High Touch High Tech: Transforming Education after Covid-19

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17th September 2020

Outline

I. Education in the Era of the Fourth Industrial Revolution

II. High Touch High Tech (HTHT)

III. K-Edu: The Potential and Strategy

IV.HTHT Initiatives of ECA







Education in the era of the Fourth Industrial Revolution

I. Education in the Era of the Fourth Industrial Revolution

1 Al in Education





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Education in the Era of the Fourth Industrial Revolution

2 What does this mean?

- As highlighted in the 2016 World Economic Forum in Davos:
 - 65% of current elementary school students will have jobs that do not yet exist today due to the AI-led Fourth Industrial Revolution
- Education in the Fourth Industrial Revolution Era will incite fundamental change in what we learn and how we teach



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3 What is being taught? What is being learned?



Foundations

3Ls

4Cs

- Core concepts
- Essential knowledge

- Data Literacy
- Technological Literacy
- Human Literacy

- Creativity
- Critical thinking
- Collaboration
- Communication

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How will we teach? How will we learn?

From Mass Standardization to Mass Personalization



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Education in the Era of the Fourth Industrial Revolution

4-1 Harnessing the power of AI in education

 Identifying what a student does/does not know through AIpowered diagnostic testing and developing a personalized learning path for each student

Examples

- ITS: Intelligent Tutoring System/Adaptive Learning System
- Dialogue-Based Tutoring System
- ELEs (Exploratory Learning Environments) and AWE (automated writing evaluation)
- Chatbot, VR, and AR
- Al Learning Companion and Al Teaching Assistant

I. Education in the Era of the Fourth Industrial Revolution

4-2 Transforming the role of teachers



4-2 Transforming the role of teachers

Clusters of Innovative Pedagogies





High Touch High Tech (HTHT)

II. High Touch High Tech

What is HTHT Education?

HIGH TOUCH

1

• Delivery/facilitating agent: • Teachers

• Featuring characteristics:

- <u>More personalized guidance</u> (through software-informed data)
- <u>Active learning experiences</u>
 (e.g., through project-based learning) focused on higher-order and soft skills
- <u>Mentoring</u> and social and emotional learning (SEL)

HIGH TECH

- Delivery/facilitating agent:
 - AI-assisted adaptive learning technology

• Featuring characteristics:

- <u>Diagnostic capacity</u> to identity students' prior knowledge, levels, and needs
- Instruction tailored to individual learning levels and needs, allowing students to progress at their own pace

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II. High Touch High Tech

2 A new way of teaching and learning



Source: Adapted from Johnson (2015)

II. High Touch High Tech

Evidence for HTHT Education

• ALEKS, Arizona State University (ASU), US

- Adaptive learning system + active learning through project-based learning
- o 65,000 students, 12 core courses
- Increase in completion rates for algebra course: 20.5% on average and 28.5% for students furthest behind

• Mindspark, India

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- Personalized, computer-assisted after school program for middle school students
- Increase in test scores: 0.37 SD for math and 0.23 SD for Hindi after a 4.5-month period

• STAT (Students and Teachers Accessing Tomorrow), US

- 175 schools, 110,000 students
- District-wide initiative to incorporate adaptive learning into the curriculum for Baltimore County Public Schools

II. High Touch High Tech

3-1 ASU High Tech (adaptive learning system)

Adaptive Learning: ASU's Approach to Quality Learning at Scale



II. High Touch High Tech

3-2 ASU High Tech (online learning platform)

The Power of Partnerships

EdTech Companies

Over 130 digital tools and services are used in our online learning platform.







K-Edu: The Potential and Strategy

III.K-Edu: The Potential

1

Investment in human capital as the key to success

Korea's per capita GDP increase as compared to other Asian Countries Korea's increase in enrollment rates

(a good case of progressive universalism)





III.K-Edu: The Potential

2 The best students enter the teaching profession

Proportion of students in the top 5% aspiring to become teachers (PISA 2015)

Korean students' strong performance in reading, math, and science (PISA 2015)





III. K-Edu : The Strategy

3

The 3 strategies of K-Edu

Leading the way in harnessing the power of AI in education through K-Edu

- Setting off AI in education by "opening up"
- Turning crisis into opportunity
- Gradually implementing fundamental change



III. K-Edu : The Strategy

3- Setting off AI in education by "opening up"

• "Opening up" internally:

- Expanding accessibility of edtech companies for schools, universities, and the government
- "Opening up" externally:
 - Expanding High Touch High Tech education globally



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III. K-Edu : The Strategy

3-1b Setting off AI in education by "opening up"

