

SCIENCE CLASSES AT VILLAGE OFFICES

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ABSTRACT

It was found that the district/village offices are found to be excellent public facilities to be utilized for providing science classes for local residents, especially for poor and underdeveloped regions. The science classes at village offices were first started, as a part of voluntary personal for improving science literacy, by one of the authors (J. S. K) in September of 2003 in Seoul. Low cost science activities usually found in science fairs are actively utilized in the classes. The program is now grown to be a central part of the Science Korea Initiative being carried out by the Korea Science Foundation. It is now implemented at 344 districts/villages throughout the nation. The key element of the success of this program is thought to be low cost of the classes. The active involvement of local district/village governments is also important for the success of the program by providing both kids and scientists from the local area.

INDEX TERMS

Village/district office, low cost activity, access to science

INTRODUCTION

As well known, Korea has achieved remarkable economic development through extensive investments in modern technologies such as heavy, chemical, and electronics industries. Nevertheless, Korea in recent days experiences ever increasing difficulty in continuing such investments mostly due to rapid spread of negative image on modern science and technology. Young generations do not show much needed interests in science and civil resistance against large-scale national development projects is now a serious social issue. It is now evident that Korea may not continue its progress under these circumstances.

Of course, the most efficient way of improving science literacy is the science education through regular academic training. It is however a sad reality in Korea that little can be expected from regular educational system which has been seriously strained and distorted by the highly competitive entrance systems for university. The science classes in such environment have long been failed to attract student's attention. It is now a common sense in Korean society that science is something useful only for scientists, not for themselves. Strong government driven science research initiatives appears to contribute in spreading such notions in

Korean society.

There are still many kids of low grades and pre-school years who are naturally attracted by science activities, for example, observing unusual phenomena and making something by themselves. Parents are also generally interested in those activities since they are supposed to be an excellent mean for cultivating creative thinking, especially for young kids. They are however greatly frustrated since it is not easy for them to find opportunities for such activities. It is especially true for those living in rural areas and underdeveloped regions in large city.

The Science Classes at Village Offices was an attempt to approach specifically such families by providing convenient and easy access to science activities without much financial burden. It was thought that the first-hand experiences in science activities at early years do help kids develop real interests in science in later years, thus contributing to science literacy in the future. Although it was first started as a personal effort by one of us (J. S. K) in one of the districts in Seoul without any direct support from outside, it was soon to be recognized by other districts as a successful service model for local residents. It is now grown to be a central program of the Science Korea Initiative being carried out by the Korea Science Foundation. As of today, the similar program is run by 344 village/districts throughout the nation.

THE SCIENCE COMMUNICATION PROCESS

It was recognized by one of us (J. S. K), who has enough experiences with large scale science fairs as a regular staff member of the Korea Science Foundation, that there is a serious mismatch in demand and supply of science activities for local residents. Large scale science fairs usually organized by City governments cannot provide sufficient opportunities for local children, especially for those in rural and underdeveloped regions. Private science classes, popular in affluent regions, are simply too expensive for most families.

There seemed to be enough demand of science classes as long as easy access is guaranteed to local residents by keeping the fee sufficiently low, about 1~2 dollars for a class. The scientific activities for the classes were relatively easy to find from the materials prepared for usual science fairs. The activities were carefully selected to give fun to the children while they are easy and safe to prepare and perform without much intensive help from instructors.

At first, it was attempted to open a class in the apartment complex in Yeungdongpo-dong where he lives. The area was newly developed from industrial region, a complex of small industrial businesses, to residential apartment complexes. But there was no facility available in the apartment complex. Then it was realized that the District Office has well-equipped class-rooms intended for service to local residents. Since the District Office was also eager to develop programs for residents, usually for senior citizens, it was quite easy to secure the facility for the science classes. In return for using their facilities, we had to accept children from the entire district. As expected, it was quite easy to find children with the help of district office.

