Interview with Hiroko Miyakoshi, Project Assistant of i.school

Innovation Education — a Tool to Exploit the Potential of Creativity for All

By *Japan SPOTLIGHT*

Innovation, an engine of economic growth, can be activated through different channels. A genius like Bill Gates or Steve Jobs could create new products and services contributing to business expansion and growing consumption. A genius could also create a new corporate culture with less hierarchy and more individualism and even a new entrepreneurial society, characterized by an interdependent relationship among academia, business and mediators such as consultants and lawyers working to turn academic ideas into business plans.

Innovative ideas can also be generated by ordinary people, if they are trained in creative thinking and can learn how to find effective solutions to issues without referring to the existing prescriptions. This could be vital in promoting innovation across a whole society, as grass-roots innovation would have the power to influence a national economy.

i.school has been providing innovation education since 2009 and was founded exactly to promote such grass-roots innovation. *Japan SPOTLIGHT* interviewed Hiroko Miyakoshi, project assistant to Dr. Hideyuki Horii, professor of the Engineering School of the University of Tokyo and founder and executive director of i.school.

(Interviewed on Dec. 4, 2017)

Introduction

JS: Could you please tell us about the background, history and goals of i.school?

Miyakoshi: i.school started in 2009 as an education project within the framework of the Center for Knowledge Structuring of the University of Tokyo. The Center for Knowledge Structuring was a research organization established in 2007 with a fixed working period of 10 years. It aimed at connecting singular innovations such as AI or IoT and relating them to real business and social values. Dr. Hideyuki Horii was then the director of the center and has been the executive director of i.school since 2009. i.school spun out of the university in April 2017 to further develop its education program and diversify the participants. Today, i.school is an independent institution and its goals remain the same as in 2009 when this project was started: fostering innovative people to ideate solutions for social issues.

Hiroko Miyakoshi, Project Assistant of i.school

JS: Ms. Miyakoshi, have you been involved in this project since the beginning?

Miyakoshi: No. Until recently I have been working on assisting Japanese students to study abroad. When I found the difference in those young students before and after they had studied abroad and recognized the positive change in them in terms of behavior or thinking patterns, I started thinking about how I could help students who are unable to go to universities overseas or to pay for the cost of studying abroad to acquire the same kind of stimulus.

I resigned from my job and decided to study education policy at a graduate school to gain the network and insights necessary for my next step. Around that time, I met Prof. Horii and found out that i.school was already doing exactly what I wanted to do. I then started helping him at i.school and now, since April 2017, I have been assisting projects at i.school as a project assistant.

The i.school Program

JS: How is the i.school program run?

Miyakoshi: i.school accepts 15-20 students every year. The majority of the students used to be from the University of Tokyo, but now 40% of our students are from other universities. Although i.school grants no credits or degrees, every year the program attracts highly competent students. In 2017, we received around 100 applications, of which we initially selected 60. After several rounds of group workshop interviews, we accepted 13 students. There were seven workshops prepared for them this year. The workshops vary from one full day to as much as 10 weeks (three to four hours a week), where participants are engaged in working on ideating for a single social issue.

In Prof. Horii's view, innovation can be achieved by anyone with the relevant motivation, mindset and skills. The students at i.school participate in various types of workshop devised on the basis of this thinking. Since students do not have working experience, they start by learning skills. We believe that once they master the necessary skills for innovation and use them as a tool, those with high motivation will be able to innovate and contribute to social issues in the real world. There are already more than 100 graduates from i.school. Not all of them necessarily become entrepreneurs but some join the government or large business firms. In a variety of working environments, our graduates are trying to create and promote innovation.

JS: So i.school is mainly targeting social innovation rather than technological innovation, though it was started by an engineering school professor.

Miyakoshi: i.school's approach is human-centered. Human-centered innovation is innovation from insight into human lives and values, and deep understanding of humans and human society. We think that we can adopt the same approach to solve all kinds of issues ranging from the small troubles in your neighborhood to a big social issue like poverty. The students are expected to learn this approach. One tends to think that innovative and creative ideas are produced only by genius, but we think not. We believe that once you learn the skill, anyone can create innovative ideas with the right mindset and motivation. Our education program aims at expanding these skills and fostering the mindset among participating students.

On a different note, we founded a separate institution called the Japan Social Innovation Center (JSIC), in addition to i.school. JSIC serves as the main arm to consult and support solving actual social issues with private companies, public institutions and government bodies. JSIC also provides practical education opportunities for students at i.school to be a part of solving real social issues. One of JSIC's annual events is the "Social Innovation Workshop" which brings together students, corporate executives and government officials to ideate products and services to solve actual social issues.

