Uncertainty and Future Education
After the Coronavirus Crisis

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<table>
<thead>
<tr>
<th>Date</th>
<th>Daily Cases</th>
<th>Total Cases</th>
<th>New Cases in Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 January</td>
<td>555</td>
<td>555</td>
<td>Thailand, Japan, China, South Korea, Taiwan and US</td>
</tr>
<tr>
<td>26 January</td>
<td>684</td>
<td>2,118</td>
<td>Australia and Canada</td>
</tr>
<tr>
<td>31 January</td>
<td>1,693</td>
<td>9,927</td>
<td>Italy, Sweden, Russia and United Kingdom</td>
</tr>
<tr>
<td>26 February</td>
<td>982</td>
<td>81,395</td>
<td>Pakistan, Brazil, Georgia, Greece, North Macedonia, Norway and Romania</td>
</tr>
<tr>
<td>9 March</td>
<td>3,766</td>
<td>113,561</td>
<td>Albania, Cyprus and Brunei</td>
</tr>
<tr>
<td>13 March</td>
<td>16,850</td>
<td>145,193</td>
<td>Kazakhstan, Ethiopia, Sudan, Guinea, Kenya and Antigua and Barb.</td>
</tr>
</tbody>
</table>
COVID-19
COVID-19

Confirmed cases of Covid-19
Data correct at 23.59 UTC 9 May

Confirmed deaths from Covid-19
Data correct at 23.59 UTC 9 May

Source: Johns Hopkins CSSE Note: The CSSE states that its numbers rely upon publicly available data from multiple sources, which do not always agree.
Analytical Views Based on Futures Studies

https://aiglatsonforesight.com

http://theappslab.com/2017/06/24
COVID-19: Scanning

Figure 1.—Conceptual model of a horizon scanning system. (Source: Gordon and Glenn 2009).
COVID-19: Time-Space-Field
Time Axis: Technology Development and Demographic Change
Space Axis: Nationalism, Reshoring, and Automation
Geopolitics: Grand Chessboard

RIMLAND VS. HEARTLAND

- Two conflicting theories
- Theorist Alfred Steinkopf said any country in the Eurasian core zone will exercise power over the Rimland and Heartland
- He predicted whoever controlled the Rimland of Eurasia controlled the future

Daniel Byrova, a senior fellow at the German Marshall Fund, recently wrote in an essay in the National Interest that recent Chinese-Indian border tensions “may be related to worries in Beijing over the Dalai Lama’s succession.” The next Dalai Lama might come from the Tibetan cultural belt that stretches across northern India, Nepal, and Bhutan, presumably making him even more pro-Indian and anti-Chinese. China and India will play “a great game” not only in those areas but also in Bangladesh and Sri Lanka. Xi Jinping and
Field Axis: School Education

Dong-A Ilbo, 4/01/2020

VOA, 4/15/2020

norrag.org, 4/27/2020

koreaittimes.com, 4/23/2020

Alissa Eckert, MS/CDC

Arirang News, 4/07/2020
Shaping the post-COVID world together

The pandemic is not just a global health crisis. A downturn in Western economies could boost a rising China, while a global depression could breed support for protectionism. International bodies designed to safeguard public health appear weak and unable to contain the crisis, and alliances with transatlantic and

Prospects for the COVID-19 pandemic

The COVID-19 pandemic is not just a global health crisis. It could spark global recession, while undermining globalism, cooperation and multilateralism, ushering in a renewed era of authoritarianism, isolation and open conflict between global powers.

Scenario 1: Great accelerator downwards

In the gloomiest of three post-COVID-19 scenarios, the United States, Europe, and China all struggle to recover despite major fiscal and monetary efforts. A global depression unlike anything seen since the 1930s grips the world as countries embrace isolationism and open conflict looms between the US and a China-Russia alliance.

