The Study Group for Learning Innovation -“Future Classroom” and EdTech

Key Points of the Primary Recommendations

Ministry of Economy, Trade and Industry
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Challenges in Japan:
Cultivate creative, talented personnel with the ability to identify and solve problems

• As a global front-runner among developed countries in problem-solving, Japan should reconstruct its social systems, tailored to an unprecedentedly super-aged society. Moreover, it should address the fourth industrial revolution and overcome low productivity currently seen in industries.

• As it is facing changes in industrial structures in which traditional premises in society crumble and former, conventionally successful strategies no longer work, Japan should provide the people with opportunities to cultivate their creative talent in identifying and solving challenges, a quality required of all pioneers.

• Japan’s educational systems bolstered its rapid economic growth and stable civil management by emphasizing productivity over creativity. However, the advantages of these systems may become disadvantages if Japanese society faces increasingly unpredictable circumstances due to the "ever-increasing numbers and complexity of significant changes to the economy and society."
Social systems for better learning in which learners can design their own learning approaches

(1) Start education emphasizing so-called “50 cm revolutions*”, cross-border education and trial-and-error processes from early childhood onward
(2) Make learning more interesting (through play, curiosity, curiosity-driven exploration, societal problem-solving, and top-level and cutting-edge lectures)
(3) Provide a wide range of options to select well-tailored, world-level, optimal programs and teachers most suitable to learners
(4) Under the exploration projects (Science, Technology, Engineering, the Arts and Mathematics: STEAM), make use of knowledge in which liberal arts and science are integrated and solve familiar societal problems through trial-and-error processes
(5) Learn by challenging commonly accepted norms, rules, popular theories and textbook contents, which is an attempt comprehensively called “learning,” even if it results in failures.
(6) Subject-based learning, a method for providing optimized curricula to individual learners, which permits learners to effectively master subjects in shorter time-frames
(7) Increase the freedom of approaches to learning by weakening or transforming the stereotypical definitions of “academic ability" "subjects" "grades" “curricula,” “graduation,” etc.
(8) Diversify roles played by teachers (as teaching staff, as supporters helping children think for themselves, as sympathetic supporters)
(9) EdTech makes an opportunity to introduce science into classrooms, and classrooms change into “Class Labs” which encourage people to improve their learning productivity through Kaizen activities.
(10) Establish small-scale schools seamlessly connecting to “the real world” (in collaboration with the private educational industry and advanced research institutes; through intensive participation by companies as CSR/CSV initiatives).

*Note: The study group calls individual efforts to analyze the problems surrounding us (“within 50cm”) and make a difference in society ”50cm revolutions”. (Similar to “think globally, act locally”)
EdTech, a learning approach that changes stereotypical ideas of systems of private and public education and connects students to the international community and economy through the use of cutting-edge technologies. This approach will allow anyone to access data-based, individually optimized and quality learning anytime and anywhere (even in remote areas or private residences that lack traditional facilities).

Learners are able to watch lectures by charismatic teachers through video clips, access the world’s top-level lectures through MOOCs and learn about key points of subjects, guided by AI.

Learners are able to study challenges that society and cutting-edge research face and make use of programming skills and VR, to take a part in STEAM exploration projects in which liberal arts and science are integrated.

Educational innovation in major economies

The U.S.: Educational policies prioritizing STEM and EdTech
- Many practical STEM/STEAM programs have been launched by high-tech companies and advanced research institutes
- Experimental schools in which AI analyzes data on course outcomes and teachers optimize curricula to individual learners (AltSchool).

The Netherlands: Curricula in which liberal arts and science are integrated and curricula optimized to individual learners
- Comprehensive curricula with no borders between science and liberal arts education (Jena-Plan schools)
- Self-instructional format using iPads for mathematics and languages in one-third of daily classes (Steve Jobs Schools)

China: Education prioritizing STEM, which bolsters the Made in China 2025 strategy
- Shanghai City established a STEM+ Educational Research Center and has been providing demonstration classes and teacher training courses.
- Jiangsu Provision and Shanghai City developed a variety of educational programs in which learners solve current domestic societal problems, such as PM2.5 emissions, drought and collapse of bridges, by integrating liberal arts and science.

Issues that Japan should further examine through demonstration projects for Learning Innovation—“Future Classrooms”

- Develop and demonstrate learning programs, etc. taking advantage of EdTech
- Reform systems related to both teachers and schools (shifting conventional operating models to new models in the private education industry, support for school management, and developing new teaching staff)
- Develop the environments necessary for introducing and utilizing EdTech in schools (organizing information security rules in municipalities, encouraging schools to invest in ICT, and addressing issues involving procurement structures for EdTech)
- Develop environments that allow teachers and schools to connect seamlessly to “the real world” (fortifying CSR/CSV by companies in the field of education, etc.)
- Future approaches to university entrance examinations, higher education and working styles, which influence learning practices