STI FORUM
Science, Technology & Innovation for the Sustainable Development Goals

7th Multi-stakeholder Forum on Science, Technology and Innovation for the Sustainable Development Goals
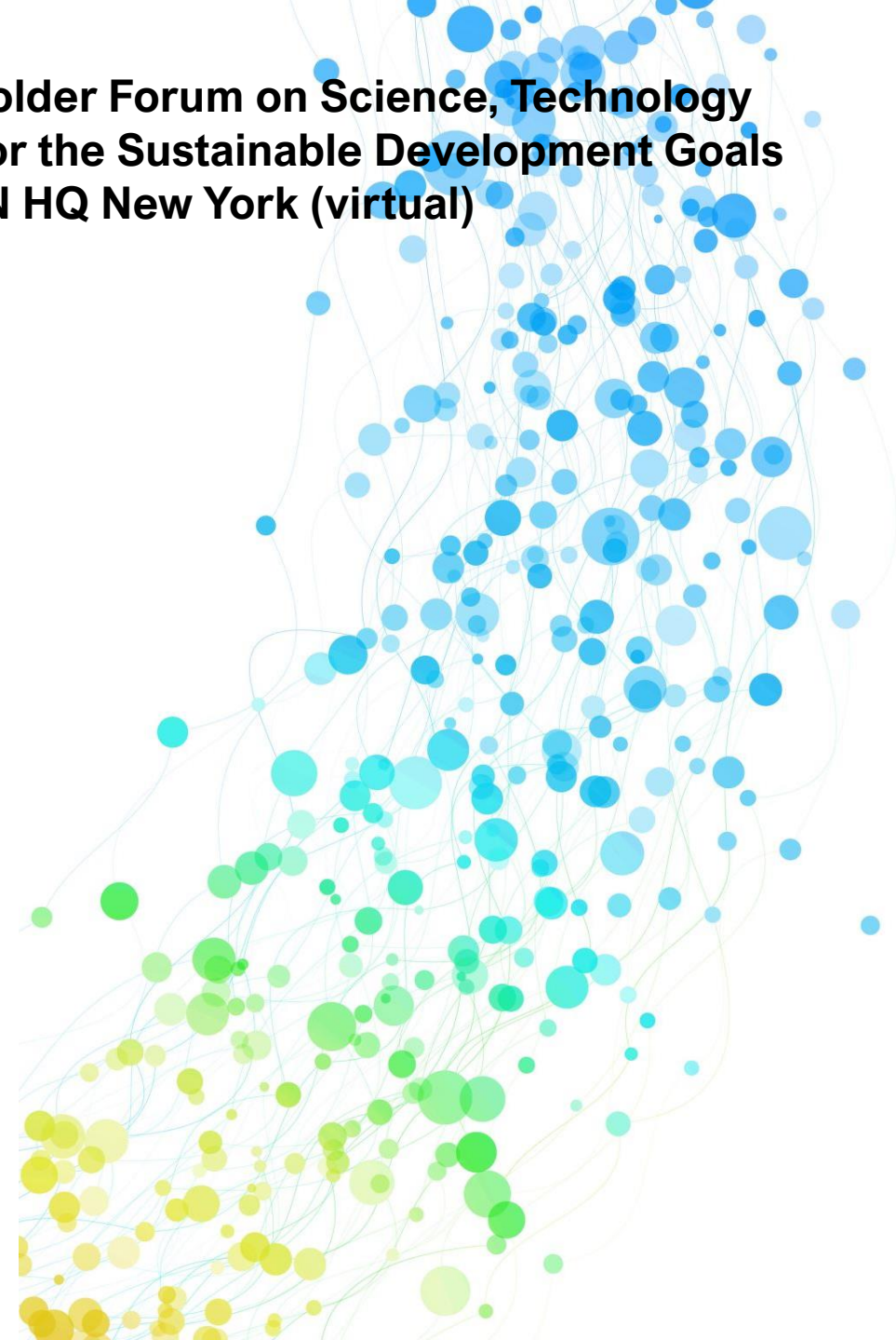**5-6 May 2022, UN HQ New York (virtual)**

