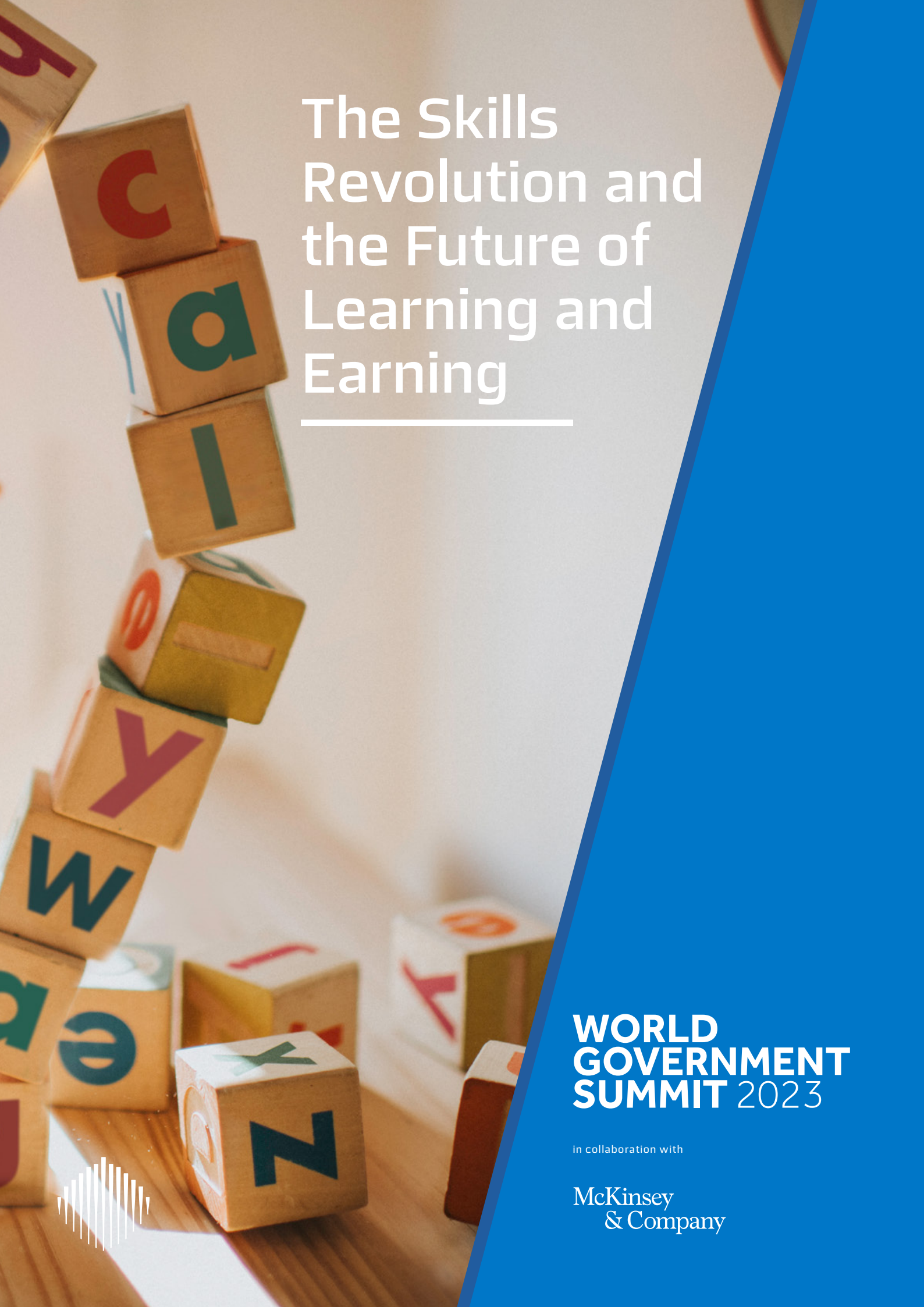




The Skills Revolution and the Future of Learning and Earning

**WORLD
GOVERNMENT
SUMMIT 2023**

in collaboration with

McKinsey
& Company





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The World Government Summit

The World Government Summit is a global platform dedicated to shaping the future of governments worldwide. Each year, the summit sets the agenda for the next generation of governments with a focus on how they can harness innovation and technology to solve universal challenges facing humanity.

The World Government Summit is a knowledge exchange center at the intersection of government, futurism, technology, and innovation. It functions as a thought leadership platform and networking hub for policy makers, experts, and pioneers in human development.

A gateway to the future, the summit functions as the stage for analysis of future trends, concerns, and opportunities facing humanity. It is also an arena to showcase innovations, best practices, and smart solutions to inspire creative solutions to these challenges.





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McKinsey & Company is a global management consulting firm committed to helping organizations realize sustainable, inclusive growth. We work with clients across the private, public, and social sectors to solve complex problems and create positive change for all their stakeholders. We combine bold strategies and transformative technologies to help organizations innovate more sustainably, achieve lasting gains in performance, and build workforces that will thrive for this generation and the next.

Executive Summary

As companies in all sectors deploy new technologies including automation and artificial intelligence (AI), workers need to adapt their capabilities continuously. Private- and public-sector leaders have a critical role to play in helping prepare the workforce of tomorrow for this skills revolution. Based on the latest McKinsey research, this paper examines trends across the major stages of education, from early childhood to lifelong learning, with a particular focus on the Middle East and North Africa. It highlights the growing importance of skills at all these learning stages and examines how new technologies and approaches can help students prepare for the future.



Millions of workers globally will need to change occupations as automation is increasingly deployed.

In the Middle East and North Africa (MENA), the share of existing work activities that can be automated today, 45%, is close to the global average of 50%,¹ and the skills gap is significant. But studies suggest that MENA countries are highly adaptable.

Demand will grow for social and emotional skills, higher-level cognitive skills, and both basic and advanced digital skills.

Educational systems and companies are already building evolving lists of skills that will be required to mobilize learners and educators. In addition to skills of the future, foundational skills including basic literacy and numeracy will be essential.

Bold and frequent upskilling can expand earning opportunities.

Work experience contributes between 40–60% of an individual's overall human capital value, according to our research,² and people in the most upwardly mobile cohorts make bold moves more frequently.

Boosted by the pandemic, demand for new technologies in education is rising.

Technologies that enhance connectivity, support self-paced learning, and inform student progress are increasingly deployed as part of 'blended' instruction in higher education. Younger students still need intensive human interaction to progress.

Early childhood is a critical period for skills development.

Every dollar invested in high-quality early childhood education produces a 7–10% per annum return on investment, one study shows,³ and recognition is growing that early education has a significant impact

¹ *The future of jobs in the Middle East*, McKinsey report for Dubai World Government Summit, 2018.

² "Human capital at work: The value of experience," McKinsey Global Institute, June 2, 2022.

³ James Heckman et al., "The rate of return to the HighScope Perry Preschool Program," *Journal of Public Economics*, 2010, Volume 94, Number 1–2.

on health and social services. This is an opportunity for the MENA region, which has the third-lowest preprimary gross enrollment ratio in the world, to expand access to and quality of early childhood education.⁴

K–12 education is seeing increased focus on embedding future skills in curriculums and ways of teaching and engaging students.

This often involves approaching basic literacy and numeracy together with future skills and focusing on professional development and training for teachers. Research nonetheless shows that knowledge remains critically important. Cognitive neuroscience and other evidence-based approaches to learning, such as increased personalization and unbundling the role of the teacher, are generating major new opportunities.⁵

Higher education is shifting to a skills-first approach.

Institutions are increasing real-world application of skills in their curriculums, with an emphasis on building communities and networks. As they do so, a rethink of some credentials is taking place, including the emergence of a new microcredentialing system in higher education that prepares students for the world of work more flexibly.

Skills development continues in the workplace long after formal education ends.

To ensure a workforce with skills appropriate for the changing workplace, employers can consider hiring more for skills and less for experience and qualifications, embracing a ‘talent incubator’ mindset that supports employees who take on different roles, and taking a thoughtful and deliberate approach to addressing skills gaps.

4 Arab Voices, “A new vision for early childhood education in the Middle East and North Africa,” blog entry by Maja Capek and Samira Nikaein Towfighian, World Bank, May 9, 2017.

5 See Daniel T. Willingham, “How to teach critical thinking,” *Education: Future Frontiers*, State of New South Wales Department of Education, 2019; and Emma Dorn, Marc Krawitz, and Mona Mourshed, “How to improve student educational outcomes: New insights from data analytics,” McKinsey, September 22, 2017.





Section 1

The Case for Change



Rapid advances in technology are reshaping the world of work, bringing new efficiencies, accelerated innovation, new products and services, and new potential for scale and speed—but also new challenges. Among the most important of these challenges is the skills revolution: new and more advanced skills including social and emotional skills, higher cognitive skills, and technological skills are becoming more important, and basic digital competencies are now essential in a range of professions from nursing to truck driving. Reimagining and rethinking the learning and earning nexus of the global workforce and investing in the shifts needed to provide citizens with the skills of tomorrow has become an imperative for private- and public-sector actors the world over.

This paper draws extensively from the latest McKinsey research on eight areas of learning and earning, with a particular focus on implications for the Middle East and North Africa. Both regionally and globally, the need for change is the essential starting point.

Digital technologies, including automation and AI, are already transforming the workplace, and we expect they will continue to do so over at least the next ten to 15 years. While the technological changes are significant on their own, the context in which they are playing out is also material. The COVID-19 pandemic notably affected the scale and speed of workforce transitions in several ways. First, it accelerated the rate of technological adoption, particularly in consumer-facing sectors that had to move operations to an online space. Second, it changed workforce habits and expectations, with many companies and employees reconsidering on-site work as the effects of the pandemic subsided. Finally, in some countries it brought about a change in attitudes toward work itself—

a phenomenon sometimes characterized as the Great Attrition—with many workers rethinking the role of work in their lives and, in some cases, dropping out of the labor market altogether. A McKinsey survey suggested that as many as 17% of respondents did not return to the workforce.⁶

How significant will the impact of automation on labor transition be? Extensive research by the McKinsey Global Institute suggests that while many jobs may be lost as a result of technological adoption, many others will be created—and almost all jobs will change in some way. Companies will need to navigate these changes carefully to fully benefit from the productivity boost offered by new technologies while ensuring that all workers have the skills they need to thrive in a changing work environment.

On a global basis, as many as one in 16 workers might have to change occupations by 2030 to meet the changing needs of the labor market, according to McKinsey analysis of data on eight countries.⁷ In the MENA region, the share of work activities that can be automated today, 45%, is close to the global average of 50% (Exhibit 1).⁸

Other statistics suggest that the skills gap in the MENA region—that is, the gap between skills that exist today and those needed tomorrow—is wide and that educational systems in the region are not yet adequately preparing young people for a rapidly evolving workplace.

Evidence from the ground points to some progress. In its 2021 annual report, for example, the online learning company Coursera ranked Egypt among the top ten countries globally for the number of learners using its services, while Lebanon ranked second among countries

⁶ Aaron de Smet, Bonnie Dowling, Bryan Hancock, and Bill Schaninger, "The Great Attrition is making hiring harder. Are you searching the right talent pools?," *McKinsey Quarterly*, July 13, 2022.

⁷ "The future of work after COVID-19," McKinsey Global Institute, February 19, 2021.

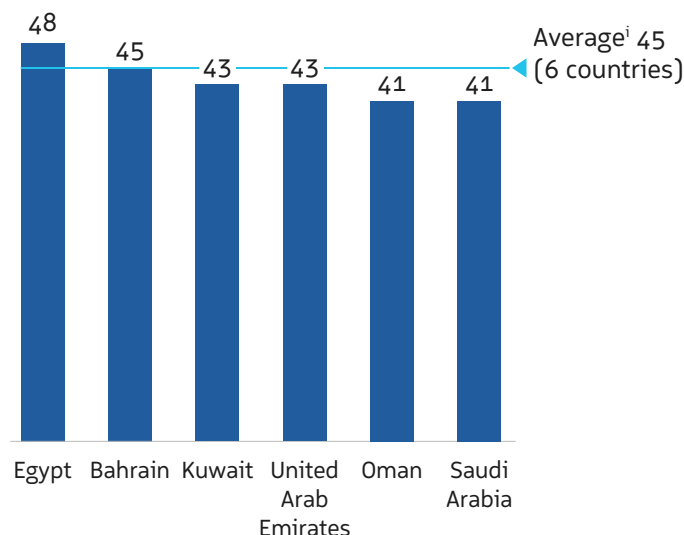
⁸ *The future of jobs in the Middle East*, McKinsey, 2018.

EXHIBIT 1

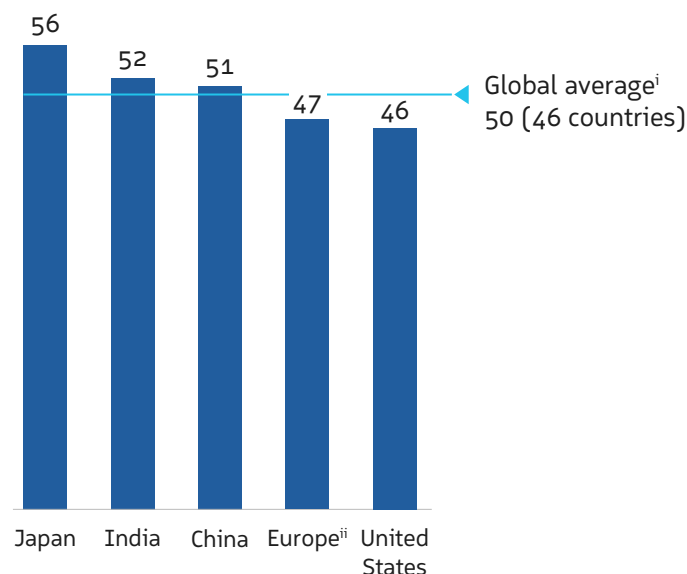
In the Middle East and North Africa, Almost Half of All Work Activities Have the Potential To Be Automated

Potential impact due to automation based on adoption of currently demonstrated technology

Middle Eastern countries



Benchmark countries



i. Weighted average based on full-time employment in 2016

ii. France, Germany, Italy, Spain and United Kingdom

Source: The future of jobs in the Middle East, McKinsey, 2018.

showing the highest growth in the number of learners.⁹

For all the suffering it caused, the pandemic proved to be a boon for innovative learning, accelerating the shift to hybrid delivery models for education and spurring innovations in classrooms and lecture halls. In the Middle East, major e-learning platforms, such as Madrasati in Saudi Arabia and Alef in the United Arab Emirates, emerged to support students and remain in use even after in-person classes resumed.

