Program Bulan Pendidik UPM 2021

COVID-19: From Disruption to Innovation

Zamberi Sekawi

October 2021
Disclaimer

• I am not an expert in education or IT
• I am a clinical microbiologist focusing in virology
• I am a (temporary) administrator/ leader
COVID-19 Global statistic

219 million cases
4.55 million deaths
CFR 2.08%
Mystery virus spreads in Wuhan, China

China identifies virus in Wuhan outbreak

Virus: flights from Wuhan, China

More than 2,300 flights planned from January 20-27

- Domestic flights (2,105)
- International (231)
The proximal origin of SARS-CoV-2

1. SPILLOVER THEORY?
2. LAB LEAK THEORY?

Is pangolin the intermediate host?

Is the origin from bats?
COVID-19 Malaysian statistics

Daily new confirmed COVID-19 cases per million people
Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

Daily new confirmed COVID-19 deaths per million people
Shown is the rolling 7-day average. Limited testing and challenges in the attribution of the cause of death means that the number of confirmed deaths may not be an accurate count of the true number of deaths from COVID-19.

Source: Johns Hopkins University CSSE COVID-19 Data

https://ourworldindata.org/covid-overview?country=
COVID-19 Malaysian statistics

Moving-average case fatality rate of COVID-19
The case fatality rate (CFR) is the ratio between confirmed deaths and confirmed cases. Our moving-average CFR is calculated as the ratio between the 7-day-average of the number of deaths and the 7-day-average of the number of cases 10 days earlier.

Share of the population fully vaccinated against COVID-19
Total number of people who received all doses prescribed by the vaccination protocol divided by the total population of the country.
COVID-19 Malaysian statistics

Share of SARS-CoV-2 sequences that are the delta variant

Shown is the delta variant’s share of total analyzed sequences in the last two weeks. This share may not reflect the complete breakdown of cases, since only a fraction of all cases are sequenced.

https://ourworldindata.org/covid-overview?country=malaysia
Bloomberg's COVID-19 Resilience Ranking

https://www.bloomberg.com/graphics/covid-resilience-ranking/
# Bloomberg's COVID-19 Resilience Ranking

