

Science centres in Latin America: from global to glocal

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Abstract

As in other parts of the world, science museums in Latin America have their origin in private collections, which opened up to the public in the late nineteenth or early twentieth century with the double mission of conservation and education. Although some hands-on museums appeared in the sixties, the boom of interactive science museums in the region began in the mid 80's or early 90's, a bit later than their peers in Europe and North America. These first museums were inspired on the existing models such as the Exploratorium, the Ontario Science Centre and the Cité des Sciences et L'industrie.

Due to the cultural affinity these first museums served as models, advisors and in some cases suppliers to other museums within their own countries as well as abroad. Therefore, considering the New Museology approach, based on a permanent dialogue with the context

and its potential visitors, Latin American museums have developed their own proposals, models and know-how considering the cultural backgrounds, needs and interests of their local communities, without losing the global view.

In this session we share some examples from four different countries, Claudia Aguirre presents the experience in Parque Explora Medellín-Colombia. Elaine Reynoso presents the UNAM's experience developing sciences centers with a global view in a country with a great pre-Columbian heritage. Luz Lindergaard offers an account of the evolution of the Museo Interactivo Mirador, the largest science center in Chile and Martha Cambre will offer the evolution of Espacio Ciencia the science center in Uruguay.

Claudia Aguirre, Parque Explora Medellín, Colombia

In the middle of forgetfulness... A science center

Parque Explora, an interactive museum created in 2007, is on the northeast part of Medellín. This is a very deprived area, which is now surrounded by the main regional university, the Botanical Garden, an amusement park and a public square mostly visited by students and neighbors. This cultural pole has been conceived as an urban integrated space, aimed at the cultural and touristic development of the city. The Medellín's more recent Mayors have considered education, science and culture as determinant factors of the city's future, that's why the park has been created and has developed social projects for vulnerable population of the zone.

One of the basic questions, after the finalization of the project, is how to reach sustainability of such an institution in a city with a loud violence history, only 2'000.000 inhabitants, no habits of visiting museums and even less sciences museums, and with slow raising cultural tourism. The key, as it was discussed in a recent ASTC meeting¹, *Born of Place: The Key to Institutional Sustainability*, a cultural institution's success depends on its ability to define, understand, and root itself in its **community**.

The team of Parque Explora understand its work as a set of actions directed to different audiences, seeking inclusion and the formation of critical citizenship to discuss

¹ October 14th, 2012 - Posted in ASTC News, Annual Conference, Featured by Larry Hoffer. Participants: Don Weinreich, Ennead Architects; Sarah George, executive director, Natural History Museum of Utah; and Eric Siegel, director/chief content officer, New York Hall of Science.

our thematic proposals. This ongoing reflection permeates all of the programs and is considered as a cornerstone, in the past, present and future development.

But after this consciousness, a strategy must be developed. That's why it has been consolidated a *social management* component as an integrated area of the Park's Educational and Content Direction.

The four principal stages that were considered like must be the road to achieve social and public appropriation are: Interest – Confidence – Participation – Multiplication. And the means to reach this goal are: the model of mediation, the outreach program (Exploramovil) and the constant feedback obtained through the evaluation.

The model of mediation: *Explora* have chosen a dialogic model, closer to the true principles of appropriation than a deficit model with greater emphasis on cognitive contents. A training school for mediators was designed, that has improved with time. Those mediators – called *explorers*- are young university students who have been trained in each exhibition subject matter and in the role they have to fulfill in each space.

The Outreach program: There are many reasons why many people cannot get to the Science Center. For all those situations (lack of resources, invisible borders, violence, distance) the Science Center try to move forward and push away museum's boundaries

Evaluation: The evaluation studies in Parque Explora are made to generate systematic methodologies for approaching and meeting diverse needs, interests, perceptions, opinions, problems of those communities that are audiences for diverse programs. Although education in museums has generated significant academic production, it is also true that much has been based on Anglo-Saxon and European contexts. For the Latin American case, which in recent years is being more proactive, the trend is to think about the museum as an educational forum, as a scenario in which citizens find stimuli and experiences that enable them to strengthen their scientific and citizen skills. In Colombia, the average schooling is of around 7.8² years. This imposes a challenge and a demand when proposing policies, strategies and actions that shape a clear –but still **informal**- educational program relevant to the local context.

As actors of the *Social Appropriation of Knowledge*, and being committed to becoming a “science broker” (Meyer, 2010) rather than a dispenser of contents, museums

² Data obtained from the Acnur, on information provided by the DANE for the year 2003.

must do the exercise to meet their public, contextualize their knowledge and build experiences in which communities feel interpreted.