Thematic Session 3: Innovations in education: Improving Access and quality

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RAMÓN LÓPEZ-PORTILLO ROMANO

4 QUALITY EDUCATION

Formal education system

4.2 Pre-primary

4.1 Primary & Secondary

4.3 TVET & HE

4. 5 Equality for All (incl. gender and disabilities)

Skills agenda

4.7 Sus. Dev. & Global Citizenship

4.4 Skills for Work

4.6 Adult Literacy

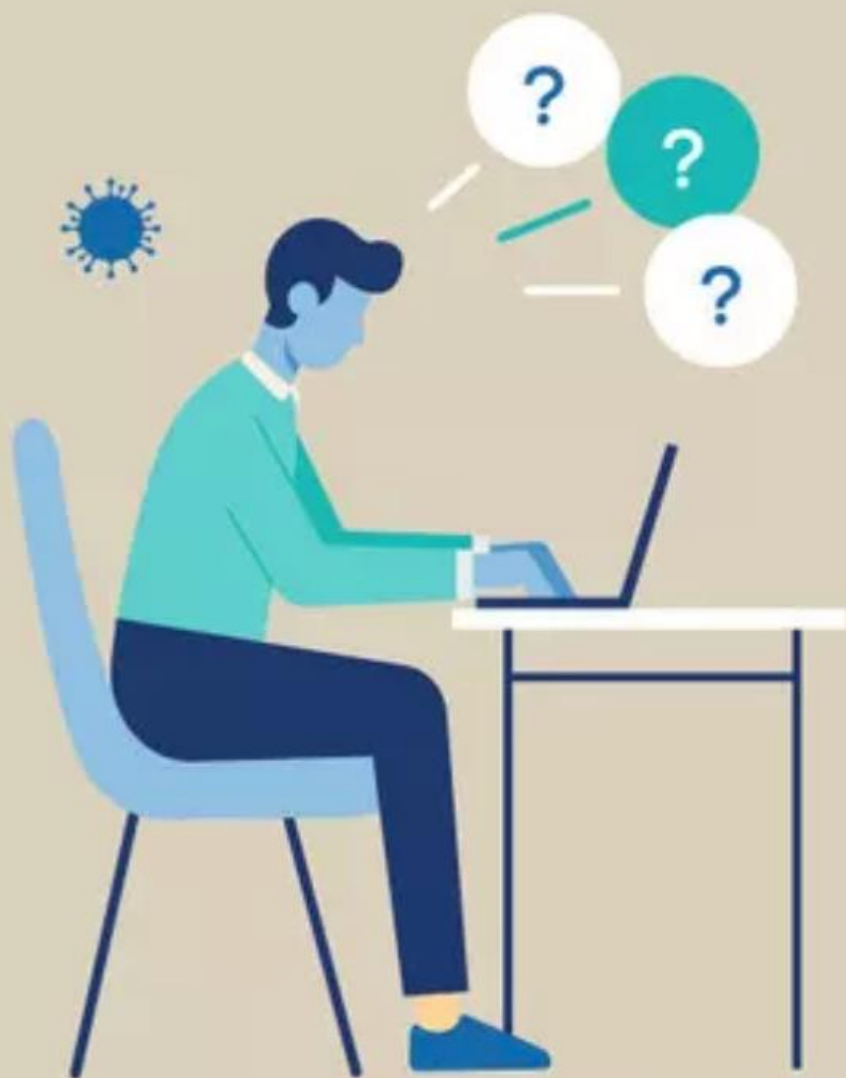**Flanking measures**

4.a Learning Environments

4.b Scholarships

4.c Teachers and Educators

Source: Based on UNESCO (2016b)