Scenario 2: China first

The second of our preliminary post-COVID scenarios features an ascendant China, as it deploys its “Belts and Roads” assistance to own large portions of infrastructure in Asia, Africa and Latin America. A new cold war looms as the U.S. and Europe draw closer to counter a growing China-Russia alliance.

Scenario 3: New Renaissance

The most hopeful of our three preliminary post-COVID scenarios sees the world drawing together in increased cooperation. A new commitment to better governance leads to the creation of international bodies to counter global threats such as disease, conflict, and climate. Improved international cooperation leads to a V-shaped recovery as all major economies resume growth.
United States
The pandemic threatens to exacerbate America’s troubling turn toward isolationism andtrip its antagonism toward China into open conflict. Can the country find its way back to globalization and multilateralism?

China
Will the pandemic accelerate US retreat into isolationism and further entrench China’s authoritarian tendencies? Or can the two major powers find a way to cooperate in the face of global threats?

Europe
Now facing its third crisis in a decade, Europe faces a pivotal moment. Will the crisis further widen the fissures between the North and the Mediterranean South? Or can Europe revive a spirit of solidarity?

East Asia
With East Asia having apparently brought the pandemic under some level of control even as the epicenter shifts to the United States, will American influence in the region give way to a China-centered economic recovery?

Middle East
The pandemic strikes a Middle East that is already laboring under overlapping political, economic, and humanitarian crises. With hydrocarbon prices slumping and tourism at a standstill, the region may lack the resources to jumpstart a recovery.

Africa
A lack of robust public health systems coupled with high poverty levels and rapid urbanization leaves much of Africa ill-equipped to deal with a pandemic. Will global powers step up to help? Or leave Africa to deal with the pandemic alone?

Russia
Can a Russian regime with a notoriously fragile public health system weather a massive coronavirus outbreak at home? Will the dual threats of pandemic and collapsing hydrocarbon prices doom Putin’s quest to retain power?

Latin America
The dual threats of pandemic and global recession pose particular dangers for a region overly reliant on the commodities market and has weak public health systems. Will US isolationism lead to increased Chinese influence?

India and South Asia
South Asian mitigation efforts have been confused and sometimes contradictory. What’s next for a region that is both the world’s largest producer of generic drugs and hosts woefully inadequate public health systems?
The Virus is Challenging Conventional Authorities

Brookings COVID-19 Updates

The international landscape

Why have Mexican cartels provided COVID-19 assistance? Mexican criminal groups have been using the economic downturn and lockdowns to build up political capital by distributing handouts to local populations. The amount of influence they gain will depend on a number of factors, Vanda Felbab-Brown writes.

Coronavirus and power in the Middle East. "COVID-19 does not bode well for the formal and conventional authorities that have attempted to contain the influence and legitimacy of militias," Tariq Al-Ahdal explains how the pandemic could expand the reach of sub-state actors who have filled governance voids during the crisis.

Countering violent extremism. Community efforts have reduced in many communities, allowing vigilante groups to fill the vacuum. This unstable environment, Eric Rosand, Shaheeda Feroz, and Ullis Schumacher-Livingston say it is essential to maintain, and possibly increase, investments in preventing violent extremism.

Global collective action is needed for a vaccine. A COVID-19 vaccine that is developed, licensed, manufactured, and delivered at a scale in 12-18 months would be an unprecedented achievement. To meet this goal, strong global collective action is critical, Marco Schafleitner, Gavin Yamey, and Kaci Kennedy McConalyy write.

The impact on education

How COVID-19 will change schools in the long run. What can Hurricane Katrina teach us about shifting school circumstances? Douglas Harris highlights key lessons learned and examines the long-term education shifts that may come as a result of the coronavirus.

Learning inequality around the world. The COVID-19 pandemic will have huge impacts on student learning globally, but students in low-income countries and those in sub-Saharan Africa will be the most negatively affected, new research from Emiliana Vega finds.

