New Role Model of Education for New Age

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Introduction

Education is a foundation of human happiness and well-being. Through learning, human beings can find a way to live well. But at the same time, education can bring a nation prosperity and better welfare, because well-educated human resources would raise labor productivity and thus create economic growth. Assuming that well-educated people earn higher incomes and consume more, this increased consumption by a robust and educated middle class would lead to higher economic growth as well. In this light, education would be a foundation of economic prosperity and national welfare, and education policy should be a crucial part of a nation's growth strategy.

Today, given the slowdown in the global economy and particularly the decline of growth expectations, many countries, developed and developing, are competing to achieve high economic growth which is sustainable over the long term. What would be an ideal model for education given this background?

We will look at various changes and developments in the environment of education and see what we may expect of education in the future. We should not overlook the differentiations in education among nations, since a nation's educational systems are influenced by its own historical and cultural background. In this light, we would like to touch upon the challenges that Japanese education is now facing, as well as other challenges common to most nations. We suppose, however, that as globalization proceeds there will be a greater simultaneity of issues, challenges and policy developments in any field around the world. Education is no exception.

New Challenges to Education & Common Issues

Developed nations today all face the same challenges in pursuing their growth strategy, namely structural reform of the economy. We cannot achieve high productivity overall in the economy unless resources are smoothly transferred to high-efficiency sectors from low-efficiency ones. Labor mobility is a key to achieving it. An industry has a history. In the initial stage of economic development, economic theory says that a labor-intensive industry like the textile industry is generally one of the best for earning profits by taking advantage of low technology and cheap labor. However, as the economy becomes well developed, a more capital-intensive industry like automobiles with higher technology and skilled labor would be more competitive. So at this stage, the principal production resources such as labor and capital must be smoothly transferred to the automobile sector from the textile sector, which is losing its original efficiency from cheap labor. This would lead to more efficiency in total and economic growth. Under globalization, this transition process could be faster.

The sectors losing comparative advantage in trade are shrinking rapidly or transferring their production facilities to overseas where they can still enjoy competitiveness by taking advantage of cheaper production costs. In a domestic economy exposed to such structural changes in industries, there will be a risk of increased unemployment unless labor mobility is high between the sectors losing competitiveness and those that are winning. Labor mobility is a key to achieving economic growth, and education to enhance flexible adjustment to new working conditions will be crucial in keeping labor mobility high. This could be partly achieved at schools. An education system where you can easily retrain yourself at school after working for a certain number of years would help meet this need, as would well-designed professional schools with retraining programs.

Schools may not necessarily be the only place for education, but a company's human resources development programs could also serve to enhance labor mobility. More generally, an education in the liberal arts could strengthen a person's mental capacity to be flexible in adjusting to rapidly changing working circumstances, though it may not raise any specific skill.

Another challenge today is the Fourth Industrial Revolution, mainly spurred by AI and IoT which could replace human jobs. Innovation has historically been considered an engine of growth in the long term, but at the same time a cause of unemployment in the short run, as the consequent rationalization of production processes would always result in the replacement of human jobs by technology. AI and IoT, in particular, prompt serious concern about a rapid increase in unemployment.

The Fourth Industrial Revolution would certainly save human manual labor, and AI competent in self-learning could replace a part of human work requiring intelligence as well. This could be considered a threat to human civilization. However, even AI is programmed by software engineers. Team management in a company focusing on human relations and maximizing the well-being of the members of a team could not be replaced by AI. So

human beings can find their own roles in an organization which cannot be achieved by AI or IoT. In other words, human beings will need to specialize in more sophisticated jobs after AI and IoT are integrated into business. This too will require new education for the employees. If this is possible, human beings can maximize the benefits of the Fourth Industrial Revolution, since they can do what only human beings can do and distinguish themselves from AI or robots. As in the case of education for smooth structural reform, education to mitigate concerns about the negative impact of innovation upon employment and to maximize the benefits of innovation could be done either by a school or a company. This would enhance labor mobility among different professions rather than different sectors.

Innovation is not limited to technology but covers business, management and public policies as well. All economies will need innovative entrepreneurs in those areas to stimulate the economy and encourage growth. Without new entries by startups into the market and exits of old companies they will not be able to create a good environment for growth. They would need what we call disruptive innovation to achieve it. Education to raise entrepreneurs is also crucial for economic growth. Existing business schools would serve for this goal, but it would be necessary to have more schools dedicated to entrepreneurship.