A **digital divide** was exposed during the pandemic with **60%** of adults lacking the digital skills required to work, learn and access critical services online.
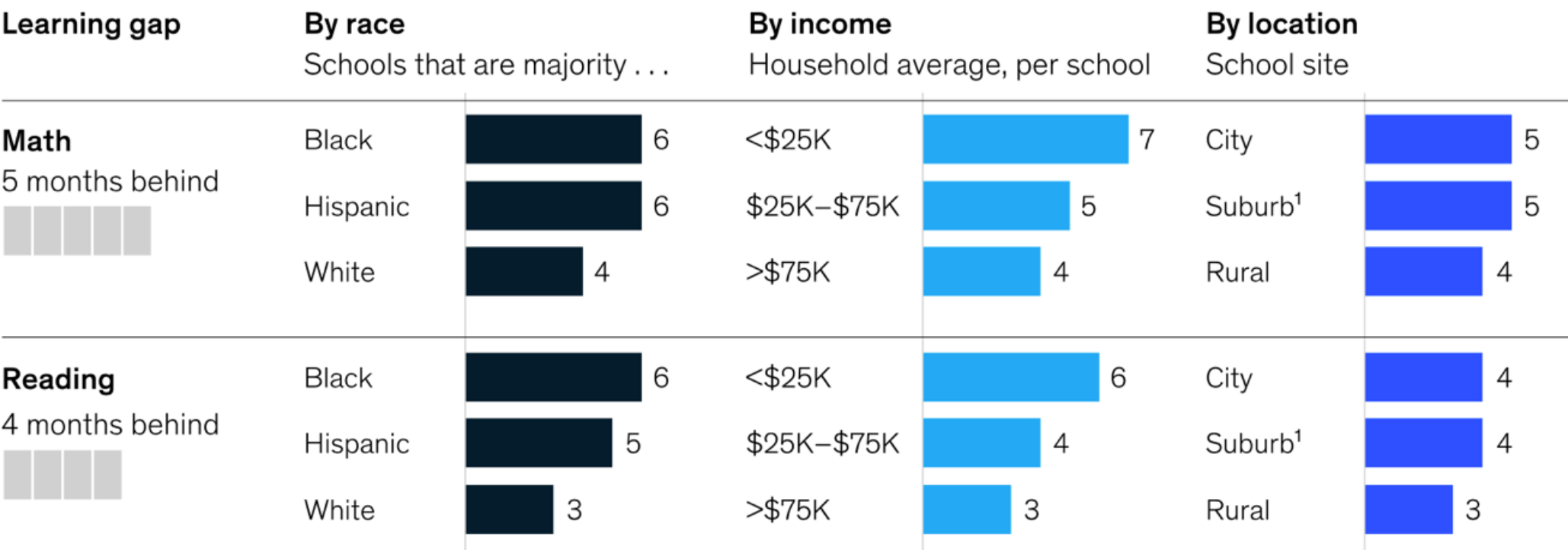
Effect of pandemic on education:

- kids lagging behind

- mental health conditions

+ "leap-frog" in using digital technologies

+ more connected

Some figures

o Digital divine is increasing and > <u>50% of kids</u> are on wrong side of the divine

o 37 % of the world's population – or <u>2.9 billion people – have still never used the Internet </u>(96 per cent live in developing countries).

o> <u>10 US$ trillion losses </u>in future

o Today's students may earn $49,000 to $61,000 less over their lifetime owing to the impact of the pandemic on their schooling (Mckinsey)

o K–12 student learning was significant, leaving students on average five months behind in mathematics and four months behind in reading by the end of the school year