<table>
<thead>
<tr>
<th>Rank</th>
<th>Change</th>
<th>Economy</th>
<th>Bloomberg Resilience Score</th>
<th>People Covered by Vaccines</th>
<th>Lockdown Severity</th>
<th>Flight Capacity</th>
<th>Vaccinated Travel Routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>▲3</td>
<td>Ireland</td>
<td>79.4</td>
<td>72.5%</td>
<td>44</td>
<td>-48.7%</td>
<td>392.5</td>
</tr>
<tr>
<td>2</td>
<td>▲8</td>
<td>Spain</td>
<td>78.2</td>
<td>75%</td>
<td>42</td>
<td>-27.6%</td>
<td>392.6</td>
</tr>
<tr>
<td>3</td>
<td>▼1</td>
<td>Netherlands</td>
<td>76.4</td>
<td>68%</td>
<td>42</td>
<td>-34.5%</td>
<td>395</td>
</tr>
<tr>
<td>4</td>
<td>▼1</td>
<td>Finland</td>
<td>76.1</td>
<td>67.9%</td>
<td>37</td>
<td>-66.1%</td>
<td>394.5</td>
</tr>
<tr>
<td>5</td>
<td>▲6</td>
<td>Denmark</td>
<td>75.3</td>
<td>75.8%</td>
<td>24</td>
<td>-43%</td>
<td>204.6</td>
</tr>
<tr>
<td>6</td>
<td>▲9</td>
<td>U.A.E.</td>
<td>74.7</td>
<td>92.3%</td>
<td>39</td>
<td>-47.4%</td>
<td>381</td>
</tr>
<tr>
<td>7</td>
<td>▲5</td>
<td>France</td>
<td>73.9</td>
<td>72.4%</td>
<td>67</td>
<td>-38.2%</td>
<td>394</td>
</tr>
<tr>
<td>8</td>
<td>▲1</td>
<td>Switzerland</td>
<td>73.8</td>
<td>60.1%</td>
<td>44</td>
<td>-44.5%</td>
<td>394.5</td>
</tr>
<tr>
<td>9</td>
<td>▲14</td>
<td>Canada</td>
<td>73.8</td>
<td>74.3%</td>
<td>68</td>
<td>-44%</td>
<td>395.5</td>
</tr>
<tr>
<td>10</td>
<td>▼9</td>
<td>Norway</td>
<td>73.6</td>
<td>72.1%</td>
<td>39</td>
<td>-32.2%</td>
<td>187</td>
</tr>
<tr>
<td>11</td>
<td>▲5</td>
<td>Belgium</td>
<td>73.5</td>
<td>72.3%</td>
<td>43</td>
<td>-34.4%</td>
<td>305</td>
</tr>
<tr>
<td>12</td>
<td>▲2</td>
<td>Czech Republic</td>
<td>72.6</td>
<td>55.3%</td>
<td>32</td>
<td>-56%</td>
<td>395.6</td>
</tr>
<tr>
<td>13</td>
<td>▼8</td>
<td>Austria</td>
<td>71.8</td>
<td>60.9%</td>
<td>60</td>
<td>-39.6%</td>
<td>389.5</td>
</tr>
<tr>
<td>14</td>
<td>▼1</td>
<td>Turkey</td>
<td>71.8</td>
<td>64.7%</td>
<td>64</td>
<td>-15.7%</td>
<td>381.5</td>
</tr>
<tr>
<td>15</td>
<td>▼8</td>
<td>Germany</td>
<td>71.5</td>
<td>64.3%</td>
<td>56</td>
<td>-47.6%</td>
<td>396</td>
</tr>
<tr>
<td>16</td>
<td>▼6</td>
<td>U.K.</td>
<td>71.1</td>
<td>69.9%</td>
<td>41</td>
<td>-48.4%</td>
<td>332.5</td>
</tr>
<tr>
<td>17</td>
<td>▲2</td>
<td>Saudi Arabia</td>
<td>71</td>
<td>60.9%</td>
<td>56</td>
<td>-29.2%</td>
<td>386</td>
</tr>
<tr>
<td>18</td>
<td>▲2</td>
<td>Sweden</td>
<td>70.1</td>
<td>65.9%</td>
<td>37</td>
<td>-51.2%</td>
<td>192.5</td>
</tr>
<tr>
<td>19</td>
<td>▼11</td>
<td>Singapore</td>
<td>70</td>
<td>80.8%</td>
<td>50</td>
<td>-81.4%</td>
<td>159</td>
</tr>
<tr>
<td>20</td>
<td>▲2</td>
<td>Hong Kong</td>
<td>69.8</td>
<td>56.8%</td>
<td>59</td>
<td>-82.2%</td>
<td>262</td>
</tr>
</tbody>
</table>

### Vaccination Rates

<table>
<thead>
<tr>
<th>Rank</th>
<th>Change</th>
<th>Country</th>
<th>Vaccinated Travel Routes</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>▲6</td>
<td>South Africa</td>
<td>59.1</td>
</tr>
<tr>
<td>41</td>
<td>▲5</td>
<td>Israel</td>
<td>57.7</td>
</tr>
<tr>
<td>42</td>
<td>▲1</td>
<td>Taiwan</td>
<td>56.5</td>
</tr>
<tr>
<td>43</td>
<td>▲2</td>
<td>Iraq</td>
<td>56.3</td>
</tr>
<tr>
<td>44</td>
<td>▲7</td>
<td>Nigeria</td>
<td>56.3</td>
</tr>
<tr>
<td>45</td>
<td>▲3</td>
<td>India</td>
<td>56.2</td>
</tr>
<tr>
<td>46</td>
<td>▲3</td>
<td>Pakistan</td>
<td>56.1</td>
</tr>
<tr>
<td>47</td>
<td>▲1</td>
<td>Argentina</td>
<td>55.5</td>
</tr>
<tr>
<td>48</td>
<td>▲1</td>
<td>Iran</td>
<td>54</td>
</tr>
<tr>
<td>49</td>
<td>▲2</td>
<td>Indonesia</td>
<td>52.4</td>
</tr>
<tr>
<td>50</td>
<td>▲1</td>
<td>Thailand</td>
<td>47.6</td>
</tr>
<tr>
<td>51</td>
<td>▲2</td>
<td>Malaysia</td>
<td>44.1</td>
</tr>
<tr>
<td>52</td>
<td>▲2</td>
<td>Vietnam</td>
<td>43.7</td>
</tr>
<tr>
<td>53</td>
<td>▲1</td>
<td>Philippines</td>
<td>40.2</td>
</tr>
</tbody>
</table>

