

WG2: GSEE/Kyoto and Regional GSEE Summit in Asia – Some Next Step

Summary

Date: Oct 23 2013

Place: Westin Hotel Miyako, Kyoto, Japan

Participant List

Co-Chairs:

Akito Arima

Patricia Sievert

Suggested Members:

Kazuo Nishimura

Jean S. Chung

Hong Ding

Tai Kai Ng

Michiharu Nakamura

Daniel Rouan

Terufumi Ohno

Michiko Ogawa

Tetsuo Hosoya

I. Introduction

The discussion was introduced by Akito Arima.

II. What are the scalable and sustainable experiments in engagement that GSEE/Kyoto wishes to pursue? In particular, are there successful experiments elsewhere, such as those by members of ICAM branches at Sabanci University, the Santa Fe Institute, and UIUC, and others, that should be carried out by scientists affiliated with GSEE/Kyoto? Should GSEE/Kyoto explore developing a partnership with La Main a la Pate to make the hands-on learning activities they have developed available to Kyoto middle-schoolers?

They have begun quite a few experiments already. Mr. Kitahara talked about experiments in the United States and France, and his impression is that in Japan they are beginning to bridge between middle school and high school, but there is a bridge missing between nursery school and university.

Mr. Tai said they have done many experiments themselves in Hong Kong. He said that the bridge between middle school and high school is most important, because this is the period when they begin to think about what they study in university. Nursery school is difficult to cover because it is not education that is covered by the government. In China, there are few bridges between the different levels of school. Some universities are beginning to serve as hubs from where they can push more education initiatives to high school, and high school instructors. Some schools have started summer camps for students and instructors. However, the biggest issue in China is education reform of their entire system.

Mr. Nakamura said they learned many things from stakeholders, but felt there were stakeholders missing from academic societies. He said that they need to have other stakeholders. They have support from members of industries who are retiring. The first step should be to know exactly who is participating in all activities. Mr. Hong suggested that they could convince the Chinese Physics Society to participate. Mr. Arima noted that Japanese societies are interested in education initiatives but mostly only in high school and universities. The Japanese structure of *tatewari* has contributed to this separation and made institutions very independent. In China, they have not quite run into this problem—indeed it is the opposite, as more students specialize in science than other subjects.

In Hong Kong, the biggest problem is that parents' influence is very strong and convinces students to pursue studies for professions that lead to wealth (business, medicine), not what students truly wish to pursue. The same happens in Japan. The same problem happened in the United States, but because of the 2008 financial crisis this has changed and many students are turning to STEM fields. The social image of certain professions also has a particular sway in the US.

Concerning the collaborations of science societies, they try to include younger, more active scientists on their boards. For example, the Society of Japanese Physicists Association is always aware of the need to have relatively young and active scientists.

Maintaining a direct relationship may be difficult due to changes in board members. Mr. Kitahara brought up again the idea of *tatewari*, and its effect on science fields as the fields are taught separately, and not integrated. Mrs. Sievert asked if there was anything similar to the US's National Science Teachers Association in Japan, and said that it would be an advantage, as it offers professional development for teachers. Mr. Arima said they are especially concerned about junior high teachers, and Mrs. Sievert suggested a specific association for junior high science teachers.

Focus on: building bridges between different school levels, using teacher associations and encouraging students to pursue their interests.

III. What feedback can the group provide on the proposed hub and spoke structure for GSEE/Kyoto to use in developing, coordinating, and overseeing its planned experiments in engagement? Specifically, should it establish an Engagement Steering Committee, a Board of Governors, and a Kyoto Coordinating Group to carry out and oversee the experiments in engagement to be pursued by GSEE/Kyoto?

This question ended up being addressed last. Mr. Arima stated that in Japan that there is a planning committee to establish a Board of Governors. Mr. Nishimura said that members of a working group should decide upon an Engagement Steering Committee. Mrs. Sievert asked if any chairpersons had been worked out and they have not yet been so far. Agreement was to focus on the Kyoto Coordinating Group and seeking out chairpersons. Mr. Arima noted that they did not happen to have a Korean in their discussion, and commented on how they are active in promoting science among their students. He thought that it would be prudent to gain a Korean perspective in regard to this feedback.