In a city like Medellin, in a context such as Moravia, this strategy is allowing us to succeed in establishing trust ties with a community that can found opportunities for social development in processes of public appropriation of knowledge

Martha Cambre, Espacio Ciencia-LATU Montevideo, Uruguay

The Technological Laboratory of Uruguay (LATU) is a public non-governmental organization created in 1965 as an analysis and testing laboratory. In the early nineties LATU ventured into new areas beyond its core business looking to offer cutting-edge services to our society. (www.latu.org.uy)

Uruguay is a small country; the official language is Spanish, which is spoken by the entire population. Its ethnic composition is 87% European descent, 9% African descent, 3% native ancestry, and 1% belongs to other ethnic groups (Arocena, 2007). This characteristic has marked in our society a deep relationship with European culture. The European influence can be found in our Constitution, laws, commercial activities, education and cultural models since the XIX century and were almost naturally implemented and integrated in our society.

Within this context in 1992 arises the idea of creating the first interactive science center in Uruguay impulse by LATU's president who came from France inspired by La Cité des Sciences et de l'industrie. The aim was contribute with the educational system through a non-formal education to promote the scientist knowledge, whose central focus was the interaction³ and where the visitors feel protagonist.

Espacio Ciencia opens in July 1995 during the celebration of LATU's 30th anniversary as a temporary exhibition in one of LATU's Park buildings.

In the early nineties interactive science center concept was almost unknown in our society. Uruguay had not until 2011 museum studies courses at the University, so at that moment there were no human resources with academic background in museums and much less in interactive exhibitions. The initial team was essentially formed by LATU technical staff with expertise in engineering, quality implementation services and managing. In the

³ Understanding the interaction as a multidimensional concept (Serrat, Nuria, 2007)

third edition a shift in the direction gave a new perspective to the museum proposal integrating art, science and design, this change was essential for Espacio Ciencia's identity.

In 1998 LATU decides to build a special venue dedicated to the science center in the LATU's Park, due to the impact in the society. The new building was inaugurated in July 1999 and allows developing bigger and permanent exhibitions.

From the beginning the team dedicated to the museum was small, consisting mostly of temporary staff. Although this features, the inclusion of people with educational studies was a priority. So the steps follow to create a museum's proposal with a quality educational content has been an almost self-learning process. It was extremely helpful the LATU's experience in managing and its commitment to quality and service excellence. This institutional policy was essential to find the way to develop a project that meets quality standards despite not having human resources with specific training in museological issues.

For the reasons previously mentioned, in the early years external advice and successful experiences from Europe and USA have capital influence in Espacio Ciencia. Most of physics' exhibits were design based on the Exploratorium's Cookbooks. In 1998 an agreement was signed with La Cité des Sciences et d'la Industrie to manufacture in Uruguay two exhibits from La Cité des Enfants. One of them, the Anthill was customized by our design team for your project with the consent of La Cité.

Despite the external influence, the design of the permanent project was the starting point for the production of local developments. Our proposal has evolved throughout time, consolidated its role in the Uruguayan society, earning a place and recognized name for its quality and innovative proposal. Over the years as certain structures and services were consolidated, new local developments were naturally giving.

It is important to remark that Espacio Ciencia has always differentiated by the quality of visitor attention and care of its proposal. Fact not very common in our country in museum offers. This was based on a team of young guides, college students who are specially trained. The training program has been improving over time, as there is no similar reference in our country.

So our museum has created its identity based on the premise that the best form to impulse the knowledge appropriation in the society is creating places that respect the local idiosyncrasies, trying global issues without losing the local view.

Luz Lindegaard, Museo Interactivo Mirador, Santiago de Chile- Chile

At the end of the word... The MIM

The Museo Interactivo Mirador (MIM), started out as a government project. It depends on the New Times Foundation, directed by the Nation's First Lady or her representative. MIM opened for general public in March 2000.

This museum comes from a personal initiative of the wife of the President in office between 1994 and 2000 in Chile, who considered MIM as her personal legacy. To allow the continuity of MIM, she created a foundation that depends directly to the President of the Republic, and the funds necessary for its exercise, came from the Ministry of Education, who brings until today with 70% of its annual budget.

This home has been given a special uniqueness, because every time its changes a government in the country, changes its Executive Director, which is directly appointed by the president of the Republic and is considered a trust position. So, the mission and vision of MIM change also every four years, as well as their general strategic planning. (http://www.mim.cl/mision-vision-valores/prontus_mim/)

When MIM opened to the public, half of their exhibits were "homemade" and the rest imported from the Exploratorium and European suppliers like other science centers in Latin America. It was the first museum of this size conceived in the country, hence its beginnings in "copied" most of its exhibits as well as their management model.

