

My Earth science educator story – Chan-Jong Kim

What I did, why I did it and what happened



Chan-Jong Kim in 2016.

Getting closer to Earth science

I was born in 1957, at the time when the Soviet Union had just launched Sputnik, the first artificial Earth satellite. News of space exploration, including the first human Moon landing by Apollo 11 in 1969, filled my mind during my primary school days. This news fostered my interest in science, especially Earth and space science. Watching TV documentaries about the marine environment and beautiful fish made me dream of becoming a marine biologist. With these perspectives, I enrolled in the College of Education at Seoul National University (SNU) in 1976. During my undergraduate education, I chose Earth science education as my major and took more courses in geology than other areas in Earth science. I became particularly interested in this field, and so joined the Master's program in Geological Sciences at the College of Natural Science, SNU in 1980. After completing my thesis on the Geoje gold-silver-copper mines in the south-east part of Korea, I realized that I was more interested in science education than in science research itself.

Returned to education

I decided to pursue a science educator career, and was appointed as a science teacher at Bangbae Junior High School in Seoul, Korea in 1984. During my two years of experience as science teacher, laboratory activity-oriented science approaches were implemented by all science teachers following the Korean National Science Curriculum. I really enjoyed teaching science, however, I was

aware that much more understanding was needed to improve science teaching. At that time, the discipline of 'science education' was not well established in Korea, and there was only a handful of science education researchers in Korea. I began to explore opportunities to study science education and applied for a Korean Government Scholarship to study in this field abroad. I was fortunate enough to receive the Scholarship in 1985, and began my science education studies at the University of Texas in Austin, USA, in the fall semester of 1986. I studied students' misconceptions in Earth science for my doctoral degree. In my cross-age study, I investigated students' intuitive ideas about water in the atmosphere and the implications for conceptual change.

Return to Korea and professional activities

After returning to Korea, I worked for the National Board of Educational Evaluation (NBEE) in the Ministry of Education in Korea from 1991 to 1994. My major focus at NBEE was large scale educational assessment-related studies, such as the Third International Mathematics and Science Study (TIMSS), the Korean National Educational Assessment, and the Korean National Scholastic Assessment for College Entrance.

From the fall semester of 1994, I transferred to an institution for educating pre-service primary teachers, Chongju National University of Education (CNUE), Korea, and taught primary science methods and Earth science courses. My major research topic at CNUE was (Earth) science performance assessment (especially portfolio teaching and assessment). Even though, the portfolio approach increases teachers and students' workloads in developing and evaluating student portfolios, I am still confident that this method, if properly implemented, has great possibilities for transforming traditional Korean science classrooms into constructivist ones.

In 2004, after returning from my sabbatical year at Michigan State University, I transferred to Seoul National University (SNU), and taught courses in Earth science education methods and introductory Earth science to prospective secondary science teachers. There I conducted research projects into science learning in natural history museums, science teacher professional development, and students' scientific modeling in classrooms. The first part of my research into museums of natural history (MNH) was focused on understanding the practice of exhibition and education. In the 2000s, I and my research team travelled to and investigated major natural history museums in USA, UK, Australia and Japan. We found that many museums were trying to introduce a visitor-centered constructivist approach. The second part of my study focused on learning and interaction between visitors and staff in science museums in Korea.

Another major area of my research is students' co-construction of scientific models (CCSM) in classrooms. The basis of the CCSM approach is the contemporary philosophy of science, and sociocultural perspective of learning. My research group has developed CCSM teaching-learning sequences with science teachers and applied them in real classrooms in Korea. We have also tried to understand small group interaction processes and impacts on students' learning science and modeling abilities during and after CCSM classes. In addition, we tried to develop cultural bridges between CCSM (Western science culture) and Korean classroom culture, which is heavily influenced by Confucianism. Korean teachers and students find it difficult to participate in CCSM classrooms at first, since they are quite different from typical classrooms which are focused on knowledge transmission. However, their practices and attitudes gradually improve as they understand the CCSM approach.

I have also tried to contribute to science education by writing many Korean science

and Earth science textbooks for primary, junior high, and senior high schools. I have also published academic books in science education, informal science learning, earth science, and a book for the general public on major geologic field trip courses in Korea.

International activities

I have participated actively in international activities in geoscience and science education. In 1997 I joined the International Geoscience Education Organisation (IGEO) representing Korea, and I was elected as Vice Chairperson (chair-elect) of IGEO during the 4th International GeoSciEd Conference held in Calgary, Canada in August, 2003. During the conference the Korean participants including me, successfully put forward the International Earth Science Olympiad (IESO) as a new program to be supported by IGEO in order to promote geoscience education worldwide. I became the first Chairperson of the IESO Committee in 2004 and I also organized the first International Conference for IESO at Seoul National University.



Participants in the Seoul Conference on the International Earth Science Olympiad, November 2004.

We discussed the Earth science curricula of ten participating countries from all over the world in developing the IESO syllabus. The draft of the statutes of IESO were also reviewed and approved. The first IESO was held in Daegu-shi (indoor activities) and Youngweol-shi (outdoor activities), Korea in 2007. The IESO has flourished since then and the 10th IESO will be held in Japan in 2016.



The IESO emblem designed by B.H. Lee who became a designer after studying Earth science education at Seoul National University, Korea.

I became Chairperson of the IGEO during the 5th International Conference for GeoSciEd in Bayreuth, Germany in 2006 for the following four years. Now I am working as Dean of College of Education, SNU, and also as President of the Korean Earth Science Society (KESS).



Senior Officers of IGEO at the 6th International GeoSciEd Conference in South Africa, in 2010. From left to right: Roberto Greco, Chan-Jong Kim, Sylke Hlawatsch, R. Shankar, Bronte Nicholls.

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