Architecture and Public Science Communication: the role of aesthetics and design in science and technology museums

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There are several reasons ranging from the people and experts involved in the design process of a science and technology museum, to the design proposal itself, that frequently leave aside important values that should be considered while seeking to bridge the gap between lay public and scientific knowledge. After all, the museum’s design is an interdisciplinary process that requires multiple actors and perspectives.

The next few paragraphs suggest a multidisciplinary approach towards the planning and design of science and technology museums. The collaboration of scientists, architects, and the public itself, must be kept in mind as an asset to communicate scientific knowledge and promote public engagement.

The first step is to envision the museum as an alternative medium to communicate science. The museum is the result of a creative and scientific process that oscillates between abstract logics and concrete conditions. This process allows different layers of information, history, culture, needs, and functions to merge into a materialized space that dialogues with its context and users. Therefore, it becomes the ideal target to propose it as a medium for science communication.

The following diagram, derived from the graphic representation of the classical canonical account, proposes a multi-directional model that allows and encourages scientists, journalist, other mediators, and the public, to constantly work together in search of new strategies to communicate science.

The challenge rests on creating a place that delivers scientific discourse through forms, spaces, materials, and connections that will engage the public into a memorable experience. They key word is the term “place”. A place brings together the physical space and events...
through time. According to Yi Fu Tuan, it embraces the layers of shaped collective memories, of culture, stability, and permanence until it becomes essential to a person’s identity; it is where emotional ties are created. He points out three important aspects of architecture: man-made space can refine human feeling and perception, architectural space can define sensations and render them vividly, and that architecture “teaches”.

The symbols and forms that are created become keys to comprehend reality. The building’s enclosure or exposure, verticality and horizontality, mass, volume, light, colours and spaces are features to which our bodies respond. The built environment, like language, has the power to define and refine sensibility. Having said this, it is important to explore three values of spatial design that could enhance the museums capability to communicate scientific knowledge and improve the public’s understanding of science: legibility, appropriation, and accessibility.

Kevin Lynch, in The Image of the City, defines legibility as the way in which space is arranged and therefore perceived by its users, open to new possibilities, capable of adapting to the needs of time and culture. Legibility is not only to be found in the city and open public spaces; it can be addressed in a variety of ways, including museums and science centres. It is important for science museums to provide orientation through its arrangement and design allowing visitors to understand the interacting possibilities between exhibits and spaces.

As Lynch mentions, it is essential to acknowledge that the surprise or labyrinthine element adds value to the environment in the form of enjoyment, interest, and unique understanding of space. These values are also addressed in the contemporary definition that T.W. Burns proposes on scientific communication: the use of skills, means, activities, and dialogues adapted to produce one or more of the following responses towards science: Awareness, Enjoyment, Interest, Opinion-forming and Understanding. Every intermediate step in the visitors’ experience is crucial in order to motivate them to make the choice to continue to invest time and attention.

The second value is appropriation. Enric Pol defines it as the intrinsic process of human development, through which the person apprehends an experience through the immediate context of reality giving meaning to space. The process of appropriation results in identity forming and place attachment; where affect, emotions, and feelings are created and associated with a specific place. Furthermore, the conjunction of two apparently opposite values: stability and change, foster the process of appropriation allowing a person to become at the same time sensitive to scientific history and open to new discoveries.

Architectonically speaking, stability is represented by the permanent space; it symbolizes the rooted and accumulated memories. These spaces are responsible of producing the long term identity and cultural values on societies. They show the sure and solid progress in the mastery of nature. On the other hand, change is represented by the ephemeral space, made up by reversible relationships, unstable links, lightweight structures and fragile presences. This space represents the changing values of society; it gives room to new theories and discussion spaces.

The third value is accessibility, referring to the extent to which a place allows its users to enter, use, and walk around, regardless of any physical, sensory or mental impediment. In the last few years, accessibility has started to also address the social and cultural implications. Accessibility is closely related to inclusion; the practice where different groups of individuals
having different backgrounds such as race, sex, origin, and identity, are welcomed and equal. The process of inclusion facilitates the creation of a sense of belonging; feeling respected and valued, it allows the creation of common ground.

No matter the visitor’s background and actual knowledge he/she should be able to become engaged in each of the museum’s spaces. Elements such as ramps, recognizable entrances, seating, wide corridors, and transportation will make the museum physically accessible. Images, displays, audio, and visual media in different languages will allow users to understand information regardless age, knowledge, sex or ethnicity. The diversity of graphics and ways to present information in each space will allow the visitor to choose and understand in his own specific way.

The previously discussed values of design intend to create an emotional relationship between the users and the museum with the aim of establishing it as a place. There is a final aspect regarding active participation in the museum that should be addressed to consolidate the design process. Public engagement should be fostered from the early stages of the planning and design. An early contact with the public’s expectations and current scientific knowledge will lead to a more conscious and responsible outcome. Moreover, the science and technology museum must symbolize a process of continuous search and understanding. The museum should be thought of as a building that will remain in a state of constant modification while discussing new research and state of the art discoveries. Keeping the public involved in this process will enhance the process of appropriation and identity forming.

These are some of the common values that exist between spatial design and public science communication; our responsibility is to continue exploring how these relationships and other elements can become assets of science and technology museums, engaging its public and promoting the public understanding of science.

Bibliography