In the MENA region, new ministers took office in Morocco, Qatar, Saudi Arabia, and the United Arab Emirates, among other places, and brought

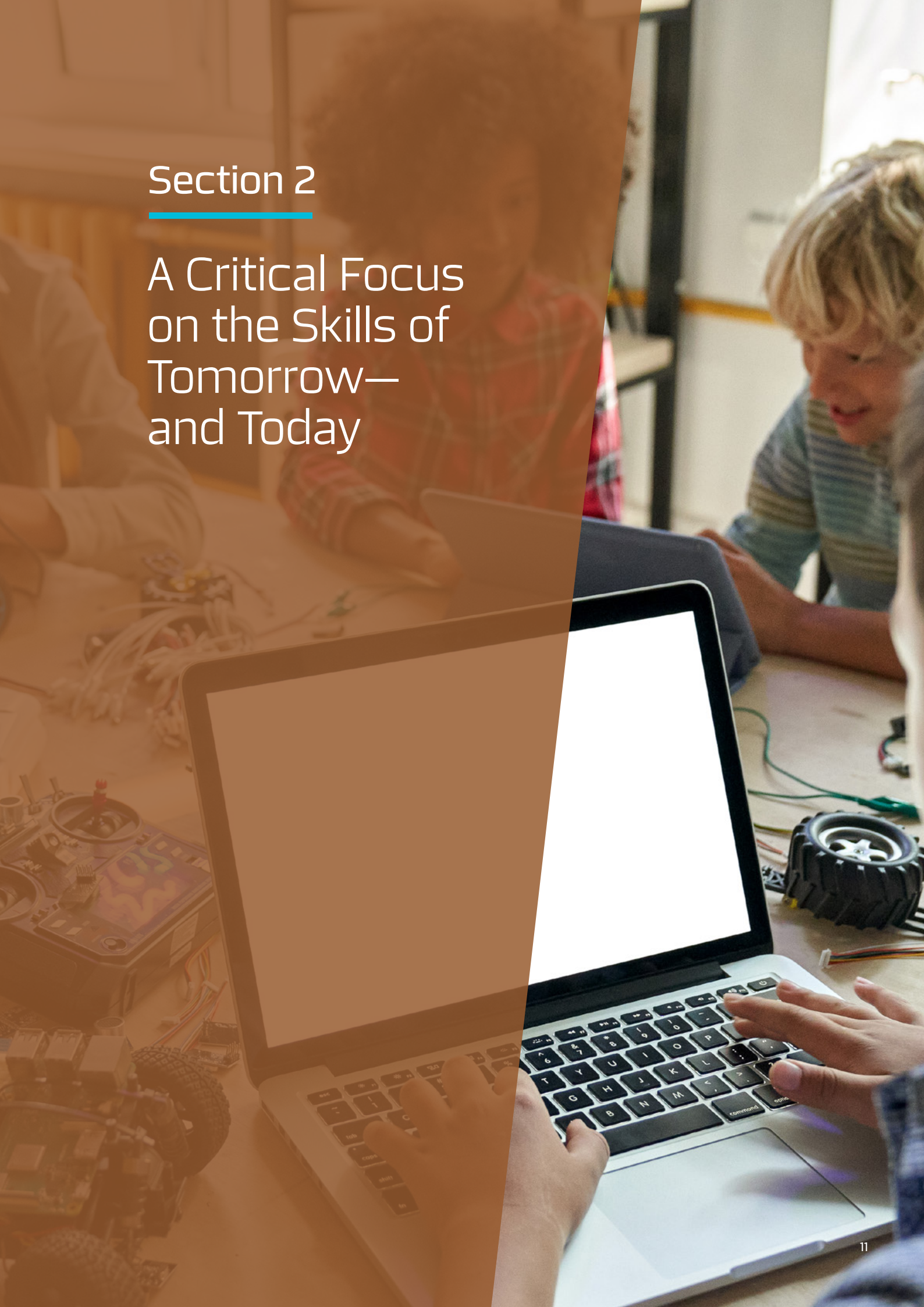
with them education reform blueprints that have clearly defined ambitions, specific and measurable outcomes, and big data-driven efforts to identify the most effective levers to improve student learning outcomes. Beyond new policies has come a new embrace of schools and classrooms as places where change happens, with tailored interventions and pilot programs being tested before eventually scaling. One example in the Middle East is the Ajyal schools in the United Arab Emirates, a pilot public-private partnership with a blended curriculum introduced in ten schools and scheduled to expand to 28 schools by 2025.¹⁰

⁹ Impact report, Coursera, 2021.

¹⁰ "Top private education groups to run government schools in new model," *The National*, June 6, 2022.

Section 2

A Critical Focus on the Skills of Tomorrow— and Today



The future will see a significant skill shift as automation and AI transform the workforce. This shift will likely be larger and faster than in the past. McKinsey Global Institute analysis of about 2,000 work activities covering 800 occupations in 46 countries focused on 20 core skills that will matter most by 2030.¹¹ The top three skills, in order of magnitude of expected demand, are technological skills, social and emotional skills, and higher-level cognitive skills.¹²

The need for technological skills, which encompass advanced IT skills, programming, and basic digital skills, is perhaps the most predictable. It is the smallest skills category today but is expected to have the strongest growth in demand by 2030 at 55%, representing 17% of hours worked, up from 11% in 2016.¹³ This demand surge will have an impact on advanced tech skills such as programming and advanced data analysis. But it will also be felt across nontech occupations such as nursing and teaching as digital technologies achieve increasing prevalence in all workplaces and basic digital skills become essential.

Demand for social and emotional skills such as leadership and managing others will become more important in an increasingly digitalized world. These are intrinsically human skills not easily replicated by machines. Research estimates that demand for these skills will rise from 18% of hours worked to 22% by 2030. Cognitive skills will also be in demand, with demand shifting from basic to higher-level cognitive skills such as creativity, complex information processing, and critical thinking. The analysis suggests that demand for physical and manual skills will drop from 31% of hours worked to 25% but will nonetheless remain the single largest category of workforce skills in 2030 in

many countries.¹⁴ Based on an analysis of workforce skills in the United States and Western Europe, demand for different skills will vary by sector (Exhibit 2).

Educational Systems and Companies Are Already Building Evolving Lists of Future Skills to Mobilize Learners and Educators

Educational systems and corporations are adapting to address the broad shifts in skills requirements. They are developing granular frameworks of knowledge, competencies, and skills that reflect their needs and contexts and introducing these frameworks into curriculums, teaching methods, and learners' records.

In general education, international organizations have developed global frameworks for skills that are likely to be more or less in demand in the future, as well as the skills that are transferable from one occupation to an adjacent one. These frameworks support and inform national and local efforts by educational systems and policy makers. The OECD Learning Compass 2030¹⁵ and the UNICEF Global Framework on Transferable Skills¹⁶ are two examples. Both have a clear focus on higher-level cognitive, social, and emotional learning skills to thrive in the future.

Our 2021 survey of 700 business executives highlights that companies are also building their learning portfolios, with ten common skills emerging. The results highlight the shift toward social, emotional, and advanced cognitive skills (Exhibit 3).¹⁷

What is the common thread uniting these frameworks? Other McKinsey research has identified 56 foundational skills that will benefit all workers.

11 "A future that works: Automation, employment, and productivity," McKinsey Global Institute, January 2017.

12 "Skill shift: Automation and the future of the workforce," McKinsey Global Institute, June 2018.

13 Ibid.

14 Ibid.

15 "OECD Learning Compass 2030," OECD Future of Education and Skills 2030, OECD, accessed January 20, 2023.

16 *Global framework on transferable skills*, UNICEF, November 2019.

17 "Building workforce skills at scale to thrive during—and after—the COVID-19 crisis," McKinsey, April 30, 2021.

EXHIBIT 2

Demand for Skills Will Vary Depending on Sector

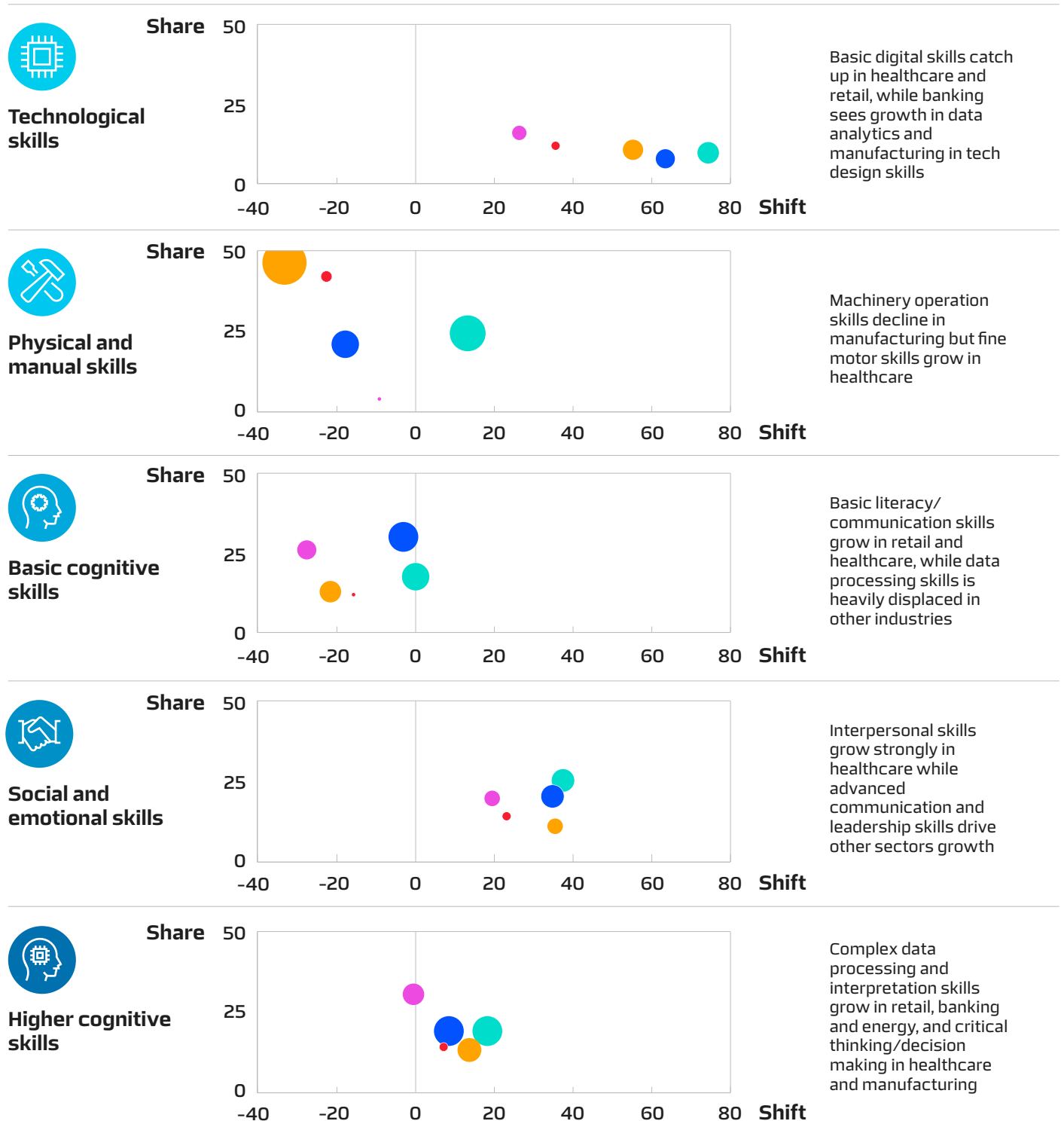
Based on McKinsey Global Institute workforce skills model
United States and Western Europe, 2016–30

- Banking and insurance
- Healthcare
- Retail
- Energy and mining
- Manufacturing

Share of sector hours worked (% of 2016)

Bubble size =
Hours worked in 2016, billion

Shift, 2016 - 30 (Net variation, %)

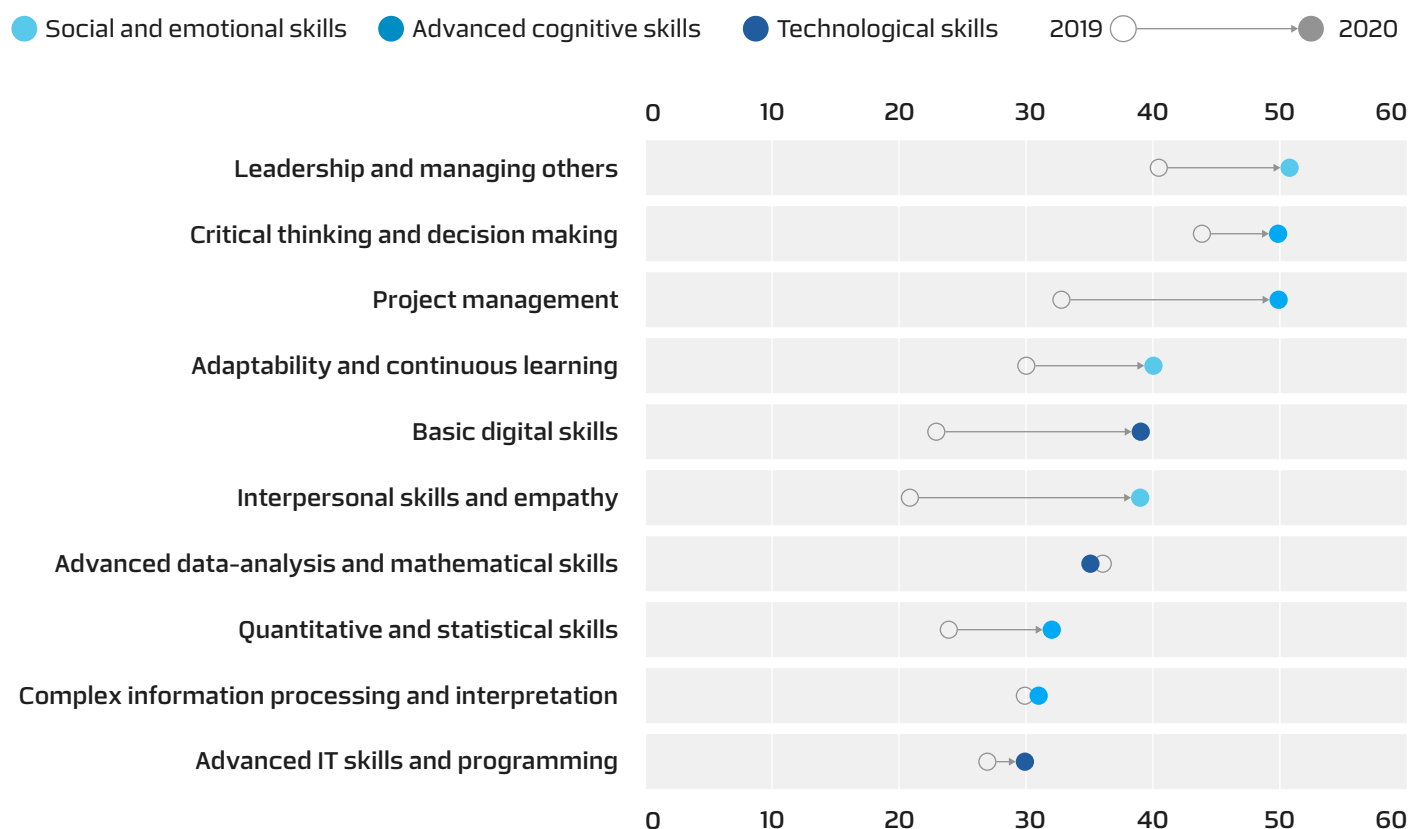


NOTE: Western Europe: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom.
Source: Skill shift: Automation and the future of the workforce, McKinsey Global Institute, June 2018.

