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Comment

The first kiss of science - From interactivity to dialogue

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In the Rafael Nieto Auditorium of the National Autonomous University of San Luis Potosi Mexico, few chairs are empty. The room is full of Astrophysics professors, Solid State of Matter, Elementary Particles, Fluid Mechanics, etc. It is the 49th National Congress of Physic. Today –extraordinarily- it has slip into the program an analysis round table about the new outlines in science museums in Mexico.

I repeat: popularization of science – an activity many times underestimated by THE SCIENTISTS- has slipped in one of the highest events of national SCIENCE.

It is the moment for questions and in the middle of the suit and tie crowds an individual raises, you can tell by his looks he is not a member of any academy. Great! We are lucky. It is a science congress not only invaded by science communicators, but also by citizens.

The man asks for the microphone and says: excuse me, I am not from the university, but I'm here because I like science. What you've been saying here is very interesting. I think that we need to have museums, magazines and books that talk to people about all this things of science, so because of that others too would like science… how can I tell you… for example, I remember that when I was a young man, once I kissed a girl, and the truth is I really liked kissing her, it felt really nice, then I wanted to kiss all the girls, and it's been like that ever since.. I think we have to do something, so that, everybody can have that first kiss of science… suddenly the room became quiet.

Science museums and the 20th century

To state that one of the main causes of our social uneasiness is owing to an enormous educational deficit, it's an obvious remark. One of the biggest challenges that the 20th century inherit is education. Erik Hobsbawn reminds us: *none other period of history has been more impregnated of natural sciences, neither has it depended as much on them as the 20th century. Nevertheless, not other period since the withdraw of Galileo, has felt less comfortable with them. That is the paradox current historians have to fight.*[1] That is to say, the time of the greatest discoveries of Mary Curie, Charles Darwin, Albert Einstein and Sigmund Freud, among others, has been marked by disdain and indifference toward science. But the 20th century also witness the beginning of interactive science museums, mainly in England, France, Germany, Canada and the United States. These institutions –that currently welcome more than 275 millions of people each year[2]- concentrate their pedagogical potential in the direct manipulation of reality by means of interactive modules and the stimulation of emotions, they expect to be spaces that incite to *appreciate and understand* science, as well as help to *get an opinion* about it.

In a time dominated by uncertainty, acting without thinking, superficial arguments and apathy for knowledge,[3] we need to take a second look at science museums: what do science museums have to do (what do they do), to promote immediacy, superficiality, intolerance, individualism and exclusion? What are (what should it be) the distinctive features of science museums? What would they leave in our future projects?

The role of science museums in the society

Contemporary science museums inherit those cabinets of natural history from the 16th and 17th[4] centuries, where philosophers, naturalists an other learned man reunite. Current science museums *do not*

show rarities:[5] they try to be experimental laboratories for *everybody*, no matter what age, social condition or academic background, so their visitors can see themselves stimulated to change their attitude toward science and go from "science is not form me" to "science has something to do with me"

Museums have passed from being places where the inspiration of others could be admired to ideal environments to experience inspiration, because they have seek to accomplish a notion of interactivity similar to the following equation:

Interactivity = our five senses + our mind + our affections

The goals of these museums have to do with improving the public image of science –by relating it with memorable environments and feelings- educating our ability for astonish, stimulating and directing our curiosity and sharpening our pleasure to feel, know and understand, showing us that science is a matter of citizens and generating favourable environments for intelligence, sensibility and equity.[6] Today science museums have influence on the way to govern, identity and education, as well as in the communication of science.

The role of science in science museums

During the last week of April 2006, in the city of Barcelona, Spain, it took place the *First International Course of Scientific Museology*, called by CosmoCaixa Barcelona.[7] Following are some of the ideas that came up in the conversation among the museologists from 13 different countries:[8]

