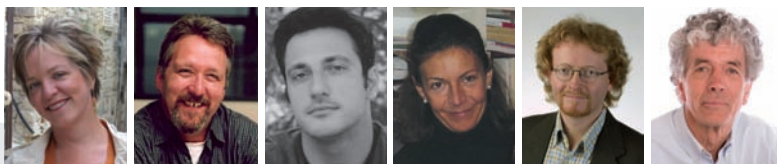




**TEN YEARS OF
SCIENCE IN SOCIETY**

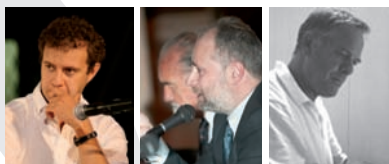
SCIENTIFIC COMMITTEE

Barbara Allen, Martin W. Bauer, Massimiano Bucchi, Massimo Mazzotti, Federico Neresini, Giuseppe Pellegrini, Mariachiara Tallacchini, Giuseppe Testa, Brian Trench



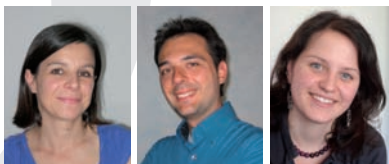
STEERING COMMITTEE

Massimiano Bucchi, Federico Neresini, Giuseppe Pellegrini



STAFF

Patrizia Cazzaro, Stefano Corsi, Chiara Segafredo



RESEARCH ASSOCIATES

Alessandra Allegrini, Lorenzo Beltrame, Anna Buccio, Giulia Cegalin, Andrea Lorenzet, Barbara Saracino, Alessandra Zambonin



Cura editoriale: Observa Science in Society

Redazione: Stefano Corsi, Luisa Fattori e Andrea Lorenzet

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Fotografie di Stefano Corsi (pag. 13), Simone Cuomo (pag. 11), Rudi Marinello (pag. 10), Chiara Segafredo (pag. 15).

Photographs by Stefano Corsi (p. 13), Simone Cuomo (p. 11), Rudi Marinello (p. 10), Chiara Segafredo (p. 15).



Dieci anni di impegno per lo studio della scienza nella società

Observa Science in Society è un centro di ricerca indipendente, senza fini di lucro, legalmente riconosciuto, che promuove la riflessione e il dibattito sulle interazioni tra scienza e società, favorendo il dialogo tra ricercatori, policy makers e cittadini.

Observa conduce **ricerche** e realizza **pubblicazioni** sul rapporto tra scienza e società, organizza **iniziative** che coinvolgono i cittadini su tematiche scientifico-tecnologiche.

Observa fa parte delle principali **reti internazionali** di collaborazione sui temi dei rapporti tra scienza e società, tra cui ESCoNet (European Science Communicators Training Network), Science and the City, MACOSPOL (Mapping Controversies on Science for Politics), e il network di istituzioni coordinato dalla London School of Economics che analizza i media e la percezione pubblica di scienza e tecnologia a livello globale.

Observa contribuisce inoltre alle indagini internazionali su scienza e nuove generazioni ROSE (Relevance of Science Education) e IRIS (Interest & Recruitment in Science). Tutte le attività sono supervisionate da un comitato scientifico internazionale e interdisciplinare.

Ten years of commitment to the study of Science in Society

Observa Science in Society is a non-profit, independent, legally recognized research centre promoting study and discussion of the interaction among science, technology and society, with the aim of stimulating dialogue among researchers, policy makers and citizens.

Observa conducts **research** and issues **publications** on the relationship between science and society, organizes **events** to engage citizens on science and technology issues.

Observa belongs to the main **international networks** actively engaged with science in society issues, including ESCoNet (European Science Communicators Training Network), Science and the City, MACOSPOL (Mapping Controversies on Science for Politics) and the network of institutions coordinated by the London School of Economics which monitors global trends in public perception and media coverage of science and technology.

