

**Prepared for the NAE/CSMEE  
Committee on Technological Literacy**

**Washington, DC  
September 10, 1999  
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One of my favorite definitions for “technology” is: “That which does not exist when you are born.” “Technology” becomes the catch phrase for those systems and tools that define scientific and engineering progress while baffling us in our daily life experience. For instance, I do not think twice about making a long distance phone call at work or at home. However, my great aunt plans for days before calling long distance that, in her childhood, represented a special event and a great expense. Now, I watch my 3-year old explore the computers in our home as easily as he explores his train set or the trees and shrubs in our yard. In his domain, all of these objects are equal while, to me, the “technology” of the computer stands out as “the other.”

I have the privilege of being Head of Education at Cooper-Hewitt, National Design Museum, a branch of the Smithsonian Institution located in New York City. The Museum’s home is the historic Andrew Carnegie Mansion. While this is a grand place, the most significant aspects of the Mansion’s design lie in its technological firsts—the first domestic electric elevator, a steel beam structure designed by John Roebling, the engineer who designed the Brooklyn Bridge, and state-of-the-art mechanical systems for heating and cooling. Andrew Carnegie amassed his personal fortune through the new technologies of his day, so it stands to reason why he would bring his interest in technology to his role as an architect’s client.

As a philanthropist, Andrew Carnegie established public libraries throughout the United States and Great Britain. As a poor factory boy in Pittsburgh who showed promise, he was given access to a wealthy man’s private library. Carnegie believed that having access to these books gave him the foundation to improve himself and his situation. Carnegie libraries are landmarks in many of our communities. As a result, in a large part, of Carnegie’s enormous contributions, we take it for granted that all citizens in this country have a right to be literate. Reading and writing are two of the 3-R’s and there are libraries in most public schools. Inherent in my definition of literate is the right of every citizen to enter a public library with confidence, to find a book that is relevant to his or her interests, to read that book and be better for it. Literate citizens can apply the skills of literacy to make the world better –writing a book, a letter to the editor, a brief, etc.

Many of us, however, describe ourselves as “visual.” There is no denying that we live in a visual world. We hear this reference almost every day. However, where in our system of education do we prepare students to be visually literate?—to look carefully and critically at the world around them, to draw meaningful conclusions based on their observations, and to apply the skills inherent in visual literacy to make the world a better place. Visual literacy and technological literacy are interchangeable. Our lives are shaped each day by the visual and technological aspects of our world—how the world looks and how the world works. Therefore, if schools are

to prepare students to live responsibly in the world, education must foster those skills inherent in visual and technological literacy.

The National Design Museum is the only museum in the United States devoted exclusively to exploring the impact of design on our daily lives. For over ten years, the Museum's award-winning design education programs have provided school audiences with opportunities to work directly with design professionals, encouraging young people to see themselves as designers in their own right by engaging them in the design process and technology is inherent in that process.

Program participants learn how design shapes and affects their daily life experiences—the spaces in which they live, work and play, the objects, tools and machines they use, and the graphic and media messages they confront and the technologies used to convey them. Museum programs give K-12 students and educators access to the dynamic world of creativity, vision, innovation, and opportunity represented in design—architecture, graphics, industrial, environmental, fashion, and media design. The Museum's educational programs serve as a laboratory where we explore the potential for design education across the K-12 curriculum by bringing educators and designers together as collaborators. Exhibition tours, workshops, and design studios invite participants to make things that work and that serve a purpose. This is a powerful experience that is all too rare in education today.

Museum visitors were invited into the mind of the industrial designer Henry Dreyfuss when we hosted an exhibition of his work several years ago. Perhaps you are not familiar with his name, but you are certainly familiar with his work—the round Honeywell thermostat, the Polaroid camera, The 20th Century Limited, John Deere tractors, and, less known, the Convair, his flying car. Henry Dreyfuss' archives are part of the Museum's collections and we featured them on a poster that explored “What is Design?” for school audiences. The poster shared the sketches, models, and prototypes from the Model 500 phone that Dreyfuss designed for Bell Telephone Laboratories. Like all of our school programs, the poster invited students to bridge the Museum's resources with their own daily life experiences and to apply design to improving how their world looks and how their world works.

International models for “best practices” in design education are featured each summer when the Museum invites designers and educators from across the country to participate in Summer Design Institute. In 1995, our theme was “Technology and Education.” We defined “technology” through a word association survey that we conducted with all Institute participants. The words that made up our collective definition reflected the huge scope of technology—“tools, innovation, speed, robotics, 21st century, beauty, adventure, extensions of the senses...” Institute workshops invited educators to understand technology through direct experience with the goal of inspiring them to share their experiences with their students. They made musical instruments, clocks, and wind- powered vehicles. They studied video production and, through a kite design workshop, became engaged in the physics of flight. They celebrated R. Buckminster Fuller's 100th birthday and were introduced to his monumental ideas that influenced our understanding of how we live on this earth in the most profound sense. Institute participants learned to recognize that defining the problem to be solved or the need to be addressed is the

foundation for understanding how to use technology (in the broad sense) appropriately, as a means to an end.

Just as putting a piano in every classroom does not constitute music education, a computer in every classroom does not constitute technology education. We have an exciting opportunity to work together and with the best educators to develop the potential for design and technology education across the school curriculum. It is thrilling to be part of this discussion and The National Design Museum's Education Department is eager to become a partner with many of you to shape our words into action.