By the end of the 2020–21 school year, students were on average five months behind in math and four months behind in reading.
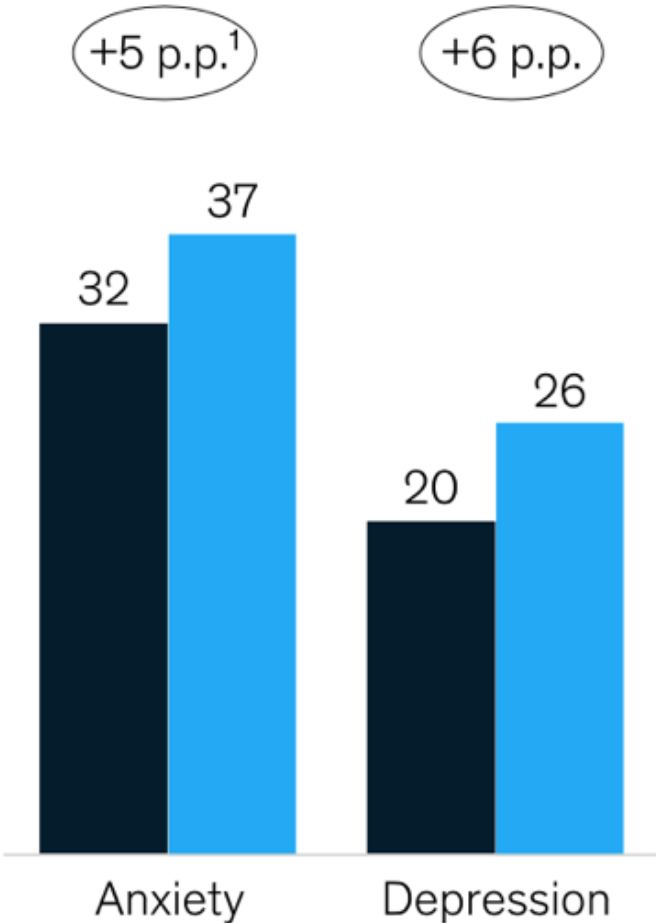
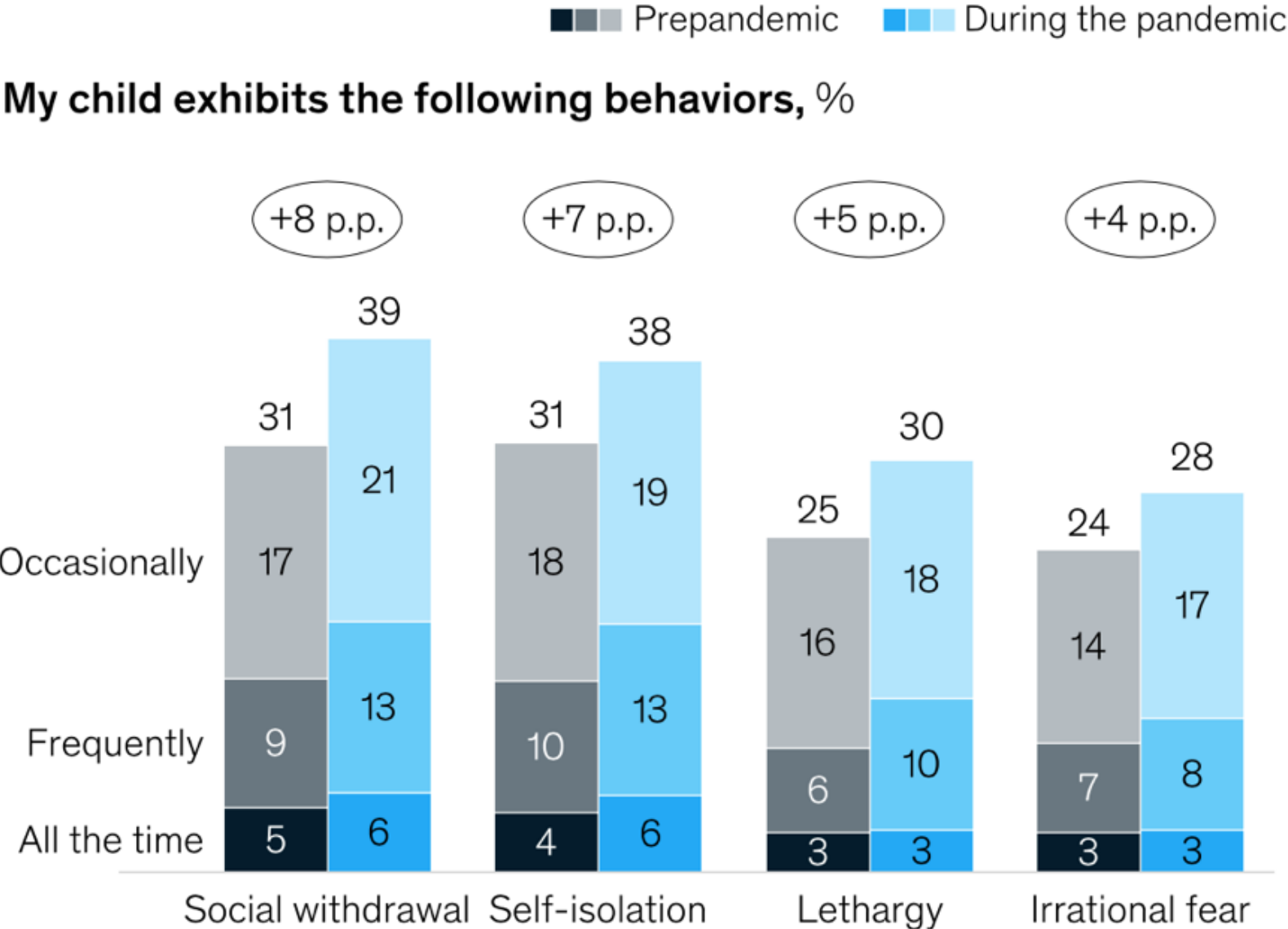Cumulative months of unfinished learning due to the pandemic by type of school, grades 1 through 6