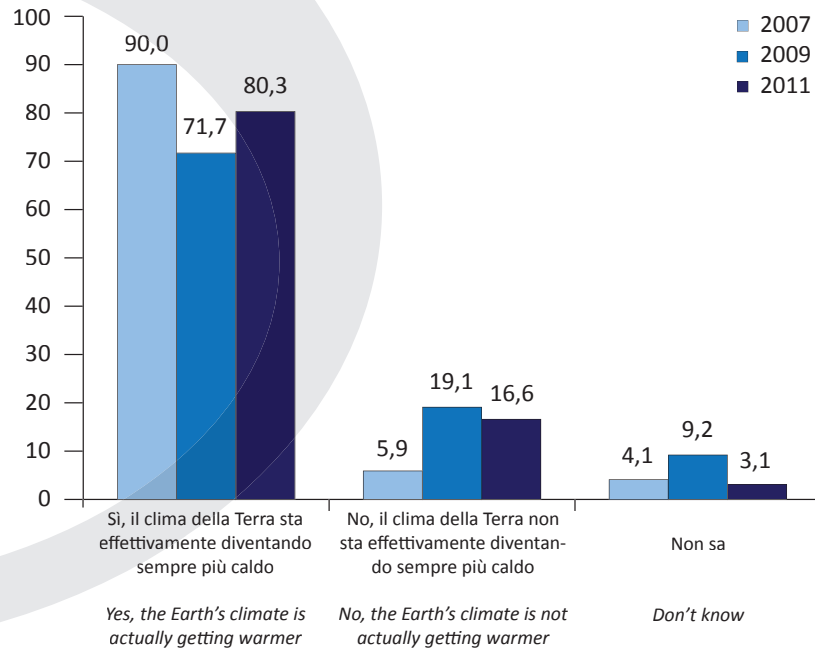
Observa also contributes to the ROSE (Relevance of Science Education) and IRIS (Interest & Recruitment in Science) international surveys on science and the younger generation. Its activities are supervised by an international and interdisciplinary scientific committee.



Dal 2002, l'Osservatorio Scienza e Società è il primo monitoraggio permanente delle tendenze e degli orientamenti dell'opinione pubblica italiana verso la ricerca scientifica e l'innovazione tecnologica.



Since 2002, the Science in Society Monitor has been the first regular survey monitoring trends and changes in Italian public opinion about scientific research and technological innovation.



Opinioni degli italiani sui cambiamenti climatici.
Confronto 2007-2009-2011 (%; 2007: n=998; 2009: n=1020; 2011: n=1001)

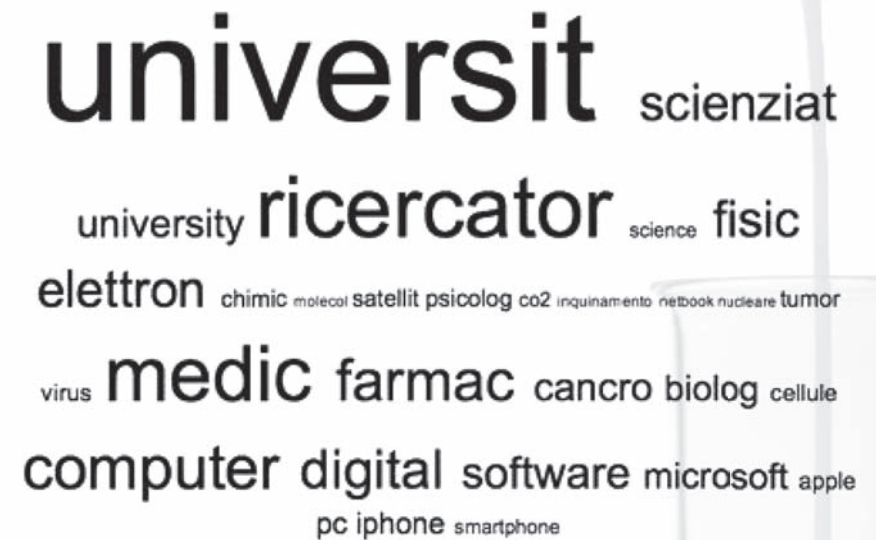
The opinions of Italians on climate change.
Comparison 2007-2009-2011 (%; 2007: n=998; 2009: n=1020; 2011: n=1001)

L'Osservatorio Scienza e Società è realizzato grazie al sostegno della **Compagnia di San Paolo**.
The Science in Society Monitor benefits from the support of the **Compagnia di San Paolo** Foundation.



Lo Science in Media Monitor utilizza una procedura informatica che raccoglie, archivia e analizza in modo sistematico la copertura dei temi scientifici e tecnologici nei media italiani.

The Science in the Media Monitor systematically collects, stores, and analyzes the coverage of science and technology issues in the Italian media.