In the beginning the model of public assistance, and guide training was left to Papalote of Mexico. Then we developed our own model of visitor care that included our idiosyncrasy and currently we have our own program especially designed for professionals from the Board of Education to train our staff in the mediation between modules and our visitors. The main objective of the mediator is to facilitate an educational MIM instance involving a degree of meaning and learning in the visitor. This is our first line of work.

The specific objectives for the group of mediators in the MIM called guides and instructors are applied on dominate, the methodology adapted by MIM called edu - entertainment, in science, art and technology, whose pillars are:

- Being an alternative non-formal education; Encourage learning to learn; Integrate learning with entertainment: Learning through play - doing - manipulating – experiencing;

Playfulness as a central factor; Stimulate the senses, curiosity, doubt and question generation, Invite interact; and awakening research interest.

Our museum works to make basic scientific concepts and principles of Sciences and its applications more approachable and more accessible to different audiences and styles of learning. The promotion of scientific literacy to a wide audience is an overall goal of the institution. Interactive games and exercises - mechanical and/or electronic – and digital animated computer experiences, audiovisual programs, workshops are designed, produced and offered to fulfill the Museum's mission. The first MIM's hall showed global scientific knowledge, but in the last four years we incorporated three important local topic, Mining because is the most important productive activity of the country (<http://www.consejominero.cl/chile-pais-minero>), Earth Sciences, with emphasis on earthquakes and building a seismic preventive culture, because our history is full of events of this nature. Chile is located on four tectonic plates (<http://www.eduacarchile.cl>), and Nutrition and Life, by the high rates of childhood obesity in the country with the negative health consequences that this problem entails (http://web.minsal.cl/estr_global_obesidad)

The second line of work is the "The MIM in your region" that since 2000 has led to all free interactive exhibits Chile attending more than 1,750,000 people. With this program we have visited more than 200 towns from north to south, including our insular land. Eastern island and Juan Fernandez Island.

The third line of work is focused on the National Training Programme for Teachers in Science and Technology. Our goal is to deliver content and tools for teachers to implement interactive teaching methodologies in the classroom. Since the creation of this program in 2003, we are attended more than 8.000 teachers in the 15 regions that our country is divided.

Elaine Reynoso Haynes, Dirección General de Divulgación de la Ciencia (DGDC), UNAM and Sociedad Mexicana para la Divulgación de la Ciencia y la Técnica (SOMEDICyT), México

Mexico is a multicultural nation with drastic economical contrasts and unequal educational opportunities. About 75% of the population lives in urban areas and 10% belongs to one of the 65 ethnic groups. Sixty different languages are spoken throughout the

territory besides Spanish. Mexico is known for its rich pre-Columbian heritage and fantastic biodiversity. To deal with these strong local elements, evaluation and constant communication with the contexts are fundamental tools for planning, developing and running science museums. Based on the experience of the Science Museum *UNIVERSUM* (www.universum.unam.mx) opened in 1992 on the campus of the National Autonomous University of Mexico (UNAM) in Mexico City, (Reynoso, 2003) developed a glocal approach for creating and running science museums and exhibitions based on the fusion of global scientific knowledge and specific characteristics of the local context such as culture, knowledge and interests of the potential visitors as well as local problems and the possible solutions science has to offer. Examples of museum projects created with this approach are presented.

In 1996 the Museum of Light opened in an XVIth century abandoned church of great historical, cultural and artistic value in the busy heart of Mexico City. This church which served religious purposes for 150 years was also the site of the signing of the Mexico's first constitution in 1824; an official gathering place for the intellectual community in the early twentieth century; a canvas for famous muralists and housed the National Newspaper Archives from 1944 to 1977. The result of this project in a site with such an impressive background was an interactive science museum which blends science, art and history around the topic of light (www.luz.unam.mx).

The travelling exhibition "the volcano: what we should know about the Popocatepetl" informs the local population about an active volcano in the densely populated area of central Mexico. It offers global scientific knowledge, local scientific research monitoring results; official advice as to what to do in case of volcanic activity or an eruption and legends and local anecdotes related to the volcano (www.universum.unam.mx/assets/pdf/expo_bajoelvolcan.pdf)

The Science Museum in the State of Chiapas is located in a region that has a dense tropical rainforest in which the archeological ruins of the great Mayan culture are imbedded. It is also the home of several ethnic groups, descendants of the Mayans, who speak very little or no Spanish. The museum portrays this cultural and biological diversity with texts in Spanish and the local languages. (www.cocytech.gob.mx/museo)

The hall “Climate change and sustainable development” of the Science Museum in the State of Morelos presents global scientific knowledge and proposals related to climate change as well as local impact, research projects and solutions. The main purpose is to convince visitors that they can and must contribute to the solution by changing their attitudes and consumer habits (Reynoso, et. al.,2008).

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