

Bulletin of Science, Technology & Society

<http://bst.sagepub.com>

The Excluded Muses and Social Responsibility in Science Centers

John R. Hensley

Bulletin of Science Technology Society 1991; 11; 78

DOI: 10.1177/027046769101100202

The online version of this article can be found at:

<http://bst.sagepub.com>

Published by:

 SAGE Publications

<http://www.sagepublications.com>

On behalf of:

[National Association for Science, Technology & Society](#)

Additional services and information for *Bulletin of Science, Technology & Society* can be found at:

Email Alerts: <http://bst.sagepub.com/cgi/alerts>

Subscriptions: <http://bst.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

THE EXCLUDED MUSES AND SOCIAL RESPONSIBILITY IN SCIENCE CENTERS

John R. Hensley

Many museum professionals are uncertain of the museum's place in society today. Others are more confident of the path to take, or at least of the road that "their" particular kind of institution should follow. The majority who work in science centers are quite sure of their role: "attacking the problem of science illiteracy by educating the general public about science and technology." In contemporary science centers this role is acted in the three scenarios of "showplace for the idea of technological progress, 'value free' playground for scientific exploration ... [and] lively forum for learning, controversy and the search for solutions."⁽¹⁾ Nevertheless, science centers are criticized by some who work in them, by outside professional and academic observers, and by concerned constituents for failing to address serious moral and ethical issues. In addition, many find fault with science centers for ignoring the psychological or spiritual aspects of human existence within the context of science and technology.

There are many reasons for the status quo in science centers, including the desire to obtain corporate funding; the reluctance felt by trustees and administrators to change established programs and exhibits; the difficulty of dealing with issues that arouse feelings of inadequacy, fear and anger; and the wish to present science and technology in their best light to overcome bias and to squash stereotypical views inculcated in the media.⁽²⁾

The fundamental reason, however, is that science centers are rooted in the natural sciences, which are neither concerned with human nature, activities and products, nor with the disciplines which strive to understand these things.⁽³⁾ Consequently, science centers remain unaware, or choose to ignore the themes, methods and content of the humanities and many of the social sciences.

Ironically, science centers exclude the muses most likely to inspire exhibits and programs capable of dealing with controversy, the public's concern over ethics and their questions about their places as individuals in this complex "technological age."

This paper examines why science centers have given the humanities and social sciences short shrift and outlines why parts of both should be integrated in exhibits and programs.

Science Literacy

Science centers exist primarily to enhance the public's "science literacy," which has been defined in various ways. One definition identifies particular knowledge and skills required, such as understanding the norms of science, knowledge of major scientific theories and principles, and awareness of science and technology's impact on society. Other ways the phrase has been described include the abilities "to apply scientific knowledge to everyday life" and "critically comprehend an article in a newspaper or magazine on a scientific or technological topic."⁽⁴⁾

The social significance of science literacy has been outlined in numerous ways as well, including increasing national productivity, creating a technically skilled work force, and fomenting public support for science. Educating the public in ways that enable the "average person" to make informed decisions about public policies with science and technology components has also been discussed in terms of science literacy.

A good argument can be made for the effectiveness of the science center approach in communicating facts and concepts of science and technology, as far as that

goes. But science centers have generally failed to move beyond these to address the problems and concerns that are inextricably linked with science and technology. This failure concerns some in leadership roles in science centers. For example, Alice Carnes, executive director of the Wilamette Science and Technology Center, voiced her criticism when she wrote:

What are [science centers] doing about issues, controversy, choice, and advocacy? The answer is ... simply, not much.⁽⁵⁾

This concern, and since she could perceive no change in the immediate future, left Carnes with "a troubled mind, uncertain about the future of institutions that by and large fail to address central contemporary questions."⁽⁶⁾

Carnes' trouble with the science center approach is justified, since the failure to address questions is a failure to accomplish the science center mission. How can individuals be expected to formulate reasonable opinions, assess risks, and help make hard decisions through political action unless they are educated in, or at least exposed to, the social, cultural and ethical as well as the factual, conceptual and interpretive aspects of science and technology? For science centers to favor facts and concepts over questions and ethics is comparable to a teacher of English focusing on verbs and nouns and completely ignoring adverbs and adjectives. And, a person who is ignorant of the societal and ethical facets of science can no more be considered science literate than a person who speaks, writes and thinks using only nouns and verbs can be thought of as literate in the general sense.

Science Centers and the Social Sciences

Science centers concentrate on communicating facts and concepts from the natural sciences. The descriptive social sciences, such as archaeology, sociology and anthropology, are sometimes included but usually made a low priority. Two of the analytic social sciences, law and political science, are utterly ignored. The three analytic social sciences that do receive some attention are psychology, economics and education.

Psychology is usually presented in easily exhibited ways that have a basis in the material world. Perception halls are one of the commoner varieties of this kind of treatment. Economics is occasionally dealt with due to its close ties, as an aspect of social behavior if not a field of study, to science and technology. Education is not

featured as a subject, but science center educators are well-versed in pedagogical methods and their research is sophisticated and often innovative. They are, however, grounded in science education and usually discount the validity of the social sciences.