EXHIBIT 3

Companies Are Largely Focused on Developing Social, Emotional, and Advanced Cognitive Skills

Skills that companies have prioritized to address through reskilling,ⁱ % of respondents



i. Out of 25 skills that were offered as answer choices; n = 700.

Source: Building workforce skills at scale to thrive during – and after – the COVID-19 crisis, McKinsey, 2021.

Higher proficiency in these skills is already associated with greater likelihood of employment, higher incomes, and more job satisfaction (Exhibit 4).¹⁸ These skills add value beyond what automated systems and intelligent machines can do. These skills are needed to operate in digital environments and continually adapt to new ways of working and new occupations. Having established this framework, the research went on to identify distinct areas of talent (DELTA) that fall within these skill groups and tested them out in a survey of 18,000 people in 15 countries.

The DELTA framework is only one effort to define and detail a granular set of skills around which students, educators, companies, and policy makers can mobilize. We see the possibility of multiple iterations, with applications at different stages of the learning journey.

It is important to note that such lists of skills are living documents and can change in response to changing contexts. For example, the financial crisis in 2008 prompted educators to incorporate financial literacy as a core skill. Financial literacy was even included in the OECD's Programme for

18 Marco Dondi, Julia Klier, Frédéric Panier, and Jörg Schubert, "Defining the skills citizens will need in the future world of work," McKinsey, June 25, 2021.

EXHIBIT 4

Our Research Identified 56 Foundational Skills That Will Help Citizens Thrive in the Future of Work

56 DELTASⁱ across 13 skill groups and four categories

Cognitive		Interpersonal	
Critical thinking • Structured problem solving • Logical reasoning • Understanding biases • Seeking relevant information	Planning and ways of working • Work-plan development • Time management and prioritization • Agile thinking	Mobilizing systems • Role modeling • Win-win negotiations • Crafting an inspiring vision • Organizational awareness	Developing relationships • Empathy • Inspiring trust • Humility • Sociability
Communication • Storytelling and public speaking • Asking the right questions • Synthesizing messages • Active listening	Mental flexibility • Creativity and imagination • Translating knowledge to different contexts • Adopting a different perspective • Adaptability • Ability to learn	Teamwork effectiveness • Fostering inclusiveness • Motivating different personalities • Resolving conflicts • Collaboration • Coaching • Empowering	
Self-leadership		Digital	
Self-awareness and self-management • Understanding own emotions and triggers • Self-control and regulation • Understanding own strengths • Integrity • Self-motivation and wellness • Self-confidence		Digital fluency and citizenship • Digital literacy • Digital learning • Digital collaboration • Digital ethics	
Entrepreneurship • Courage and risk-taking • Driving change and innovation • Energy, passion, and optimism • Breaking orthodoxies		Software use and development • Programming literacy • Data analysis and statistics • Computational and algorithmic thinking	
Goals achievement • Ownership and decisiveness • Achievement orientation • Grit and persistence • Coping with uncertainty • Self-development		Understanding digital systems • Data literacy • Smart systems • Cybersecurity literacy • Tech translation and enablement	

i. Distinct elements of talent.

Source: Defining the skills citizens will need in the future world of work, McKinsey, 2021.

International Student Assessment (PISA) evaluations in 2012.¹⁹ In 2011, the emerging debate on inclusive growth that goes beyond GDP to encompass people's welfare and well-being led to the launch of the OECD's Better Life Index²⁰ to measure subjective well-being and the introduction of well-being in the PISA evaluations in 2015.²¹

Today, environmental literacy is an emerging theme in response to the ongoing climate conversation. For example, the Center for Ecoliteracy in Berkeley, California, equips teachers and classrooms with tools and resources to create live experiments in subjects such as literature and natural sciences, while promoting students' abilities to see multiple perspectives, empathize, and show concern in understanding natural systems and potential climate risks.²²

Foundational Skills Will Matter Even More in the Wake of a Global Learning Shock

For all the attention being paid to future-proofing education, educators and educational systems also need to continue focusing on another imperative—building foundational competencies. Research has shown that foundational competencies are the prerequisites for further learning and acquisition of future skills.²³ They enable learners to fulfill their potential to become productive workers, engaged citizens, and contributors to society. The OECD defines three sets of foundational competencies²⁴: cognitive foundations, which include literacy and numeracy, upon which digital and data literacy are built; health foundations, including physical and mental health and well-being; and social and emotional foundations, including morals and ethics.²⁵

“For all the attention being paid to future-proofing education, educators and educational systems also need to continue focusing on another imperative—building foundational competencies”

19 *PISA 2012 results (volume IV): Students and money: Financial literacy skills for the 21st century*, OECD, 2012.

20 “How's life? Measuring well-being,” OECD, 2011.

21 “Students' well-being: What it is and how it can be measured,” in *PISA 2015 results (volume III): Ready to learn: Students' engagement, drive and self-beliefs*, OECD, 2017.

22 See Zenobia Barlow, Lisa Bennett, and Daniel Goleman, *Ecoliterate: How Educators Are Cultivating Emotional, Social, and Ecological Intelligence*, San Francisco, CA: Jossey-Bass, 2012, which draws on the work of the Center for Ecoliteracy.

23 “Concept note: Core foundations for 2030,” *OECD Future of Education and Skills 2030*, OECD, 2019.

24 *Ibid.*

25 *Ibid.*

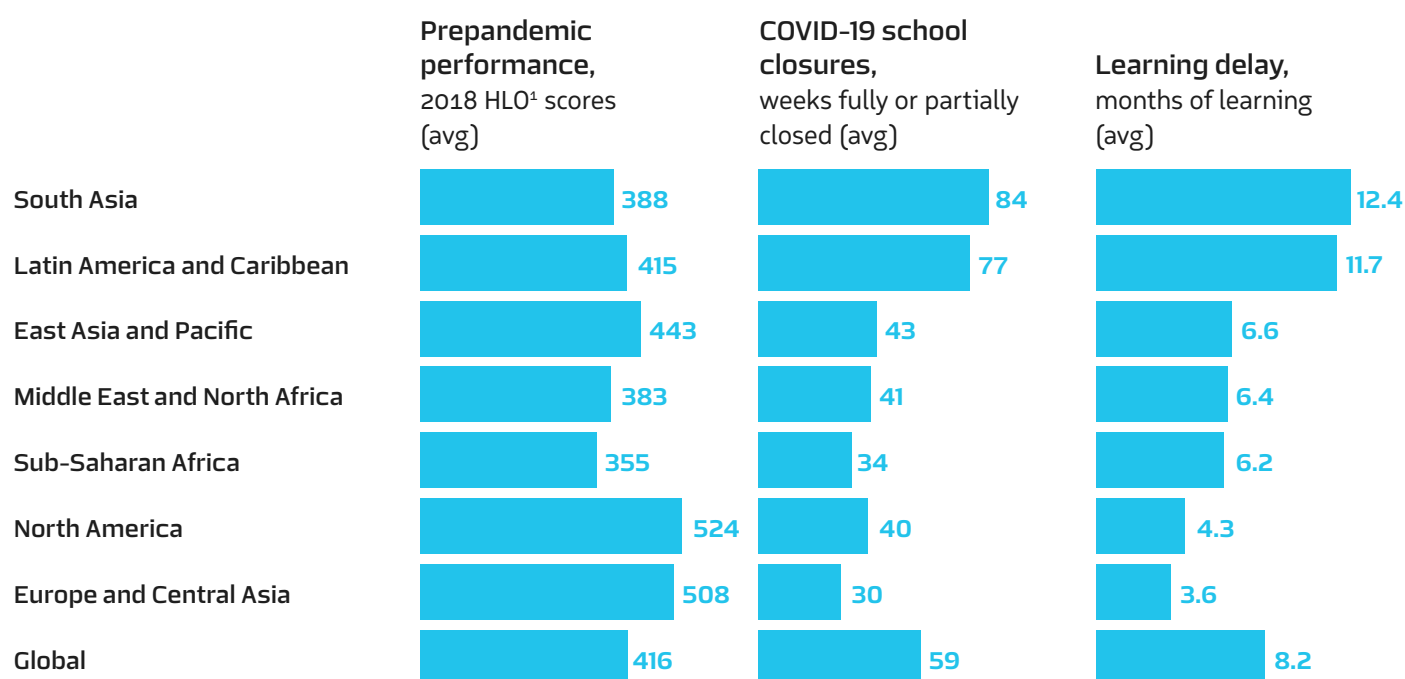
The critical importance of foundational competencies became even more apparent during the pandemic, which set back student outcomes in many places. Schools shut down for different durations across the world—from 30 weeks in Europe to 75 weeks or more in Latin America and South Asia—and access to quality and hybrid learning also varied both across and within countries. On average, our research shows that students globally are eight months behind where they would have been if the COVID-19 pandemic had not happened, although the impact varies by geography and type of educational system. In the Middle East and North

Africa, the learning delay amounts to more than six months on average. However, because the region’s educational achievement already lagged behind that of other advanced economies on average, the impact of school closures was more limited (Exhibit 5).²⁶

In the United States, the only region that performed and published national student assessments at the outset of the pandemic, the recently released National Assessment of Educational Progress scorecard confirms these findings and shows that students in fourth and eighth grade saw unprecedented declines in

EXHIBIT 5

The COVID-19 Pandemic Led to Learning Delays Across the World



1. The Harmonized Learning Outcomes (HLO) is a World Bank constructed globally comparable dataset covering 164 countries

Source: How COVID-19 caused a global learning crisis, McKinsey, 2022.

26 “How COVID-19 caused a global learning crisis,” McKinsey, April 4, 2022.

math and in reading achievement between 2019 and 2022 on account of the pandemic. In eighth-grade reading and math, scores fell to a level not seen since 2000 (Exhibit 6).²⁷

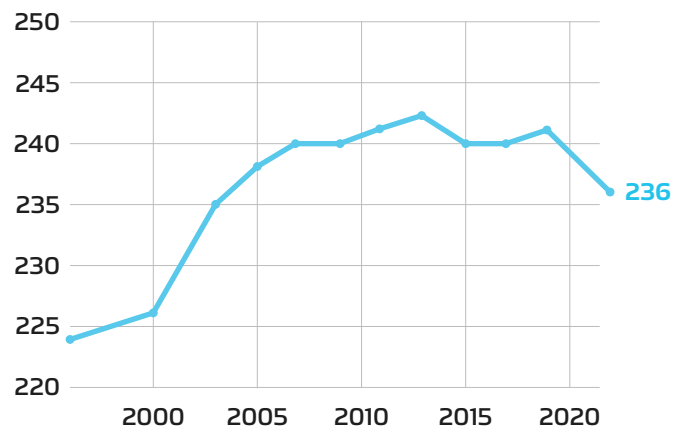
The pandemic's impact on learning outcomes comes on top of structural challenges that have been hard to overcome in many countries. By 2019, 60 percent of children in low- and middle-

EXHIBIT 6

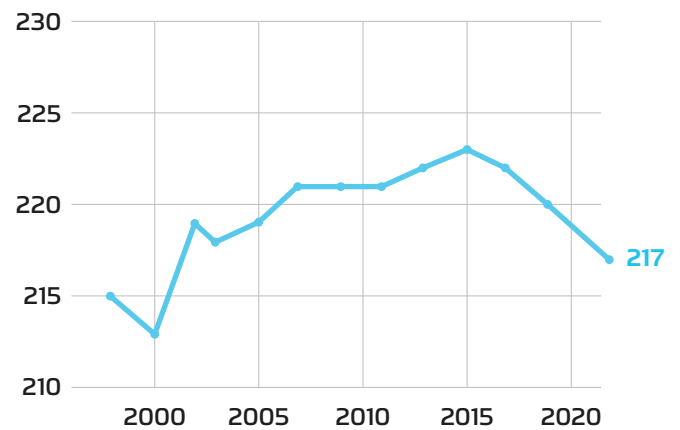
In the United States, Reading and Math Scores Declined Sharply During the Pandemic

NAEP scores over time

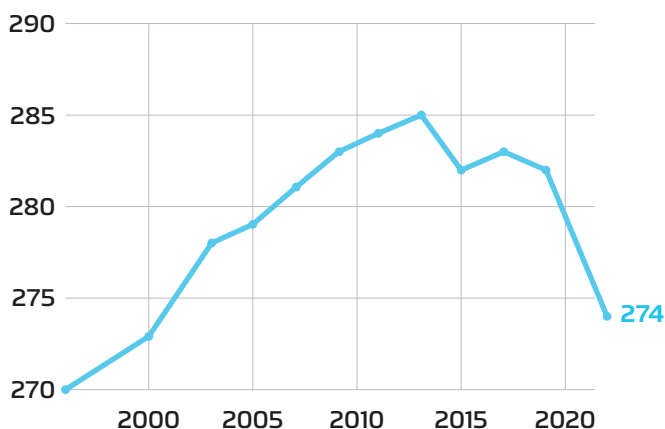
4TH GRADE MATH



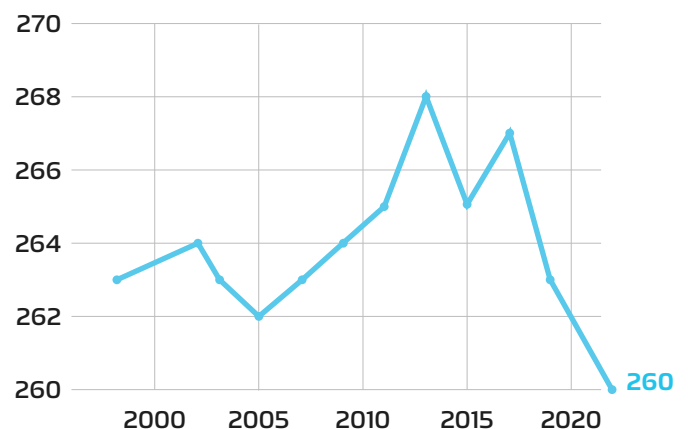
4TH GRADE READING



8TH GRADE MATH



8TH GRADE READING



Source: Long Term Trend Assessment Results: Reading and Mathematics, National Assessment of Educational Progress, 2020.