Learning gap	By race — Schools that are majority . . .		By income — Household average, per school		By location — School site	
Math — 5 months behind	Black	6	<$25K	7	City	5
	Hispanic	6	$25K–$75K	5	Suburb[1]	5
	White	4	>$75K	4	Rural	4
Reading — 4 months behind	Black	6	<$25K	6	City	4
	Hispanic	5	$25K–$75K	4	Suburb[1]	4
	White	3	>$75K	3	Rural	3

[1]Town or suburb.
Source: Curriculum Associates i-Ready assessment data

McKinsey & Company

Parents reported increases in mental health conditions and concerning behaviors in their children.

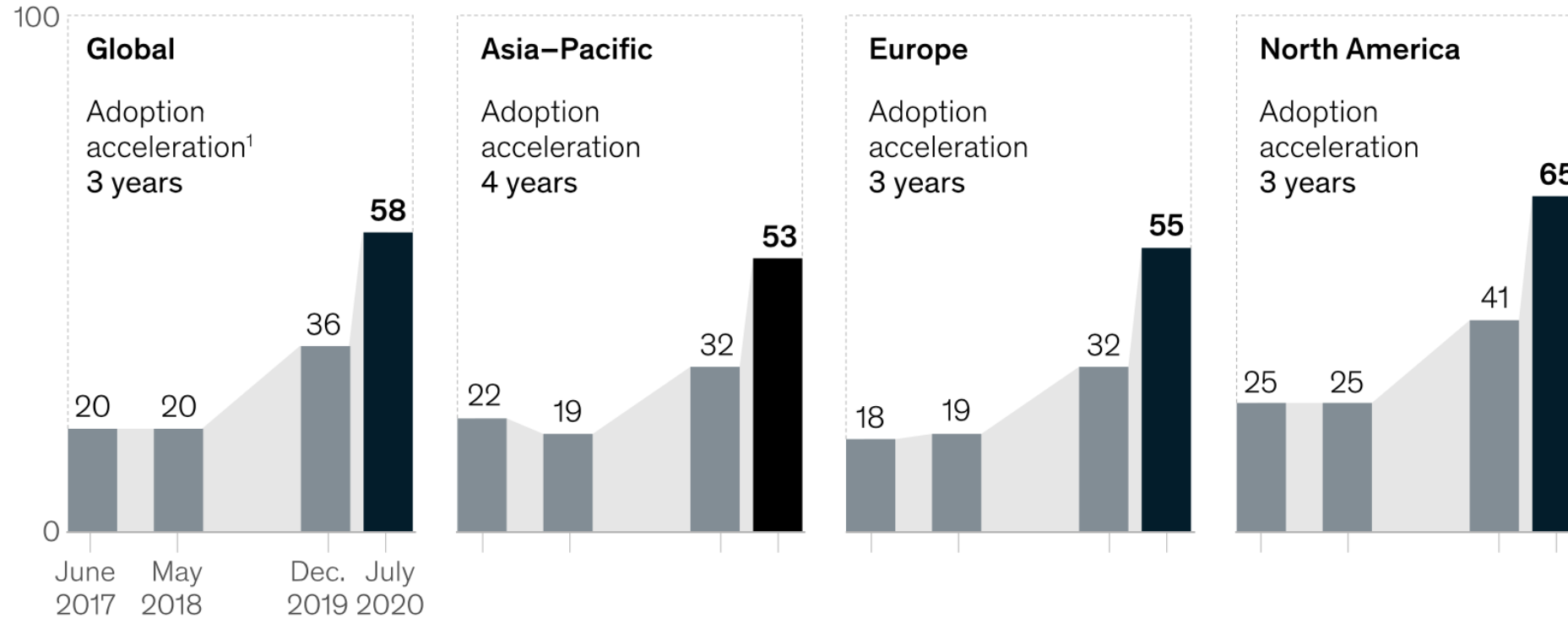## My child suffers from the following conditions, %

Prepandemic | During the pandemic

(+5 p.p.[1])

- Anxiety: 32 → 37

(+6 p.p.)

