

Parallel Session 21: Science week: evaluating experiences

CAFÉ SCIENTIFIQUE MANCHESTER: SEASONING A MEAL WITH SCIENCE.

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Abstract

This paper will describe the benefits of the development of *Café Scientifique* Manchester as part of a worldwide movement. *Café Scientifique* is an informal discussion forum giving people the opportunity to gather in bars and cafés all over the world to discuss the great topics in science. The format allows individuals with a curiosity about science research to meet other people over a meal. The watchwords are informality and democracy: the professional scientist describes the issues which stimulate research in their discipline, and the predominantly amateur audience are considered as equals

Key words: informality, science, café meetings

Text

Once a month Café Muse², on Oxford Road, Manchester, becomes *Café Scientifique*. It opened in March 2003 with a discussion about “those manipulating molecules” led by Professor Helen Gleeson³. The 50-strong audience were nano-curious people from inside and outside the University. By September, working with the North West Science Alliance⁴ we hosted an all-day *Café Scientifique* at the Museum of Science and Industry⁵ for the opening of the British Association’s Science Festival⁶

My colleague, Lita Denny, Community Support Manager⁷ in the Regional Affairs Department⁸ and myself established *Café Scientifique* Manchester, but of course it was not our invention. The ‘brand’ began in 1998 when former science broadcaster Duncan Dallas, inspired by the biography of Marc Sautet, the founder of the French Café Philosophique, decided to experiment with the idea of bringing science back into café culture⁹. Dallas was not aware at this time that what he chose to call *Café Scientifique* had also begun in France with

¹ <http://www.wun.ac.uk> – part- sponsors for this paper

² <http://www.kro.co.uk/museum/index.htm>

³ http://www.cafescientifique.man.ac.uk/2003_js.htm

⁴ <http://www.ccl.ac.uk/Home/WEBNAME=ScienceAlliance>

⁵ http://www.cafescientifique.man.ac.uk/2003_js.htm

⁶ <http://www.the-ba.net/the-ba/Events/FestivalofScience/>

⁷ <http://www.man.ac.uk/community/staff.html>

⁸ <http://www.business.man.ac.uk>

⁹ Bringing science back into culture, *Nature* volume 399, 13 May 1999, page 120. Copyright 1999 Macmillan Publishers

the Bars des Sciences.¹⁰ His first café was a great success and more followed. Support from the Wellcome Trust¹¹ funded two part-time co-ordinators and helped spread the model across the country and beyond¹². Now *Café Scientifique* exists in thirty towns and cities in the UK, seventeen across Europe¹³ five in America, two in Canada, one in Brazil, one in Australia, and one in Singapore,¹⁴ see Figure. 1

At *Café Scientifique* Manchester¹⁵ (see Figure 2.) no formal ‘lecturing’ takes place, the emphasis is on developing a discussion. The purpose is relaxed communication between an expert and an involved audience who want to listen and debate, while relaxing in congenial surroundings. Topics covered during the past year include reintroducing wolves to Britain; brain disease; e-Science; genes, evolution and psychology; time psychology; levitation, and sunburnt DNA.

We identified potential benefit to the University in the areas of interdisciplinarity and public understanding. The meeting of nanotechnologists and poets, philosophers and chemists is the sort of cross-disciplinary activity which does not always happen naturally. A new route of access to the University is enabled which allows ordinary tax-payers to engage with contemporary research.

We found a venue which had the right ambience and good catering, and which, importantly, wouldn’t charge us anything. We then asked around, locally at first, to identify academics who are comfortable talking about their work to non-academics. When we had 20 ‘possibles’ we asked them a) would they speak in an open bar, using minimal aids and b) would they do it for free! A challenge, but 90% of the people we approached said YES. Stage one was complete.

Next we had to find the audience. Using every community and business e-mailing list we could find, we sent flyers to libraries, the local media, youth clubs, schools, professional groups, church clubs, the WI, ‘urban village’ web-sites, and of course to University staff and students. We asked people intending to come to confirm by phone or e-mail, so that after the first event we had a mailing list of seventy names. Now we send details of forthcoming topics and speakers, with a link to our online booking system, to everyone who has expressed an interest, creating a *Café Scientifique* network that grows monthly.

Our expert speakers can be understandably keyed up about speaking to such a broad audience, but so far all have said that the evening was stimulating and worthwhile. Afterwards presenters provide us with some follow-up details to put on our web-site along with contact details and links.

¹⁰ <http://www.bardessciences.net/une.html>

¹¹ <http://www.wellcome.ac.uk/en/1/pinpubact.html>

¹² <http://www.cafescientifique.org>

¹³ <http://www.cafescientifique.org/europe.htm>

¹⁴ <http://www.cafescientifique.org/world-links.htm>

¹⁵ <http://www.cafescientifique.man.ac.uk>

The Manchester café is of course modelled on Duncan Dallas' original¹⁶ From 6.30pm people arrive, order food and drinks and find a table the presenter then talks for about twenty minutes. There's a natural break then to allow visits to the bar and discussion of issues raised. The presenter then takes questions (in Manchester we provide slips for people who prefer not to ask direct questions) and discussion takes place for as long as it does, we finish and several people stay afterwards to talk to the speaker.