https://www.bloomberg.com/graphics/covid-resilience-ranking/
COVIDNOW in Malaysia
The official Malaysia government website for data and insights on COVID-19.
Last updated: 11 Oct 2021, 4:45 pm

Vaccinations
Population Vaccinated
Data for Malaysia

Daily - Administered
+129,518
Total – Administered
45,650,714

Daily - Partially Vaccinated
+31,932
Total – At Least 1 Dose
24,457,378

Daily - Fully Vaccinated
+97,586
Total – Fully Vaccinated
21,305,196

Healthcare Utilisation
Data for Malaysia

Adolescents (12-17) Adults (18+)
Total Population
Unvaccinated
25.1%
At Least 1 Dose
74.9%
Fully Vaccinated
65.2%

Cases
Active COVID-19 Cases
Data for Malaysia

Active Cases
116,596 – 3,850

Local Cases
2,334,617 – 7,371
Imported Cases
4,977 – 2

Recovered
2,195,669 – 10,959
Deaths (Including BID)
27,329 – 64

Deaths per 1M People
Data for past 2 weeks

Deaths Vent. ICU Hosp. Cases
Malaysia
33.8
Perlis
90.2
P. Pinang
71.0
Selangor
68.3
Koala
45.1
Johor
44.2
Perak
42.3
Sabah
35.6
Tg. Borneo
35.7
Kedah
27.5
Melaka
23.4
Pahang
16.5

https://covidnow.moh.gov.my
How long is the pandemic?

From Pandemic to Endemic
What I learnt from the pandemic?

• It is not another bad flu
• Everything is unpredictable
  • Signs and symptoms involving multi-organs
  • Long covid
  • Autoimmune
  • Durability of vaccines
  • “Fast” evolution of variants.
• We are in for a long haul
Living dangerously in a virus world: Are we at the losing end?

20 April 2018
Everyone is affected!

Lives vs livelihoods

Covid-19 impacts all aspects of society

**Education**
- 50% of students still affected by school closures*

**Climate**
- -30% investment in clean energy transition

**Poverty**
- +135m people pushed into poverty by 2030

*One year into the pandemic


GLOBAL ECONOMY TO SHRINK BY 4.9% BECAUSE OF COVID-19

THE INTERNATIONAL MONETARY FUND EXPECTS THE GLOBAL ECONOMY TO PLUNGE

Annual GDP (YoY)

Source: International Monetary Fund
THE IMPACT OF COVID-19 ON HIGHER EDUCATION AROUND THE WORLD

IAU Global Survey Report

Giorgio Marinoni, Hilligje van’t Land, Trine Jensen

Fig. 2: HEIs in WHED - 4 regions

- Americas: 32%
- Africa: 28%
- Asia & Pacific: 8%
- Europe: 32%

Fig. 5: How has COVID-19 pandemic affected your institution?