Thus we started off with 70 children divided into two classes. There were two groups of 8~10 children. Two helpers, volunteer parents (mostly mothers) of the

participating children, were assigned to each group. The first classes were offered in September of 2003. We had classes once a week for 12 weeks. After 9 months, it became widely known to nearby districts as a successful science classes. In fact, we were able to have a small scale science fair in the District, organized by volunteer service groups of the District. Finally, it became known to the Ministry of Science and Technology. And, the Minister visited the classes by himself in June of 2004. He found the classes very interesting and have the similar classes opened nationwide as a part of Science Korea Initiative. At the moment, the Science Classes at Village Office have been implemented at 344 villages/districts throughout the nation.

EVALUATION

The success of the program was partly due to the fact that we correctly identified the real demand for science activities in the area. Although the area we started the science classes were not an affluent district, the most parents were well motivated to provide best possible education for their children. It was thus more than enough for us to give them easy access to the interesting science programs without much financial pressure. Furthermore, majority of parents were received college educations by themselves. They were able to help the classes without much trouble, thus saving burdens of finding extra hands for the classes. Since there were similar demands for science classes already present in the neighboring districts, we did not have to do anything in so far as reaching out the target children.

The class-rooms of the District Office were also crucial for the success of the program. Without such well-equipped facilities, the program would have been far more expensive to run. In addition, such facilities were excellent in making the Science Class accessible to local residents. We were able to use such facilities since our program was readily recognized by the District Office as an excellent service program for their residents. Of course, the local volunteer groups, such as Association of Parents, were crucial in persuading the staff of District Office. The clerical assistances of the District Office staffs and other volunteer parents groups were also essential for finding children. In these regards, there seems to be no other alternative facilities that can be utilized for such classes.

It was however the most important to keep the class fee as low as possible. The goal was achieved by judicious selections of activities introduced for the Science Classes. In most activities, common household and/or recycled items such as spent plastic can of roll-film, baking soda, and vinegar, were heavily used on purpose. The cost can also be kept low by encouraging group activities, rather than individual activities. Such strategy has the advantage of making almost all activities fun to the participating children through cooperation and competition among themselves.

It was found through our experiences that the scientific contents are not so important in our classes. The participating children and parents were largely satisfied by having them realize that scientific activities can be experienced rather easily. In other words, they were able to understand that science can be found

almost everywhere in our daily life once we know where to look for.

The program of the Science Classes at Village Offices has now become a central part of the Science Korea Initiative and implemented nationwide. As such, we now face whole new kinds of challenges. The program is now run by the Korea Science Foundation (KSF). Since then, they have expanded the target audiences from the primary school children to three different categories: primary school kids, middle school kids, and parents. The KSF now has to develop standard sets of program to be utilized in different environments. They have to develop more science activities suitable for such classes which have to be low-cost, fun, and safe. They also have to prepare and provide necessary instructional manuals and experimental kits if necessary.

The KSF is now working with professional groups of university researchers to develop the program in full scale. The main focus of the program is still to provide the low-cost and hands-on experiences for those who have enough motivation for science in general. The KSF is looking for the way of utilizing local scientists working at various educational/industrial institutes in the area, by providing regular training programs for the instructors in order to maintain the quality of instructions.

DISCUSSION

The Science Classes at Village Offices was originally intended to give opportunities to experience science for those already motivated families without heavy financial burden. It was hoped that exposure to science activities at early ages help the children realize the importance and usefulness of science in everyday life. Thus the main focus of the activities were not to teach them piecewise scientific knowledge but to give them hands-on experience to feel what science looks like.

In order to be successful, it would be very important to find out how much motivated the families in the area are. For that reason, it would be reasonable to start the first program in the middle or below middle class neighborhoods where parents are highly motivated and cooperative but cannot readily afford expensive private science classes. Without strong support from local parents groups, it would be very difficult to start such program.

CONCLUSION

It was found that the Science Classes for local residents can be developed purely on a personal voluntary effort as long as strong support from local parents can be found. It is found to be crucial to minimize the cost by utilizing the public facilities like class-rooms of Village/District Offices. The cost can be kept minimized by differentiating the goal of science classes from the school education. That is, the Science Classes for public should try not to teach scientific knowledge but to give first-hand experience on science activities. In other words, it is far more important and practical to complete the activity following the described procedures and then to make the scientific analysis on the procedures.