JS: What do you think are the notable outcomes that your activities have achieved so far after having expanded them to working people rather than just university students?

Miyakoshi: In 2016, JSIC conducted an innovation workshop on smart mobility systems organized by the Japanese Ministry of Economy, Trade and Industry (METI). The goal of the workshop was to deliver ideas on how self-driving vehicles can provide new social values. Several recommendations came through at the end of the workshop. One of the ideas was to use self-driving vehicles to transport parts and components among SMEs. It would be beneficial to use self-driving vehicles as a means of transporting such parts during the night when there is no traffic, in areas with high SME manufacturing density. If this was to be realized, the next question

Photo: © i.school

i.school summer program with students from overseas

Photo: © i.school

The longest i.school workshop lasts for 10 weeks.

would be what "valuable products" can those SMEs in these districts produce. So JSIC organized another workshop on this topic inviting SME owners, large-enterprise executives and i.school students. Such workshops on social innovation in the real world are being organized under the JSIC's initiative.

Furthermore, since 2013 we have organized a summer program in English as a part of the i.school program by inviting university students from abroad and visiting Japanese high-school students in local regions. In this program, Japanese high-school students, some who have never spoken to those from abroad, are able to talk with students from all over the world about their local issues. I am hoping that some of the students who experienced this summer program will later apply to i.school.

i.school Workshops

JS: Your workshops seem to be the core of your school programs. Could you explain what they are like?

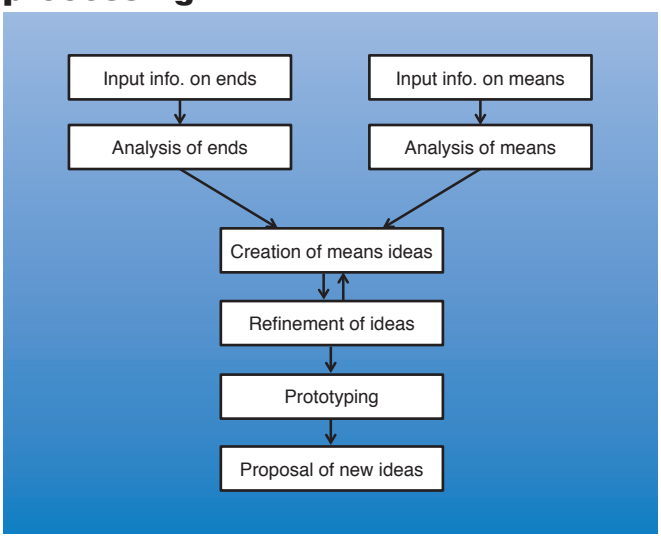
Miyakoshi: All of the i.school learning is in the form of workshops. The *Chart* shows the basic model for information processing that we use to design our workshops. There must always be an end to be met by solving a problem and the students are expected to think about what kind of means would be necessary to solve the problem and achieve the ends.

Preparation before ideation is very important. One way to understand the issue or problem that is about to be tackled is by interviewing experts or reaching out to those who are in the midst of the issue. i.school also uses a variation of case studies, analyzes them and extracts the structure of the case to use in analogical thinking. The participating students also do a lot of reading and discussions within the teams.

For example, one of the themes we worked on later in 2017 was to think about the future of the aging society. In the near future when life expectancy reaches 100, the retirement age is likely to stretch beyond 60 (or 65), meaning that people could possibly keep working till a later age than now. With some physical and mental limitations associated with aging, what could be a solution for these elderlies to keep working vitally? In order to face this question, we visited several facilities like care centers for those suffering from mild dementia. These care centers find tasks and jobs for them where they can earn money and feel that they are contributing to society. Another facility that we visited was where those with disabilities were working at grapevine fields to produce wine. By visiting these facilities, i.school students were able to see and understand how physical and mental disabilities can affect working, and get insights into how these difficulties can be supported or covered. Going out to the real world and doing research in the field helps the students understand reality. The actual ideation process is individual work at i.school. They later share their ideas and work on making them better in their groups.

CHART

Standard model of information processing



Source: © i.school

JS: So only after detailed and elaborate preparations can a creative idea be born?

Miyakoshi: Ideas can be born after analysis of information acquired at the preparation stage. There could be some disruptive ideas arising at the preparation stage but we do not know yet whether they are of high quality or not. The i.school method is to raise the capacity to constantly produce better-quality ideas by training through a predetermined process. A genius like Steve Jobs may not need a learning process to come up with qualitative ideas, but by being trained in i.school, we believe that everybody will become capable of creating new ideas. In our workshops, we use a digital stick-note platform that we developed for innovation workshops. The platform is called APISNOTE. APISNOTE is online-based and is instantly synchronized among the users. By using APISNOTE, each workshop is digitally captured, and the process of work and thinking can easily be reviewed, shared and analyzed.

