baseline, that learning and education will provide them with the right skills to secure better jobs and fulfilling careers in a rapidly changing workplace. **That is, learners measure the value of their higher education by the outcomes it delivers to them – first and foremost in terms of career opportunities.** It isn't surprising, then, that employability is a top concern for learners, given the combination of deceleration in wage dynamics and technological uncertainty.

Anxiety and excitement are understandable; advances in AI and robotics make the current wave of innovation the most powerful so far. But advances in technology only form one part of the story. History shows that innovation ultimately results in more and better jobs.

In fact, our recent work on the Future of Skills with Nesta and Oxford Martin presents a more positive and nuanced view than prior studies. Using a novel and comprehensive method to map out how employment is likely to change in the future, we predict that around one-tenth of the workforce are in occupations that are likely to grow. Around one-fifth are in occupations that are likely to shrink. And roughly seven in ten people are currently in jobs where we simply cannot know for certain what will happen.²⁴

What's clear is that most jobs will be transformed by technology, requiring new sets and combinations of skills. Cognitive and interpersonal skills will be more important than ever for the occupations on the rise – especially when used in combination with technical expertise. Often called “soft” skills, some of the important ones present in rising occupations include: fluency of ideas, originality, social perceptiveness, customer service orientation and complex problem solving.²⁵ These are the unique human abilities that allow understanding of systems, of causation, and of behavior; human-machine partnerships will outperform anything that machines alone or humans alone can achieve. These soft skills are a priority for employers and are what's most important and most lacking among their workforce today.

But learners and employers perceive that major skills gaps persist between what is learned in university and what's required for the world of work.

Nearly half of respondents in the US, UK, Australia, Canada and Europe feel that higher education has failed to prepare them for their career. About one third of emerging market respondents feel similarly dissatisfied. With hindsight, fewer than two in every three US higher education students would go to university. In the US, millennials and Gen-Z are less convinced that a college degree helps you secure a job, or that it is essential to achieve success.

Employers are similarly concerned: our research indicates that finding the right hard skills is the top hiring challenge for employers (44%). Finding the right soft skills is also up there – especially among emerging markets, as confirmed by employers in in Brazil (36%), Canada (36%) and India (38%).²⁶

Many candidates lack these fundamental skills. Only one third of US companies think that colleges and universities build the right skills and competencies.²⁷ Some employers no longer require a college degree in their high-level job postings—these include tech giants such as Apple, Google and IBM, but also traditional companies like Whole Foods, Ernst & Young, Bank of America, Nordstrom and Penguin Random House.²⁸

There are different possible reasons for this disconnect, including the fact that less than half of learners in advanced countries end up working in a career related to the subject they pursued in higher education.²⁹ In emerging markets, between one half and two thirds do. This has likely contributed to a more skeptical view on the value of formal education in advanced economies.

In comparison, the bulk of students, between one half and two thirds, in emerging markets choose fields of study more directly mapped to existing career opportunities – in fields like engineering and medicine, for example.

Looking forward these two approaches will need to adapt and converge.

Advancing outcomes-based learning through skills

As they choose their learning path, students will need to focus on how the knowledge and skills they acquire through education will map to future work opportunities. This will be complicated, however, by at least three interrelated factors:

1. companies struggle to articulate the workforce skills and knowledge that will lead to their future success;
2. people, therefore, struggle to identify the skills and knowledge employers want, how to acquire those skills and how to assess their mastery; and
3. traditional education and career paths are less reliable than they were in the past: a given set of predetermined technical skills will no longer be sufficient.

The reality is that higher education institutions are already teaching skills; it's just not usually articulated as such. Universities offer courses in geography and physics, medicine and economics, but not typically in complex problem solving, critical thinking or collaboration.

Students acquire these skills - usually during a degree program – through their learning experience, by virtue of the diverse subjects they are exposed to, and the way in which faculty challenge and stimulate students to engage with the material and with their classmates. For example, a student who studies biology will, in the course of their study, hone a wide range of non-technical skills, for example: the ability to identify problems and investigate their solutions (using investigative and analytical skills), communicate what they've learned via written and oral proposals, or demonstrate critical thinking and communications skills.

But these non-technical skills do not neatly fall into the structure of traditional academic departments; they aren't, for example, often specifically named as such in a biology course description. In fact, the need for new combinations of hard and soft skills will only further challenge the traditional silos and specializations that have long characterized degrees and structure of higher education. Even so, **higher education institutions are uniquely poised to teach soft skills and problem solving in totally new ways.**

But first there is work to be done across employers and institutions of higher education to better articulate the outcomes of a given learning experience, and to tie those outcomes to employability.

To develop outcomes-based learning, we must:

- **define and identify the skills** - including those that make us adaptive - that are most needed for various types of employment in a rapidly changing economy;
- determine how to most effectively **teach and assess these skills**;
- design active learning experiences that **enable these skills to be demonstrated** for example via experiential learning; and
- **better measure the efficacy** of that teaching over time, signaling to employers the value of the skills acquired by learners.

This is long-term work, to be sure, and will require effort from all of us working in the higher education ecosystem. But the closer we can get to articulating the intended learning and employability outcomes of a given learning experience, and measuring those outcomes, the better we will be able to support learners in developing themselves continuously over time.