Tag Cloud delle 30 parole più citate negli articoli su scienza e tecnologia nel 2009
(dati sistema Science in the Media Monitor, Observa)

Tag Cloud of the 30 words most frequently mentioned in science and technology articles in 2009
(data from Science in the Media Monitor system, Observa)

Lo Science in the Media Monitor è realizzato grazie al sostegno della **Compagnia di San Paolo**.
The Science in the Media Monitor benefits from the support of the **Compagnia di San Paolo** Foundation.

SCIENZA E NUOVE GENERAZIONI

Observa è impegnata nel progetto europeo **IRIS – Interests & Recruitment in Science**, che studia le motivazioni e gli orientamenti di studenti e studentesse alle facoltà scientifiche con una particolare attenzione alle differenze di genere. Il progetto, coordinato dall'Università di Oslo, coinvolge cinque Paesi: Danimarca, Italia, Norvegia, Regno Unito e Slovenia.



<http://iris.fp-7.org>

Observa conduce inoltre in Italia la rilevazione per il network internazionale **ROSE – Relevance of Science Education**, un dettagliato monitoraggio degli atteggiamenti verso scienza e tecnologia nei ragazzi che frequentano la scuola superiore. I risultati dell'indagine italiana, cui hanno collaborato 40 istituti scolastici distribuiti sul territorio, sono stati pubblicati in un apposito volume.



www.roseproject.no

SCIENCE AND THE YOUNGER GENERATION

*Observa participates in the **IRIS – Interests & Recruitment in Science** project, which explores the students' motivations for choosing science faculties. The project is coordinated by the University of Oslo and involves five countries: Denmark, Italy, Norway, Slovenia and United Kingdom.*

*Observa also conducts the Italian survey for the international network **ROSE – Relevance of Science Education**, a detailed monitoring of the attitudes of upper-secondary school students towards science and technology. The results of the Italian survey, which has been carried out in 40 high schools in Italy, are available in a dedicated publication.*

IL LATO CONTROVERSO DELLA SCIENZA

Observa è partner di **MACOSPOL** (Mapping Controversies On Science for POLitics), il primo network europeo dedicato allo studio delle controversie scientifiche e tecnologiche, che vede la partecipazione di prestigiose università europee. Nell'ambito di MACOSPOL sono testati strumenti digitali che consentono di realizzare cartografie delle controversie scientifiche e tecnologiche, cioè di mettere in evidenza i principali punti di disaccordo, i protagonisti coinvolti e le loro argomentazioni. MACOSPOL, coordinato da Bruno Latour dell'Università Sciences Po di Parigi, si è concluso con un workshop organizzato da Observa presso l'Istituto Veneto di Scienze, Lettere, ed Arti (Venezia) nell'ottobre 2009. Durante il workshop, venti giornalisti e decisori politici europei sono stati invitati ad utilizzare e sperimentare in anteprima alcuni strumenti contenuti nella piattaforma web di MACOSPOL. www.mappingcontroversies.net

Inoltre, Observa ha condotto la valutazione d'impatto nell'ambito del progetto Europeo **DECIDE**, uno strumento sviluppato per facilitare la discussione e raccogliere l'opinione dei cittadini su tematiche scientifiche controverse. www.playdecide.eu

CONTROVERSIES IN SCIENCE AND TECHNOLOGY

*Observa is a partner of the **MACOSPOL** consortium (Mapping Controversies On Science for POLitics), the first European Network dedicated to the study of controversies in science and technology, with the participation of prestigious European universities. Within MACOSPOL, web tools for the cartography of controversies in science and technology were tested; these tools can help in highlighting the main issue, the protagonists involved, and their arguments. MACOSPOL, coordinated by Bruno Latour at the Sciences Po University, concluded with a workshop organized by Observa at the Istituto Veneto di Scienze, Lettere ed Arti (Venice) in October 2009. During the workshop, twenty European journalists and decision makers were invited to preview some tools available in the MACOSPOL web platform. www.mappingcontroversies.net*

*Observa also has carried out impact evaluation for the European **DECIDE** project, an instrument developed in order to facilitate discussion and to collect the opinions of citizens on science and technology controversies. www.playdecide.eu*