In 2004 *Café Scientifique* continues to develop. Duncan Dallas has built on an existing French model to develop Junior science cafes.¹⁷ The British Council brought together groups in Mumbai, Delhi, Chennai, Belgrade and Kuala Lumpur¹⁸ via web-based *cafés scientifiques*. In Manchester we may use Access Grid¹⁹ technology to host virtual cafes across the 18 international research-led partners in the Worldwide Universities Network²⁰, following the British Council model²¹. *Café Scientifique* Manchester has contributed to a University drive to make public engagement with science more cohesive across campus, and the building of a Public Engagement Portal²². *Café Scientifique* takes the public understanding of science and makes it comfy, convenient and tasty.

¹⁶ Café Scientifique, Duncan Dallas, Bars des Zincs Conference, Paris 2003

¹⁷ <http://www.cafe-sci.org.uk/jun.html>

¹⁸ <http://www.britishcouncil.org/science/cafesci/documents/KLCreport.doc>

¹⁹ <http://www.sve.man.ac.uk/Research/AtoZ/AccessGrid/>

²⁰ <http://www.wun.ac.uk>, see fig. 3

²¹ <http://www.britishcouncil.org/science/cafesci/videoconf.htm>

²² <http://www.business.man.ac.uk/public/>

Illustrations

Fig 1.

<http://www.cafescientifique.org>



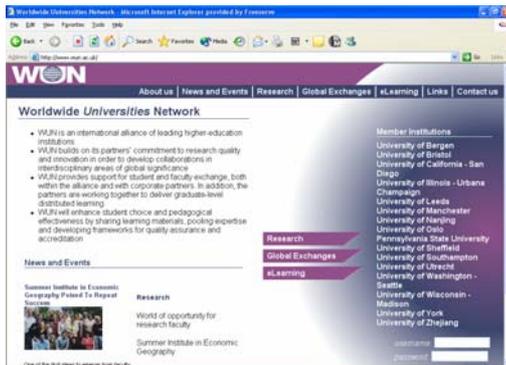
Fig.2

<http://www.cafescientifique.man.ac.uk>



Fig 3

<http://www.wun.ac.uk>



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Electronic Sources

Leeds Café Scientifique: <http://www.cafe-sci.org.uk/ideas.html>

Parallel Session 21: Science week: evaluating experiences.

**WORLDWIDE DAY IN SCIENCE –STUDENTS’ SNAPSHOT
ON THE WEB**

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Abstract

On 15 April 2004, student reporters from Australia to Spain captured events in the world of the science in their locale. The scheme worked in 2003 with eighty-one university students in Sydney, Australia, so why not pilot the effort worldwide? Students learn about the daily life of a scientist, the global reach of science, and of their own ability to tell a tale of science, one good enough for publication. The website demonstrates how non-scientists can contribute to the appreciation of science through the use of stories. An audience of high school students learns about where a career in science might take them.

Key Words: global science event, world wide web

A New Way to Engage Young People with a Career in Science?

Science is a world-wide endeavour of increasing importance, yet enrolments in science at universities are declining. Arguments about as to why – insufficient information about career paths, alienating ways in which science is taught, an overly restrictive science curriculum, or perhaps, the practice of science just does not seem sufficiently interesting to the young. Science communicators in a variety of settings – research institutes, government, industry, science centres, museums, outreach programs, universities – are labouring to dispel misconceptions and a lack of information reaching young people about science and scientific careers. What more can be done with the limited time and resources available to science communicators and their scientist collaborators?

For the past two years, development has been under way on a global activity to reveal the day-to-day charms scientific work to university students. The university students will relay what they see to an audience of high school students who are considering different career paths. The project incorporates the drama of capturing a single day’s events, the scope of the world wide web, and the allure to students of working in multi-media to tell the stories that they capture. The undertaking is designed to make the university science curriculum more engaging and more ‘relevant’ for science students. Though

being initiated with university students, the project might ultimately involve contributions from school children and scientists, accounting for their own science experiences on the project's focal day. This activity is the World-Wide Day in Science.

This paper is an invitation to science communicators to help stimulate participation in the World-Wide Day in Science. The accompanying dialogue in the conference session can address first- and second-hand accounts of experiences of students in two of this year's participants – Pompeu Fabra University's postgraduate science communication program and the University of New South Wales's undergraduates in advanced life science.

What is the World-Wide Day in Science?

Did you assign your university students to watch a scientist on 15 April 2004, becoming part of the World-Wide Day in Science? Your students would have then needed to mould that day's observations into short, appealing, multi-media stories and mount them on a website, a site that on 1 June 2004 links such observations from around the world. It is that simple.

This effort engages science students in a range of 'best practice' learning strategies – problem-based learning, use of global networks of students, and multi-media. The students get a taste of where a career in science might take them. They build the professional skills that are in demand, according to surveys of employers and recent science graduates (*eg*, by the Centre for the Study of Higher Education at the University of Melbourne) – oral and written communication, teamwork, and managerial abilities.

