

Tropical Green: Practices of Sustainable Exhibition Design in Taiwan

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In 2010, the National Taiwan Museum co-curated an exhibition with Shihtzu Township Indigenous Museum in Pingtung County, and it was my first time to co-work with their staff and local workers to realize an exhibition in a community museum. I was shocked to learn that how limited resource and how much challenge a community museum in a rural area had to create an exhibition. Taking National Taiwan Museum as an example, the budget to create an exhibition is about 10 to 30 times than that of a community museum, not to mention researchers and valuable objects that the Museum can devote to an exhibition, and skilled workers and professional shops in the city. This experience became a turning point for me to re-think about exhibition planning and design. If we can extend the life span of a museum exhibition and share its values either as a whole package, as parts or as a design concept, with community museums, it will increase the efficiency of materials and the accessibility of the Museum. The purpose of this paper is to elaborate the exhibition design approaches that the Museum applies to make exhibitions sustainable.

Unlike the exhibition design for arts that provides proper space and background for art works, the design for natural history exhibitions usually takes parts in interpreting exhibition content by creating specific atmosphere that fits the exhibition themes, using graphics and text to deliver knowledge, developing moving images to tell stories and applying hands-on devices to engage visitors and to improve their understanding of the content. Therefore, exhibitions, especially temporary exhibitions, which normally lasts for 3-6 months, are often considered one of the most material, energy and human power consuming projects.

To incorporate the concept of sustainable development, we set Reuse, Reduce, Recycle and Non-toxic as the primary design principles for temporary exhibitions. In addition, we also have a goal to share the Museum's exhibition resources with museums, especially community museums, by touring our temporary exhibitions and sharing exhibition furniture.

Priority principle: reuse

(1) Reusable exhibitions

To make a reusable exhibition, it is critical to keep the needs of potential hosts in mind. A quality exhibition can encourage potential hosts' motivation to hire it, and then the exhibition will have a chance to extend its lifespan. We find that a popular touring exhibition normally is content and visually attractive, composes individual exhibit unites that can be arranged flexibly according the space, has easy-maintained micro-environment showcases so that the hosts do not have to worry too much for preventive conservation of objects. Also, to meet the needs of potential hosts, the Museum creates 3 sizes of temporary exhibitions: Large (more than 700 M²), Medium size (about 350 M²), and Small size (about 160 M²).

(2) Reusable exhibit furniture:

To increase the opportunities to reuse exhibition furniture, we open the data of retired showcases that are still in good condition, for community museums to loan

or to request the furniture after the end of an exhibition's tour. For most of community museums, there are only two staff members working on museum operation some local workers who usually have limited experience in fabricating exhibition. Therefore, designing exhibition furniture that can be moved and installed with less skills and human power will increase the motivation to reuse the furniture. Furniture parts, such as acrylic and finishing materials, also needs to be obtainable in nearby shops.

(3) Using "left overs" of previous exhibition

Clever design can help to make good use of second hand furniture or materials and reduce wastes. When hiring an exhibition design studio for a new project, the Museum can set a rule to use a certain percentage the furniture or materials of the pervious exhibition.

Second principle: reduce

(1) reduce materials:

Reducing the quantity of exhibitions by extending the exhibit time period of each exhibition. It helps to reduce the material consumption and wastes directly. In addition, the budget saved can be put to increase exhibition quality. Instead of building walls, building independent and freestanding exhibits can create more open and free space. It also can increase the flexibility to re-arrange exhibits to fit in various venues. Breaking down printing graphics into smaller ones will reduce the quantity of printing materials and increase the fun of reading. Printing graphic and text on the structural materials, such as plywood, can reduce the use of plastic printing materials and glue. Using the natural surface of raw materials as finish can reduce use of paint. When touring to a venue that has no ideal space, using hanging curtains to create a suitable space is a win-win solution to maintain the quality of exhibition as well as to reduce the cost to paint or to build clean background.

(2) Reduce the use of energy:

The climate in Taiwan is normally warm and humid in most months of a year. In recent decades, the weather is becoming more and more unpredictable, such as the occurrence of record-breaking heavy rainfalls. The environmental control is an essential consideration for exhibition design. Sealing leaks of the venue is always the first thing to do. It does not only help to keep temperature and humidity stable, but also to avoid wasting energy. Darkening the environmental lighting into a minimum level is an efficient way to make exhibition showcases look bright. Using LED lighting and eco-labeled products can be energy efficient. Using light-weighted materials, such as printing graphics and text on fabric, benefits to reduce the energy and human power to transport a traveling exhibition.

The third principle: recycle

(1) use recyclable materials:

Recyclable materials, such as iron, glass and acrylic, are often used in exhibitions. However, the finish, such as printing materials of PVC or paints, often increases the difficulties to process the recycling. It will help a lot, if we can reduce the finishing materials on the surface of raw materials. Old futures or wasted parts of building, such as window frames, can also be recycled and transformed to build walls or showcases in exhibitions. It also requires the process to eliminate pests and mold to meet the requirement of museum environment.

(2) use recycled materials and products:

Recycled glass and plastic products or cardboards are also good options to use for exhibitions and its promotion materials, such as outdoor canvas.

The fourth principle: Non-toxic

To eliminate factors to cause deteriorations of objects, using acid free and non-toxic materials for showcases is a requirement. To avoid using off-gassing materials will provide healthy environment both for visitors and workers. For example, water-paints, Formaldehyde free plywood and environment friendly inks to print can reduce the toxic emission. Applying jogging or at least using screw to build structure or furniture is a better solution to avoid chemical glue. Using technologies, such as Computer Numerical Control (CNC) cutting, will reduce the air pollution for workers when dealing with complicated designs.

Taiwan is a small island nation and there are more than 500 museums in Taiwan. Among those, about a total of 221 museums have met the ICOM definition of a museum: a non-profit and permanent institution that opens to the public and has functions of research, collection, exhibition and education. There are 19 national museums and the rest are regional museums or private museums. National museums, which have better financial supports, rich collections and museum professions, has the responsibility to share their exhibition resources with community museums, which are often face the shortage of funding and exhibition experts.

To make an exhibition sustainable requires lots of efforts of design and quality control. Exhibition planning and design management are also playing key roles to make sustainable design successful. It may not be easy and could be expensive to design and fabricate sustainable exhibitions in the beginning. However, we have gradually found its benefits nowadays. By applying principles of Reuse, Reduce and Non-toxic, we prolonged the lifespan of materials, building long-term partnerships with other museums, making the Museum's objects and research more accessible through travelling exhibitions, setting standards for exhibition design and obtaining more experiences and data to improve the practice of sustainable design for the future.

On the other hand, natural history exhibitions are not only a platform to communicate with visitors about nature and environmental issues, but also they provide unique opportunities to show the ways of sustainable designs that museums or even the visitors can applied.