IV. How do we connect the engaged scientists and major programs currently supported by JST and JMF to future GSEE/Kyoto programs? Could we develop a GSEE/JST partnership in which GSEE/Kyoto would have a second major office in Tokyo that would become an additional major spoke in GSEE/Kyoto? Should JMF become a GSEE Founding Partner and a spoke in GSEE/Kyoto?

This question was discussed by a Japanese delegation yesterday. Mr. Nakamura commented that this was one of JST's core businesses, and believed it is very important. As a stakeholder he believed it is important to support the activities, but was not sure that JST is the best choice to support the hub and spoke system, and recommended NPOs instead. Mr. Kitamura noted that the Tokyo Science University is very interested in these sorts of activities. He thought that they could bring support for JST, and that they could collaborate more with middle school and primary school science teachers. They support many science teachers in Tokyo already, so it is not a stretch. Mr. Arima assumed that Kyoto University would also support the program, as

it is reasonably flexible in comparison to other universities in Japan.

Mr. Ohno wanted to encourage more cooperation between universities and government, private sector. Also, in the university sector, if one professor retires, many interesting endeavors might stop, but if governmental and university support is available, that research can continue. What is more interesting is that because the Kyoto University cooperates more with its prefectural government than the University of Tokyo can with its metropolitan government. In the Kansai area, Osaka University and Kobe University are working to accomplish the same level of cooperation with their respective prefectural governments.

Focus: establish Kyoto and Tokyo as centers of science, and cooperation between universities and various sectors.

V. What are other new GSEE/Kyoto local and national partnerships with Japanese universities, K-12 educators, science museums, honorary and professional societies, environmental learning groups, and the governmental and private sectors that it needs to establish to pursue its experiments in engagement? Specifically, what role might the Japan Academy wish to play?

Mr. Nishimura thought that Japan Academy would not play a role, and so Mr. Akima suggested the Japan Council of Science might be a better player. He suggested bringing up the idea to the Japan Council of Science.

VI. Planning future regional summits: Can we grow GSEE in Asia and elsewhere by inviting major professional and honorary societies and members of the private sector to become GSEE Founding Partners and join in organizing and supporting Regional Summits? Can we persuade the major honorary societies in Korea, France, and Taiwan to join the NAS in becoming a GSEE Founding Partner and join universities and professional societies in playing a significant role in helping organizing regional Summits in Seoul, Taipei and Paris? How to involve the private and governmental sectors in those countries in GSEE?

Mr. Akima said that on the Japanese side, there might be some comments towards this; but as for Chinese matters, they would like to organize a regional summit next year in Taipei (GSEE/Taipei), which would be a good opportunity to organize resources. As for a GSEE in China, they will wait until after a summit in Taipei. The problem is not necessarily where the summit happens, but convincing the government that education reform is important. Mr. Tai said that Hong Kong will cooperate with Taiwan to host, and would like to offer representatives from each level of school and those in the business sector.

Mrs. Sievert stated that the United States has not done much yet, but that they have an advantage in Illinois due to education exchanges that build partnerships between universities, schools, and business, particularly in developing the creativity of scientists. Mr. Arima said he admires this aspect of American education, but feels there is work to be done in regards to primary school, and wondered how students can be stimulated to develop their creativity. To that, Mrs. Sievert answered that most of

that develop occurs outside school, and that due to the ‘No Child Left Behind’ system, science education was further neglected in the primary school system. However, a new generation of education reform has begun, which universities are deeply involved. Wealth inequality is also a major issue to support students. Mr. Nishimura asked if there were any initiatives in science education in early childhood education in the United States. Mrs. Sievert answered that she personally was not involved in this area, but was aware that such programs encourage creative play which is then pushed aside to focus on testing.

Mr. Arima commented that in the United States, honors classes separate the students who excel in science, while in Japan he has had much difficulty advocating the idea. Mrs. Sievert answered that because of testing standards, students who excel are also being neglected, because students cannot receive proper support in lieu of focusing on students who are struggling. Again, wealth inequality remains an issue. Mr. Tai agreed and said that the divide is also very stark in Hong Kong. Mrs. Sievert noted that the strength of local institutions and community groups is very important, but as a public university there are few funds to spread.

In Hong Kong, there are several private sector companies working with education to create an online platform, such as MOOCs. In China proper, the Hope Project establishes very basic support for these initiatives in very rural areas, where it is very difficult to receive science education. As long as the stark divide between rural and urban China is pronounced, it will remain difficult. In Japan, because of the very difficult situation in Japanese industries, it is difficult to receive support from industries in general. However, they are beginning to make investments, although for their own initiatives. Mrs. Sievert said that one strategy may be to ask these sectors to be partners, not simply to request funding.