- Our institution is open as usual, no special measures in place for COVID-19: 59%
- Our institution is open as usual, but containment measures have been put in place to avoid spread of COVID-19: 30%
- Our institution is partially open, but there are major disruptions: 10%
- All campus activities have stopped and the institution is completely closed: 1%
**Fig. 7: Do you believe COVID-19 will affect enrollment numbers for the new academic year?**

- 46%: No
- 22%: Yes, but only for international students
- 27%: Yes, but only for local students
- 5%: Yes, both for local and international students

**Fig. 13: How has COVID-19 affected teaching and learning?**

- 67%: Classroom teaching has been replaced by distance teaching and learning
- 24%: Most activities are currently suspended but the institution is working on developing solutions to continue teaching and learning, through digital or self-study means.
- 7%: Teaching has been cancelled
- 2%: It is not affected

**Fig. 6: Do you have infrastructure in place to easily communicate with students (and staff) for updates and information?**

- 9%: Yes
- 91%: No

**Fig. 24: How has COVID-19 impacted on your community engagement?**

- 45%: It has not affected it
- 19%: It has increased our community engagement
- 31%: It has decreased our community engagement
- 6%: Don't know

**Fig. 20: Has COVID-19 affected research at your institution?**

- 80%: No
- 20%: Yes
Figure 1. Summary of challenges due to the COVID-19 pandemic on university students.
Figure 2. Students overload feeling and causes during online courses. A: Students’ overload feeling; B: Causes of information overload during online courses.
During COVID-19 lockdown, I got angry and I lose my temper easily

- Sometimes (30% - 40%) of my time: 29.8%
- Rarely (10% - 20%) of my time: 30.2%
- Always (80% - 90%) of my time: 6.4%
- Never: 13.4%
- Almost every day: 20.2%
- Occasionally (50% - 70%) of my time: 6.4%

During COVID-19 lockdown, I picture some future misfortune

- Rarely: 0.2%
- Always: 4.5%
- Almost every day: 6.8%
- Sometimes: 57.8%
- Never: 30.4%

During COVID-19 lockdown, I'm unable to control my stress

- Always: 3.5%
- Sometimes: 77.5%
- Almost every day: 7.2%
- Never: 27.2%
Exploring the Impact of the COVID-19 Pandemic on University Students' Learning Life: An Integrated Conceptual Motivational Model for Sustainable and Healthy Online Learning

Nabil Hani Al-Hanouta, Abdallah K. Alhouta, Fatimy Mohamed, Nabil A. Gazer, Mohammed Salama Makhlouf, and Noura Fawza
Exploring the Impact of the COVID-19 Pandemic on University Students' Learning Life: An Integrated Conceptual Motivational Model for Sustainable and Healthy Online Learning

Nabil Hanin Al-Khateeb,1,2,3 Abdullah K. Alhosein,1 Fatihy Mohammed4,5,6,7,8,9,10,11 Nabil A. Guven1

Students' responses on managing stress during COVID-19 lockdown

- I used to manage my stress by seeking help and advice from others: 27.6%
- I used to manage my stress independently: 72.4%

Number of Students

Being with my family during COVID-19 lockdown

- It is difficult and challenge to pay attention to my study: 51.6%
- It allows me to focus on my study: 27.8%
- I cannot study very well: 20.6%
1. Motivate students to develop **self-confidence** and solve any technical problem.

2. Focus more on **quality of online learning platform interface** (interactivity, ease of use, and students’ enjoyment for completing learning tasks)

3. **Assist teachers** in updating and redesigning teaching plans.

4. **Important role of students’ families** to assist students in getting a better learning environment.

5. **Reduce online tasks** provided to students to decrease students’ stress level and increase level of sustainable and healthy online learning.
Need to adapt swiftly!

- The current scenario has involved a rapid pedagogical shift;
  - from traditional to online class sessions
  - from personal to virtual instruction
  - From seminars to webinars

- Higher education institutions are undergoing radical transformations driven by the need to digitalize education and training processes in record time with academics who lack innate technological capabilities for online teaching.

Disruptive educational innovation

• Replaces existing methodologies and modes of knowledge transmission by opening new alternatives for learning.

