

Education Program on PCST: Communicators in Science and Technology Education Program (CoSTEP)

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Abstract

This paper explains an education program in science and technology communication at Hokkaido University in Japan. The program, "Communicators in Science and Technology Education Program (CoSTEP)", was established in 2005 and aims to educate people to be public communicators in science and technology. Those communicators are expected to take an active role in science and technology communication activities in various spheres of society. This program is especially unique in following two aspects.

First, the educational method of this program is practice-based learning. Therefore, lectures and seminars provide not only scientific knowledge but also communication skills. Communication skills taught in CoSTEP are wide-ranging from writing skills, oral presentation, and web site design, to workshop creation. Also, students can immediately use acquired knowledge in actual practical settings such as publishing, broadcasting, public events, education, and web design. To support practice-based learning, there is specially appointed staff of 8 having broad experience in practical fields such as science journalism, science writing, science museum, and participatory event.

Second, this program is aiming at collaboration with the local community. For that purpose, for example, we give classes in the weekends so that the program can attract wider publics. The current students come from various backgrounds. In addition, we are considering that the collaborations with groups and institutions in our neighboring community are critical. Some links have already established with a bookshop, a café, schools, NPOs and others.

We believe that nurturing citizenry with science literacy and communication skills through such education program leads to a greater public communication in science and technology.

Keywords: Science and technology communication communicator, education program, community

1. Introduction

This paper explains an education program in science and technology communication at Hokkaido University in Japan. The program, "Communicators in Science and Technology Education Program (CoSTEP)", was established in 2005 and intends to educate students to be public communicators in science and technology. Those communicators are expected to take an active role in science and technology communication activities in various spheres of society.

This program is funded by the Special Coordination Funds for Promoting Science and Technology in Japan. The Ministry of Education, Culture, Sports, Science and Technology (hereafter MEXT) made this fund in order to promote researches in science and technology. It is policy-based competitive funds. CoSTEP is part of 'human resources development program in the emerging area' and particular mission is fostering 'science and technology communicators'. There are two other similar programs in Tokyo University and Waseda University. Up to 100 million yen is allocated for each program in each year in following five years. MEXT demands those universities to continuously administer similar education program by own budget after 5 years.

Proposal from Hokkaido University was initiated by Sugiyama with other colleagues. I will report the overview of CoSTEP, the achievement of the first year, and the next challenges.

For your information, Hokkaido University is situated in Sapporo, the biggest city in the north part of Japan. It has 17559 students and 2166 faculty members (in 2004).

2. Overview

2.1 Science and technology communicators

Who are "science and technology communicators"? What kind of human resource are we fostering? In fact, neither government nor academics and citizens do not have a clear image of "science and technology communicators". However, the white paper of MEXT clearly stresses the importance of raising science journalists and science communicators who could manage scientific and technological issues properly.

Learning from experiences in other countries in recent years, Hokkaido University proposed that "science and technology communicators" should conduct two-way communication between science and society based on 'contextual model', unlike 'deficit model', and promote the public engagement with science .

2.2 Science and technology communicator as a role

In our proposal, 'science and technology communicator' is defined as a 'role' rather than a 'vocation' because communicator is taking role in various positions and spheres in society from personal to global. Therefore, 'science and technology communicators' are not only (science and technology) journalist and writers, but also researchers and graduate students engaging in outreach programs, public relations in companies and universities, people who are trying to facilitate between patients (including potential patients) groups and doctors, and many others. In other words, various people could be 'science and technology communicators'.

2.3 Open to the wider public

Based on the aforementioned idea, CoSTEP is open to the wider public. Anyone who has literacy equals to undergraduate level, and have concrete plan after completing the program can take our course. In other words, both graduate students and working people study together.

This point is very different from other similar programs in Tokyo University and Waseda University. Tokyo University's course is only open to graduate students and they aim at fostering elites who can initiate Japanese Science and Technology Policy. Waseda University's course aims at fostering science and technology journalists.

2.4 Problem Based Learning

CoSTEP students are learning 'science and technology communication' through practice. This method of learning takes a hint from Problem Based Learning, which is developed in medical training. There are two aims why we take this method.

The first aim is to create venues and spheres of science and technology communication by ourselves. Generally, human resource development needs its own market. Yet, the activities of 'science and technology communication' are not common and the term itself also is not popular in Japan. Therefore, by practicing actual communication activities, we are not only trying to promote understanding and awareness of 'science and technology communication', but also creating own market and opportunities.

The other aim is to let CoSTEP students find issues of science and technology communication in society and learn its methods, channels, and theories in the actual contexts.

2.5 Community Based Science and Technology Communication

CoSTEP are practicing community based science and technology communication, and developing practitioners who can consider the context of the local community. I use 'community based' in two senses.

First, we are actively engaging regional issues. For example, Hokkaido area has controversial issue in genetically modified (GM) crops. Hokkaido Prefecture established own regulation of GM crops and it will be reconsidered in three years later. Now, various stake holders need to communicate each other.

Second, we interact with people in local community, such as people in NPO organizations, regional public administrations, local museums, and local media organizations.

3. Inside the Education Program

In the first year, we conducted half a year pilot program from October 2005 to March 2006.

3.1 Teaching staff

Teaching staff consists of 8 specially appointed full-time teachers and 20 professors and assistant professors from various departments in Hokkaido University. There are also 20 special part-time visiting teachers from all over the country.