27 The nation's report card, National Assessment of Educational Progress, 2022.

income countries were living in “learning poverty”—a World Bank measure of the share of children unable to read and understand a simple text by age ten. By 2022, the share had increased to an estimated 70%.²⁸

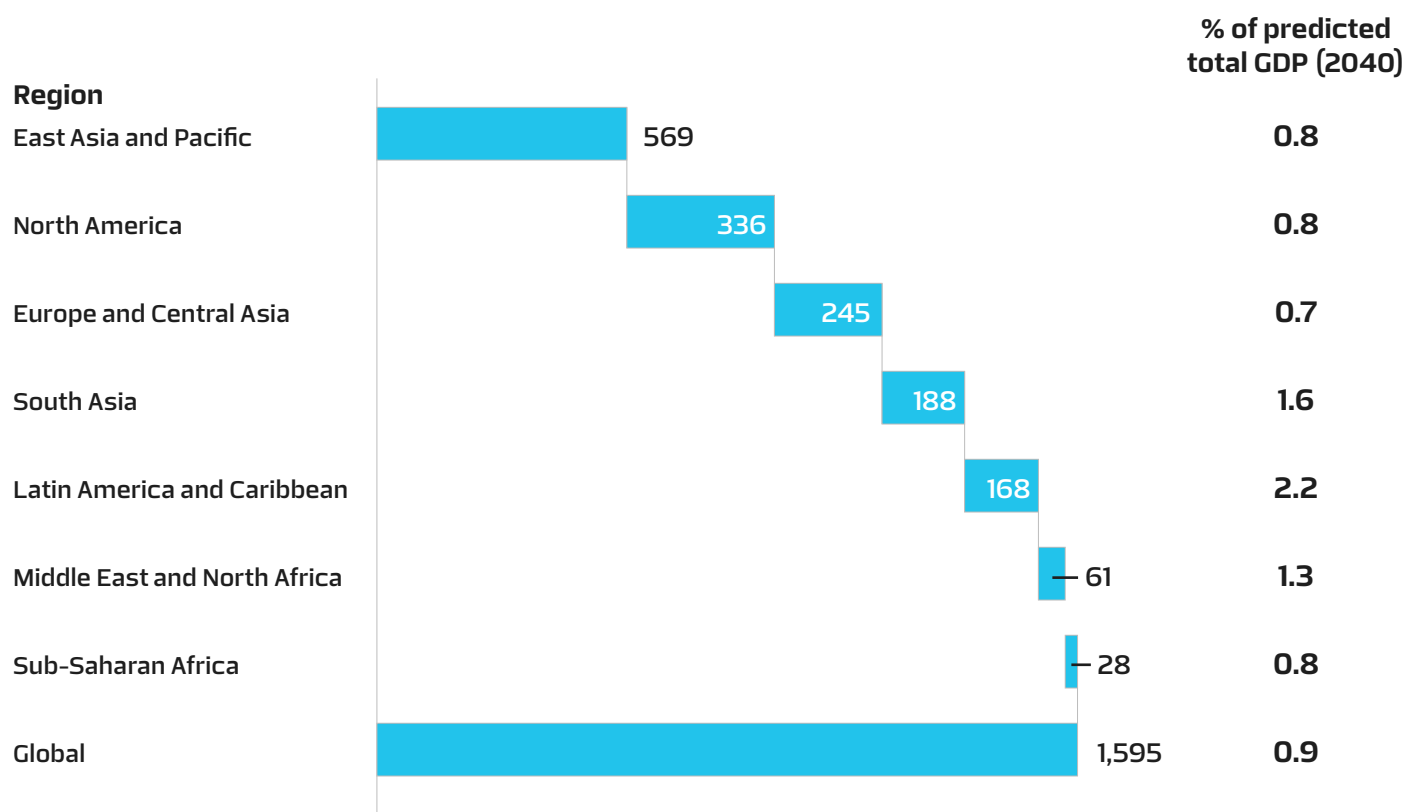
Unless the pandemic-related loss in foundational learning is addressed, this loss could eventually flow through to adult skills, earning potential, and socioeconomic outcomes. Our analysis suggests

that because of the impact of the pandemic on their schooling, today’s students may earn US \$49,000 to US \$61,000 less over their lifetime than could have been expected.²⁹ Globally, the pandemic may create a loss of up to 0.9% of GDP by 2040. Low- and middle-income countries bear a disproportionate share of this shock: in the Middle East and North Africa, the loss is estimated at US \$61 billion every year, or 1.3% of GDP (Exhibit 7).

EXHIBIT 7

Economic Impact of the COVID-19 Global Learning Crisis

Annual GDP loss predicted by 2040 by region, \$ billionsⁱ



i. Based on learning delay as of January 31, 2022.

Source: Eric A. Hanushek and Ludger Woessmann, “The role of cognitive skills in economic development,” *Journal of Economic Literature*, 2008, Volume 46, Number 3; UNESCO; World Bank; World Bank GDP Capital Growth Rate; World Bank Country Population Growth Rate

Source: How COVID-19 caused a global learning crisis, McKinsey, April 4, 2022.

²⁸ *The state of global learning poverty: 2022 update*, World Bank, UNESCO, UNICEF, UK Foreign Commonwealth and Development Office, USAID, and the Bill & Melinda Gates Foundation, June 2022.

²⁹ Emma Dorn, Bryan Hancock, Jimmy Sarakatsannis, and Ellen Viruleg, “COVID-19 and education: The lingering effects of unfinished learning,” McKinsey, July 27, 2021.

Section 3

The Future of Earning: Going the Skills Distance



Education has a direct impact on employment, with significant implications for individuals' earning power. How could this play out in a more tech-focused workplace?

With the rapidly evolving nature of work, skills have an ever-decreasing shelf life. By one measure, skills lose half of their value every five years.³⁰

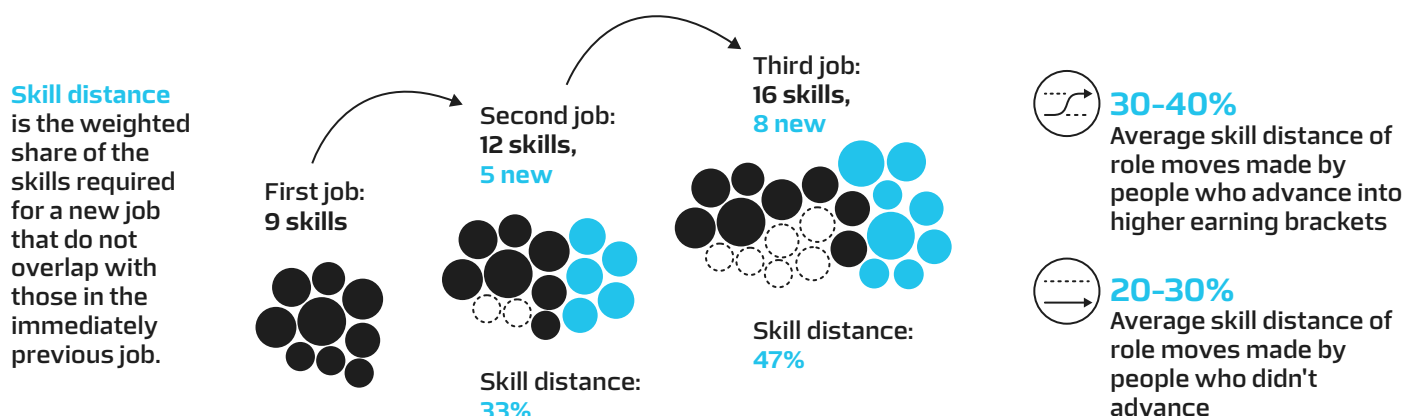
This changing landscape may not be entirely negative. Indeed, it could have positive implications for access and equity in education. As the ability to continuously 'learn to earn' shapes future labor markets, individual earning potential does not have to depend on opportunities of the past. McKinsey research suggests that work experience contributes between 40-60% of an individual's overall human capital value.³¹ True skills acquisition is no longer a simple function of the types and number of an individual's educational qualifications, but an ongoing process shaped most significantly by work experience and professional development.

Our research indicates that work experience matters more than we think, and individuals in the most upwardly mobile cohorts make bold moves more frequently.³² We used big data to examine some four million real-world job histories for workers in the United States, Germany, the United Kingdom, and India, paying special attention to the specific bundles of skills required in each role and how job moves affect earnings. We found that skills derived through experience account for 60-80% of lifetime earnings for those who move up but only 35-55% for those who stay flat or drop down.³³ Workers in our sample switched roles every two to four years on average, depending on the country. With each role change after a first job, we determined the 'skill distance' of the move—the share of distinct new skills required in the new role—and found that the average skill distance per role move is 25% or more (Exhibit 8).

In addition, simple work mobility is not the same as roles that push individuals into unfamiliar

EXHIBIT 8

People Get the Biggest Boost From the 'Bold' Moves That Stretch Their Skills Further



Source : Human capital at work The value of experience, McKinsey, June, 2022.

30 John Seely Brown and Douglas Thomas, *A New Culture of Learning: Cultivating the Imagination for a World of Constant Change*, CreateSpace Independent Publishing Platform, 2011.

31 "Human capital at work," McKinsey Global Institute, 2022.

32 Anu Madgavkar, Bill Schaninger, and Sven Smit, "If you want to grow in your career (and lifetime earnings), you need to focus on doing this," McKinsey, August 17, 2022.

33 "Human capital at work," 2022.

settings with a steeper learning curve. Those who were upwardly mobile not only had pursued mobility in their careers but had done so with stretch roles and stretch skills—meaning they moved into jobs and roles that represented new and different skills that they hadn’t deployed or exercised in their previous role.

The New Skilling Cycle Provides an Opportunity to Reverse Educational Disadvantages With the Right Work Experience and Coaching

Socioeconomic mobility has traditionally been tied to the kinds of opportunities people could access early in their lives. Research on intergenerational mobility shows that wealth, parental occupations, access to education, and life outcomes are interlinked. In the United States, children whose parents are in the top 1% of the income distribution are 77 times more likely to attend an Ivy League college than those whose parents are in the bottom income quintile. Meanwhile, low-income students admitted to selective colleges have similar earnings outcomes as their peers from higher-income families.³⁴ Similar patterns are seen in the Middle East. In Egypt, for example, young people whose fathers work in white-collar occupations are four times more likely to obtain a white-collar job than those whose fathers work in agricultural or elementary occupations.³⁵

However, work experience is a critical driver of incomes for workers with less education. It should be viewed as an opportunity for ongoing skill development and growth—particularly in

the earlier stages of an individual’s career. The “experience effect” generally matters more for workers with less education. People may not have control over factors such as their upbringing or the quality of their local schools, but they do exercise some degree of choice in the occupations they pursue and the organizations they join—and those choices are especially important for people who start in low-wage jobs.

In the United States, for example, our lifetime earnings projections show a subset of people whose earnings were not correlated with educational achievement: 28% of high school graduates in our sample had higher earnings potential than the median holders of associate’s degrees, and 37% of associate’s degree holders could earn more than median bachelor’s degree holders over their lifetimes.³⁶ This difference was attributable to learning skills through work experience as the primary strategy for getting ahead in the labor market.

The onus of capitalizing on work experience for skills growth does not rest with individuals alone. Organizations can play a critical role in catalyzing the reversal of socioeconomic disadvantages. By focusing on changing their approach to hiring (not only for knowledge and skills but also for their potential and capacity to learn), embracing mobility for employees in their workplace, and strengthening coaching and on-the-job training, particularly early in an employee’s tenure, companies can establish themselves as great learning organizations and magnets for talent.

³⁴ Raj Chetty et al., *Mobility report cards: The role of colleges in intergenerational mobility*, Human Capital and Economic Opportunity Global Working Group working paper number 2017-059, August 2017.

³⁵ *Arab Voices*, “Social mobility in Egypt: it helps to have the right parents,” blog entry by Lire Ersado, World Bank, January 24, 2013.

³⁶ “Human capital at work,” 2022.

Section 4

Technology With Intention and Moderation



While adoption of technological innovation is accelerating in every facet of our lives, education remained largely unaltered by systemic disruption until the pandemic.

The overnight shift to digital education during the pandemic highlighted both the promise of technology and how far we have to go before we can effectively and reliably capture that promise. Technology, done well, has the potential to enable personalized learning for students, support teachers, provide broad engagement opportunities for parents, and inform educational policies for school leaders and policy makers.