Wearing face masks impacts children's ability to read emotions. To help children feel at ease in a world of expressionless faces during COVID-19, Rachel Katz and Helen Shev-Hadani offer a few games and strategies to let them know that a face, with a kind and compassionate expression, is still behind the mask.

Technology's role in the crisis

Leveraging the digital economy. E-commerce—the sale of goods and services online—is emerging as a key pillar in the global fight against COVID-19. The World Bank's Christodou Ungerer and Alberto Portugal outline how governments can support the digital economy.

Why the internet didn't break. With online activity spiking during the coronavirus crisis, why hasn't the internet ground to a halt? Former FCC Chairman Tom Wheeler explains.

Coping with an infodemic. Social media platforms have become part of the critical infrastructure of crisis response. Kate Starbird discusses the challenges presented by online disinformation and looks at how social media companies can respond.

The future of tech backlash. COVID-19 is resetting conversations on data privacy, online harms, and monopoly power. Chris Messina argues that the tech industry is likely to end the pandemic even more entrenched and powerful than when the crisis started.

Brookings, 4/29/2020
South Korea: Before and After the Coronavirus Crisis

Virtual Lecture: South Korea's Response to the Coronavirus
by SFS Asian Studies Program

Date And Time
Tue, March 24, 2020
2:00 PM - 3:30 PM EDT

Sung Jae Park, Ph.D.
Visiting Researcher, Asian Studies Program,
Georgetown University School of Foreign Service

South Korea: Before and After the Coronavirus Crisis

Sung Jae Park, Ph.D.
Korean Educational Development Institute
Georgetown University School of Foreign Service
COVID-19: Uncertainty, Black Swan, and New Normal

Grey Swan or Black Swan

Data available

Understanding

Unknown Knowns
* didn’t realize, but clear solution
* quickly move to KK bucket

Known Knowns
* know problem and solution
* hire new people to solve

Unknown Unknowns
* no idea it’ll happen
* react when needed
* don’t let it scare you

Known Unknowns
* see the problem, not the solution
* test, experiment, repeat
* founders + best of team solve

Moving From Risk To Uncertainty

- Nuclear Weapon
- Biochemical Weapon
- Infectious Disease
- Climate Change

Medium.com, 10/10/2017
Perfect Storm and Four Futures

The Perfect Storm

Four Futures

Dator’s “Four Futures” Growth-Based Alternative Scenarios (GBAS)
No Crisis Should Go to Waste!

The Real Pandemic Danger Is Social Collapse

Seven Sources of Innovation
- The unexpected ✓
- Incongruities ✓
- Market Structure ✓
- Necessity ✓
- Demographics ✓
- Changing Perception ✓
- New Knowledge ✓

- The Discipline of Innovation, Peter F. Drucker, 2007
Major Turning Points of Social Change

- 1950-53 Korean War - Democracy and Market Economy
- 1997-98 Financial Crisis - Corporate Competitiveness
- 2020 Coronavirus Crisis - Digital Transformation

South Korea 2020

- Population: 51,269,185
- GDP per capita: $31,250
- Trade to GDP ratio: 83.00%
- cf. North Korea Population: 25,778,816
COVID-19: World Moved Online

LinkedIn, 5/01/2020

JoongAng Ilbo, 4/16/2020
Learning: Past, Present, and Future
Traditional Learning and Adaptive Learning

Adaptive Learning Technologies: How Students Will Learn In The Future

www.celt.mmu.ac.uk/ltia/Vol12Iss1/9_Smith_personalised_education_using_adaptive_learning_technology.pdf

www.digitalmediaacademy.org/2015/08/20/adaptive-learning-technologies-how-students-will-learn-in-the-future/
Adaptive Learning

Bloom's Taxonomy

Active Learning
Create
Evaluate
Analyze
Apply
Understand
Remember

Adaptive System
1. Acquire Info
Read courseware, watch video, do simulation, etc.