• New advances in education systems through information and communication technologies.
  • Innovation in teaching methods
    • New learning materials, mechanisms, and spaces;
  • Transformation of students' role
    • The way they absorb and use educational knowledge.

New things to learn and re-learn (quickly!)

• Giving lectures by videoconference, sharing material (e.g., slides, videos, presentations), interacting through chats, creating debate forums or workgroups, supervising practical activities, evaluating and tutoring students, recording explanations and making them available to students, etc.

• Synchronously or asynchronously?

• How to maintain students' attention and keep them involved in the course.

• What are the methodologies for the interaction of students and professors, and that engage students in peer collaboration?

• How to make sessions dynamic? Collaborative and formative tools?

• Instructors must design the audiovisual material, plan students’ work time, and use the right tools for each activity.
Barriers and Challenges

• Technical problems!
• Stressful for professors!
• Online education can amplify digital divide (including academics).
• Difficult to maintain attention: distractions, boredom, sense of isolation, lack of time to follow different subjects, and lack of self-organizing capabilities.

Higher Education was already ripe for disruption. Then, COVID-19 happened.
Education In The Post-Covid World: 6 Ways Tech Could Transform How We Teach And Learn

September 2, 2020

Take a look at 20+ other industries and technologies that will shape the post-pandemic world here.
Online learning increases access and invites a wide array of learners

• Online learning will be a core component of education and teaching.

• Learning management systems (LMS) help teachers deliver online lessons, share reading materials, and grade assignments; all in one platform.

• Massive Open Online Courses (MOOCs) are seeing renewed interest as a means of gaining higher education.

• After-school learning and tutoring is picking up.
Virtual and augmented reality increase engagement by bringing learning to life

• VR and AR **enhance learning and engagement**.

• VR creates immersive 3D environment that a user can explore.

• AR superimposes digital elements such as visuals, sound, and text onto a user’s surroundings.

• VR and AR work particularly well for highly technical fields like medicine or military.
Biometrics and facial recognition could help students stay focused and improve safety

- Scans body parts like eyes, fingerprints, and facial features can help identify an individual.
- Applications include ensuring students are paying attention in class, security and safety of students on campus.
- Facial recognition tech can help track a student’s attentiveness through their facial expressions.
  - Students may lose focus, it alerts the students and gives them a pop quiz!
  - When students get bored during a lecture, style of teaching can be modified.
Gamification uses game elements to make learning interactive

- Increase learners’ motiva**tion and engagement** by incorporating game design elements such as storytelling, problem-solving, badges, levels, and points in educational environments.
- Educators encourage students to face and accomplish various challenges and goals. This promotes higher student engagement and could help students retain knowledge more effectively.
- Students receive instant feedback and foster a spirit of healthy competition among students.
Artificial intelligence enables data-driven decisions to increase efficiency and save costs

• Help **personalize learning**, improve memory retention, teach languages, or increase accessibility to lessons.

• AI-enabled chatbots can **increase student engagement**.

• Chatbots can double as **teacher’s virtual assistant**, helping by answering frequently asked questions for students, giving personalized feedback to students, and providing additional learning materials based on a student’s individual progress.
Smart campus tech leverages devices and data for a connected experience

• Smart campus is a *digitally connected space*, where devices and data come together to provide a more intuitive learning experience to students.

• All devices are connected into a *single network*.

• Immense technological preparation and planning on the part of the educational institution is required.

• Privacy and tracking are major concerns.
Traditional way of learning Medicine

• Face-to-face lectures and practical sessions
• Real anatomy dissection – skeleton in the closet!
• Textbook
• Real patients
• Go to library to borrow books and search for journals.
• It’s a pain to write a dissertation.
“New norm” way of learning Medicine

• Plenty of educational resources – a finger click away. Force us to rethink medical training.
• Virtual anatomy
• Virtual physiology etc
• Virtual clinical sessions
• Clinical simulations
• Standardized patient/ simulated patient
• Webinar for all
• Virtual community engagement
Teaching anatomy without cadavers