Technology can improve access to education by enabling personalized, mastery-based learning; saving time for teachers; and equipping students with the digital skills they will need for 21st-century careers. However, its successful deployment hinges on investing in training and preparation while making sure that student learning is at the heart of any technological intervention.³⁷ Technology needs to be used with both intention and moderation: in the hands of learners with no teacher support, it is associated with lower learning outcomes. This is especially true in earlier grades, where human guidance and

social interaction—important elements of the learning experience—are difficult to replicate in remote learning or with technology.

Eight New Student-Facing Technologies Are Helping Bring About Change in Educational Institutions

In higher education and in the context of mature learners, COVID-19 has changed traditional learning paradigms and accelerated hybrid learning and delivery models. This has affected instructional and pedagogical design, learners' experience, and engagement, and demonstrated the effectiveness of user-centric technologies in education.³⁸ (In this section, we focus on student-facing technology; other research provides details of teacher-facing tech.³⁹)

As a result, demand for these technologies has risen even as most institutions resume in-person instruction. Our research has identified eight learning technologies that are reshaping aspects of the learning experience. These typically include technologies that help enhance connectivity, especially in times of remote learning (such as group work, classroom interaction, and exercises), technologies that support self-paced learning (such as machine

“The overnight shift to digital education during the pandemic highlighted both the promise of technology and how far we have to go before we can effectively and reliably capture that promise”

³⁷ Jake Bryant, Felipe Child, Emma Dorn, and Stephen Hall, “New global data reveal education technology’s impact on learning,” McKinsey, June 12, 2020.

³⁸ “How technology is shaping learning in higher education,” McKinsey, June 15, 2022.

³⁹ See, for example, “New global data reveal education technology’s impact on learning,” June 12, 2020; and Jake Bryant, Christine Heitz, Saurabh Sanghvi, and Dilip Wagle, “How artificial intelligence will impact K-12 teachers,” McKinsey, January 14, 2020.

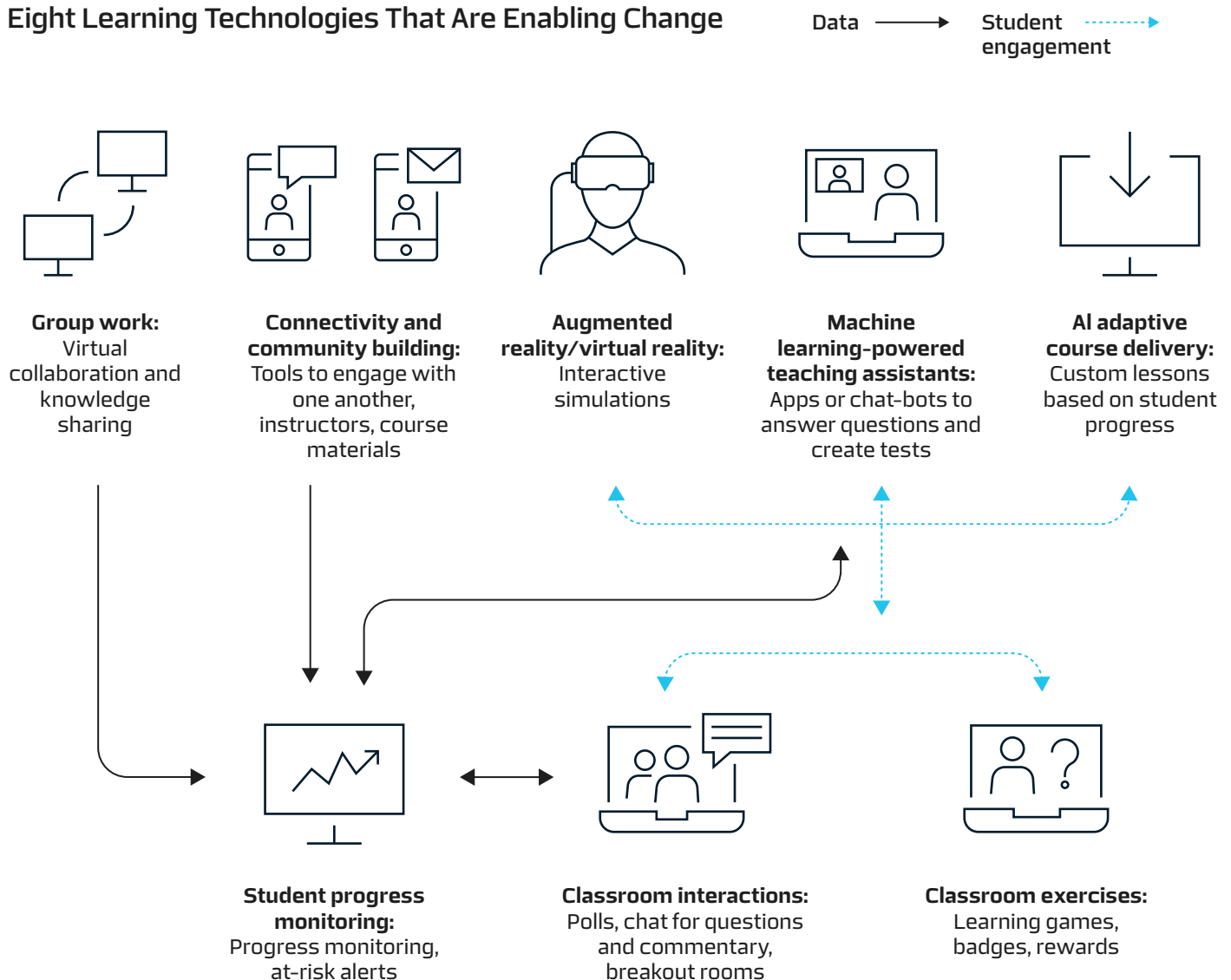
learning and AI-powered teaching assistants and course delivery), and technologies that inform student progress (Exhibit 9).⁴⁰

As in-person learning resumed, students continued to show an appetite for interactive and blended experiences, signaling that diverse learning models are here to stay.⁴¹ This

is reinforced by nascent research on the preferences and mindsets of Generation Z: today's college students want more agency in the learning experience, with the aspiration to become self-determined learners encouraged to make decisions in a variety of assignments that provide both learning and meaning.⁴²

EXHIBIT 9

Eight Learning Technologies That Are Enabling Change



Source: How technology is shaping learning in higher education, McKinsey, 2022.

40 "How technology is shaping learning in higher education," McKinsey, June 15, 2022.

41 Laura Didymus and Clare Killen, *Student digital experience insights survey 2021/22: UK higher education (HE) survey findings*, Jisc data analytics, September 2022.

42 Jeffrey J. Selingo, "How colleges can recruit, teach, and serve Gen Z," *Chronicle of Higher Education*, 2018.

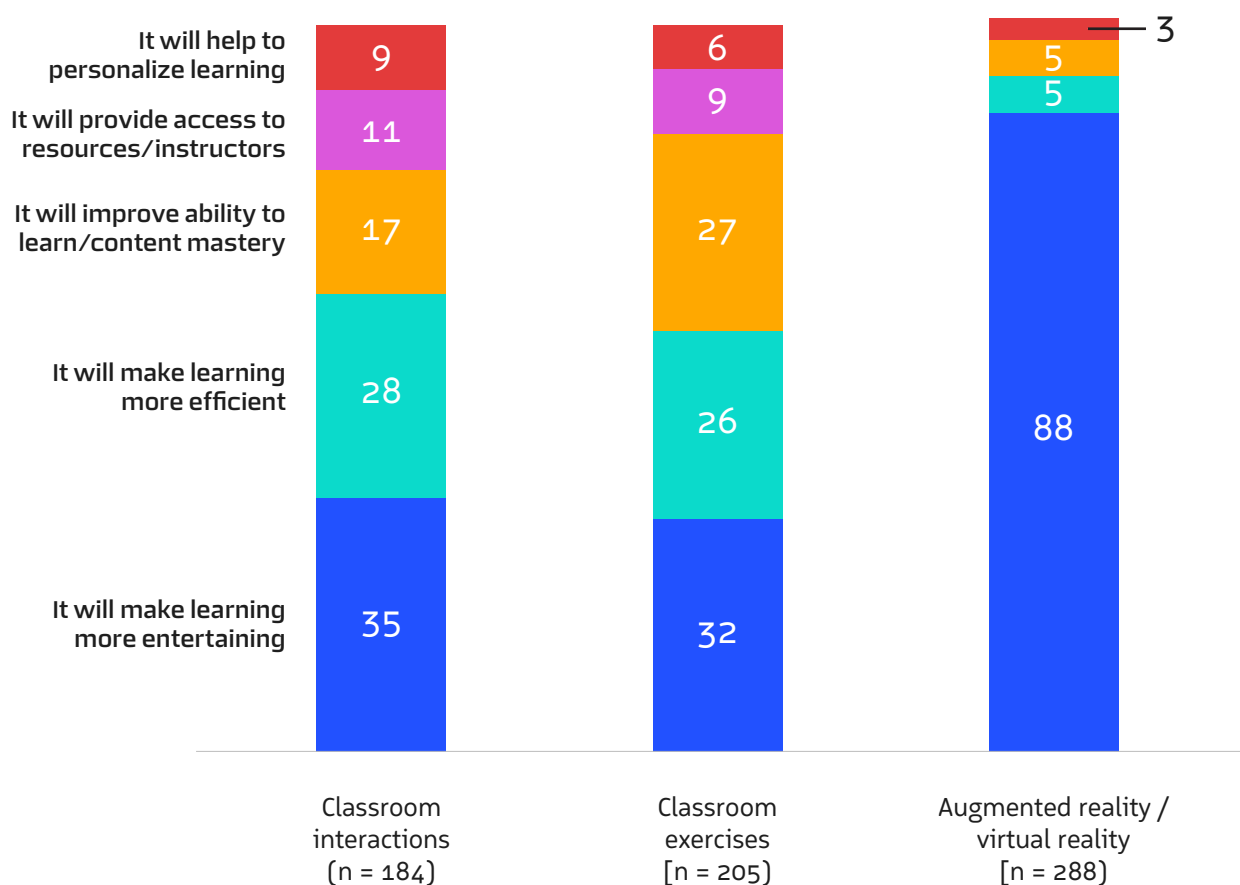
A survey of US colleges shows that classroom interaction technologies such as real-time chatting, polling, and breakout rooms were widely used during the pandemic, thereby spurring efforts to scale up these technologies with the resumption of physical instruction (Exhibit 10).⁴³

As this shift is unlikely to abate, institutions across the continuum from K-12 to higher education are looking to make strategic choices about their mix of in-person and remote education and their investment in AI and other technologies that can support students' learning outcomes.

EXHIBIT 10

Students' Attitudes Toward Technology Are Shaping Learning in Higher Education

Why students are excited about using learning technology in the futureⁱ, % of student respondents?ⁱⁱ



Note: Chart shows data for three of the eight technologies studied.

i. Question: What is the primary reason you are excited about the technologies you selected?

ii. Figures may not sum to 100%, because of rounding.

Source: Nov 2021 McKinsey survey of 634 faculty members and 818 students from public, private, and minority-serving colleges and universities

43 In November 2021, McKinsey surveyed about 600 faculty members and 800 students from public and private colleges and universities in the United States, including minority-serving institutions, over a ten-day period. Participants included only students and faculty who had some remote- or online-learning experience with any of the eight featured technologies. Respondents were 63 percent female, 35 percent male, and 2 percent other gender identities; and 69 percent White, 18 percent Black or African American, 8 percent Asian, and 4 percent other ethnicities. They represented every US region. The survey asked respondents about their experiences with technology in the classroom before the COVID-19 pandemic; experiences with technology in the classroom since the start of the pandemic; and desire for future learning experiences in relation to technology. See "How technology is shaping learning in higher education," June 15, 2022.

“The move to reinvent online learning experiences has rewarded institutions that had a head start on hybrid learning and investments in infrastructure as well as on student and teacher adoption and literacy”

Given differences in school systems, learners, and the capabilities of educators, an important first step is understanding how technology can be effectively implemented given specific local contexts and needs. This is particularly the case in the MENA region, where there is a broad spectrum in the readiness and infrastructure of higher education institutions.⁴⁴

Blended Learning and AI Can Support Learners' Experience and Outcomes

The move to reinvent online learning experiences has rewarded institutions that had a head start on hybrid learning and investments in infrastructure as well as on student and teacher adoption and literacy.

In K–12, blended or personalized instruction presents a significant opportunity for learners. It can help schools better allocate resources, realize greater educational outcomes for its students, and reduce inequity. A 2014–15 study by the Bill & Melinda Gates Foundation and RAND Corporation showed that students in public schools with blended learning improve their performance on Measure of Academic Progress assessments by an average of 11 percentage points in math and eight percentage points in reading over a two-year period, compared with a matched peer group.⁴⁵

Hybrid and innovative learning models are particularly salient in higher education. Students are increasingly focused on return on investment and the links between skills gained through degree and nondegree programs and career opportunities. In addition, demand is rising for higher quality and experience standards in online learning.⁴⁶

Good data is critical in determining how educational systems, governments, and businesses can develop the skills that the labor market needs. Such data is hard to find and not yet widely used to improve educational outcomes at scale. However, a growing number of higher education institutions are starting to use data and analytics as an integral part of their processes. Whether the goal is to identify the pain points that students need to overcome, efficiently allocate resources, improve diversity, or personalize student and faculty experiences, institutions are starting to see the benefits of data-backed solutions.

Online higher education pioneers use AI to deliver adaptive learning, address individual students' needs, and offer real-time feedback and support (see sidebar, “Case study: How an online university used AI to increase student retention during the pandemic”).

44 Adnan Badran, ed., *Major Challenges Facing Higher Education in the Arab World: Quality Assurance and Relevance*, Springer Nature Switzerland, 2019; *Future Development*, “The paradox of higher education in MENA,” blog entry by Shantayanan Devarajan, Brookings Institution, June 27, 2016.

45 *Early progress: Interim report on personalized learning*, Bill & Melinda Gates Foundation and RAND Corporation, November 2015.

46 Nadine Diaz-Infante, Michael Lazar, Samvitha Ram, and Austin Ray, “Demand for online education is growing. Are providers ready?,” McKinsey, July 20, 2022.

