

TOWARD A NETWORK OF LOCAL COMMUNITY, UNIVERSITY AND GOVERNMENT: REFLECTIONS FROM A SCIENCE CULTURE PROGRAMME FOR HOUSEWIVES IN KOREA

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ABSTRACT

This study reports four years' experience of a series of science culture projects specially designed for housewives in Korea. In 2002, a team from SNU carried out a project for housewives' understanding of science & technology, including a survey on housewives' attitudes and a development of sample materials for them. In 2004, a team with the same leaders carried out another project which included a development of materials for housewives' science classes. In 2005, the SNU team started to implement their materials to groups of housewives in a local community, Kwanak-Gu ward, Seoul. The whole process was initiated and supported by the KSF, a governmental organization for science culture. From our experience, the most important factor for the success appears to be the active networking between participating groups (i.e. Kwanak-Gu, SNU, KSF), which would multiply the strength and compensate the weakness of each group by communicating and sharing their experience and expertise.

KEYWORDS

science culture, Korean housewives, community-based programme, networking

THE SCIENCE COMMUNICATION PROCESS

Citizens of modern society have been living in an age of science and technology (S & T). Continuing advances in S & T had a pervasive impact on both the methods of production and products that are manufactured. Scientific literacy has come to be considered as essential part not only of general education but also of citizen science (e.g. Popli, 1999; Laugksch, 1999). With this general trend, there have been a number of measures of civic scientific literacy across the world (e.g. Miller et al., 1997; Miller, 1998; Gallup Korea, 2004).

Housewives play many important roles in home and society. They take care of family health, purchase household goods, and help their children's study. Along with these roles of managers, consumers, and educators, they also have responsibility as citizens in democratic society to do decision making about controversial issues. For the expected jobs, housewives are required to be scientifically literate and to be provided with various opportunities for improving their scientific literacy. However they have rarely been the subjects of related studies (e.g. Kim & Song, 2003).

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This paper reports about four years', 2002 - 2005, experience of developing and implementing of a science culture programme specially designed for housewives in Korea, with a focus on the collaboration between local community, university and government. During the process, there have been three different small-scale projects. We give outlines of the projects and the problems we came across during the projects.

(1st Project) Basic Survey and Developing Sample Materials

In 2002, a team of science education specialists from Seoul National University (SNU) undertook a project, titled “A Development of the Programs for Improving Housewives’ Understanding of Science and Technology in Korea”, with a grant from Korea Science Foundation (KSF). The research team carried out a survey to find out their attitudes toward S & T, interests about S & T-related issues, school science experience, preferred formats of science culture programmes for them, etc. Based on the results of the survey, a programme and samples of educational materials for housewives' understanding of S & T were developed (See [Table 1]).

[Table 1] The Categories and Titles of the Sample Materials (Project 1)

Category	Titles of the contents
Health	1) Is Osteoporosis disease or aging?
Kitchen	2) Is Kimchi Refrigerator not a refrigerator?
	3) Is Water Purifier essential or optional?
Social Issue	4) Is DNA Fingerprint a gene test?
Living	5) Invisible ray comes from a Remote Controller.
Food	6) GMO Food: What kind of bean curd are you going to eat?
	7) Diet or dynamite?
Everyday Life	8) What’s inside a Bus Card?
	9) Is ABS an automatic breaking system?
Beauty	10) For rational selection of Functional Cosmetics

The SNU team consisted of two sub-groups, physics and biology, each of which consisted of one professor and one postgraduate student. This small scale research project was offered as one of the projects in 2002 Funding Scheme of the KSF, which provides annually the fund for various S & T culture activities. The duration of the project was just 10 months Feb. – Nov., 2002, and the amount of the grant was about 10 thousands USD. The theme of the project was given by the KSF.

Based on the survey results (Kim & Song, 2003), the researchers recommended as the implementing methods of the programme in the following order: firstly, cultural-educational TV programmes; secondly, Internet service; thirdly, a series of books; fourthly, the programmes of cultural/local centers. However, later it turned out to implement the programmes through the forth way, because MOST(the Ministry of Science and Technology) suddenly launched a national project called ‘Science Korea’ which included Project ‘Classes for Science and Life’ to be implemented through local town offices across the country. The ‘Science Korea’ project is a government-driven project for establishing a nationwide infrastructure for enhancing science culture.

(2nd Project) Developing Activity Manuals

In 2004, a group with the same team leaders carried out the next project, titled “A Development of Programs and Activity Manual for Regional Science Classes”, which included the development of programmes (1) for people’s recognition of the importance of S & T, (2) for the positive attitude toward children’s S & T career pursuit, and (3) the development of Activity Manuals specially for community-based science lessons for local housewives as a part of ‘Classes for Science & Life’ Project. Two kinds of Activity Manuals, for instructors and for housewives, were developed with 10 topics, a half related to biology and the other to physics.