- Depression: 20 → 26

My child exhibits the following behaviors, %

Prepandemic | During the pandemic

Social withdrawal (+8 p.p.)
- Prepandemic total: 31 (Occasionally 17, Frequently 9, All the time 5)
- During the pandemic total: 39 (Occasionally 21, Frequently 13, All the time 6)

Self-isolation (+7 p.p.)
- Prepandemic total: 31 (Occasionally 18, Frequently 10, All the time 4)
- During the pandemic total: 38 (Occasionally 19, Frequently 13, All the time 6)

Lethargy (+5 p.p.)
- Prepandemic total: 25 (Occasionally 16, Frequently 6, All the time 3)
- During the pandemic total: 30 (Occasionally 18, Frequently 10, All the time 3)

Irrational fear (+4 p.p.)
- Prepandemic total: 24 (Occasionally 14, Frequently 7, All the time 3)
- During the pandemic total: 28 (Occasionally 17, Frequently 8, All the time 3)

The COVID-19 crisis has accelerated the digitization of customer interactions by several years.

Average share of customer interactions that are digital, %

■ Precrisis   ■ COVID-19 crisis

Global

Adoption acceleration[1]
3 years

20   20   36   **58**

June 2017   May 2018   Dec. 2019   July 2020

Asia–Pacific

Adoption acceleration
4 years

22   19   32   **53**

Europe

Adoption acceleration
3 years

18   19   32   **55**

North America

Adoption acceleration
3 years

25   25   41   **65**

[1]Years ahead of the average rate of adoption from 2017 to 2019.

McKinsey & Company

Potential future shocks and surprises, plausibility and impact

	Plausibility	Impact
Natural disasters	High	Potentially very high, depending on severity and duration of the shock
Economic shock / Crisis	Increasing in an interconnected global world	Depending on severity duration of the shock
(Cyber) War	Depending on context	likely high depending on type of warfare
Internet disrupted / Communications cut	Low	Extremely high, particularly if it coincides (accidentally or intentionally) with one of the other shocks
Human – machine interfaces / General Artificial Intelligence (AI)	Still unknown	Still unknown