How an Online University Used AI to Increase Student Retention During the Pandemic

During the pandemic, one online university was facing a significant downward trend in student retention. The university explored multiple options, but the results fell short of expectations. It turned to an advanced-analytics approach to decrease attrition.¹

The goal was to build a machine learning model that would allow early identification of students at risk of attrition. To do this, it examined ten years' worth of historical university data to understand the characteristics that differentiated students who were most likely to continue—and graduate—from those who withdrew. After validating that initial model multiple times, the institution applied it to the current student population.

This model yielded five at-risk student archetypes, including three that were counterintuitive to conventional wisdom about typical at-risk student profiles and that accounted for about 70% of the students most likely to discontinue enrollment. The model identified at least twice as many students at risk of attrition as models based on linear rules. It allowed the university to strategically invest in short- and medium-term initiatives most likely to drive retention improvement.

¹ "Using machine learning to improve student success in higher education," McKinsey, April 7, 2022.



Increasing Adoption Is Only the First Step to Capturing Technology's Benefits

For all the time, process, and changes needed to truly transform the hybrid education experience, students and faculty remain excited for both learning and engagement outcomes. Yet while excitement and usage levels have soared during the COVID-19 pandemic, adoption continues to be slow because of a range of issues including awareness, equity, and ease of adoption.

Access and equity are especially relevant in the MENA region, which faced capability and connectivity challenges. In Egypt, a study among staff members at Zagazig University revealed that the top four barriers to e-learning during the pandemic were insufficient or unstable internet connectivity, inadequate computer labs, a lack of computers or laptops, and technical problems.⁴⁷

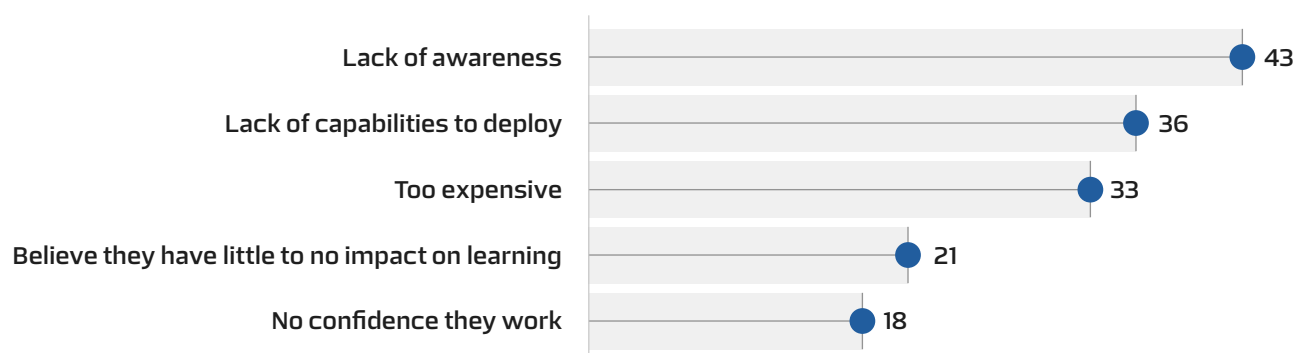
Investments in both digital technologies and technical support and training of faculty and staff can help in sustaining adoption. A recent survey of higher education institutions indicates that enthusiasm alone is not enough to close digital-literacy gaps and accelerate a slow adoption rate. Investment in capabilities and awareness is a key factor that can support less tech-savvy instructors (Exhibit 11).

In addition, as they work to raise adoption rates, institutions are mindful about bringing technology back to the original purpose of improving learners' outcomes, supporting acquisition of future skills, and enabling institutions to optimize student experience, instructional relevance, and sustainability.

EXHIBIT 11

Barriers to Using Learning Technology for Students and Faculty Include Lack of Awareness, Lack of Deployment Capabilities, and Cost

Top 5 barriers to using learning techⁱ, % of student and faculty respondents (n = 1,429)



i. Question: For the technologies you have not had experience using in the classroom, what are the potential reasons or barriers as to why? (Select all that apply.)

Source: Nov 2021 McKinsey survey of 634 faculty members and 818 students from public, private, and minority-serving colleges and universities. Survey respondents ranked the primary barriers to adopting new learning tools

Source: How technology is shaping learning in higher education, McKinsey, 2022.

⁴⁷ "Reimagining higher education in MENAP," McKinsey & Company, May 13, 2022.

Section 5

Early Childhood Education: The Early Days That Matter

In the first four sections of this report, we focused on the cross-cutting issues affecting learning and earning. In the final four sections, we spotlight different moments in the education journey, starting with early childhood education (ECE). As policy makers look to adjust educational strategies to the evolving world of work, understanding the role ECE plays is essential. It is a critical enabler of an integrated K-12 education pathway, and prioritizing evidence-based ECE interventions will ensure that the skilling continuum starts early and continues throughout formal education.

Early childhood education gets children ready for school by helping them build important skills such as social-emotional, cognitive, language and literacy, and physical development. In addition, funding for early childhood education provides a higher return on investment than funding at other stages; this is the stage at which the issue of inclusion is best addressed. One influential academic study has shown that every dollar invested in high-quality early childhood education provides a 7-10% per annum return on investment.⁴⁸

The inclusion opportunity is also significant. Many children do not have access to ECE because it tends to be relatively costly, at approximately 15% of average household earnings for OECD countries.⁴⁹ Yet ECE has demonstrated socioeconomic impact: children enrolled in ECE perform better in society and are less likely to encounter law enforcement intervention, for example.⁵⁰

Given the extreme importance of ECE, governments need to be thoughtful in designing

successful ECE systems through focusing on three dimensions: access, quality, and parental involvement.

Public Funding and Parental Awareness Are Key Prerequisites to Increasing Access to Early Childhood Education

Access to ECE is highly correlated with public funding. Countries with the highest enrollment of three-year-olds in ECE are also the ones that allocate the highest percentage of public funding to ECE (Exhibit 12).⁵¹ Nordic countries in general have high rates of both enrollment and funding. In Finland, for example, ECE is considered a fundamental right, and one year of ECE is mandatory for all children. ECE is subsidized for all families.⁵² Other countries are taking note, putting in place large-scale public funding programs, such as Singapore's operator subsidies and universal pre-K in New York State.⁵³

In many countries in the MENA region, less than 5% of children are enrolled in ECE.⁵⁴ The opportunity is big; in PISA tests taken a decade later, students in the MENA region with some ECE score 27 points higher than students with no ECE.⁵⁵ For reference, 40 points is equivalent to the knowledge gained in one year of schooling.⁵⁶

Quality Outcomes Hinge on Setting Frameworks for Learning Standards and Supporting Innovative Pedagogies

Governments can set standards for ECE learning outcomes and define desired outcomes for future skills. By emphasizing skill building in ECE curriculums, governments can give students a solid foundation for their educational journey and can help to mitigate inequality.

48 James Heckman et al., "The rate of return to the HighScope Perry Preschool Program," *Journal of Public Economics*, February 2010, Volume 94, Numbers 1-2; Jorge Luis García et al., *Quantifying the life-cycle benefits of a prototypical early childhood program*, National Bureau of Economic Research working paper number 23479, 2017.

49 PF3.4 Childcare support," OECD Family Database, OECD, April 2022.

50 Clive R. Belfield et al., "The High/Scope Perry Preschool Program: Cost-benefit analysis using data from the age-40 followup," *Journal of Human Resources*, Winter 2006, Volume 41, Number 1.

51 OECD; UAE Ministry of Social Affairs; Alzahrani Asma, Dashash Doaa, and Alqassem Rabaah, "Early childhood education in Saudi Arabia: Report," *World Journal of Education*, 2016, Volume 6, Number 5; "Pre-primary Education Voucher Scheme," in Report No. 60, Hong Kong Director of Audit, April 2013.

52 "Early Childhood and School Education Funding," European Commission, last updated 16 June 2022.

53 "Support schemes for non anchor operators," Early Childhood Development Agency, Singapore, accessed January 23, 2023; "Universal prekindergarten expansion funding," New York State Education Department, accessed January 23, 2023.

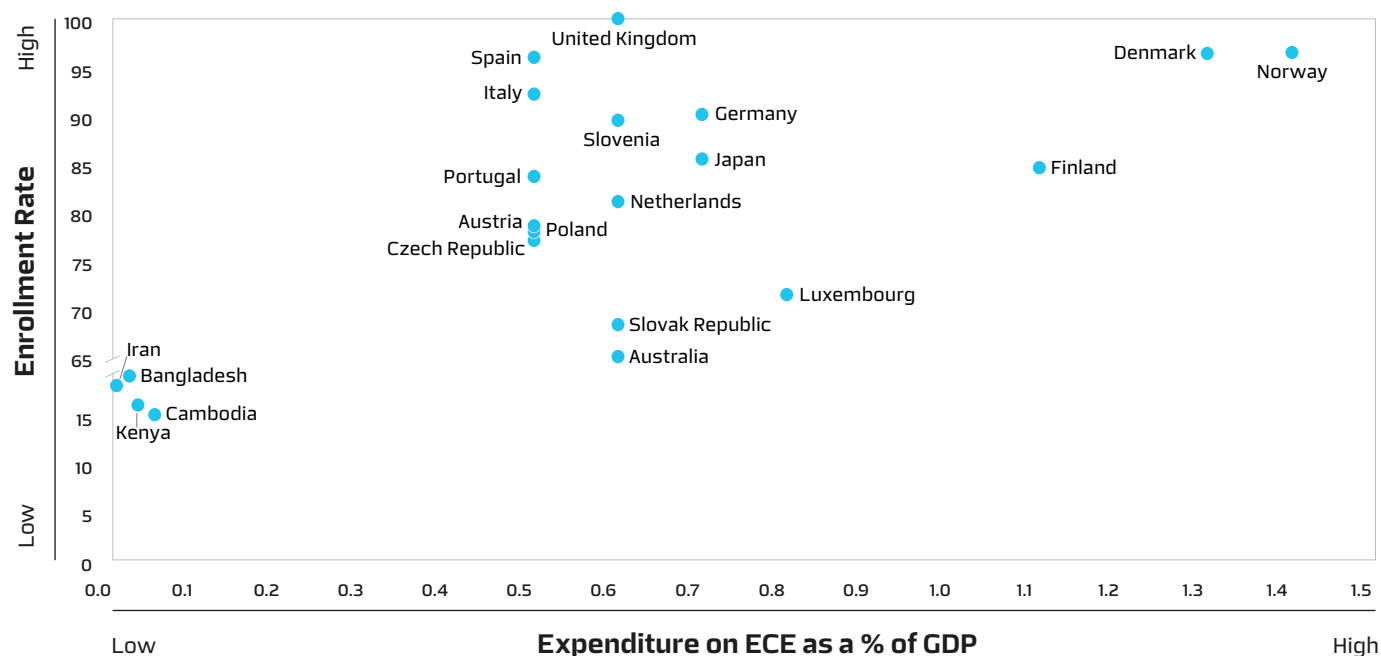
54 *Early child development in the Middle East and North Africa*, World Bank, 2010.

55 "Drivers of student performance: Insights from the Middle East and North Africa," McKinsey, October 2017.

56 Ibid.

EXHIBIT 12

The Share of Public Funding of Early Childhood Education Correlates With the Enrollment of 3-Year-Olds



Source: Enrollment data: OECD (2014–20); UNICEF (last updated May 2022); expenditure data: OECD press search (2014–20), World Bank (2020)

Standards are particularly important for ECE because of the often-fragmented nature of players and varied approaches at this stage compared with K–12.

Evidence from decades of neuroscience research points to the importance of learning through play. This has been shown to be a particularly effective methodology for the development of future skills that are cross-cutting and interlinked.⁵⁷ Play is a powerful tool that can help children build robust higher-level cognitive and social and emotional skills. Moreover, play helps children become engaged lifelong learners who will continue to acquire and hone future skills well beyond childhood.

Parental Involvement as an Enabler of Both Quality and Access

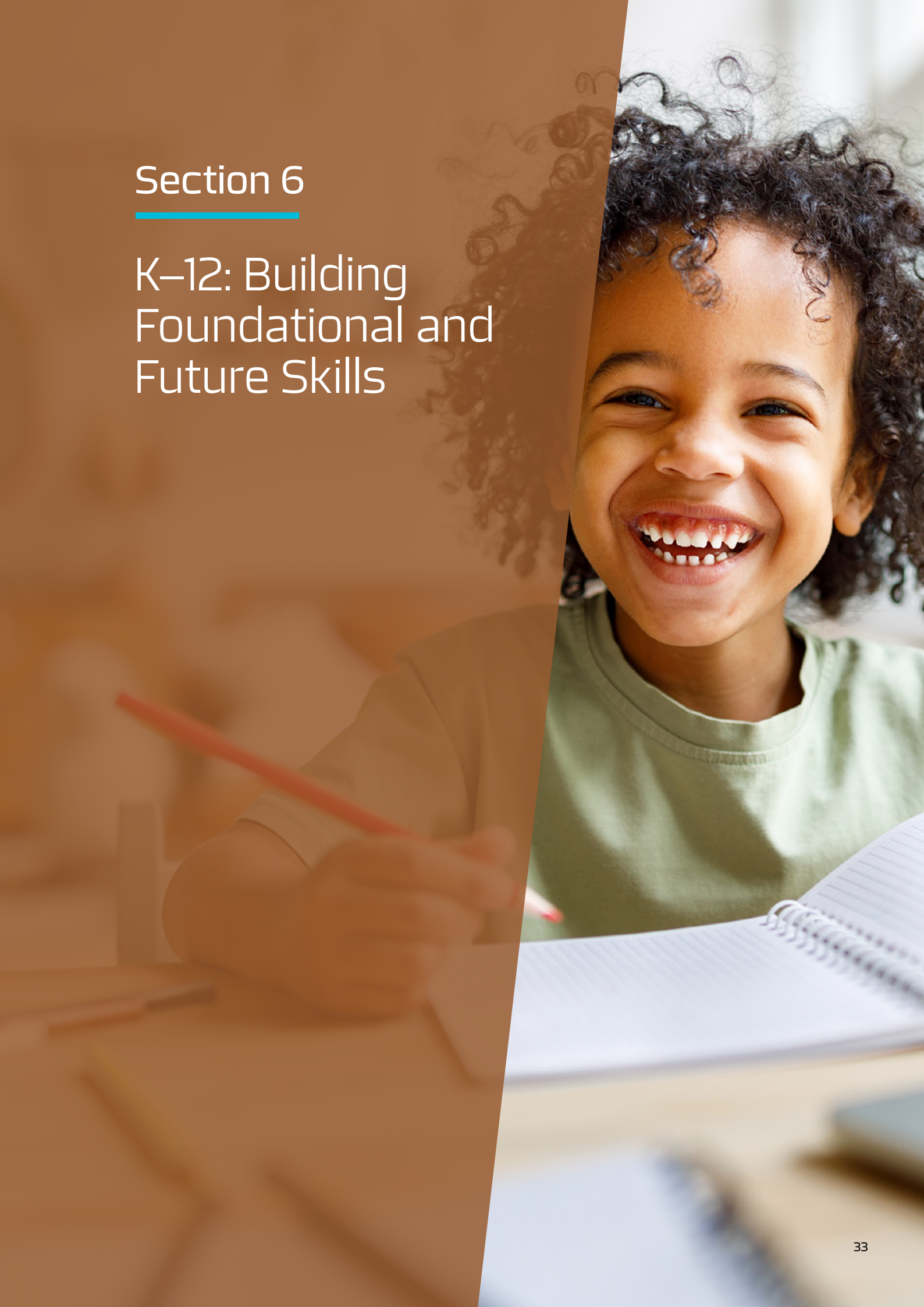
Parental engagement is a key dimension to any ECE strategy. The more parents know about the benefits and availability of ECE, the more likely they are to enroll their children. Mounting evidence also points to the importance of the role of parents in helping children achieve higher educational outcomes. According to OECD research, children whose parents read to them in their early years have higher reading outcomes at age 15. This gap can reach up to 63 points, equivalent to more than 1.5 additional years of school in some cases.⁵⁸

⁵⁷ Kathy Hirsh-Pasek et al., *Learning through play: A review of the evidence*, LEGO Foundation, 2017.