This attitude toward the social sciences is common in Western culture, which generally approves of the natural sciences but labels the social sciences as dubious fields with little social utility. The social sciences are considered, at best, "soft" sciences and are given even that classification only as a courtesy or for comparative purposes. The social sciences are associated with the activities of groups of interested persons, mostly intellectuals, rather than with the material world; it is this association, according to science historian J.D. Bernal, which has prevented the social sciences from acquiring the respected status, independence and power of the natural sciences. Bernal succinctly summarized how Western culture has viewed the social sciences when he wrote:

... most social science is merely the putting of the current practice of the trades and professions into learned language ... They are essentially discursive and classificatory and, in modern times they have added measurement in its statistical form, they still lack adequately designed and controlled experiments -- the test of practice in application -- that established the natural sciences on a firm material basis from the seventeenth century onwards. In common language, the social sciences are fine talk, but they don't work ... Social scientists, however impressive and ornamental, are not yet as indispensable in the capitalist world as chemists and engineers.⁽⁷⁾

This attitude is unfortunate; it is unproductive for society in general and science centers in particular to reject the social sciences on the grounds that they are not established on a firm material basis. Instead, science centers should put the social scientists to work by asking them to translate their learned language into speech and action that have a direct application in exhibits and programs. After all, it is social science that strives to describe our society and the underlying relations determining behavior, not natural science. As Allan Bloom put it in his book *The Closing of the American Mind*, " ... man, to be grasped, needs something the natural sciences cannot provide. Man is the problem, and we live with various stratagems for not facing it."⁽⁸⁾

The science center emphasis on the material world is one such strategem which should be rejected. This does not require the abandonment of the natural sciences or any of the now traditional methods and subjects science centers embrace. It does, however, require a change in the science center philosophy; science centers must begin to care about the social sciences because their constituents want and need to know more than can be encompassed with the scientific method.

Never mind that social science results are nebulous, difficult to reproduce and harder to apply -- the public will assimilate only so many facts and concepts of this kind anyway. What they can learn from the social sciences instead is that science and technology are not "value free," or neutral, and that scientific and technical decisions, which they can help make, have cultural and social ramifications.

Science Centers and the Humanities

The social sciences are granted the title "science" because they strive to emulate natural science. In fact, the social sciences developed as a response to the ejection of humanity, or at least the "residue of man extracted ... from nature, and hence from the purview of natural science" in the late eighteenth century.⁽⁹⁾

Social scientists have ever since worked to make their endeavors truly scientific -- to prove themselves worthy by satisfying natural science's cold standards of proof, successful prediction and practical use. Unlike social science, the other reaction to natural science's ejection of that part of humanity not of the body, the humanities did not embrace the natural sciences as a role model. Instead, the humanities set up as separate from both natural science and social science and began the herculean task of interpreting the meaning of human life, rather than merely describing society and the physical world.

If science centers wish to reform, they must admit that desire, egotism, greed, genius, dread, compassion, prejudice, faith, hate, and love exist. Moreover, they should concede that individual human beings, caught up as they are in society, culture, the economy, and the great abstractions of the material world, are who drive science and technology. The best way for science centers to learn this and bring such ideas before their constituents is to use humanities scholars to teach ways to choose and advocate the moral, human use of the increased knowledge and power gained through science and technology.

In practical terms, this will help ensure that science centers are not used as tools to produce irresponsible scientists, engineers and citizens who cannot recognize and appreciate the far-reaching impact of science and technology on individual lives. In addition to inculcating a sense of wonder and providing opportunities for exploring and learning how to control the material world, science centers can help their visitors learn the relationship of science and technology to our spiritual, or psychological, world.

The Muses, Exhibits and Education

Science Centers occasionally present special programs that feature humanities and social science themes and interpretations. These are, however, usually special programs outside the mainstream of what the science center does -- exhibits and education programs.⁽¹⁰⁾ More should be done to integrate the humanities and social sciences with these "bread and butter" science center activities.

Exhibits and education programs are common museum functions, but science centers are not museums in the traditional sense. They are "contemporary, participatory, informal education instruments rather than historic, 'hands off' repositories of artifacts." They offer the public opportunities to learn in a "semi-random web of experiences, facts, lessons, and impressions that result in an unstructured and usually undirected accumulation of knowledge."⁽¹¹⁾ The exhibit techniques used in science centers focus on participatory, interactive experiences that stress action, excitement and fun.

These kinds of exhibits work well in communicating basic facts and concepts from natural science, but not so well with humanities and social science subjects. The kinds of exhibits that do lend themselves to imparting knowledge from these disciplines -- which are structured, less participatory and artifact-rich -- are largely scorned by science centers because they are considered less exciting and too closely associated with a "stuffy" image of museums.

No reasonable argument can be put forth absolutely condemning attractively designed exhibits that have visitor participation as a central part of their format. Nevertheless, it is difficult to present the problems and challenges facing today's society and to furnish information the public can use by giving them access to "fun" exhibits exclusively. Structured exhibits and collections have their places in science centers, and