A local pilot, 'A day in the Life Sciences in Australia', has been successfully completed by eighty-two second-year science undergraduates at the University of New South Wales in Sydney. Students report: "The project seemed quite overwhelming at first, however it turned out to be a thoroughly enjoyable experience. " "Reflective assessments were helpful. I will have fond memories of this course." "A great experience. It really gave me a 'preview' of how things might be in the future. It also gave me a rough idea of what to expect and how to deal with teamwork at my future workplace. I will fully encourage anyone to take the course." The course coordinator states, "It was the easiest course I taught. The students did all the work." Hundreds of copies of the resulting CD-ROM have been distributed to high schools as a career guide. An online version of the students' product (*sans* video due to download times) can be seen at: www.scom.unsw.edu.au/life/index.htm.

Students engaged in the World-Wide Day in Science work much like the photographers capturing events for the book, *A Day in the Life of India*. Our multi-media format, however, permits photos and text to be accompanied by voice and video. The resulting website reveals to an audience of high school students how scientists the world over comb the wilderness for lizards, grow microbes in the laboratory, and scan the heavens.

The World-Wide Day in Science process, as a whole-class project, begins when students nominate for roles, whose duties the students need to discover

for themselves. Planners and team managers have to guide student reporters, producers, editors, and technical 'post production' staff. Basically, the reporters and producers develop multi-media stories that the editors and post production staff then tailor for addition to a local website that gets linked to the international, World-Wide Day in Science website.

The students learn how to work in teams, hierarchies, and production lines; how to handle concrete deadlines; how to communicate effectively and delegate responsibility; and how to deliver a professional product for public consumption. The challenge is daunting for some -- wrestling with unanswered e-mails, missed meetings, ignored guidelines, and a lack of preparation. For most, it is an exciting window into what a botanist, psychologist, or astrophysicist does all day. When their stories go online, all then have the opportunity to become part of a worldwide network of scientists-in-the-making, and they can share their experiences and insights.

The international pilot of a World-Wide Day in Science has been occurring February-June, 2004. Universities from Spain, the Middle East, South and North America, and Australia threw their hats in the ring (as at May 2004), with participating coordinators, lecturers and science communicators, coming from fields ranging from astrophysics and chemistry to food science and microbiology. Further participants and broader involvement are sought for 2005. Coordinators can allocate a semester to the project or just a single writing assignment. Experience in problem-based learning gives coordinators the fortitude to let the students make mistakes. Guidelines for coordinators and materials from our pilot, 2003, local 'Day in Science' are now available online at: www.science.unsw.edu.au/worldwide/wwds_index.asp.

Parallel Session 21: Science Weeks: Evaluating Experiences

WHAT IS THE IMPACT OF A SCIENCE FESTIVAL ON ITS VISITORS?

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Abstract

In order to try and understand the impact that a Science Festival has on its visitors, a detailed evaluation of Cheltenham Festival of Science was conducted in 2003. Results showed that the Festival was a success according to its visitors, who tended to be those whose existing attitude towards science was positive. However, Festival events led to positive shifts in the cognitive and affective domains of visitors. This paper summarises the results of the survey of opinions, and raises questions about how to evaluate the impact of such a diverse event.

Key Words: Science Festival, Evaluation, Impact

Context

A number of Science Festivals take place each year in the UK. Each is different, but they typically consist of a diverse range of talks, debates, demonstrations and other events brought together by focusing the activities around a specific location. Cheltenham exploded on to the Science Festival scene in 2002, directed by two UK experts in Science Communication, Professors Frank Burnet and Kathy Sykes. Their vision was to create a compact, edgy Festival with an emphasis on dialogue.

Methodology

Using interviews, questionnaires, electronic voting, observation and media tracking, data was collected from over 700 Festivalgoers as well as speakers, sponsors, science communicators and media representatives. The survey largely excluded the schools events and their visitors. A follow-up survey was also conducted 6 months after the Festival.

Results

The second Cheltenham Festival of Science took place from 4-8 June 2003. Over 13000 tickets were sold for talks, debates and other structured events,

and many more visitors took part in the free hands-on activities in the Discover Zone.

Festivalgoer Demographics

Over half of the survey respondents were over the age of 45, although all age groups were represented. The gender balance was equal, and half of Festivalgoers were from the ABC1 demographic, with significant proportions being retired, or students. Festivalgoers were found to have a higher than average level of education, and were likely to read broadsheet newspapers and listen to Radio 4.

A large majority of Festivalgoers were found to have positive opinions on Science before attending the Festival.

Festival Impact

The Festival generated a large amount of media coverage, with 27 articles in the national press, and 30 articles in the local and regional press.

Most Festivalgoers spent more than one day at the Festival, with around a quarter spending four or more days. The Festival was successful at both entertaining and educating its visitors, and it was generally felt that events were pitched at the right level scientifically – although some visitors felt that the Festival was aimed primarily at children. A significant proportion of Festivalgoers felt that their attitude towards Science had changed after attending the Festival, and all of the shifts in attitude were positive. Interestingly, results indicated that individual talks or events were seen to have educational value, while the “Festival Experience” as a whole was likely to lead to shifts in attitude towards Science.