⁵⁸ PISA, *Let's Read Them a Story! The Parent Factor in Education*, Paris, France: OECD Publishing, 2012.

Section 6

K–12: Building Foundational and Future Skills



This may be both the hardest and the most exciting time to be involved in K–12 education. Schools and educators face a triple imperative: first, building basic literacy and numeracy skills and providing a foundation of knowledge; second, preparing students for an uncertain future that will require new skills and competencies as well as the ability to adapt to a changing workplace; and third, addressing broader educational goals such as instilling citizenship and character. Across the world, policy makers, educators, and experts are laying out clear perspectives on what schools need to teach. The focus is twofold: embedding future skills in curriculums and finding new ways of teaching to help students become lifelong learners and responsible global citizens.

How can governments fulfill this mission effectively? Our research suggests they can consider approaches that focus on systems, teachers, and students.

Systems: Adopting a Holistic View

Systems need to move beyond basic literacy and numeracy to include core competencies and skills in the way classroom education is imparted. These core competencies enable learners to fulfill their potential to become productive workers, engaged citizens, and contributors to society. The OECD, for one, highlights three sets of foundational competencies: cognitive foundations, which include literacy and numeracy, upon which digital literacy and data literacy can be built; health foundations, including physical and mental health and well-being; and social and emotional foundations, including morals and ethics.⁵⁹

Developing a common framework of competencies is a critical step in ensuring that a system is geared toward skills throughout the K–12 journey. One example is the OECD Learning Compass 2030, an evolving framework that defines the types of competencies students will need to thrive in 2030 with the goal of shaping individual and collective well-being.⁶⁰

Teaching new skills is not simple. Systems must undertake in-depth research into the nature and development of skills while acknowledging the complexity of defining new skills-based curriculums. Embedding future skills into experiential learning and other activities is an effective way to incorporate them into existing curriculums. After articulating the future skills students need, governments can help programs succeed through measures that ensure that changes are implemented and that teachers receive adequate training.

Teachers: Professional Development and Training

Teaching skills is important, but evidence about which pedagogies are effective in doing so is lacking. The subject needs further research, considering the critical role teachers play in learning. Learners' abilities can hinge on the quality of teachers. We know that high-performing teachers can raise the performance of students by 53 percentage points in PISA scores, on average, over that of similar students with low-performing teachers.⁶¹ However, research has shown that professional development for teachers is often ineffective unless it is job embedded, curriculum aligned, and part of a continuous learning culture.⁶²

⁵⁹ *The rebirth of education*, 2013.

⁶⁰ *OECD Future of Education and Skills 2030: OECD Learning Compass 2030*, 2019.

⁶¹ Stephen Hall, Dirk Schmautzer, Safia Tmiri, and Roman Tschupp, "Reimagining education in MENAP," McKinsey, July 26, 2022.

⁶² See, for example, Proshant Loyalka et al., "Does teacher training actually work? Evidence from a large-scale randomized evaluation of a national teacher training program," *American Economic Journal: Applied Economics*, 2019, Volume 11, Number 3; *The mirage: Confronting the hard truth about our quest for teacher development*, TNTP, 2015.

Students: Mindsets Matter

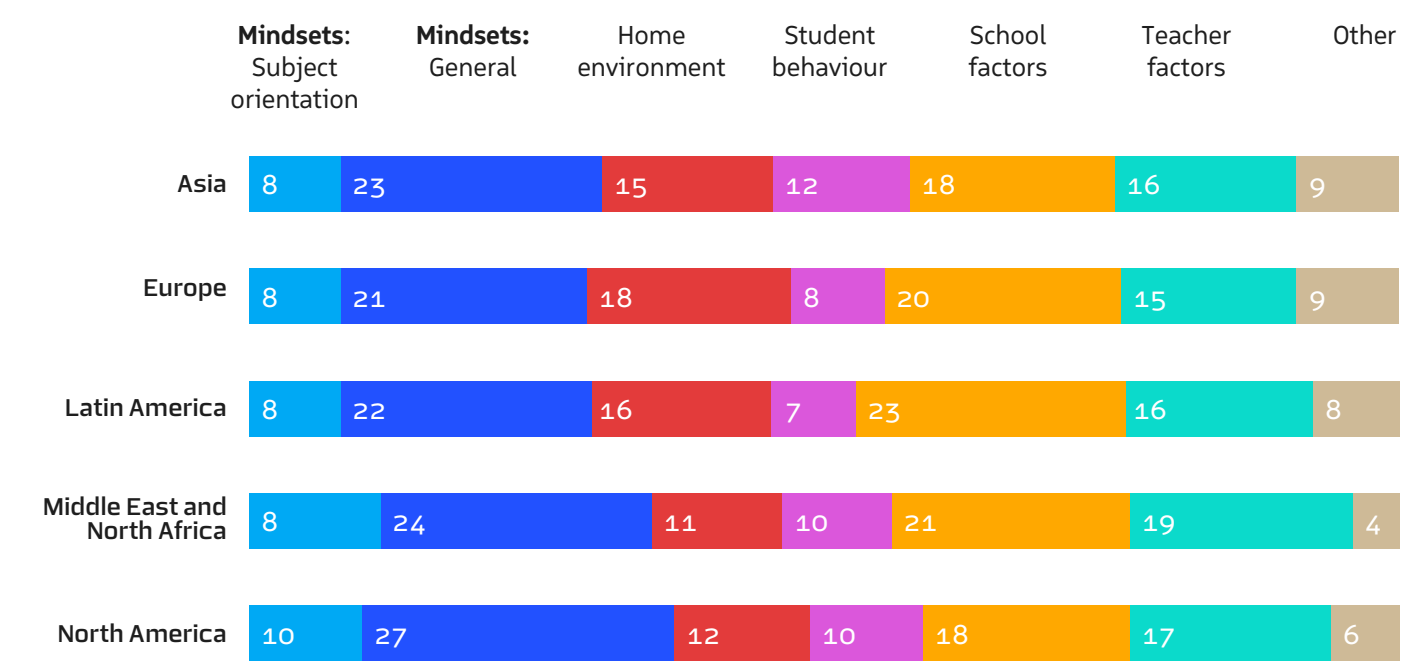
Research has shown that student mindsets (such as motivation and self-belief) have greater impact on learning outcomes than any other factor, including socioeconomic background.⁶³ In fact, student mindsets are twice as predictive of students’ PISA scores as their home environment and demographics. In the Middle East, the predictive power of mindsets is even more

pronounced than in most other regions (Exhibit 13). However, evidence on how much school systems can influence mindsets is still nascent, with few at-scale examples. Governments can invest in research to identify levers and solutions to help train teachers and redesign pedagogy and assessment tools as new evidence emerges.

EXHIBIT 13

Mindset Is a Significant Predictor of Student Achievement, Especially in the Middle East

Predictive power by category of variable by region, % share



Note: Numbers may not sum to 100% due to rounding

Source: How to improve student educational outcomes: New insights from data analytics, McKinsey, September 22, 2017.

63 “How to improve student educational outcomes,” September 22, 2017.

Section 7

Higher Education: A Strategic Reset Focused on Skills



Higher education institutions (HEIs) are an integral pillar in preparing individuals for the future of work. Although the conversation about workforce readiness has evolved from a focus on static knowledge acquisition to continuous learning, there is little doubt that individuals and employers still value degrees—and HEIs are widely considered to be the surest route to a better life. Career earnings for graduates with a bachelor's degree are more than twice as high as for individuals with only a high school diploma.⁶⁴ The worldwide higher education market is expected to grow at a rate of 10.3% between 2022 and 2028.⁶⁵ Given the important role of HEIs in the educational value chain, how should colleges, universities, and technical institutes keep pace with the times?

Many HEIs are struggling to sustain their current programs, particularly in the context of a new and highly digitalized labor market. In the Middle East, where the economy contracted in 2020, public and private funds for higher education are likely to be constrained for the foreseeable future. For example, four out of six countries in the Gulf Cooperation Council reduced government spending on education between 2018 and 2020, with Kuwait and Qatar the only exceptions.⁶⁶

Given the job market challenges as well as lingering pandemic-induced financial constraints, we explore four themes for higher education institutions to consider as they seek to remain relevant for the world of tomorrow: moving to a skills-first approach, integrating real-world application of skills, investing in building communities and networks, and building an ecosystem for a 'credentials rethink.'

Moving to a Skills-First Approach

Students should receive a high return on their educational investment. To make this happen, HEIs need to implement a skills-first approach. This can be addressed in five ways.

First, program offerings should reflect the demand for skills in the labor market. To achieve this, institutions may need to invest more time and resources to support and guide students in identifying career pathways that match their talents and interests. Building stronger relationships with employers will also be important to ensure that programs reflect industry demands and strengthen students' postgraduation job prospects.⁶⁷

Second, broader policy efforts may be needed to create an integrated pathway from K-12 to higher education. Helping students better prepare for academic discipline can increase the likelihood that they will pursue fields of study that lead to occupations with good earnings prospects.

Third, coherent standards can support streamlined credentials and facilitate efficient equivalency and transfers framework between higher education systems. This will help sustain a structure in which degrees may evolve to be viewed as living documents that can be refreshed over time as labor market demands change.

Fourth, there may be a need for institutional policies that create incentives for labor market outcomes. These could include supporting the recruitment of faculty in fields of study leading to high-demand occupations, the provision of

64 Up Front, "Major decisions: What graduates earn over their lifetimes," blog entry by Kristen Broady and Brad Hershbein, Brookings, October 8, 2020.

65 "Worldwide higher education market is expected to grow at a CAGR of 10.3% between 2022 and 2028," Fortune Business Insights, February 8, 2022.

66 Stephen Hall, Dirk Schmautzer, Safia Tmiri, and Roman Tschupp, "Reimagining higher education in MENAP," McKinsey, May 13, 2022.

67 Kalena E. Cortes, Joshua S. Goodman, and Takako Nomi, "Intensive math instruction and educational attainment: Long-run impacts of double-dose algebra," *Journal of Human Resources*, 2015, Volume 50, Number 1; Zeyu Xu et al., "Targeted interventions in high school: Preparing students for college," National Center for Analysis of Longitudinal Data in Education Research working paper, number 232-0220, February 2020; Micah Dean Hughes, "Exploring the impact of pre-college STEM exposure on first-year engineering student self-efficacy," M.S.Ed. thesis, University of Kentucky, 2021.

high-quality work-based learning opportunities, and a shift toward performance-based funding of higher education institutions to support the development of skills that are relevant to the labor market.

Fifth, the quality and availability of data on graduate outcomes in the labor market could be tracked and improved. This can be done by developing nationwide supply-demand analyses to systematically engage employers, tracking emerging trends and granular skills needs by occupation, and assessing institutional capacity to meet changing needs.

Integrating Real-World Application of Skills

Higher education programs can build quality work-based learning opportunities into their core curriculums. Relevant work experience and cooperative education programs have traditionally been a good way of achieving this. Co-op programs that allow students to develop their job search skills, find appropriate placements, and define career goals are common in Canada, among other places. Employers provide students with challenging work experiences that develop transferable job skills, and faculty members evaluate student work and help students integrate workplace experience into the classroom.⁶⁸

More recently, a number of innovative partnerships between HEIs and industry leaders have emerged to create experiential learning environments that combine theoretical and applied content. One such partnership is in the United Arab Emirates, where the Mohamed bin Zayed University of Artificial Intelligence has partnered with IBM to drive innovations in AI through targeted training. Developed in conjunction with the IBM Skills Academy, this partnership includes access to

curated AI curriculums, lectures, labs, industry use cases, and design-thinking sessions.⁶⁹

Investing in Building Communities and Networks

College is more than a time to acquire skills. It is also a chance to build a strong network of peers and professors. Research shows that those with stronger networks have higher salaries and more promotions throughout their career. Given that up to 70 percent of jobs are not advertised and up to 85 percent of open positions are filled by networking,⁷⁰ social capital plays a critical role in creating opportunity and meaningful employment.

A big part of the learn-to-earn equation is a strong network of peers and mentors who can help students cultivate opportunities and navigate their career choices. Recent evidence from the United States makes a compelling case for intervention by universities in strengthening social capital for their graduates. First-generation students, students from low-income backgrounds, and students of color report lower rates of college completion and lower participation in internships.⁷¹ Research also shows that larger networks mean greater access to opportunities.⁷² Casual ties, such as those forged with faculty members over time, are known to be transformative. By focusing on building strong social ties among students, faculty, and employers, HEIs can develop pathways that can be transformative for students' careers.