- Using VR and AR.
- 3-D cinematic renderings of CT and MRI scans.
- Plastinations—human cadavers preserved with plastic resins.
- Help students learn anatomy in the context of diseases and clinical practice.
• Gaining broad access to patient-care data
• Connecting curriculum reforms to physician practice
• Data may change the future of residency training
Simulations – way to go!
Digitalisation – health services, training

- Digital health transformation
- Telemedicine and Virtual Consultation
- Role of AI
- MySejahtera
- Global sharing of data
- Remote robotic surgery
- Ease of webinar
12 Innovations that will change Health Care and Medicine in the 2020s

- Drone-delivered medical supplies
12 Innovations that will change Health Care and Medicine in the 2020s

- The biggest Big Data and AI
12 Innovations that will change Health Care and Medicine in the 2020s

• Stem-cell cure for diabetes

https://time.com/5710295/top-health-innovations/
12 Innovations that will change Health Care and Medicine in the 2020s

- Personalised medicine

PERSONALISED MEDICINE

PREVENTION

Early detection of patients at risk, improve preventive measures (individual/collective)

DIAGNOSIS

Accurate disease diagnosis enabling individualized treatment strategy

TREATMENT

Improved outcomes through targeted treatments and reduced side effects

https://time.com/5710295/top-health-innovations/
12 Innovations that will change Health Care and Medicine in the 2020s

- Disruptive approach to cancer therapy
12 Innovations that will change Health Care and Medicine in the 2020s

• Wearables

https://time.com/5710295/top-health-innovations/
12 Innovations that will change Health Care and Medicine in the 2020s

• Pocket-sized ultrasound

https://time.com/5710295/top-health-innovations/
12 Innovations that will change Health Care and Medicine in the 2020s

• **Cancer-diagnosing AI**

The AI-Based Approach Was More Accurate than Other Methods

The proportion of precancers or cancers that developed over the subsequent 7 years that were correctly identified at baseline (the beginning of the study) by each method:

- **Visual Inspection**
- **PAP Smear**
- **Automated Visual Evaluation**

![Diagram showing early gastric cancer endoscopic diagnosis system using artificial intelligence.](https://time.com/5710295/top-health-innovations/)
12 Innovations that will change Health Care and Medicine in the 2020s

• AI to read every science paper

https://time.com/5710295/top-health-innovations/
12 Innovations that will change Health Care and Medicine in the 2020s

• **3-D digital hearts**

https://time.com/5710295/top-health-innovations/
12 Innovations that will change Health Care and Medicine in the 2020s

- Neurorehabilitations and VR

Digital Therapeutics NeuroRehabilitation Programs

- “Fun Fair Towers”
- “Time for Jazz”

https://time.com/5710295/top-health-innovations/
Digital transformation could boost USD100-136bil in GDP by 2025

3 key fundamentals that must be addressed

- **Fast affordable broadband**
  - Broadband speed is 3 times slower than frontrunners
  - Modernising regulations, empowering talent and universal access to infrastructure will accelerate Malaysia's digitalisation
  - Source: Bank Negara Malaysia

- **Talent tailored for digital progress**
  - Only 1 in 5 graduates are in STEM
  - < 40% of the population use internet banking and e-commerce

- **High digital adoption**

Malaysia’s digitalisation speeding up, experts say
Fifth generation (5G) connectivity is more than just greater speed and network capacity. It is about the linking of millions of devices, building new services and supporting a broader adoption of applications which will transform the way we live and how businesses and governments are run.