Source: OECD (2019), Trends Shaping Education 2019, https://doi.org/10.1787/trends_edu-2019-en
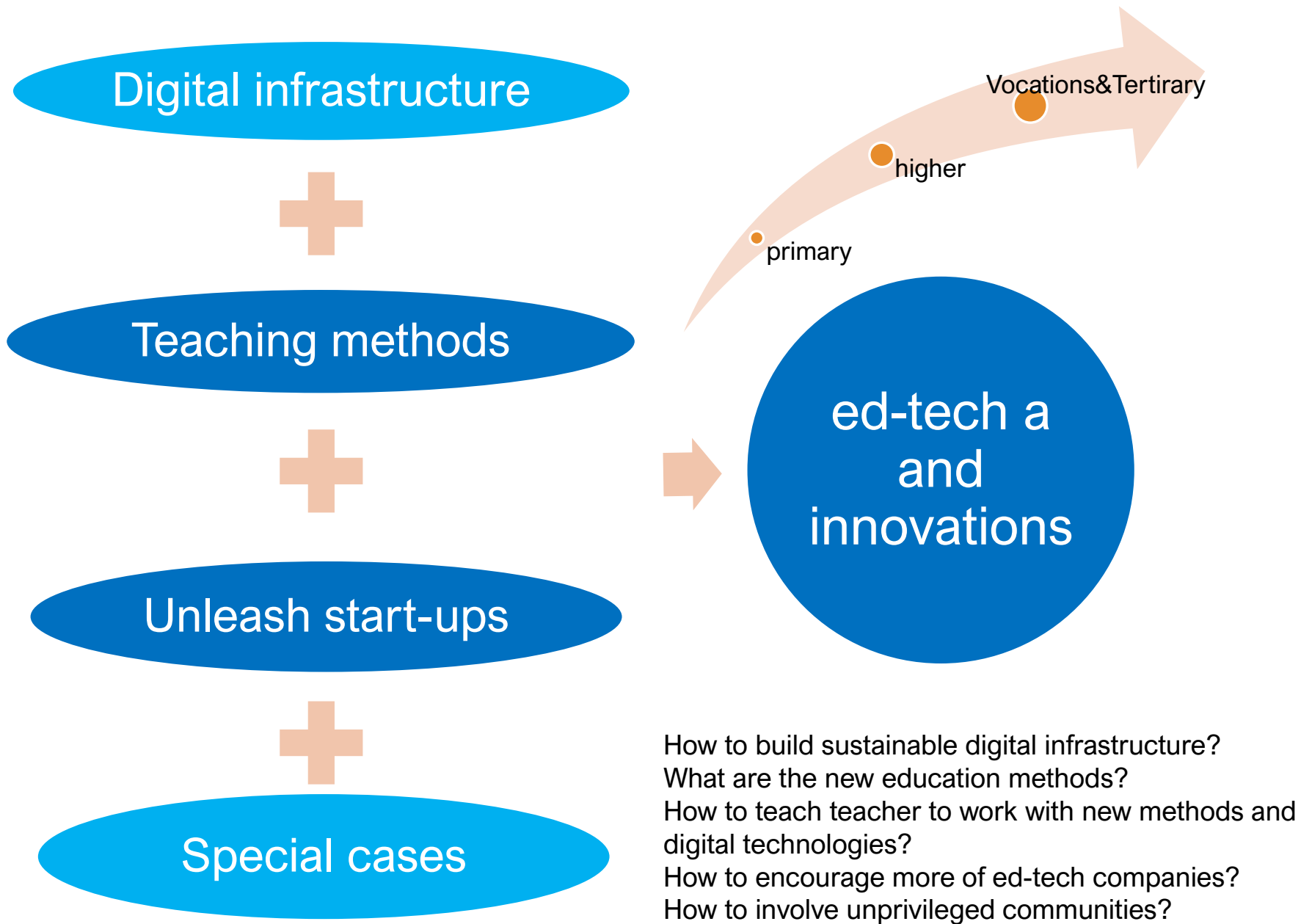
Innovations in education: improving access and quality:

This session would look not only at promising **technology and organizational solutions** and trends, but also look at what has been achieved in terms of **increased access and quality of education worldwide** and what could be achieved in the future. Emphasis could be placed on equity issues (including gender equity) and access to **quality education through digital access, including good practices in leveraging technology to overcome the setbacks due to the COVID-19 pandemic**. It will highlight **innovations in teaching and learning,** such as active learning and the use of artificial intelligence in tailoring on-line learning, especially for underserved children and adults, and for addressing a range of equity and equality issues. The session will also address the issue of **public trust in science**.

Promoting ed-tech technologies and innovative learning methods :

- providing internet connection (e.g. Ukraine case with Elon Musk) and digital skills