In the near-term, however, institutions of higher education can bring their existing expertise in teaching skills forward to support learners of all ages in new ways:

- Articulate more explicitly the nature and value of the soft skills they teach, their effectiveness in different job contexts and the career opportunities they support.
- Codify the teaching and learning strategies that best help learners to develop and strengthen specific soft skills in a more structured, systematic and deliberate way. AI can play a key enabling role here.³⁰
- Establish more rigorous and systematic ways of categorizing and assessing the soft skills that students acquire. In other words, to develop hard metrics for soft skills.
- Leverage experiential learning to provide students with an opportunity to demonstrate what they learn in simulated real-world conditions which they will encounter in their careers.
- Use the above to bolster degree programs, as well as to guide the design of retraining and upskilling programs.

Investment in technology, or with a technology partner, can help institutions to accelerate this work, leading to innovative breakthroughs in online assessment and skills simulation. Such partners also bring the ability to scale these innovations digitally, enabling more learners to benefit from them, thus providing the continuous learning required for the new economy.



The influence of technology, and our take on the Future of Skills

Technological change continues to speed the disruption of industries and business models, triggering massive shifts in the skills needed in the workforce. Advanced economies, at the frontier of technology, are experiencing the most high-profile changes, but emerging markets face a similarly dramatic disruption to the traditional path to higher incomes through industrialization. The need for workers to retrain and upgrade their skills has become much more pressing than ever before. But technological change and automation is only part of the story.

In 2017, Pearson, with Nesta and the Oxford Martin School, conducted an in-depth study to identify the Future of Skills.³¹ The study expresses a more detailed and nuanced picture than most existing research by recognizing that changes in the future of work are driven not only by technology, but by a broader set of shifts encompassing demographics, geopolitics, sustainability, globalization and urbanization.

The findings highlight that while knowledge of STEM (Science, Technology, Engineering and Mathematics) will be increasingly important, equally, if not more, valuable will be three categories of “soft skills” that will be at the core of human-machine synergy:

- 1. Skills related to the ability to teach and the ability to learn;** these include active learning (the ability to understand the implications of new information for problem solving and decision-making), teaching and service orientation.
- 2. Skills related to understanding, navigating and adapting to complex systems,** be they technical, social, or sociotechnical; these include complex problem solving, critical thinking and systems analysis and evaluation, persuasion, social perceptiveness and psychology.
- 3. Skills related to creativity and originality:** the ability to look at problems from a different perspective, to combine insights from different disciplines and to generate completely novel ideas.

Importantly for higher education, these skills categories are highly evocative of the liberal arts, meaning that colleges and universities are already primed to guide and lead our preparations for the future of work.

While some institutions have chosen to close down traditional majors, opting for programs that are more explicitly aligned to technical career preparation, others are beginning to realize the power and promise of aligning the strengths of a liberal arts education with employability.

With the pressure for education to deliver learning and employability outcomes, we predict that over time that the false distinction between learning for its own sake, and learning for employability will fade. The practice of skills mapping, where the skills developed in a curriculum are mapped and made explicit, shows promise. In fact some liberal arts institutions are already using the practice to help identify gaps in their curriculum, effect internal culture change, and help students and employers understand the exact skills students gain from a program.

Afterword

Every day we work alongside learners, employers and institutions of higher education. We understand the unique challenges that learners and employers face as they struggle with the issues discussed in this paper, most of which can be remedied, at least in part, with access to effective lifelong learning experiences. We also empathize and understand the pressures that universities face in trying to respond to the market through innovation and also to mitigate its challenges.

We wrote this paper as a first step to laying out three foundational principles, or building blocks, that we believe are required to develop the lifelong learning options that learners and employers need and want today and in the future: learning that is continuous, supported by distributed investment (of time and money) and outcomes-based. Clearly some of these elements are happening in particular institutions or companies across the globe, however, to bring this effort to scale and truly deliver what's needed will require concerted effort across the education sector.

Learners are reshaping learning, and demanding access to education that is continuous and efficient. Their behavior, coupled with global trends discussed and the demands of employers, require all of us in the education ecosystem to rethink post-secondary education.

We must develop learning that:

- is accessible to learners at their moments of need across a lifetime, and is delivered with the flexibility their circumstances demand;
- distributes the investment of time and, importantly, cost over the course of people's lives rather than requiring a great burden of debt and time in a single investment in their youth; and
- measures its success by the learning and employability outcomes that they've defined, including the skills needed to thrive in the future of work, the navigational tools needed to map their careers, and the human support and digital tools that can accelerate their learning.

Importantly, these principles cannot be delivered by any single actor. Having said this, higher education institutions are uniquely qualified to lead the way in charting new lifelong learning models. However, confidence in these institutions is wavering among those who most need their expertise – learners and employers. With action it can be restored.

Just as the new model of post-secondary education must be distributed, its ownership must also be shared. With partnerships across the education and economic ecosystem and focused investment in the three principles above, we believe that institutions of higher education will continue to be one of the world's great engines of prosperity, accelerating growth in incomes and living standards, and enabling a more equitable distribution of economic opportunities. By working together, we can drive one of the biggest global changes in more than 250 years. We look forward to being a partner in making that future a reality.



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