The SNU team consisted of two sub-groups, physics and biology, each of which consisted of one professor and two postgraduate students. This project was suggested by the KSF to SNU team because after the launching ‘Classes for Science & Life’ project the KSF needed to have some programmes and materials to be distributed to local town offices across the country. Since everything had been decided so quickly, the duration of the project was given just 6 months, Oct. 2004 - March 2005. The amount of the grant this time was about 30 thousands USD.

[Table 2] shows the contents of SNU Activity Manuals. Although the topics of the biology part remained the same as the first project, those of the physics part changed substantially. It was because the physics team tried to make the manual as much activity-based as possible with an expectation that housewives would repeat the science activities with their children home after the classes. On the other hand, the biology team continuously focused on the topics relevant directly to the housewives themselves.

[Table 2] The contents of SNU Activity Manuals (Project 2)

Topic Titles	Examples of Sub-titles
A silent guest - osteoporosis	- How to prevent osteoporosis - Activity guidelines to avoid osteoporosis
Reborn as a slim lady	- How much is my fatness? - Let’s change diet
Which food do we need to eat?	- How to read nutrition information on foods - What’s wrong with GMO foods?
Toes are similar – human genes	- How will my baby looks? - The analysis of human karyotypes
Go away wrinkles!	- Making Rosemary Honey soaps - Knowing more about functional cosmetics
Mum is a magician on a dining table	- Raw egg or boiled egg - Let’s see through glass cups
Looking for secrets of human body	- Formula of human height - The posture you can never do
Looking for hidden principles electric home appliances	- Is water purifier necessary? - Induction coil – why not hot?
Science play with a sheet of paper	- Oh! A hole on my hand - A coin on the edge of a bank note
Car – the second living space	- How to reduce the impact of collision - How much do I need keep a safety distance?

(3rd Project) Implementing the Programmes and Manuals

In 2005, the SNU team started to implement their programmes and materials to the groups of housewives in local community, Kwanak-Gu ward in Seoul, where the university is located. Kwanak-Gu is largely considered as an area of relatively low socioeconomic status and educational prospects. At the beginning stage, six groups (i.e. six local town offices) of full-time housewives with maximum of 20 in each group were formed with a help from the local government. The programme would last 6 months (Feb. – July, 2005), and each group is expected to have 10 two-hour's classes (of a mixture of practical work, discussion and lecture) once a fortnight in addition to two times of public lecture. This is a corporative science programme for local citizens of Kwanak-Gu, developed and implemented by a SNU team, with an administrative support from Kwanak-Gu local government and with a financial support from the central government through the KSF.

The SNU team with the same team leaders as the last two projects consisted of two sub-groups, physics and biology, each of which consisted of one professor and four postgraduate students. Although the planning and preparation of the classes were done as a work of the whole SNU team, the actual classes are mostly delivered by the postgraduate students. The fund from the KSF was assigned according to the number of participating local town offices to the programme. The amount per local town office was 5 thousands USD, and we had 6 of them, that means the total amount of the fund given to this project was 30 thousands USD. The fund covers only the instructors' personnel expenses, without the expenses for materials, equipments etc.

About 90% of the attendees were over 35 years-old and finished at least high school education. Although the number of attendees per class was 20 at the beginning, it gradually decreased and after two month's of classes it remains nearly unchanged around 6 to 14 according to classes. The attendees who still participate in the programme are showing their positive attitudes and faith toward the programme.

EVALUATION

The first author has been actively involved in this series of the projects as one of the team leaders of the SNU side, while the second author as one of key members of the KSF had an opportunity to witness the process indirectly and played an active role in developing 'Science Korea' and 'Classes for Science & Life' projects. Thus this evaluation is basically a self-reflection. However, for the third project, we are collecting data for a more systematic evaluation as a case study, with a hope to provide a platform to be used for a more comprehensive evaluation process of the whole 'Classes for Science & Life' projects.

At the beginning of the third project, Feb. 2005, we conducted a basic survey for the background information the attendees, such as, age, sex, education career, children and their prospect career, science-related experience with mass media and with outdoor facilities, and motives to join the programme. In addition, at the end of April, 2005, as a mid-term assessment, we carried out a small scale survey to identify problems and difficulties and to have a feedback for the next round of the programme. At the end of

the programme there will be another survey and interviews to check the outcome.