- A museum should resemble as much as it can a walk in the woods. That is its priority to be memorable. *Nobody complains on visiting a wood* without understanding it. The experience in a museum should be as close as possible to that journey because of the constant amazement. A museum has to be careful not to become a bad imitation of a book, a crude copy of a park or a limited replacement of a computer.
- A museum should avoid impositions. That is its priority to be consistent. The only way to accomplish a goal is having a goal. To be consistent the museum should define its own plan to encourage knowledge, which is none other thing that a representation of reality. A museum should learn to be consistent.
- A museum should educate constantly its personnel. This is its priority to keep on working. The personnel of the museum needs to reflect on their work and learn constantly about the experiences of their colleagues. Every administrative decision, every advertising campaign, every piece of information the museum provides the visitor should be in agreement with the museological plan of the institution. Whoever runs, operate or advertise the museum should know what it is about –precisely- a museum.
- A museum should create exhibitions. That is its priority to keep on being a museum. To favour work in interdisciplinary research, conception and production of exhibitions. A good question inside a museum can become a great research out of it. And vice versa. It is important that every exhibition counts with a significant publishing production. That is its priority to transcend.
- A museum should be consistent with its linkage activities with the society. That is its priority to be reliable. Any activity that can take place outside the museum, shouldn't take place in the museum. Any element that can be in another place (a shopping centre, for example) it is preferable that it stays there.
- If a museum looks like a wood, its priority is –as in any living thing- to live on and evolve. In their condition of social institutions, museums are not static and invariable; instead they transfer continuously what happens in their environment. They are part of the historical, social and national, of the conditions, structures and identity of the societies they serve. Many times the museum collections are the representative structure of the personal and national identity. Because of that true success of a museum is measure depending on intangible goods such as: quality in the research it develops, the study, care and maintenance of its heritage and the level of reliability from the public.

21st century and science museums

No man is an island, entire of itself;
every man is a piece of the continent,
a part of the main.
John Donne

The priorities of science museums in the 21st century have to do with the construction of the future, starting with a clear dialogue with the rest of the society. Its authentic value is in the ability to collaborate in the formation of participative, informed, conscious, aware, engaged, and creative citizens, and in its efficiency in getting the citizens to think, question themselves and represent reality in a way compatible with a scientific attitude. The duty of science museums in the 21st century is to consolidate as the convergence point among the ones who *administer* science, the ones who *create* it, the ones who *pay* it, and the ones who *use* it,[9] by means of creating formation chains, cooperation among schools, universities, industries, homes, mass media, libraries, research centres, enthusiast groups, community centres, old peoples homes, etc.

In the presence of a society in need to incorporate a scientific attitude to its ensemble of customs, passions and beliefs, science museums have the duty to transform in favourable settings for that first kiss of science and to get it to last for ever. Is in this measure that we could decide how close we are and how far we want to be from the atmosphere described by that 20th century teacher who wrote the following lines: Mr. Edison says / that radio will supplant the teacher. / Already one may learn languages / by mean of Victrola records, / the moving picture will visualize / what / the radio fails to get across. / Teacher will be relegated to the backyards. / With fire-horses, / and long-haired women; / or, perhaps shown in museums. / Education will become a matter / of pressing the button. / Perhaps I can get a position / at the switchboard.[10]

Notes and references

[1] E. Hobsbawn, *Age of Extremes: the short twentieth century, 1914 – 1991*, Vintage Books Edition, U.S.A. (1994).
[2] Ecsite U.K. Newsletter nº 52 autumn 2003. Available at: <http://www.ecsiteuk.net/news/ecsite/ecsite newsletter 52 autumn 2002.pdf>.
[3] In accordance with a report by cbsnews.com from november 2005, 65% of the United States population agree with the fact that schools teach creationism instead of evolution; 37% of people prefer that they teach creationism instead of Darwin's theories.
[4] B. Zana, *History of the museums, the mediators and scientific education*, *JCOM* **4** (2005) vol. 4, available at: <http://jcom.sissa.it/archive/04/04>.
[5] E. Páramo, *Would science museums be very different if they started from a collection? Making the objects talk*, Quark n.35 January – April of 2005. Available at: <http://www.prbb.org/quark/35/035037.pdf>.
[6] Few years ago the famous english economist John Kenneth Galbraith, sentence: Long ago the difference between the rich and the poor depended on how much money they had in their pockets; today they tell them apart the kind of ideas they have on their mind.
[7] Open September 23, 2004, CosmoCaixa Barcelona receive in 2006 the award to the Best Museum in Europe, granted by European of the Years Awards.
[8] Notes from the author.
[9] J. Wagensberg, *Ideas for the impure imagination. 53 thoughts in their own substance*, Tusquets Editores. España (2006).
[10] L. Cuban, *Teachers and machines: the classroom use of technology since 1920*, Teachers College Press, U.S.A. (1986).

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