Chapter IX

Use of Virtual Exhibits for Promoting Science Learning on The Webs of Science Centers

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Introduction

Science centers are institutions for the promotion of informal science learning to students and the public (Oppenheimer, 1972; Danilov, 1982; Tan & Subramaniam, 1998; Delacote, 1998). They have come to be regarded as part of a nation’s scientific, technological, and educational infrastructure.

Science centers promote their mission objectives in a number of ways: exhibitions on a range of themes, science enrichment programs that complement science lessons taught in schools, mass-based promotional activities such as science festivals and competitions, and so on. However, exhibitions remain the core and distinctive feature of the attractions in science centers.

Exhibits in science centers are incubators of scientific knowledge. By interacting with the exhibits—for example, pushing a button to elicit a response or cranking a wheel to produce an effect the scope for exploratory learning and fostering of functional understanding is enhanced for visitors. A range of scientific concepts can be explored via
interactive exhibitry. It is well established that interacting with exhibits in science centers contributes to gains in the affective and cognitive outcomes of the learning process (Sneider, Eason, & Friedman, 1979; Koran, Morrison, Lehman, Koran, & Gandara, 1984). The World Wide Web presents a unique distribution medium for science centers to reach out beyond the confines of their traditional infrastructures. Many science centers have been compelled to colonize the new media in an effort to stay relevant and tap new avenues for promoting informal science learning. Their Web sites feature a range of resources (Tan & Subramaniam, 2003). Creating compelling online experiences of an interactive nature by hybridizing the traditional fare of science centers with the potential of the Internet presents opportunities for creating new educational experiences in science. Indeed, the Web has spawned a taxonomy of distinctive genres of learning for science centers to capitalize on in the pursuit of their mission objectives.

Virtual exhibits in the portals of science centers are new tools for providing instructional support in the acquisition of scientific concepts. Their utility have, however, not been explored adequately, save for some publications that focus generally on the virtual science center movement (for example, Jackson, 1996; Honeyman, 1998; Orfinger, 1998). In the framework for e-learning advanced by Khan (2001), it is of interest to note that online exhibits find mention as one of the categories.

The principal objectives of this chapter are fourfold:

1. To show that virtual exhibits in the portals of science centers are effective resources for promotion of informal science learning
2. To look at the technological tools available for the fabrication of virtual science exhibits
3. To show examples of some Web sites of science centers where virtual exhibits are used, and to study their interesting features
4. To comment on some of the issues involved in the popularization of science through virtual exhibits

Virtual Exhibits as Resources for Informal Science Learning

The use of instructional tools contributes greatly to achieving the desired outcomes of the learning process. Some examples of these tools include teacher-centric pedagogy, cooperative learning, simulation, and field trips. Such tools provide scaffolding contexts for anchoring conceptual frameworks related to the subject matter to varying extents, in the process promoting cognitive and affective gains for the learner. Such gains can be gauged through various assessment instruments.

The Internet provides a new media for judiciously transplanting physical exhibits into cyberspace in order for visitors to continue their learning experience in an authentic setting. Features of the new media which augment the utility of the educational
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