At the time of the first project, there was no expectation to have any following project and no long-term road map for science culture such as 'Science Korea' and 'Classes for Science & Life'. The topic of the project was just given as one of numerous topics in KSF's year funding inventory. As a result, within the limits of budget and time, the researchers could only conduct a limited scale of survey with 534 housewives in Seoul and developed just samples of the materials of 10 topics. Furthermore, there had been no following study for nearly two years until the second project launched in Oct. 2004.

The second project was negotiated between the SNU by the KSF teams as a kind of prompt backup for 'Classes for Science & Life' project. The SNU team decided to follow the idea of the first project by revising and expanding its sample materials substantially. This decision was made not only to keep consistency but also to save time to meet the urgent demand from outside. It was tried to develop the Activity Manual as similar to commercial books as possible. However, due to the limit of budget, only one cartoon illustrator with no other specialist could be employed for the work of lay out.

From the preliminary evaluation of the third project, the followings appeared to be main problems and difficulties.

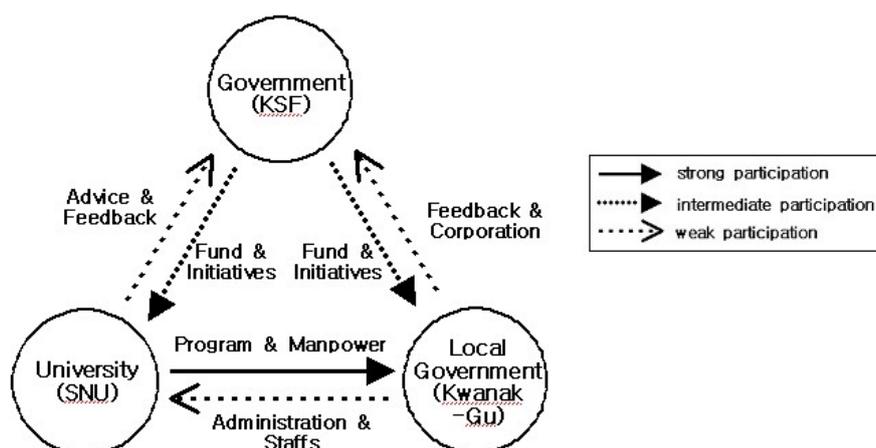
- There was not enough preparation and advertisement for the programme.
- Many of the class attendees were gathered not on completely voluntary base.
- The attendance rate decreased gradually and attendees were rather passive.
- The average age of the attendees was rather high, and their motivation was low.
- The two weeks' interval between the lessons is too long.
- The textbooks(i.e. manuals) were not allowed to bring back to home.
- Thus, the attendees had difficulty to do following activities with their children.
- Since the class was free of charge, the attendees' responsibility was rather low.
- There were no staffs or a division responsible for the programme in Kwanak-Gu.
- Due to the big age difference, it was difficult to focus on particular topics.
- There was no person who had final responsibility, either at Kwanak-Gu or SNU.
- Postgraduate students had a difficulty to balance between research and projects.
- There was little feedback from the classes and the teaching was one-directional.
- Attendees' motivation was quite different according to their age group.
- There was little administrative support from Kwanak-Gu and from town centers.
- The classes were not open to general public, thus few new comers were allowed.

Above all, the most important problem appeared to be the active communication and cooperative interaction among the three participating groups (Kwanak-Gu, SNU, and KSF). Most items of the above list are believed to be caused by the lack of communication and interaction. Except the beginning stage, there was in practice no feedback and exchange of ideas.

DISCUSSION AND CONCLUSION

It is not strange that three participating groups have different weakness as well as strength. The SNU team, the university part, is consisted of a group of specialists in the field of informal science education and was able to provide programmes and materials,

but is lack of experience of administration process and of managing programmes for ordinary citizens. Although the KSF, the government part, initiated and managed to expand the whole project as a national movement, it did not have enough feedbacks, advice, and corporation from the two participating groups. This seems to be largely due to the shortage of administrative manpower and expertise inside the KSF team. On the other hand, Kwanak-Gu, the local government part, was keen and eager to provide good programmes and service to their local people, however they do not know what and how to provide. They also failed to provide appropriate administrative support to the SNU team and feedbacks to the KSF. There must be at least one staff member who is responsible for the project. Figure 1 illustrates the relative strength of the networking among the groups. Nevertheless, the strong and weak points of each group and the weak networking are in fact quite natural, because they have been trained to play their conventionally-expected roles from the past. It is maybe the first time with this particular project that these three groups of people meet and work together with a traditionally-unusual purpose of “promoting public’s science culture”. An effective networking and interaction, through workshops or regular meetings, between the groups would multiply the strength and compensate the weakness of each group by mutually sharing their experience.



[Figure 1] Relative strength of interactions among three participating groups

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