

# Empowering the Future of Education 掌握教育未来

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China Development Forum 2021

Economic Summit

20 March 2021

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# Introduction

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- ◆ The COVID-19 pandemic has both caused and accelerated irreversible changes in the methods of delivery of education at all levels. These changes have been necessitated by the need for “social distancing” and enabled by break-through technological developments that take advantage of the internet.
- ◆ The combination of the high-speed internet, which facilitates virtual face-to-face meetings, and artificial intelligence (AI) will revolutionise the future of education.
- ◆ Moreover, the rapid progress of AI and robotics heralds the coming of “Universal Basic Income (UBI)” in the more affluent societies, which increases the importance of the teaching of ethics and social responsibility relative to knowledge and skills.
- ◆ Because of the fast-moving nature of events in today’s world, it is critically important to be able to establish facts and truth in real time. No one can afford to believe everything that is presented in print, audio, or video form. The world desperately needs one or more credible fact-checking authority. Perhaps the academies of sciences of different nations can play that role.

# What to Teach?

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- ◆ Instead of the traditional 3R's—Reading, Writing and Arithmetic—we should be teaching students how to make full use of the computer and the internet as learning tools, and at the same time be critical, discriminate, and ethical.
- ◆ Credible fact-checking authorities are absolutely essential.
- ◆ Memorisation is no longer an important part of learning since most factual information is readily available on the internet; the inability to draw is no longer an obstacle to a would-be architect; and beautiful calligraphy is no longer critical to a person's advancement. What are valued today are analytical skills and a “big-picture” view—and the ability to ask the right questions.
- ◆ Ethics and social responsibility can be taught through examples and counter-examples.

# The Changing Modes of Delivery of Education

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- ◆ Even before the COVID-19 pandemic, there were already “Massive Open Online Courses (MOOCs)”.
- ◆ Online classes and courses have proven to work quite well. Most large lecture courses at the tertiary level will likely become hybrid, that is, simultaneously online and offline, in the future.
- ◆ Eventually a “star” system will develop for various disciplines. For example, introductory economics would be available as an open online course, taught by someone like the late Professors Paul Samuelson and Milton Friedman; and introductory physics would be taught by someone like the late Prof. Richard Feynman.
- ◆ What is needed is an internet-based examination system that is relatively fraud-free so that the necessary academic credentials can be issued based at least in part on the performance of the student in online examinations. With biometric authentication techniques this should be possible.
- ◆ Online courses can be supplemented with small-class seminars and research-based courses. These can be much more personalised and individualised, like the supervisions and tutorials at Cambridge and Oxford Universities. These small-class meetings can also be conducted virtually via the internet and they can add significant value to the education of the individual students.

# Socialisation

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- ◆ In this internet age, when classes are increasingly taught online, how do we make sure that young people are adequately socialised? We need to promote activities such as boy scouts and girl guides, little league basketball and soccer, music clubs, and other extra-curricular activities, and for older children, internship and volunteer opportunities.
- ◆ Young people should be taught the basic ethics at an early age. Moreover, they should be taught that everyone has a responsibility to not only self and family, but also to the community to which he or she belongs.

# The Equalisation of Educational Opportunities

- ◆ The internet can also function as a great equalizer of educational opportunities as long as it is accessible by all at little or no cost. Internet access, like the postal service, should be provided by the government at nominal cost everywhere.
- ◆ Online courses will be available to all students, whether they live in the rural or the urban areas.
- ◆ All students can be given free i-Pads, which will have preloaded textbooks and software.

# The Customisation of Education (因材施教)

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- ◆ Instruction, and the related exercises, can be individualised based on the aptitude, level of achievement, speed of progress and degree of interest of the student.
- ◆ The goal of education should shift to the maximisation of the value-added as opposed to the maximisation of the gross value. (Top universities around the world today take the already very best students and try to make them even better. It is not clear how much value is actually added by the top universities.)
- ◆ Open online courses can reduce the degree of conscious and unconscious discrimination based on gender or race.



# Lifelong Self-Learning

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- ◆ It is clear that whatever one learns today is bound to be obsolete within a decade or even less. Thus, every person must learn how to continue to learn and to discover on his or her own after completing the formal phase of education. Lifelong self-learning should be part of what is taught at the tertiary level.
- ◆ The government should stand ready to provide financial support not only to new college-bound students, but also to older graduates to enable their re-education and re-training, and thus facilitate their re-employment.

# International Educational Exchanges

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- ◆ Artificial intelligence will eventually make it possible to have instantaneous interpretation and translation. A foreign student with little or no knowledge of Chinese can attend a class at Tsinghua University with the help of artificial intelligence. And he can also ask questions of the teacher in his own language. The teacher's writings on the board, or PowerPoint presentations, can also be instantaneously translated and made available to the foreign student in real time.
- ◆ We can also imagine a debate between two teams speaking totally different languages, perhaps even with each team consisting of members that speak different languages.
- ◆ This will greatly lower the cost of cross-cultural communication and enhance international understanding.

# Concluding Remarks

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- ◆ Technology and artificial intelligence will have a great deal to contribute to education of the future. However, we must also be ready to take advantage of the progress and deal with the possible negative consequences.