- In the ecosystem of K-edu, globally competent edtech corporations are:
 - Emerging and expanding globally in cooperation with education pioneers
 - Applying, evaluating, and creating HTHT solutions
 - Collaborating with teachers/professors at schools/universities to bring out student potential

III. K-Edu : The Strategy

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Turning crisis into opportunity

Korean students are not happy despite high math scores

Korean teachers have low self efficacy despite high salaries



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III. K-Edu : The Strategy

Turning crisis into opportunity: edtech

Main form of remote learning used for subject-based learning



Most widely used remote learning platforms



III. K-Edu : The Strategy

³⁻ Turning crisis into opportunity: Al in education

Level of satisfaction on 3 Platforms

Do you plan to use remote learning in the future?

Platform Name	Very Unsatis- factory	Unsatis- factory	Moder- ate	Satis- factory	Very Satis- factory	Five- Point Scale
Cyber Learning System	1.8%	4.8%	37.1%	43.1%	13.2%	3.61
Online Class	3.1%	6.3%	34.9%	40.1%	15.7%	3.59
Google classroom	1.2%	1.2%	12.7%	41.9%	43.0%	4.24





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III. K-Edu : The Strategy

3-3 Gradually implementing fundamental change

- Naver Connect Foundation has translated math lessons of Khan
 Academy, a representative
 example of ITS, into Korean
- Tablets with on-board ITS are already replacing workbooks in the private education market



HTHT
 Consortium
 HTHT for the
 Underprivileged

* HTHT Global

HTHT Initiatives of Education Commission Asia

IV. HTHT Initiatives of ECA

1-1 HTHT Consortium

Consortium members

KDISCHOOL L Edu Courseware in use:

Graw Hill ALEKS® CENGAGE Pearson **WILEY** Riiid!

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IV. HTHT Initiatives of ECA

1-2 HTHT Consortium

- Develop and distribute guides for utilizing AI in education:
 - A Guide to Applying and Implementing the HTHT Education Model for Higher Education Innovation
 - Content-mapping by subject and glossary of key terms
 - User manual for courseware
- Offer training and seminars for university faculty members
- Host forums to create an atmosphere of university education innovation
- Devise measures to motivate participating faculty members
- Support the selection and operation of pilot programs for personalized learning

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IV. HTHT Initiatives of ECA

2-1 HTHT for the disadvantaged

HTHT for North Korean Adolescent Defectors

- Partners: Korea Peace Foundation, Gyeonggi-do Office of Education, Heavenly Dream School
- ECA is providing 70 middle and high school students with AI-powered adaptive learning after school
- Started in September 2020, for 3 years

• HTHT for Multicultural Students

- Partner: Rainbow Hill Center for Multicultural Children
- ECA will provide adaptive learning devices and mentoring programs to Seongnam Multicultural Center
- Starting in 2021

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IV. HTHT Initiatives of ECA

2-2 HTHT for the disadvantaged

- HTHT for Low-Income Adolescent Students
 - Project 1: Seocho-gu HTHT Smart School Project
 - Started in April 2020, for 3 years
 - ECA has provided 1,000 low-income students in Seocho-gu with AI learning devices and mentoring programs
 - Project 2: Collaborative Research Project with Daegu Metropolitan
 Office of Education
 - Started in September 2020, for 1 year
 - ECA will conduct a comparative assessment and impact evaluation of 1,000 7th grade students

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IV. HTHT Initiatives of ECA

3-1 HTHT Global: Vietnam

- The first HTHT prototype project, led by the Education Commission, piloted the HTHT approach for 7th grade math in 4 schools, starting in the fall of 2019
 - Partners:
 - Vietnamese Ministry of Education and Training (MOET)
 - UK's Department for International Development (DFID)
 - Arizona State University (ASU)
 - McGraw-Hill (ALEKS)





- KDI School of Public Policy and Management
- Independent impact evaluation results demonstrated that test scores improved by 0.436 SD, equivalent to two years of learning
- A feasibility study, led by Education Commission Asia, is currently underway in preparation for a scale-up to 40 schools

3-2 HTHT Global: Uruguay

The HTHT project in Uruguay aims to:

- Develop and implement innovative pedagogical approaches with adaptive learning technology
- Understand the impact of the HTHT approach on teachers' pedagogical skills and students' learning outcomes
- Apply HTHT methods in mathematics and computational thinking
- Start with 30 schools, 100 teachers, and 2500 students







Education Commission <mark>ASIA</mark>

Thank you

아시아교육협회 Education Commission ASIA