ANNUARIO SCIENZA E SOCIETÀ

«Dati come questi non dovrebbero essere pubblicati da riviste specializzate, ma dovrebbero essere oggetto di presentazione sulle prime pagine dei grandi quotidiani»
(Tullio De Mauro, professore di linguistica, già Ministro italiano dell'Istruzione)

Publicato a partire dal 2005 e realizzato con il sostegno della Compagnia di San Paolo, l'Annuario Scienza e Società propone, in forma sintetica e accessibile, una raccolta ragionata di informazioni e dati provenienti dalle più accreditate fonti nazionali e internazionali, utili per comprendere lo stato e le trasformazioni della ricerca e dell'innovazione nella nostra società: risorse umane e investimenti, brevetti e utilizzo di nuove tecnologie, orientamenti pubblici verso la scienza, una cronologia dei principali eventi che hanno segnato i rapporti tra scienza e società nel corso dell'anno precedente, i libri pubblicati sul tema durante l'anno. Il volume, pubblicato da Il Mulino, è disponibile in tutte le librerie italiane ed è distribuito gratuitamente ai soci di Observa.



THE SCIENCE IN SOCIETY FACTS AND FIGURES

«Data like these should not be published in specialized journals, but they should be presented on the front pages of all top newspapers»
(Tullio De Mauro, professor of Linguistics, former Italian Ministry of Education)

Published since 2005 with the support of Compagnia di San Paolo, Science in Society Facts and Figures provides, in a compact and accessible format, key data and information on the state and development of research and innovation in contemporary societies: human resources and investments in research and innovation, patents and use of technologies, public attitudes to science, a chronology of the main events that have marked the relationship between science and society during the previous year, a list of sources and relevant publications. The book, published by Il Mulino, is available in all Italian bookshops and is sent free of charge to Observa members.



ALTRE PUBBLICAZIONI DI OBSERVA · OTHER OBSERVA PUBLICATIONS



Donne e Scienza (edizioni 2008 e 2010)
Eds. I. Nechifor, G. Pellegrini, in collaboration with Unesco



Scienza e Nuove Generazioni
Eds. F. Neresini, S. Crovato, B. Saracino, in collaboration with Unesco and Con.Scienze



Governare scienza e tecnologia. Un'introduzione al quadro normativo
Eds. M. Bigatto, in collaboration with Istituto Veneto di Scienze Lettere ed Arti



Scienza e Società si incontrano nell'Architettura
(2007, 2008, 2009 with DVD)



Cellule e cittadini. Biotecnologie nello spazio pubblico
Eds. M. Bucchi, F. Neresini



A tavola con sicurezza. La percezione del rischio alimentare in Veneto
Eds. V. Arzenton, F. Neresini, L. Ravarotto

VIDEO E DOCUMENTARI

Observa ha prodotto una serie di filmati, tra cui *Piccolo passo o grande sbalzo? Noi e la tecnologia* (2009), *Acqua a 35mm* (2009), e *Sc(i)en(z)e da ridere*, a cura di Alberto Brodesco (2011), una selezione delle scene più divertenti del cinema su scienze e scienziati. In occasione del progetto Par.Co. (Partecipazione e Comunicazione per la tutela dell'ambiente), Observa ha inoltre realizzato il documentario *Memorie dal fiume* (2010).

VIDEOS AND DOCUMENTARIES

Observa has produced a number of videos, among them *Piccolo passo o grande sbalzo? Noi e la tecnologia* (A small step or a great leap? Technology and us, 2009), *Acqua a 35mm* (Water 35mm, 2009), and *Scienze da ridere* (Science for a laugh, 2011), edited by Alberto Brodesco, showing the most comical scenes in film history on science and scientists. For the Par.Co. (Participation and Communication for environmental protection) project, Observa has also produced the documentary *Memorie dal fiume* (Memories from the river, 2010).

SCIENZA, SOCIETÀ E CULTURA

A Regola d'Arte



Il piacere di saper fare tra scienza, tecnologia e cultura - Riscoprire l'incontro tra cultura e competenza manuale: questo l'obiettivo della rassegna (2010-2011). Scrittori e fumettisti, scienziati e

designer, musicisti e filosofi incontrano il pubblico per riflettere sul significato di "fare le cose a regola d'arte", accompagnati da laboratori manuali, musiche e proiezioni cinematografiche.