The talks and debates were well received, with a number being sold out. The Discover Zone (which had no entry charge) was the most-visited part of the Festival, and was most popular with visitors who had not booked tickets in advance. The results also showed that this group of visitors were more likely to have a neutral or negative opinion of Science, so the Discover Zone seems a good way to encourage their engagement.

The Science Cafés were an excellent means of engaging Festivalgoers in discussion of Scientific issues in an informal and non-intimidating environment. A number of respondents who had never taken part in similar discussions said they felt comfortable getting involved in the debates. The “Evolving Art” project, where Festivalgoers coloured in the individual pixels to make up a mural, also provided a setting for impromptu discussions between Festivalgoers.

Overall, the majority of respondents said that they would be continuing to discuss the issues raised at the Festival once they had left, and a vast majority (97%) were keen to attend future Science Festivals

Conclusions

Responses to the Festival were overwhelmingly positive, and it was found to be a high quality, focused event.

The venue helped the public gain confidence in accessing Science, as both the Town Hall and Everyman Theatre were public spaces with no link to Science. Small improvements to the venues, such as air conditioning, would improve the Festival experience for visitors.

The Festival had limited success in attracting inattentive audiences, however Science Communicators felt it fared far better than some other Science Festivals. The Festival also succeeded in attracting audiences who had previously engaged in the Arts via other Cheltenham Festivals.

Members of the Science Communication community involved in the survey were unanimously impressed with the Festival.

Members of the follow-up sample had positive opinions about the Festival and Science in general. Many (79%) could recall the names of talks and debates attended, and the majority (78%) could remember discussing particular issues that were raised at the Festival afterwards. Over half of the follow-up sample (52%) said that attending the Festival had prompted them to actively seek out more information about Science, especially by buying books and using the internet.

Discussion

It is clear that the Festival was viewed as a success, and the results of the follow-up survey indicate that it motivated some visitors to become further engaged with Science. Is this, however, enough to justify the existence of Science Festivals, or would resources be more effectively spent on different Science Communication activities, for example role model schemes or media campaigns? Is a regionally focused Science Festival more or less effective than a nationwide Science Week? Before these questions can be answered, it is necessary to consider the way that the impact of different activities can be measured and compared.

Parallel Session 21: Science week: evaluating experiences

COMMUNICATING SCIENCE TO SCHOLARS THROUGH ACTIVE PARTICIPATION

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Abstract

Based on the experience of the authors in organizing activities for the Catalan scholars within the framework of the Catalan Science Week, the key factors in communicating science to scholars are presented. With the aim at fostering the interest of children in science and also at communicating basic scientific knowledge, two main events have been organized recently: earthquake and sound intensity measurements. Taking into consideration that a science event follows the scheme of a communication process, the key factors presented are classified into four categories: origin, message, channel and target audience.

Key words: Science for scholars, earthquake, sound measurement, key factors

Text

Within the framework of the Catalan Science Week, the Catalan Research Foundation (FCR) and the Departament d'Ensenyament of the Generalitat de Catalunya (DE-GC) together with other institutions such as the Institut d'Estudis Catalans (IEC), organize annually a science event aimed at fostering the interest of Catalan scholars in science and at communicating to them basic science knowledge. Recently, two main activities have been designed, planned and managed regarding earthquakes and the measurement of sound intensity.

Salta per la Ciència! (Jump for science!) was organized in order to communicate the students the basic knowledge about earthquakes, its origin, measurement and effects. The participating schools prepared its own hand-made seismographs using simple materials. The activity consisted in a simultaneous jump of all the participating scholars that could be recorded in the school seismograph and supposedly in the different official seismographs located in different parts of Catalonia. Although positive data recording is not the main objective, scholars were taught on the basic knowledge about plate tectonics, Richter and Mercalli scales, transmission of vibrations through the earth, effects of earthquakes, and so on.

The second large activity was related to the measurement of sound intensity. *Crida per la Ciència!* (Shout for Science!) consisted in gathering the participating scholars in their playground and let them shout at the same time. Sound intensity was recorded in the microphone of a PC and the data was sent to an Internet server that collected all data of the schools, made an average of counties (*comarques*) all over Catalonia and displayed them in a web page in a

map of colors depending on the intensity. Some other issues such as sound pollution (excess of music, noise in a city by vehicles, etc.), physics of sound transmission and effects of sound on the human body were incorporated as subject of the activity.

The key success factors of a science communicating activity designed for scholars were derived from the analysis of the two experiences. Taking into consideration that such activity could be considered as a communication event we have classified such factors following the scheme: (i) origin of the communication, (ii) message to transmit, (iii) channel of communication, and (iv) target audience. The origin of the communication event is based on the objectives of the organizing institutions and in the general aim of the Science week. Also a secondary issue has to be considered as it is the lack of interest in young students for scientific disciplines (in schools and later in universities) and the low proportion of scientists and researchers in the workforce. The core competencies of both institutions are science (for FCR and IEC) and schools (for DE-GC) and the synergies and complementarities of both scopes have shown great potential.