+ employing innovation methods

+ supporting startup ecosystem

Examples of inovation in teaching and ed-tech

Digital classroom. Personalised approach (e.g. Khan academy, the same context at different content). Engage – interactive. Flip classroom (teacher is not gate keeper but guides, using different source). Student hand-on (VIP course). Teach 21 century skill, creating website, use HPC. Augmented reality.
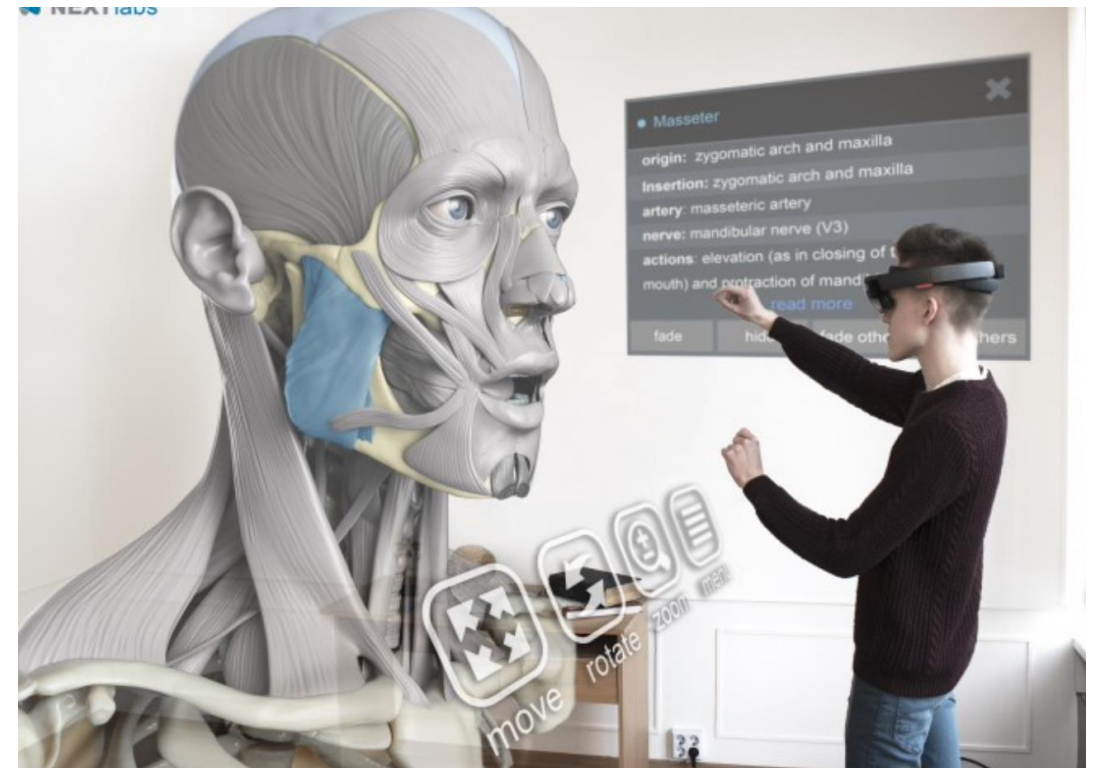
'Anatomy Next', a Latvian startup

Building trust in science by education

- Pandemics demonstrated that trust in science (use of vaccine) saving lives

+ Need to teach science and critical thinking in early stages of education

Special support for underserved and marginalised population

- refugees crisis

- access to education

+ teaching teachers

As 1.3 million people flee, Ukraine's refugee crisis is only just beginning

Analysis: despite the EU's solidarity in helping those escaping war, aid agencies are overwhelmed with many people stuck at borders

● Russia-Ukraine crisis: live news

📷 People at Kyiv railway station try to board a train to escape the fighting in Ukraine. Photograph: Zurab Kurtsikidze/EPA

The organisation of session

o 3-4 speakers

o A pre-recorded 3-4 minute presentation followed by about 20-30 minutes facilitated Q&A by the moderator

o Q&A from audience

Looking for the speakers

1. Developing digital education systems

2. A founder of start-up working with ed-tech

3. New education methods including science educators

4. Post-crises (psychologist) for education

Possible speakers

5. Teaching methods for marginalised population

Dr Nesha Hanif

University of Michigan – she has taught an excellent modile of Pedagogy in Action initially from her experiences and roots in the Caribbean to expanding it to marginalised communities in the USA and further validation in Sub-Saharan Africa a

EMPOWERMENT PEDAGOGIES AND INTERVENTIONS

Using new teaching methodologies, innovative education modules are developed to empower marginalized populations in the areas of HIV/AIDS, violence and reproductive health, modules are currently being used by CBOs in Jamaica, University of Zululand, Durban, Cape Town, Johannesburg and Soweto, South Africa and the USA. Recent quantitative research shows that over 70,000 people have been reached by this pedagogy. nd Latin and Central America

cont. possible speakers

Khan Academy founder

Tech Girls (Latvia)

Former president of Estonia

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Possible questions to speakers

How could global crises ((cyber)wars, epidemics, natural disasters, economic shocks, etc) impact the <u>functioning of education</u> under the different scenarios and how we can prepare for them?

How to better support education system to <u>facilitate use of digital technologies</u>?

How are your STI roadmaps contributing to support <u>innovative education</u> in your country?

…

Reimagine education

In a world facing a learning crisis, digital learning should be an essential service.

UNICEF