

Integrating Science, Education, and IT in Cross-Cultural Settings

Janie Schielack and Richard Nader

The Research Roundtable focused on how Chinese and American culture differentially impact IT-based science teaching and learning in K-12, higher education and the public through on-line media. Second, the roundtable will investigate how Information Technology can increase involvement and access in the scientific process in communicating science across cultures, while exploring differential approaches and societal impacts. For example, the Virtual Science Museum (VSM) of the Chinese Academy of Science is a primary research partner that provides a content and technology rich research environment in which to investigate these issues. The VSM may serve as a platform for multiple research themes developed through this roundtable. Texas A&M and U.S. experts will work with respective Chinese experts on blended panels for the discussions. Discussants will include: science education researchers, scientists, social scientists, humanities scholars, science communication specialists, experts in IT, science teachers, and science museum professionals active in on-line science.

The US and China rank #1 and #2 respectively in number of Internet users, with China's Internet subscription rates growing at 6% per year. The Ministry of Information in China estimates that 25% of the population over age 2—or 257 million people—will have home access in 3-5 years. With the development of new and faster applications, information technology applied to science learning continues to be a promising delivery mechanism for providing increased access to science information. However, much remains to be learned about how to approach the technology issues, especially when applied across cultures. Cross-national research into the topic of IT-based science education adds an interesting and new dimension to current research, and is a natural 'test-case' for the use of IT to bridge the cultural, language and distance barriers in reaching new audiences in science education both in China and the U.S., and offers insights into opportunities and challenges of IT-based science education worldwide.

Both governments have stipulated science education and the development of a science literate public as topics for bi-lateral cooperation. NSF Director Rita Colwell remarked on the TAMU-VSM cooperative specifically in her speech addressing the 2002 Working group on China-US Scientific Cooperation in Beijing as an exemplar in bi-lateral cooperation. Major science-related organizations in China have participated in this effort including Chinese Academy of Science, NSF of China and Chinese Academy of Science and Technology (CAST), (the equivalent of the AAAS in the United States). The international significance of new discoveries in current scientific research, coupled with the common interest shared by Chinese and U.S. governments has led to a supplemental proposal for cooperative research funded by the National Science Foundation and the Chinese Academy of Science.

Two teams of scientists in science education and research in the application of new technologies to enhance science teaching and learning are scheduled to visit China and the United States in 2004. Thus, in the near term, the joint project teams are expected to begin to develop a framework theory for integrating science learning across cultures,

including overcoming the content, language and technical barriers in science communication. The lessons learned from these projects will hopefully lead to more organized interdisciplinary efforts on a larger scale to address effective strategies for teaching and learning science across all cultural lines.