The message to transmit has to be related to the life of the students and be attractive enough to drag their interest towards the activity. Social interest is crucial. Sound and noise effects in an urban metropolis such as Barcelona are everyday issues. Sound can be measured and treated scientifically. Earthquakes are not frequent, but their impact in the media is high when they happen. Knowledge about the natural forces that drive such important phenomena can send the message that everything (in the material world) has a cause and an effect. An essential factor, regarding the message, is that its content should be part of the scholar curriculum of the student. The subject must be part of any of the disciplines during the course. This helps a lot in defining the subject and relating the information to the normal functioning of the school.

The channel is in this case the same school. Normally, in order to assure as much participation as possible the playground is the best place to conduct any activity. Time and place of the activity have to be compatible with the normal development of a school day. The materials used have to be cheap and easily available. Supporting printed material is necessary to give the basic concepts in which the activity is based. Complementary information on the Internet and other activities using web technology are recommended. Teachers play a crucial role in the process. Probably they are the most important key factor in transmitting the message to their pupils. Previous working sessions to give them information and tricks for performing the activity are highly advisable.

The target audience of course is the students. Different categories could be established depending on the age and the activity itself. Primary and secondary schools may have very different operational strategies due to the expected response by the children. The activity should be programmed to foster their active participation. An indirect target audience is the mass media. Such activities with scholars are highly appreciated by the press and proper documentation (press kit) and layout should be taken into account.

Among all science events, those involving kids are the more rewardable and interesting. Not just because the effect of such activity could be determinant in

the future scientific careers of the kids, but because their amplifying effect towards their families, relatives and friends opens up widely the public reached by the activity.

Parallel Session 21: Science week: evaluating experiences

EUROPEAN SCIENCE WEEKS: FROM EUROPEAN PERSPECTIVE TO LOCAL ACTION

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Abstract

The model of science events is diverse among European countries suggesting that each country has different objectives. Although a European perspective is necessary to align the general strategy of science awareness with the research and cultural policies, localization is a must in order to achieve the best results towards citizens. Science weeks should be organized, managed and promoted locally by local organizations that work close to the main target audiences. This implies that associations such as EUSCEA are relevant to coordinate and promote the local and national initiatives providing an added value to such events.

Key words: Science weeks, European perspective, target public, local initiatives

Text

The European Commission has launched the Science and Society Action Plan in order to bridge the gap between European science and European citizens. Among other activities, one of the main issues of the plan is supporting projects scheduled for the European Science and Technology Week (8-14 November 2004). Through its sponsorship of Science Week activities, the European Commission is determined to forge closer ties between the world of science and the lives of European citizens. One may imagine that the Science and Society Plan lays at the base of the European Research Area to assure the flow of human resources and public interest for its development. Moreover, the new kind of governance that arises from the deployment of the knowledge society asks for providing high-quality and readily understandable scientific information as well as increased access to scientific culture. Progress in science and technology can then be democratically understood, evaluated, studied and debated. Although this approach must be structured within a European perspective and based on traditional shared values of justice and solidarity, it is not fitted for action. Cultural diversity and local sensibilities cannot be programmed at the European level. Diversity in local cultures, languages, social structures, organizations, governance particularities, and so on, make it difficult to achieve the desired results using the top-down approach. European perspective is desirable but local action is essential.

Beyond every science week event lays a communication strategy. Ideally a single message should be send to a single target audience through a single channel. When you focus your target and message you have higher chances of

success. Because of the many features that intervene in the social, political and organizational environment, focusing can only be undertaken at the local level. All sets of details such as school calendar, local languages, local holidays, specific traditions, can influence the performance of science events as a communication phenomenon. As an example, it is hard for a European newspaper, radio channel, or TV to succeed because it is hardly impossible to attract public attention with a wide defocused European content. Local initiatives are much better in planning, managing, monitoring and evaluating communication events such as science weeks. The requirement by the European Commission that projects must have a European angle to qualify for EU support adds barriers to the desired outputs. Local initiatives have closer views of the needs and the attitudes of citizens than any European program may have.

A better approach to design activities fitted to specific audiences is to promote local initiatives instead of forcing the European dimension of the events. The European Science Events Association (EUSCEA) is an association of European organizations, who produce science communication events like science weeks, science days or science festivals (www.euscea.org). It gathers the interests of European organizers of science weeks and provides added value to the events through sharing experiences, maximizing resources, benchmarking and collaboration. Such association guarantees the maintenance of the cultural and local identities of European citizens.

Within the framework of EUSCEA, by the analysis of the events organized by the member organizations, one may detect the factors that make the local dimension so important. Classifying such factors following the scheme of any communication event (origin of the communication, message to transmit, channel of communication, and target audience), one may identify the following items:

- Origin: kind of organization (administration, university, foundation, association, etc.), culture of the organization, territorial dimension (local, regional, national), financial structure of the event, sponsoring entities, etc.
- Message: terminology of the event (science week, science days, science festival, science forum, etc.), subject (general or specific), scope (fun or academic), etc.
- Channel: calendar, schedule, frequency, venue of the event, format (exhibitions, shows, lectures, games, visits, excursions, workshops, Internet, etc.)
- Target audience: local culture, general public, specific targets (scholars, teachers, politicians, press members, local community, etc.)