2. Assess
Answer practice questions, check for understanding, etc.

3. Apply
Discuss key concepts, analyze scenarios, etc.

4. Assimilate
Write essay, solve problems, take quiz, etc.

Before Class
Adaptive Learning

In Class

BIO 100 - Performance (C or Better)
Before Adaptive
After Adaptive

ASU Goal

Arizona State University

IBL News, 8/26/2019
Adaptive Learning and Learning Analytics

Learning Analytics

• Collecting, Measuring, Analyzing, and Reporting Data
• Optimizing the learning experience of students and the learning environment
• Personalization
Learning Analytics and Customization

Adaptive Learning Networks and Neural Networks
Digital Twin

Reflection from the digital world to the physical world

1. Create virtual product
2. Analyze, integrate, and visualize data
3. Simulate behaviors
4. Control behaviors
5. Communicate with virtual product
6. Measure data

Reflection from the physical world to the digital world

Connectivity
Actuator AR VR Simulation
Artificial Intelligence
Cloud Platform
Cloud Computing
Security
Sensors
Software
CAD
3D Model
Data Analytics
Data Integration
Data Visualization

www.researchgate.net
Fusion Brain Organoids

Sources: Dr. Woong Sun, Korea University
Brain-Computer Interface

Sources: Dr. Seong-Whan Lee, Korea University

Psychology Today
Adaptive Learning Ecosystem and EdTech Map

https://adaptive.edsurge.com/adaptive-learning

https://commons.wikimedia.org/wiki/File:A_Mind_Map_on_ICT_and_Pedagogy.jpg
Key Issue: Big Data

Learning Measurement for Analytics Whitepaper, IMS Global, 2013
Learning Analytics and Big Data Industry

Learning Measurement for Analytics Whitepaper, IMS Global, 2013

http://www.oss.kr
GLOBAL EDTECH LANDSCAPE 3.0 MAPS 26 CLUSTERS OF 15,000 COMPANIES INTO EIGHT STEPS WE CALL THE NEXT GENERATION LEARNING LIFECYCLE

2017
Global EdTech Landscape 3.0
EdTech in Korea
EdTech in Korea

- 2011 - Smart Education Strategy and Action Plan, Ministry of Education, Science and Technology

Learning Analytics Platform Based on Big Data

Global EdTech Market

Korean EdTech Market

EdTech Startup

Learning Analytics Platform

Based on Big Data
Understanding Media: The Extensions of Man

- Marshall McLuhan
The Year 2045 and Agenda 2045

SINGULARITY TIMELINE
Rise in human intellect could be driven by integrating with machines in the future

- 1995: 5.31
- 2020: COVID-19
- 2045: Singularity

Intelectual Level/Power

- Human Intellect
- Machine Intelligence
- Trans-Humans?

THE SINGULARITY

- 2023: Machine power will surpass brainpower of human
- 2045: Machine power will surpass brainpower equivalent to that of all human brains combined

www.anderssorman-nilsson.com
A New Era for Humanity: Key Drivers

DARPA

NASA

NIH

Department for Business, Energy & Industrial Strategy

UK

National Institutes of Health

RECRUITMENT

Program of Global Experts
New Korea

**Agenda For Korea**

- Digital Transformation and Social Security
- Knowledge Chain Reshaping between Higher Education, R&D Sector and Business Industry
- Population Structure and Social Redesign, and
- Diplomatic Relations with Neighboring Countries

**Grand Strategy Required**

- South Korea
  - Education
  - Diplomatic Relations
  - North Korean Nuke
  - Reunification
- National Interests and Foreign Policy
  - Syngman Rhee
  - Zbigniew Brzezinski
  - John Mearsheimer
Discussion and Question

• Who will lead this transformation with what?

• How can we define human, education, and knowledge in the next future?

• How can we deal with the concepts such as personal convenience, privacy, and big brother in a new education era?

• Can education liberate humans from war and infectious diseases, as humans expect?
THANK YOU

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