For developing countries, education has been expected to play a crucial role in mitigating significant income inequality. The "middle income trap" seems to be one of the most serious impediments to their economic growth, meaning the increasing income gap between the rich and the poor in those countries which hinders the rise of the middle class and thus robust personal consumption growth. By raising a middle class earning middle incomes through better education programs would lead to higher growth in those countries.

Income inequality, however, is a challenge to developed nations as well. For them it could lead to social unrest and discontent with politics, and thus to political instability. In a globalized world, a major developed nation's political instability could lead to global political and economic uncertainty too. School education or retraining programs, such as those already mentioned to mitigate the impact of structural reforms or technological innovation upon employment, could also be crucial in this context, as they might help prevent an increase in unemployment and provide well-paid job opportunities and thus contribute to mitigation of the income gap.

Other global challenges such as the aging of society and global climate change are also issues for education. Both are good subjects for lifelong learning and not necessarily limited to learning at schools, since they are significant long-term issues for humankind.

Apart from such mostly economic expectations about education, it will also have to achieve its original goal of enhancing human values and spiritual happiness. A balance between thoughts about materialism and humanistic values is necessary. In order to achieve such a balance, it may be interesting to look at the following three perspectives on education.

Education in School or Business

In our interview article titled "Combatting Poverty Among Young People" in the Nov./Dec. 2016 issue of *Japan SPOTLIGHT*, Dr. Yuki Honda, professor of the Graduate School of Education at the University of Tokyo, mentioned about Japanese education as follows:

"In Japanese education, the vocational relevance of what is taught in schools and colleges has not been greatly considered in the light of its practical value to new graduates after they start working. Instead, the Japanese education system has effectively been ranking young people by their academic achievements and educational background. School and college graduates are assigned by this ranking to jobs varying in wage level, scale of company and other conditions once a year at the same time. This is a model of a simultaneous recruitment system unanimously adopted by all organizations in Japan in the postwar period. Without any substantive linkage between school education and job requirements or any extra time for adjusting themselves to job requirements after graduation, the recruitment process has continued on this basis of academic ranking."

She said that this Japanese model had worked well during the high-growth era from the 1960s until the 1980s, enormously different from the global standard, but was not working well anymore. This is how the Japanese education system has failed to provide workers with the flexibility to respond to drastic changes in the real world. This might be a part of the reason for the gap between academic achievement and labor productivity in general in the case of Japanese students. The Japanese education system will certainly need to be reformed to achieve a smooth connection between academic education and vocational education. If this can be done, education at a business firm or a workplace in general should be more effective in Japan, since new graduates can learn how they can respond to the real issues in a flexible manner in on-the-job training.

A workplace is today considered a place for education in the global context as well. Sustainable development goals such as mitigation of environmental concerns or poverty have been at the center of young

people's interests and social entrepreneurship. Companies are increasingly expected to fulfill social responsibilities and give their employees a sense of contributing to social well-being, which will be an important incentive for them to work. Assuming that such a sense of social responsibility would lead to each employee's personal growth, workplaces will play a key role in achieving education's primary mission: the promotion of human values and well-being.

Disruptive Education

As we have seen, education today in many developed nations as well as developing countries faces a need for fundamental reform to meet the new expectations coming from a variety of social and economic changes. Education in Japan particularly needs to be thoroughly restructured to better reflect the performance of school education upon labor productivity.

Clayton M. Christensen is an American scholar and business consultant, serving as the Kim B. Clark Professor of Business Administration at the Harvard Business School. He is best known for his theory of "disruptive innovation" introduced in his first book, *The Innovator's Dilemma* in 1997, and is regarded as one of the world's top experts on innovation and growth. His basic thought on innovation in this book was that fundamental innovation in a business corporation would be retarded by nothing else but the company employees' serious efforts to work on continuous piecemeal reforms. This could be applied to education. He wrote another book published in 2008 titled *Disrupting Class: How Disruptive Innovation Will Change the Way the World Learns*. In this book, the essence of his theoretical argument on innovation was applied to reform of education, assuming that it could be understood as a sort of technological change, namely innovation.