As a conclusion, public awareness of science and technology has two approaches. First, a European perspective that provides everyone with general prospects should be undertaken by the European administration. Second, local action and associations of local (regional, national) organizers are essential to address the right message to the target audience using the best channel available.

Parallel Session 21: Science, Communication & Social Participation

THE BALEARIC ISLANDS SCIENCE FAIR: A NEW EXPERIENCE OF SCIENTIFIC POPULARISATION

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Abstract

The administration of the local government of the Balearic Islands took the initiative to organise a Science Fair for three consecutive years (2002, 2003 and 2004), featuring the participation of the region's many research centres (University, Institute of Oceanography, Meteorological Centre of the Balearic Islands, Astronomical Observatory, Museums, etc.), educational centres of all levels and various companies in the sector of technology.

Held for three days in a tented space in Palma, the Fair offered a wide range of scientific activities. Participants, students and scientists came together in their efforts to display their experiments in an educational and entertaining way, allowing visitors to actively learn and enjoy the different activities.

Prior to 2002, the mass media seldom covered matters relating to the sciences. Information of this sort was virtually always tied to the presence in the Balearic Islands of celebrities from the scientific world. The inauguration of the Fair in 2002, however, would have great impact on the media in this sense. While the event was being held, there was widespread coverage of it in the media. Today, the inclusion of scientific news pieces has become far more common in the Islands.

As a result, from the standpoint of communication, the Fair was a milestone in the Balearic Islands, thanks to which a significant step has been taken towards raising public awareness of science and increasing its presence in the mass media.

Key Words: Newspaper, Science, Fair, Young, People

Text

Background

Society has an ever-increasing need for a certain level of understanding of the new technologies and their effects on people's daily life and future. Initiatives such as *Setmanes de la Ciència* (Science Week events) and science fairs can serve as tools to spur the transmission and distribution of scientific knowledge. The Science Fair is an interactive space, a new medium for communication. Apart from being an educational mechanism, the media also play a fundamental role in the transmission of scientific knowledge, as well as establishing a scientific awareness in society.

The Science Fair is a costly initiative. Thus we are forced to weigh up its success. Is it effective to organise scientific events with the aim of increasing the curiosity, interest and scientific awareness of the society?

Method

On the initiative of the Ministry of Innovation and Energy of the local Government of the Balearic Islands, the 1st and 2nd Science Fairs (2002 and 2003) were organised and held by a commission made up of representatives from the aforementioned local Ministry, the local Ministry of Education and Culture, the University of the Balearic Islands and the Press Department.

The event featured the participation of educational centres, the University, other science and research centres in the Islands, centres from Spain's other autonomous regions that were invited to take part, as well as administrative and business centres. The educational centres prepared an interactive and didactic science project. The research groups brought to the streets a small sampling of the experiments conducted in their laboratories, and together everyone offered a group of experiments targeted at visitors of all ages, ranging from 4 years of age to 100.

The number of participants has gradually increased, with 35 the first year and 58 the second. The Fair lasted for three days, receiving 11,000 visitors the 1st day and 18,000 the second.

For nearly two years (May 2001 to April 2003), we analysed the daily news coverage relating to research, science, innovation and the information society in the press in Palma, Majorca, with a specific focus on four newspapers: *Diario de Mallorca*, *Ultima Hora*, *Diari de Balears* and *El Dia-El Mundo*. Two different time spans were compared: May 2001 to May 2002, and May 2002 to April 2003. Why such specific periods? Because the news pieces in the above-mentioned media the year before the first Science Fair were compared to those of the same papers during the year following the event's celebration.

Results

Before the first Science Fair was held, between the dates of May 2001 and May 2002, 208 news pieces specifically relating to the sciences were published. Following the first Science Fair, between May 2002 and April 2003, the number of news pieces covering these matters would ascend to 480. The second period analysed ended in April, rather than May, simply due to the fact that the second Science Fair was held a month earlier, in April 2003. Despite a one-month difference in this period, the Science, Technology and Innovation news pieces published during the second period in the *Diario de*

Mallorca, Ultima Hora, Diari de Balears and El Dia-El Mundo almost doubled in comparison with those published during the first period.

CONCLUSION

The celebration of the Science Fair has played a crucial role in increasing the Balearic Islands' mass media coverage of all matters pertaining to research, science, innovation and the information society. There are two reasons behind such increase in coverage. Firstly, the Science Fair itself has opened the doors to other science- and innovation-related events of all sorts in our Autonomous Region (with the consequential news coverage in the media). Secondly, and no less important, the celebration of an event as far-reaching as the Science Fair has awakened a growing interest in all journalists and of course in newspaper readers, as well as in radio programme listeners and television programme viewers.