**INTERNET SPEED**

<table>
<thead>
<tr>
<th>Network type</th>
<th>Length of time it takes to download a two-hour-long movie</th>
</tr>
</thead>
<tbody>
<tr>
<td>3G</td>
<td>26 hours</td>
</tr>
<tr>
<td>100 Mbps (2003)</td>
<td>6 minutes</td>
</tr>
<tr>
<td>5G</td>
<td>3.6 seconds</td>
</tr>
</tbody>
</table>

**SPHERES THAT WILL BENEFIT FROM 5G TECHNOLOGY**

- Agriculture: Precision farming
- Consumer Market
- Education: Virtual Reality classrooms
- Healthcare: Remote diagnosis and consultation services
- Industrial Communication
- Media and Entertainment
- Manufacturing: Robotics
- Public Safety
- Smart Agriculture
- Smart cities
- Smart Grids
- Ultra-Reliable and Low Latency Communication
- Smart Healthcare
- Transportation: Self-driving vehicles
- Automotive
- Enhanced Mobile Broadband

Malaysia’s adoption of 5G technology is in tandem with the National Fibreisation and Connectivity Plan (NFCP) which aims to provide high-quality and affordable digital connectivity.
Elements of a Smart Hospital

Data Gathering & Analytics
- Data is automatically gathered on machines, integrated and analysed
- Machine Learning Software (AI) can extract patterns and predict behaviours

Interconnected Access to Data
- Real-time access to analysed data
- Connecting multiple agents through diverse platforms (phones, tablets, wearables, desktop...)

Autonomous Actions
- Big Data analysis
- Pattern recognition
- Optimized autonomous actions
2021 Digital Quality of Life Index

Global research on the quality of a digital wellbeing in 110 countries (90% of the global population). This study indexes the countries by looking at five fundamental pillars that define the digital quality of life.

Explore ranking   Find a country profile

1st 0.8313 index
DK

2nd 0.7608 index
KR

3rd 0.7562 index
FI

4th 0.7387 index
IL

5th 0.7360 index
US

6th 0.7192 index
SG

7th 0.7128 index
FR

8th 0.7093 index
CH

9th 0.7071 index
DE

10th 0.7065 index
GB

11th 0.7060 index
NL

12th 0.6983 index
JP
### Internet Affordability
- Rank: 69th
- Index: 0.04

### Internet Quality
- Rank: 47th
- Index: 0.52

### Electronic Infrastructure
- Rank: 31st
- Index: 0.82

### Electronic Security
- Rank: 21st
- Index: 0.88

### Electronic Government
- Rank: 24th
- Index: 0.80

### Best criteria rankings
- Cybersecurity Index: 21st
- Online Services Index: 24th
- Artificial Intelligence Readiness Index: 28th

### Worst criteria rankings
- Broadband Speed Growth: 87th
- Mobile Speed: 74th
- Broadband Internet Affordability: 71st
Digital Educational Learning Initiative Malaysia (DELIMa)

• MOE’s digital education platform aiming at making education accessible for all.

• Free software for all teachers and students supported by Google, Microsoft and Apple.

• Empower and prepare pupils for life-long learning and future skills and competencies that they need to be employable in Malaysia and in the global market.
Moving forward

• Preparing today’s students for tomorrow’s world.
• Producing health professionals of tomorrow requires re-thinking.
• Should we think of radical transformation of curriculum?
• How do we get our graduates to be tech-ready?
• Technological innovations to be taught in universities? Techpreneurs?
Moving forward
COVID-19 endgame

“Common cold” coronavirus infection... in children

Herd immunity

- Decreased hospitalization
- Decreased deaths
- Virus still circulate and mutate

Protect the high risk

Infect - reinfect circle

Therapeutic

Prophylaxis

COVID-19 Vaccine

Vaccine Catch up

Booster dose

Immune escape Variants

Permanently established in human

“Common cold” coronavirus infection... in children

Infect – reinfect circle

Protect the high risk

Herd immunity

- Decreased hospitalization
- Decreased deaths
- Virus still circulate and mutate

Therapeutic

Prophylaxis

COVID-19 Vaccine

Vaccine Catch up

Booster dose

Immune escape Variants

Permanently established in human
Conclusion

• Silver lining of the pandemic
  – The great reset

• Innovations at lighting speed
  – The great digital transformation

• “Publish or perish” “Innovate or perish”
  – The great mindset reset
TERIMA KASIH / THANK YOU
www.upm.edu.my