Focus: attuning to student levels, encouraging science education, support initiatives in these areas, encourage creative development.

VII. What can be done to encourage the best young research scientists in Japan to join the global GSEE community by becoming engaged in after-school science education?

Mr. Kitahara answered that they should concentrate on this, because it is not simply a duty, but that students may receive something from engaging in such activities, and can encourage interaction between student and teacher. Mrs. Sievert said that such activities are not just interesting and beneficial, but also that it shows students how to share the research they have done. However, one of the problems seen in the US is that there is large pressure on young scientists to publish. This pressure is also in China and Japan. Mrs. Sievert commented that the benefit received from research grants, etc., is that the funding must be enough to support their lives, not just their research efforts.

At Kyoto University, there are several researchers on contracts, who are active in public efforts. As a result, many ‘seeds’ have been planted, but they are still not well-organized nor recognized. Mr. Ohno said that if Japanese science societies could support not isolated projects, but groups, it would produce more interesting results. In

Japan, MEXT has created the ‘Center of Community’ funding, emphasizing that a university should recognize itself as a contributor to its community. Mrs. Sievert asked if there were any forums that recognize those as fellows who act to engage the public, not simply those who engage in research, as similar organizations exist in the US. In Hong Kong, similar initiatives have begun to form. Mr. Arima said that professors, when they are young, need to experience teaching younger students as well. He also suggested organizing a system where even students who are just a bit older can teach younger students. Mrs. Sievert responded positively, and said that students themselves respond more positively to those who are just a bit older than themselves.

Mr. Ohno said that motivating children to explore science is important, and suggested an event for talented students and talented professors to encourage science interests, one that professors will be eager to join.

Focus: community building, create places where science education and creativity is encouraged.

VIII. What are the working groups that need to be established by GSEE/Kyoto to enable it to function effectively? Among those that have been suggested are: 1), Kyoto Coordinating Group to propose and execute experiments in engagement in the Kyoto area and serve as the nucleus for an eventual GSEE/Kansai consortium, 2) GSEE/Kyoto Communications to expand the GSEE/Kyoto Engagement Registry and establish a regional communications hub, 3) Science and Engineering Education Initiatives to develop partnerships to carry out experiments in engagement that involve universities; the Japan Machinery Federation and other leaders in the private sector; JST and other government agencies; and the Foundation for Biomedical Research and Innovation and other interested foundations.

Mr. Nishimura thought that the Kyoto Coordinating Group could be dropped, but supported Mr. Ohno’s initiatives, such as at universities. He was also not sure about the idea of a regional communications hub, and thought that the people who are not activity involved in science, such as industries, economists, and journalists. Mr. Nakamura said that the first action in Japan should be to gather the representatives in each sector that can be engaged in these activities, and to promote awareness. Mrs. Sievert agreed and said that Illinois is working to organize such a group, as one group that gathered in Chicago was quite small and did not fully represent science organizations. She also mentioned that groups such as Girl Scouts and Boy Scouts are working to encourage STEM education in their members, as well as the Chicago Consortium of Science. She also mentioned the National Girls Collaborative Project, which is not only to encourage girls to pursue STEM education, but to encourage collaboration and join resources. However, time scheduling remains an issue.

Mrs. Sievert thought that the communications idea was going to be very critical, and hoped that staff would be available to encourage this issue. Mr. Arima suggested PTAs could work to encourage interest in science, not simply moral education, as they are very solid organizations. In China, the voice of parents is comparatively weak and teachers are respected, so the suggestion of reaching out to PTAs might not be

effective yet. Mr. Hong stated that the biggest problem with Chinese student is that their knowledge is rich, but their skills poor, and Mrs. Sievert concurred. Where PTAs cannot generate outreach may be where the JST comes in.

Focus: PTAs, gathering support from sectors outside education in ways that are not simply in regards to funding (partnerships, etc.).

IX. Open Discussion

Mr. Arima said that children in Japan have little time to use their hands and are constantly busy with other things. In China it is even worse, but things such as music education are important, reflecting the values of society. Mrs. Sievert noted that robotics after-school classes were very popular in the United States.