Parallel Session 21: Science week: evaluating experiences.

THE CHALLENGE OF THE REGIONAL GOVERNMENT OF MADRID: THE SCIENCE OF CITIZENS

Almudena del Rosal

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Abstract

The Regional Government of the Madrid has begun a Scientific Culture and Citizen Participation Programme essentially based on two events: the Madrid Science Fair and the Madrid Science Week, each of which bring together 120,000 citizens every year.

The success of these projects lies in the meticulous planning and the creation of networks with the scientific community: educational centres, universities, museums, research centres and companies.

The main goal is to bring science and technology closer to citizens and at the same time provide tools that enable them to understand where science fits into society.

Key Words: Scientific Culture, Madrid Science Fair, Madrid Science Week

Text

SCIENTIFIC CULTURE AND CITIZEN PARTICIPATION PROGRAMME FOR THE REGION OF MADRID: www.madrimasd.org/culturacientifica

Why has the Regional Government of Madrid decided to launch a programme of Scientific Culture through the General Directorate for Universities and Research?

The answer to this question was clearly given by Philippe Busquin, European Commissioner for Research, who stated, "In a knowledge-based society, democratic governance must ensure that citizens are able to make an informed choice from the options made available to them by responsible scientific and technological progress."¹

The following aims of this programme were defined in 1999 after seminars with teachers, directors, scientific museum curators, journalists and researchers.

- **Work** in each of the events, involving assistants in the actions.
- **Create networks:** Universities, Museums, Educational Centres, Research Centres and Companies.
- Match the **efforts of the practitioners of scientific culture:** the student, the teacher, the researcher and the businessman.

- Confer and transmit passion and credibility in the management of the Scientific Culture and Citizen Participation Programme on the part of the Administration.
- **Communicate** that science is not something unintelligible, that it can be fun, appealing and interesting in everyday life.
- Attempt to **furnish citizens with the tools** to enable them to see how science fits into society.
- **Improve** access to scientific information.
- **Enhance** scientific and technological culture.

MADRID SCIENCE FAIR: www.madrimasd.org/madridporlaciencia

Over 4 days, from 10am to 8pm, at a venue covering 17,000m², 2,000 “young teachers” from 4 to 18 years of age and more than 200 researchers tirelessly showed more than 400 experiments to 122,400 visitors. *See table 1*

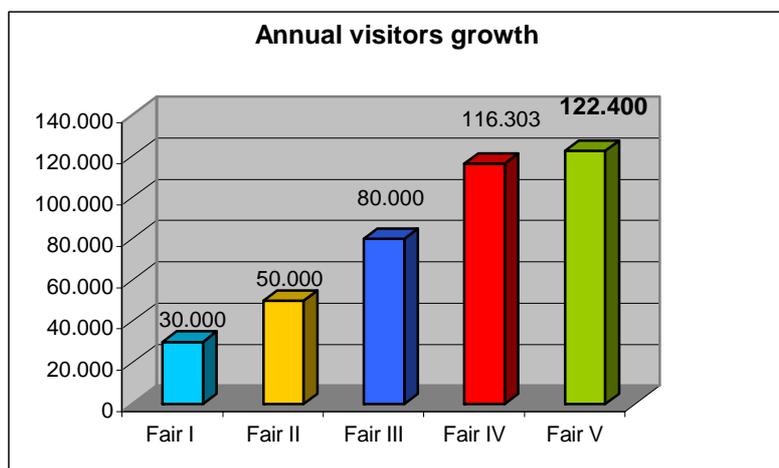


Table 1

The fair congregated all those who wanted to contribute and had something to say about science in Madrid, with a global conception that in a single week brought together all the segments of society that can impart science, all with the same goals, all together:

- 66 educational centres, from infant, primary and secondary schooling
- 18 research centres
- 10 universities
- 8 museums and scientific dissemination centres
- 5 royal societies
- 8 Councils of the Regional Government of Madrid
- 7 representatives of Public Administration

- 16 companies related to science
- 3 exhibitions
- 1 auditorium holding scientific displays, conferences and films

But the numbers do not tell the whole story. To enable science to be shown in a single physical space and providing equal conditions for young college students, university professors and scientists from renowned research centres, is almost unthinkable in a society as hierarchical as ours, yet this was the reality of the Fair with all participants doing their thing side by side one another.

MADRID SCIENCE WEEK: www.madrimasd.org/semanaciencia

While the Fair brought together the whole scientific and business community at a venue over 4 days, the Science Week showed the rich scientific/technological reserve over 14 days, opening up research projects to the Region of Madrid.

140 public and private entities coordinated by the General Directorate for Universities and Research of the Regional Government of Madrid (see table 2) organised 736 activities (see table 3); a remarkable achievement in the panorama of scientific dissemination. “Who said there was no interest in science?”