Most specially appointed teachers have practical background. They are a former news journalist in NHK (the biggest Japanese broadcast station), a professional writer, a researcher of participatory method in science and environment, a researcher of agricultural economy in regional market, a researcher of dialogue such as science cafes, a researcher practicing astronomy outreach activities, and a professional designer.

3.2 Classes

Classes started in last October. We had more than 60 applicants, and accepted 43 students in total. Half of students are 20's, and other half are from 30's to 50's. Backgrounds are various like graduate students, public administrators, self-employed individuals, and homemakers.

Considering working citizens, we provide classes every Wednesday night and Saturday afternoon.

3.3 Practical trainings

There are five practical trainings: Science Cafe Sapporo, Production of Radio Program, Web Publishing, Science Writing, and Lecture Delivery. Students are engaging one of these trainings and acquire skills and theories.

First, Science Cafe Sapporo is the first regular science café in the region, and it gathers more than 100 participants in each event. So far, it featured topics such as astronomy and extra-terrestrial life, world heritage and science (industrial heritage), secret behind the success of Finnish (science) education, earthquakes and tidal waves, and utilization of snow.

Students have to learn how to choose topics and themes, write project schemes, approach and negotiate with scientists, and organize a whole program. Through this project, we found that science café can function as an incubator of science communicators who can organize and facilitate dialogic events on science and technology. Combined with lectures, seminars and practical trainings on science and technology communication, students are learning the basic and practical skills of PCST.

Second, “The Science Explorers CoSTEP” is a weekly community radio program produced in Hokkaido University’s education program of science and technology communication that is called “Communicators in Science and Technology Education Program (CoSTEP)”. CoSTEP is an open course for the public who have had undergraduate degree or the same level of literacy. Our program consists of lectures, practical trainings, and students’ projects. Science Radio is for practical trainings and students’ projects.

The main target of the Science Explorers CoSTEP is 10 to 12 years old children (but our program also tries to reach their parents). Our radio program aims to communicate science and technology to young children and their parents understandably and enjoyably.

Third, “Science Sightseeing Map” (http://d.hatena.ne.jp/costep_webteam/) introduces various sight-seeing spots in the city of Sapporo from scientific points of view, and reveals the new aspects of the city. For example, a beer factory and fermentation, audio engineering of the city concert hall, LEDs in electric bulletin boards, physical science of ski jump, etc. The students walk around the city with digital cameras, take pictures and gather information about the spots, and write short articles about them from scientific or technological viewpoints. We use a blog system to create the website, and that helped us get feedbacks from the readers.

Through the project, the students could learn the way to communicate attractively scientific and technological topics to the public, and experience various responses from the readers. They also needed to learn the way of producing high-quality articles constantly to get many visitors to the website. In this way, the Sightseeing Map project can provide a clear example of the education of public communicators in science and technology through community-based activities.

Fourth, in science writing course, students are practicing the existing publishing media. We actually got orders to write and edit public relations magazines, news release documents, and science books as materials for science writing training. In some cases, the students have to win a competition against professional writers to get their works published. Also, I always require students to imagine the specific readers that they want to reach.

Through this hands-on training, the students can learn to review their self-righteous description, and organize their writings more logically in order to make their writing understood by general audience. They also have to communicate with their clients (ex. editor and public relations officer) and learn the styles and modes of expression according to the media and audience.

Fifth, “Science and Technology Delivery” is an outreach program for the public. The method of Science and Technology Delivery is different from common school classes in terms of its flexibility and mobility. It is a way of outreach activities for the wider public. It is also the special occasion for researchers and scientific citizens to engage in public science and technology communication activities.

4. Achievement and Next Challenge

4.1 Communicators’ challenge

The first year of CoSTEP finished in March 2006. Some graduates are using what they learnt in CoSTEP in their own fields and some others are trying to strike the new horizon of science and technology communication. To cite some example, some are writing columns in local news paper, some are creating new science cafes, and others are conducting collaborative outreach activity with researchers.

A group of CoSTEP graduates is also planning a traveling tour with a private travel agency for the primary school children to explore researches in Hokkaido University in this summer.

4.2 Recognition among university and researchers

We need to raise the recognition of science and technology communication more and more among researchers in academia and universities. Since some activities of CoSTEP (science café, community radio program, etc) are broadcasted by local news papers, TVs, and radios, university academics are gradually recognizing CoSTEP. It means that they get acquaintance with CoSTEP from local and national news, not from internal newsletters or informal meetings. It may often happen in such a big university like Hokkaido University. We need to consider the internal communication more seriously.

Production of radio program is also effective advertisement for researchers inside the university, because we visit laboratories every week and more and more researchers understand the importance of science and technology

communication. However, some of them still seem not to know CoSTEP and the idea of science and technology communication. We thus need to promote internal communication activities within university.

4.3 Theoretical improvement of science communication

Our Science Cafe Sapporo stimulated science cafe movement in Japan. Now there are more than ten science cafes around the country. However, some of them are not really different from former open lectures by university or museum. We need to sophisticate theories and methods of effective science and technology communication activities and also need to share them with other practitioners.

5. Conclusion

We have seen the overview of the new education program, 'Communicators in Science and Technology Education Program (CoSTEP)' in Hokkaido University. CoSTEP is aiming at developing human resource in science and technology communication activities in different sectors of society. The program put emphasis on practical trainings and actual engagement with local community. We still have much to do to raise both researchers' and the public's awareness of the importance of science and technology communication. We hope that our program will be one of the pioneering cases of education in PCST.

6. References

- [1] The Ministry of Education, Culture, Sports, Science and Technology (MEXT). *Science and Technology White Paper (in Japanese)* 2004.