

## Foreword to *In Principle, In Practice*

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*"Most people, most of the time, learn most of what they know outside the classroom."  
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Although people have always learned outside the four walls of a classroom, the purposeful design of experiences for self-directed learning by organizations established with that mission expanded greatly in the late 20<sup>th</sup> century. That increase is best illustrated by the growth of the Association of Science-Technology Centers (ASTC) from 20 museums at its inception in 1973 to some 340 U.S. members today. These institutions enable 83 million citizens each year to experience science and technology first-hand, mostly as families and school groups.

Not surprisingly for a young field, informal science education has largely been guided by practice informed by personal experience and intuition. Evaluation and research are now also beginning to play greater roles. One reason is the growing demand for accountability by public and private funders who are seeking evidence for their investments in informal education. Other factors stem from maturation of the field. The value of formative evaluation in developing exhibits and programs is gaining acceptance, as is the potential to learn from what does and doesn't work based on summative evaluations. In addition, increasing numbers of researchers in academic institutions as well as some museums have been studying how people learn in informal settings and publishing their results in peer-reviewed journals. All of these factors are helping to professionalize the field.

The Informal Science Education (ISE) program and its predecessors at the National Science Foundation (NSF) have supported the field for more than two decades. They were instrumental in providing early funding for capacity building of ASTC. ISE has invested heavily in exhibitions, along with a wide range of educational programs. Its funds have made possible more than half of the approximately 200 exhibitions that have been toured by the ASTC Traveling Exhibition Service. NSF was instrumental in establishing the field of children's science programming on television through support of *3-2-1 Contact*, *Bill Nye*, and *The Magic School Bus*, and adult science programming through funding for *NOVA* and the National Public Radio science unit. ISE investments established the large-format film as an immersive educational medium and made possible such out-of-school programming as "citizen science," in which the public contributes to ongoing scientific research.

While funding development of products designed to increase public interest, engagement, and understanding of science and technology, ISE has elevated standards through

