

UABDIVULGA

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"Modern science museums entertain the visitor with activities, but the explanatory exhibition panels are still essential"



As part of the cycle of seminars called "Science and its publics" organised by the Science History Centre (CEHIC) of UAB, Professor Christian Sichau was invited to speak about science museums and his experience in replicating experiments as a historiographical method. Dr. Sichau shared with UABDivulga his experience of scientific exhibitions, comparing the classic model of museums with the so-called "Science Centers", which provide activities for all audiences, as well as the innovative "School Labs", in which students can take part in avant-garde science and technology.

Dr. Christian Sichau is a physicist and science historian from the University of Oldenburg (Germany). From 2003 to 2009 he was the organiser of an exhibition on physics, geophysics and geodesy in the Deutsches Museum in Munich. In this context he has taken part in many international debates on how to gather and exhibit scientific instruments and equipment. Since

2009 he has been in charge of the development of the "experimenta" exhibition, a new scientific museum in Heilbronn (Germany).

-Why do you believe that the replication of experiments is significant for the history of science?

-I think that when studying science and how it comes about, we cannot trust texts if other possibilities exist. When you study the experiments that were conducted, by replicating these, you arrive at a point in which this historical text, the scientist's notebook, or the letters written, only cover one part of what really took place in the experiment, and that is due to two main reasons: the first is because the scientist does not need to explain insignificant things that occur in his laboratory, and the second is related to what in the history of science is known as "tacit knowledge". It involves that part of your knowledge as a scientist that is completely implicit in your way of working; you know some things like the back of your hand but you won't find them laid out or read them in a book. The easiest comparison would be to imagine cooking by only following a recipe; if you want to do it well you have to learn beyond what is in the text. And the replication of experiments must consider this knowledge that is not found in texts.

-We could say that experiencing science is what the "School Labs" offer to children and young people. Explain to us what these spaces consist of.

-A "School Lab" is a place in a research centre, or in a museum, to which schools can go one day for a few hours and a special programme is provided on a specific topic. What is most important is to motivate these students to study science. They already do it in a conventional way in school, but this way they can see what scientists and engineers are currently working on and they can discover this centre from the inside. Of course there are courses adapted to different age groups. In any case it is important to leave the school sometimes and discover what research really involves, since you can experience it yourself (even if it is on a small scale) by visiting a "School Lab".

-And can museums bring science closer to children?

-I think that there is a great variety of ways to access science and technology available to children, and exhibitions are only one possibility, but not the only one. So, why not use them? It is a good opportunity and what kids find interesting is exploring, wandering, imagining how things work, what is behind the next door...So, to become a "little explorer" of science and technology, exhibitions can play an important role.

-What type of exhibitions are put on these days?

-There is a huge variety of possibilities: we have the classic museum, as we have known for the last decades, or the new "Science Centers", particularly in Germany and other parts of Europe, following the line of the British and North American style. In recent decades, the great number of "Science Centers" that have opened in Germany says a lot about the forms of access to science and technology that are being provided to children. These centers have a greater influx of children and young people than old museums, and for this reason these have learned a lot in recent decades from the "Science Centers", understanding that children and adults can be more

active, they can participate in doing things and, for this reason, an increasing number of museums incorporate some elements of the "Science Centers". The constant increase in the number of these, every year, in more cities and regions, provides more and more opportunities to children and adults to make first contact with science and technology.

-Have these museums and centres achieved their goal?

-I think it is too early to make a judgement in that respect but, if we look at the number of visitors, it can be said that they have widely achieved their goal, especially in Germany, since they have attracted a large number of visitors. But it is very easy to think that, just entering a "Science Center", has an immediate effect on your professional career or academic training. It is a very long-term effect, meaning that it is difficult to determine if this model has been worth it or has been successful. It must be examined very carefully from a perspective in time. What is being achieved is that a greater number of children and adults are coming in contact with science, regardless of whether they want to study it further later or not, but they will have a basic understanding of science and technology, and that is good. So the increase in the number of natural science or engineering students is not the criterion that we should use to assess if science museums and "Science Centres" have been successful. It is something much more subtle; it involves a very slow process.

-Why has interactivity become the attraction of "Science Centres"?

-To a certain extent it is a reaction against old museums, that are out of date, and their objects, texts and pictures. The idea is, essentially, that the visitor feels drawn and stops at the exhibition, and doesn't wander from one side to the next. In museums we call it the "stopping power" of an interactive object. If you have to interact with an object, it is more likely that you will stop for a certain amount of time, 4 or 5 minutes, the length of the activity, which is more time than you would be looking at a glass case before then going on to the next one. In this way more attention is paid to the activity. I don't want to say that the big exhibition panels with texts in museums are boring for visitors. We know that people stop to read them; they may not read it all, but they also feel drawn by this type of information panel, as long as there are other things to do. If you are in an exhibition for 3 or 4 hours you cannot spend all those hours reading, so it is interesting to combine both trends. It can work well if the exhibition is well organised.

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