- **182** Open doors and guided tours
- **326** Round tables and conferences
- **116** Courses and seminars
- **31** Didactic itineraries and excursions
- **48** Exhibitions
- **33** Films, awards and similar activities

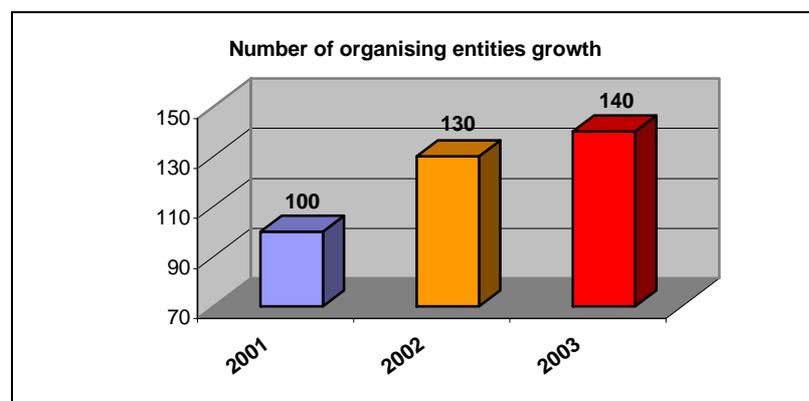


Table 2

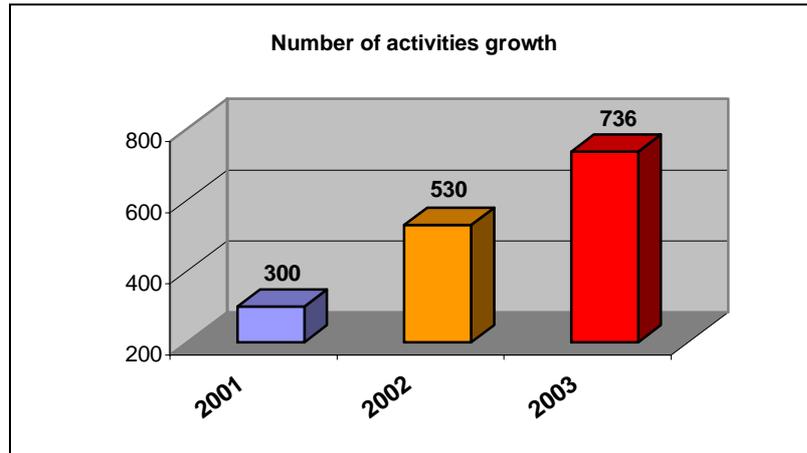


Table 3

The next Regional Research Plan (2005-2008) continues to consider the two events due to their important social impact. But the Government of Madrid considers it necessary to take a step forward and in addition to continuing to promote scientific education and culture, its objective is to draw up scientific policies that bring science closer to the citizens, strengthening the principle of responsibility and the ethical basis of scientific and technological activities.

Public Administration should take into account the social commitment to science.

The crux of the matter is getting the civil society to take part in the process of decision making, promoting full integration of women and stimulating discussion of issues regarding our future.

¹ The European Commission. Science and Society Action Plan.
http://europa.eu.int/comm/research/science-society/action-plan/action-plan_en.html

Parallel Session 21: Science Weeks: Evaluating Experiences

SCIENCE ON THE SUMMER HOLIDAY MENU

Rosalia Vargas

Ciência Viva - National Agency for Scientific and Technological Culture

Abstract

"Every summer, Ciência Viva organizes field activities for the general public, in collaboration with research institutes, universities, associations and local authorities. Astronomy in summer, Biology in summer, Geology in summer and Science in the lighthouses are now part of the Portuguese cultural agenda in July and August.

We believe these activities promote public awareness of science, providing opportunities for personal contact with science specialists and institutions in the different fields. These initiatives are free and open to all, with a focus on practical activities, providing active observation and interaction with specialists from the relevant fields. They are intensely publicized on the media (newspapers, radio, TV), bringing science, in an informal and lively way, into the citizens' holidays."

Parallel Session 21: Science Weeks: Evaluating Experiences

PUSHING SCIENCE TO THE PUBLIC IN THE STREET AT 63°N – A TEN YEARS' PERSPECTIVE

Sigmund Grimstad

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Abstract

Norwegian universities are required by law to communicate their research to the public. The Information Office of our university has a “two-tiered” approach to this task. The first step is encouraging and helping scientists with the infrastructure, the second is providing suitable arenas for the interaction between the scientists and the public.

One annual event using this approach is the one-day “Science Market” in the city centre every September since 1994. Here some 100 scientists display popularized, often hands-on activities connected to their research. As most scientists have no training in this kind of communication, the event is preceded every spring by a short introductory course, addressing the special communications skills needed. The event has annually attracted some 7000 youngsters in the age group 8–15. The concentrated, central location profiles both the scientists and the university to the community.

We will address the criteria basic to the successful performance of the event, from the inspiration of the scientists, via the practicalities of the physical settings to the co-operation with local schools. We will also look at the development of additional activities. Last year's main new effort was an outreach activity involving “bussing science” to local communities all over the county. This is also an example of getting the most out of the money and time invested for such a single day's event. In addition to making the event more cost-effective, the future depends on incentives for the scientists to participate, for instance: How may a culture among doctoral students to regard science in public as part of science itself be developed?