JS: I have heard that in your workshops, there is a point when the "table is flipped". Could you elaborate on this a little bit?

Miyakoshi: Yes, "flipping the table" is a terminology we use for the latter half of the workshop, normally at the stage of "refinement of ideas" as shown in the *Chart*. At the stage prior to this, the process of the workshop is strictly controlled and the participants follow the instructions. At the latter stage, they are asked to assess each other's ideas in their groups. Normally the ideas are not refined at this point. The participants are then expected to "flip the table", go back to whichever stage they think they need to, and redo the process all

over again. It could be the ideation itself, or the analysis prior to the ideation. Each team will go back to wherever they think they should, so after this point, each group will be doing different things. The key to success would depend upon how many times they could "flip the table" or how much time they spend on it. They must not be satisfied with only a single idea but try to improve the idea by "flipping the table" several times.

Effect of i.school Education

JS: Can you measure the effect of i.school education?

Miyakoshi: Innovation workshop at i.school is an information process to ideate the means to achieve a certain end. Discussing and analyzing facts and deriving implications can be regarded as information processing. Coming up with ideas, and evaluating the ideas are also information processing. These processes can be documented, modeled, designed, evaluated, improved, taught, learned, and should be able to be measured. We collect data from our workshops using various digital devices. APISNOTE mentioned earlier is one of them, and we also record the workshops using a 360-degree camera installed in each group table. We are now working with a couple of young researchers to analyze the data and possibly reach a point where the effect of the i.school methodology can be fully measured.

JS: You can analyze changes of each participant as the workshop proceeds?

Miyakoshi: Yes we can. A workshop involves a combination of group work and individual work, so we can analyze both the impact of collaborative learning within the group as well as change in an individual's thinking. The first half of the workshop is instruction based, so if we were to assess, the assessment will be based on whether the participants were able to follow the instructions and produce ideas using the methodology which was taught. The key to success in our workshop is whether they can master the skill to produce constant qualitative ideas from what they learn.

JS: i.school's innovation education seems to be a sort of active learning. What is your idea of active learning?

Miyakoshi: An essential point is to understand "what" you are doing actively in the workshop. Some people think if students are speaking more actively and aggressively than teachers, that is "active learning". That is not how I see it. It is more important to determine whether the students' brains are active. This means thinking deeper into matters and revisiting their thoughts over and over again. This is the reason why i.school's workshops are not always group-based discussions. The ultimate creation of ideas is done individually. A refinement of the ideas is done in group discussions, but basically the thinking process is on an individual basis. So in a typical i.school workshop, there is a certain moment when silence rules, even when there are numerous participants. This is the moment of individual in-depth thinking. I do not agree that only "speaking" is active.

I had an interesting experience in a workshop with high-school students. There was one group only with boys, and they hardly spoke with each other even during discussion time among the group. I peaked into their APISNOTE and found out that an active discussion was taking place on the screen. Their teachers were also surprised to see this, because it would have been hard to determine whether there was any action going on in silence, if this tool did not exist. This experience was an eye-opener for me to learn that it is not always the vocal people who are actively participating. In this workshop, this silent group happened to be the one that came up with the greatest number of ideas.

JS: Is there any similar school in other countries?

Miyakoshi: I hear that there are increasing numbers of business schools adopting design thinking or system thinking which is slightly different but often compared to i.school. Prestigious universities such as Stanford and MIT also have their own way of innovation education. Innovation education is in progress in many places, though approaches differ. We get many inquiries from local universities looking for the possibility of adopting the i.school methodology.

JS: Finally, could you tell us about your school's future plans?

Miyakoshi: We will continue to work on fostering innovative personnel for the best interests of society from university students enrolled in i.school. We also started a beta-version of "i.school Certification" in October 2017, which allows business professionals and teachers to learn the i.school methodology. There are two levels to this certification. The initial level sees whether the applicant is qualified as an i.school workshop participant, meaning whether they can ideate using the i.school methodology. After qualifying at the initial level, the second level will qualify the ability of actually designing, facilitating, and assessing the i.school workshop.

By increasing the number of people who will master the i.school method, we hope that we can spread our knowhow of innovation education more widely to high schools and business corporations as well. JS

Written with the cooperation of Naoko Sakai who is a freelance writer.