His core theoretical observations on innovation are as follows:

i) The improvement in the quality of a product by innovation will progress more rapidly than the customers' rising need for it.
ii) There are two kinds of innovation: "sustainable innovation" aiming to improve the quality of a product in the existing market, and "disruptive innovation" aiming to turn a new product born of new technology into a marketable one, as it has not yet been consumed by customers.
iii) The new products of "disruptive innovation" are produced at cheaper costs than those produced by existing technologies, but their quality will be lower than the existing products at first and cannot meet the needs of the customers and thus will be less profitable than the existing ones.
iv) Therefore, existing successful companies will prioritize "sustainable innovation".
v) Meanwhile, the quality of a product born of "disruptive innovation" will improve little by little and eventually get to meet the needs of the existing market.
vi) The abovementioned is the reason why existing successful companies often fail to turn to new technology, and thus the leading company within a certain industry changes from time to time over the long term.
vii) The way to escape this dilemma for existing companies is to create a new organization independently aiming at "disruptive innovation" without worrying about internal competition with existing products in the same company and let it proceed to develop new products.

This theory can be applied to reform of education as follows:

i) Reform of education would proceed more rapidly than the rising need for it on the part of students and their parents.
ii) There are two kinds of reform of education: "sustainable innovation" assuming one teaching method for all the class, and "disruptive innovation" assuming a teaching method for each individual student who expects to learn differently from the others.
iii) There is a product service for the latter case which is based on the use of a computer, but at the beginning it would not fully meet the existing needs for education.
iv) Most of the teachers or the government officials in charge of education policy would prioritize improving the education method for the whole class and be reluctant to use computers for education except for their partial adoption for class education.
v) However, the potential of an education method utilizing computers would be much greater than they think.
vi) An education method using computers would have to be adopted in order to make students learn at different speeds and different processes from each other. This is the way for this method to maximize its merits.
vii) To achieve it, we would need to introduce a new education system independently from the existing one.

This is a core message from the book *Disrupting Class*, the application of innovation theory to education reform. After the book was published, a number of "disruptive innovation" attempts in education seem to have been made and we will see those examples

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The longest i.school workshop lasts for 10 weeks.

Photo: INIAD Toyo University

Small classrooms focusing on discussions at INIAD, Toyo University

in Japan, with the "i.school" at the University of Tokyo and a new IT alliance department at Toyo University in interview articles in this issue.

Public Policy for Education

Opportunities for education must be equally shared by all, otherwise education will increase inequality instead of reducing it, contrary to what we expect. However, opportunities for education are occasionally lost for children from poor families, and this in turn is an enormous loss to the whole of society. The government must support those households disadvantaged due to poverty to encourage their children to go to school. How this public support policy works will be another crucial question in thinking about education for a new age against the background of increasing income gaps as well as increasingly rigorous budget constraints in many developed nations.

In Japan today, as the number of working mothers increases, growing attention is being paid to the role of daycare facilities for the interest of those working mothers. In addition, the results of recent academic research show that infant education at daycare facilities reduces the hyperactivity or aggressiveness of children from poor families and prevents an increase in crime over the long term. Public support for poor households to encourage their kids to go to a daycare facility will therefore definitely be justified, even if it increases the government deficit. But we should be very careful about how this support is implemented. It may not be relevant to make a daycare facility's services free to all users, as this would benefit rich households as well and not lead to any reduction in the income gap, contrary to the government's intention. In choosing a policy for public support for education, we will need to take an evidence-based approach. We will need to look into the effects of each education program upon the children's behavior after their graduation or assess what kind of households will need such public support most seriously. Databases on educational performances are not well established yet in Japan. It will be necessary for the Japanese government to oblige any school or facility to implement a data-based assessment of their education program. With this, for the first time, we will be able to assess education as a long-term social investment and try to maximize its long-term benefits.

In summing up, education is, as we have seen, at the crossroads of a wide range of social and economic needs. It is a relevant time to discuss education from different angles, since we are standing at the entrance of an age when these challenges to education will start to materialize. In thinking about the original role of education for human beings, it will be important that all the possible solutions to these new challenges lead to enhanced human welfare and happiness. JS

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