Development of Teaching Materials and Teaching Aids

Development of teaching materials and teaching aids is critical to the success of scientific and educational activities. Thanks to brainstorming efforts of the Museum’s researchers, staff and volunteers as well as collaboration with scholars and experts, a great deal of teaching materials and teaching aids were developed for the biennium 2003-2004. Due to space limitations, only one is presented here.

Development of Electricity-Related Teaching Aids

Based on the Museum’s experience in exhibits of popular sciences, the Museum has collected some common and prevalent myths about electricity. To address perception problems and uncover truth, the Museum signed an agreement with Soochow University to collaborate with professor Jhou Jian-heng in developing a set of teaching aids for the subject of electricity.

This model of teaching aids features the following: Use a demonstration style of teaching with hands-on elements to allow students see and do the work in person. Thus the model is more effective in helping participants better understand Faraday’s Law. Although the aids do not use a wire coil to show complex electromagnetic induction, the set can demonstrate important concepts of Faraday’s Law.

This model of teaching aids is divided into four parts, which can be used alone or combined to demonstrate the concepts:

1. Lenz’s Law tube: Faraday’s Law and electromagnetic induction
2. Pendulum power generator: Faraday's Law and conservation of energy
3. Gravity power generator: theory and load of power generators
4. Wind power generator: energy and power

Based on the prototype developed by professor Jhou Jian-heng, the Museum modified its scale and proportion and made a new model version to facilitate teaching demonstrations in 2002. In 2003, the aids were further revised for use in teacher training workshops targeted at elementary and high school teachers. In 2004, the modified model was demonstrated in a few venues, including a creative teaching fair sponsored by Ministry of Education, the 19th Science Education Symposium R.O.C., and a seminar on physics teaching demonstrations.

Many schools and organizations expressed their interest in this model of teaching aids and wanted to obtain a duplicate of it. However, due to limited budget and resources, the Museum was unable to make more models available to give away to schools at no charge. In addition, although the teaching aids looked simple from the outside, there were certain parameters to be met to achieve effectiveness. To prevent private vendors from making fake, unworkable duplicates and peddling to schools, the Museum obtained a patent for two aids of the model in 2003. In 2004, the Museum authorized its Employee Cooperative to make the patented teaching aids, and starting 2005, the aids could be purchased on order from the Museum’s co-op.