Building an Ecosystem for a 'Credentials Rethink'

With the changing nature of work and new demands for skilling the workforce, the need for a new credentialing system in higher education is starting to emerge.

⁶⁸ See, for example, "Co-operative education and workplace partnerships," University of Windsor, accessed January 23, 2023.

⁶⁹ "IBM and MBZUAI join forces to advance AI research with new center of excellence," Mohamed Bin Zayed University of Artificial Intelligence, May 25, 2022.

⁷⁰ Susan D'Agostino, "Leveling the playing field for social capital," *Inside Higher Ed*, August 5, 2022.

⁷¹ Ibid.

⁷² Mark S. Granovetter, "The strength of weak ties," *American Journal of Sociology*, Volume 78, Number 6, May 1973.

Higher education systems need to embody an approach that allows continuous upskilling through a ‘credentials rethink.’ This shift originates with learners, who want varied models of upskilling and training, as well as employers, who want employees with skills that are better aligned with the needs of the labor market.

Traditionally, HEIs have treated degree programs and nondegree certification programs as wholly separate. This distinction is becoming blurred with the emergence of complementary models of shorter and more targeted educational coursework, also referred to as microcredentials, alternative digital credentials, nano degrees, and badges. According to one study, at least 2,500 microcredentials exist, mainly based on massive open online courses (MOOCs), more than 75% of them in business or technology.⁷³

Microcredentials can help institutions remove barriers between degree and nondegree programs by offering a diverse selection of potentially credit-bearing credentials and certificates. HEIs can develop transparent standards and assessments to pair with microcredentials to validate competency-based skills, outcomes, and knowledge and create alternate degree pathways that better serve the students and employers of today.

Tactically, this has two implications for higher education systems.

First, a national qualification references framework that allows flexibility in learning pathways could be established to help institutions develop a system for validation for the broader credentials continuum. A framework may make it easier to compare qualifications and define the progression from one education level to the next. It could also incorporate ways to include microcredentials and could apply across occupational, vocational, and academic fields. This would give students a mechanism to articulate their competencies, ease the transfer of credits between higher education institutions, and allow employers a consistent way to certify an applicant’s abilities. In Europe, for example, some initiatives highlight microcredentials as a way to support effective lifelong learning, and work is being done to build a common framework for microcredentials. For example, the Erasmus+ MicroHE project developed guidance on microcredentials recognition in Europe through interviews with stakeholders, expert workshops, and peer review processes.⁷⁴

Second, partnerships among HEIs, existing nondegree providers, and employers can ensure that microcredentials are not only offered in the most effective manner to students but also recognized by employers as evidence of skills and knowledge. For example, partnerships with Udacity or Grow with Google can allow HEIs to offer short, on-demand courses to provide alternative models of degree attainment.

⁷³ Dhawal Shah, “Massive list of MOOC-based microcredentials,” Class Central, September 14, 2022.

⁷⁴ Ibid.

Section 8

Organizations: Learning Lighthouses in the Making

The workplace matters. Although skill and knowledge acquisition is traditionally understood in the context of early childhood, K–12, and higher education, its development continues long after formal education ends. People acquire new skills in the workplace and gain capabilities that they carry with them for the rest of their careers. In this automation era, with shifting demands for types of skills, those already in the workforce may need to retrain.

As noted earlier, almost half of an individual's skill and knowledge development comes from experiences at work. People accumulate experience and skills with each role they perform throughout a working life. The income growth of a dishwasher who becomes a food prep cook, then a line cook, and eventually a sous-chef is almost entirely fueled by techniques and tricks of the trade learned on the job. In addition to enabling someone to acquire skills, work experience gives that person a track record, which is valuable in and of itself for the signal it sends to potential future employers.

Employers are critical to the changes taking place in the global economy. Here we suggest four shifts for companies and organizations to consider as they navigate the changing nature of work. The overarching goal is for organizations of all types to become 'lighthouses' for skills development—learning places that have a clear view of the starting skills of their workforce and clear trajectories for professional development on the job through in-house and outsourced learning platforms. In doing so, they light the path for continuous upskilling and reskilling.

Consider Hiring for Skills as Much as for Experience and Qualifications—or More

Assessing candidates based on skills, rather than their last job title or the school they attended, can help fill critical roles with the best talent. According to recent McKinsey research, nearly 90% of postings in growing industries such as technology, healthcare, and business management require a bachelor's degree—but many of these jobs can and should be viable options for those without advanced education.⁷⁵

Skills-based matching significantly expands the available talent pool for open roles. In addition, a skills-based approach facilitates faster response to new demands. For example, during the pandemic, one retail and commercial bank moved many branch employees to its call center to meet increased demand through skills-based matching.

Have a 'Talent Incubator' Mindset

Organizations, big and small, may find it helpful to develop a new mindset—that of talent incubator for their employees. This means supporting employees who take on different roles, either within or outside the organization, and developing an organizational culture that prioritizes coaching and development.

In our research, we found that 80% of job changes involved people moving to new employers.⁷⁶ This points to a major missed opportunity for employers. Workers understand the value of learning and development, and they increasingly feel empowered to move to

⁷⁵ "Understanding how American workers progress to higher-wage jobs," McKinsey, 2020.

⁷⁶ "Human capital at work," 2022.

employers that will provide opportunities to gain new skills and move up. Companies have long grappled with the fact that investing in an employee's development may make that person more attractive to other employers. It may seem counterintuitive to double down on learning and development at a time when workers are growing more mobile—but in fact, it is more important than ever.

This shift in mindset requires companies to renew their emphasis on coaching and designing internal career paths that give employees more varied portfolios of experience. Employers that perform well on metrics linked to organizational health, training, and internal advancement seem to propel people forward. Their employees are more likely to go on to be upwardly mobile. Controlling for differences in occupation, time spent early in a career with an organization that prioritizes learning and development is one of the most influential factors in someone's future prospects.⁷⁷

Embrace a Broad Set of Talent Levers to Address Skills Gaps

Many companies will need to reskill or upskill their employees so there are no gaps in competencies required to attain organizational goals. Being thoughtful and deliberate about how to address these gaps is essential. Five broad talent levers can help organizations address their skills gaps: reskilling, redeploying, hiring, contracting, and releasing (Exhibit 14).

Reskilling programs are an excellent way to solve an organization's talent needs internally. They work best when companies have a clear idea of the skills they need, senior management is aligned, and employee engagement in the organization is high. One example is a Fortune 500 technology company that conducted a workforce planning initiative to map talent needs to specific business goals. This led to the decision to reskill

more than 6,000 employees for new roles and upskill more than 20,000 employees in existing roles, thus filling 80% of its identified skills gap.⁷⁸

Redeployment gives employees the opportunity to try out existing roles in the organization where they feel they might have transferable skills. The decision to redeploy should be inspired by a combination of an employee's knowledge, skills, abilities, and experiences and a perceived fit with the future vision for the role.

While hiring is an obvious step that organizations take to fill talent gaps, new hires make most sense when other options have been exhausted. Often, the total cost of hiring might be lower than that of other options, including retraining, depending on the skills needed. However, hiring entails uncertainty in how a person will perform on the job and is susceptible to talent shortages in the market.

Contractors, freelancers, and temporary workers allow companies to rapidly acquire the skills they need (if such talent is available). Downsides of this approach include potential loss of proprietary knowledge and intellectual property as well as poor fit with the company culture. Companies typically use contracting to fill mainly noncore or low-skill roles rather than to find high-skill talent, as seen in a McKinsey survey of more than 3,000 C-suite executives in seven countries—Canada, France, Germany, Italy, Spain, the United Kingdom, and the United States.⁷⁹

Releasing employees might be necessary in some companies, particularly in industries that are not growing very rapidly and in which automation can substitute for labor in a significant way. However, the risk is a potential loss of knowledge of the company, culture, and operations.

⁷⁷ "Human capital at work," 2022.

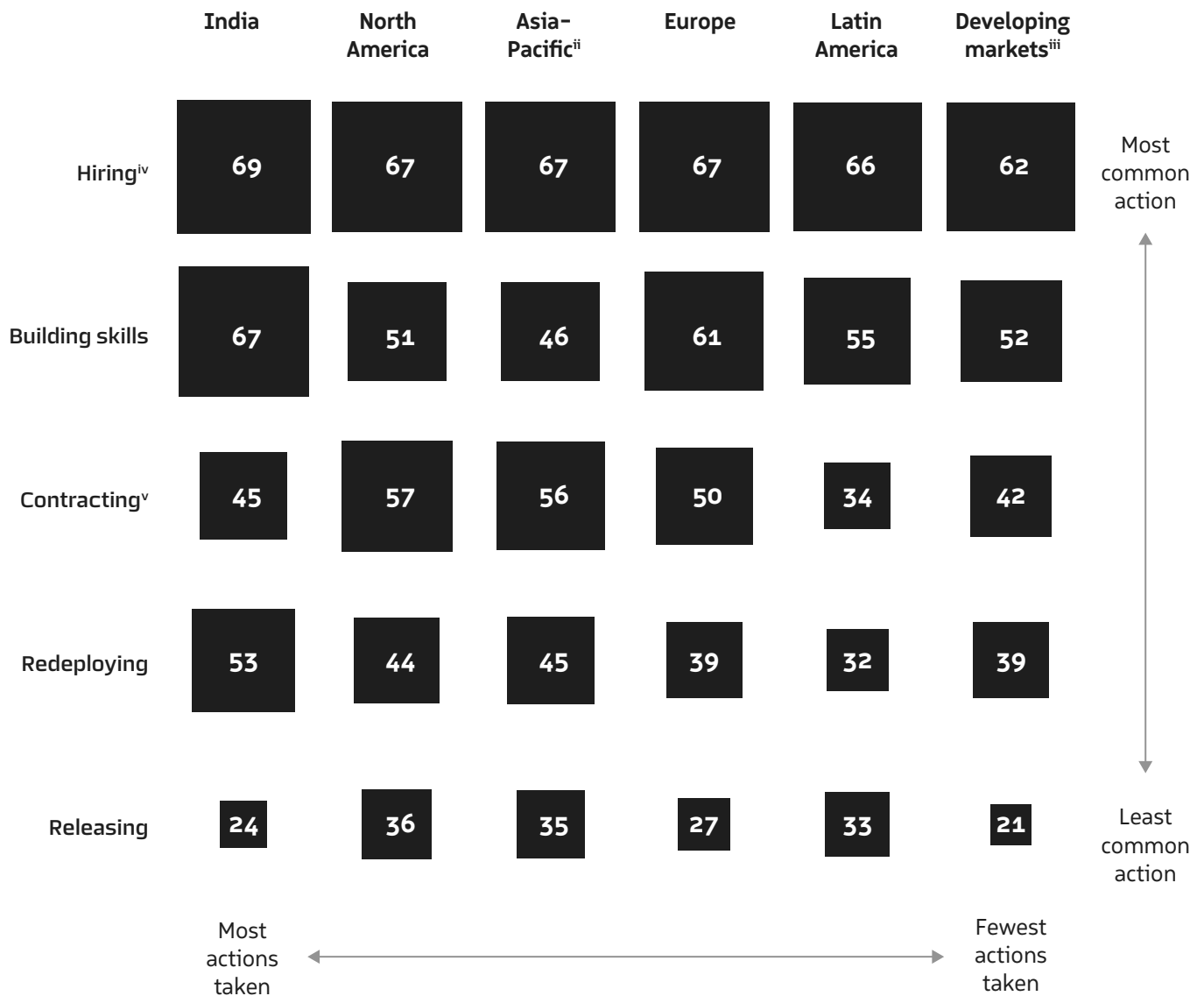
⁷⁸ Emily Field, Shreya Majumder, Cristina Pereira, and Bill Schaninger, "Hire more for skills, less for industry experience," McKinsey, December 17, 2020.

⁷⁹ "Skill shift," McKinsey Global Institute, 2018.

EXHIBIT 14

The Measures That Organizations Have Taken To Address Their Skill Needs Vary by Region

Actions taken to close potential skill gaps in past 5 years, % of respondentsⁱ



- Respondents who said "not applicable; we have not taken any of these actions" and "don't know" are not shown. In India, n = 83; in North America, n = 325; in Asia-Pacific, n = 119; in Europe, n = 434; in Latin America, n = 114; and in developing markets, n = 141.
- Includes Australia, Hong Kong, Japan, New Zealand, Philippines, Singapore, South Korea, and Taiwan.
- Includes China, Middle East, and North Africa.
- Acquiring external talent through hiring and/or acquisition of other companies.
- Engaging freelance and/or contract workers.

Source: Beyond hiring: How companies are reskilling to address talent gaps, McKinsey, 2020.

Conclusion

Economic, social, technological, and geopolitical disruptions are reshaping societies. Governments are increasingly investing in their people as a critical enabler to achieve sustainable societal and economic prosperity. At the heart of these investments, a new learning paradigm is emerging: as the skills revolution unfolds, education and skilling systems need to prepare learners not just to become productive workers and citizens but also to adapt continuously to changing trends in the labor market and society.

As we highlighted in the first four chapters of this report, the case for change has never been more pressing for the world as a whole. In the Middle East and North Africa region, the agenda is clear: shaping the future of learning and earning includes the ambition to support 100 million learners in making up for an average learning loss of about six months during the pandemic⁸⁰ and in preparing them for the future of education. It also involves preparing almost 130 million young people to enter the labor market and supporting about 30 million workers who will be exposed to automation by 2030.⁸¹

⁸⁰ "Reimagining education in MENAP," July 2022.

⁸¹ "Opportunity youth: Imagining a bright future for the next generation," McKinsey, August 2021.





This shared ambition calls for shared responsibility and shared action. The solution, as highlighted in the final four chapters of this report, starts with considering the future of learning as a continuum and preparing for it from the nursery room to the classroom to the lecture hall and the conference room. Each learning stage has a specific set of levers that policy makers and governments may consider implementing. The possibilities include productive partnerships with learners, educators, institution leaders, parents, policy makers, and employers; agile educational systems that can leapfrog policies to incorporate foundational skills in new ways of teaching and assessing; revamped teacher training; skills recognition frameworks to support new modes of learning and earning degrees; and funding models and transparent reporting to encourage and reward performance and good outcomes.

“Transforming the learning paradigm is critical to sustaining long-term prosperity for the region. The time to begin this journey is now”

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