Scienza e Società s'incontrano nell'Architettura

Nell'ambito del network europeo *Città della Scienza*, Observa ha promosso tre edizioni della rassegna (2007-2009). Sullo sfondo della palladiana Villa Caldogno di Vicenza, coppie di esponenti della scienza, dell'architettura, dell'arte e della filosofia dialogano tra loro e con il pubblico confrontandosi su alcune parole chiave.



SCIENCE, SOCIETY AND CULTURE

A Regola d'Arte

Rediscover the encounter between culture and manual skills: this is the goal of the festival (2010-2011). Writers and comic book authors, scientists and designers, musicians and philosophers meet the public to reflect on the meaning of 'making well-crafted things', accompanied with manual work, music and cinema projections.

Science and Society meet in Architecture



Within the European Cities of Science network, Observa has promoted three editions of the festival (2007-2009). In the beautiful Palladian Villa Caldogno in Vicenza, scientists, artists, architects and philosophers converse

between themselves and with the public on certain keywords.



SCIENZA, SOCIETÀ E CULTURA

Primo forum Scienza e Società

Nell'ambito del primo *European Forum on Science & Society* lanciato dalla Commissione Europea, Observa ha organizzato nel 2005 il primo Forum Italiano su Scienza e Società. L'evento ha proposto un approccio innovativo rispetto alle tradizionali iniziative di dialogo tra scienza e cittadini: in questo caso, infatti, sono stati gli stessi cittadini a definire l'agenda di discussione.

Seminari

I seminari di Observa offrono a studiosi, soci e ricercatori la possibilità di discutere e approfondire le questioni di maggiore attualità e rilevanza per il dibattito su scienza, tecnologia e società.



SCIENCE, SOCIETY AND CULTURE

First Science in Society forum



Within the framework of the first European Science & Society Forum promoted by the European Commission, in 2005 Observa organized the first Italian Forum on Science and Society.

The event took an innovative approach to promoting the dialogue between science and citizens, in that citizens themselves defined the agenda for discussion.

Seminars

Seminars organized by Observa offer scholars, members, and researchers opportunities to discuss topical issues regarding science, technology, and society.



ESOF - EuroScience Open Forum

Observe è stata tra i partner di ESO 2010 ed è tra i promotori di PCST 2012. In occasione di questi due eventi pubblici di livello internazionale, Observe ha inoltre presentato le sue iniziative ed attività.

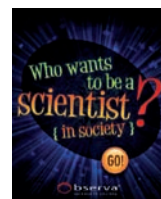


Nel 2010 Observe ha partecipato alla quarta edizione di **ESOF – EuroScience Open Forum**, il simposio internazionale biennale dedicato alla ricerca scientifica e all’innovazione tecnologica svoltosi a Torino.

Durante ESO, ha contribuito alla riflessione e al dibattito sui rapporti tra scienza, tecnologia e società grazie al quiz virtuale **“Chi vuol essere uno scienziato (nella società)?”**, presentato ufficialmente nel corso di ESO 2010. Il gioco di Observe è disponibile on-line sul sito www.observe.it.

Observe has been a partner of ESO 2010 and is among the promoters of PCST 2012. Observe has also presented its initiatives and activities at these two international public events.

*In 2010, Observe participated in the fourth edition of **ESOF – EuroScience Open Forum**, the International symposium on scientific research and technological innovation which took place in Turin.*



*During ESO, Observe contributed to reflection and debate on the relation among science, technology, and society with the virtual quiz **“Who wants to be a scientist (in society)?”***

which was officially presented during ESO 2010. The Observe Game is available on-line at www.scienceinsociety.eu.

PCST - Public Communication of Science and Technology

Observe è uno dei principali partner coinvolti nell’organizzazione del dodicesimo convegno di **PCST**, il network internazionale per la comunicazione pubblica di scienza e tecnologia, organizzato a Firenze nell’aprile 2012.



www.pcst2012.org

*Observe is one of the main partners involved in the organization of the twelfth conference of **PCST**, the International Network for public communication of science and technology, held in Florence, Italy, in April 2012.*

Tra gli altri partners, il Comune di Firenze, CIGA, Consiglio Nazionale delle Ricerche (CNR), Fondazione Giannino Bassetti, Istituto Nazionale di Astrofisica (INAF), Museo Galileo di Firenze, Politecnico di Delft, Scuola Internazionale Superiore di Studi Avanzati (SISSA), Società Italiana di Studi su Scienza e Tecnologia (STS Italia) e UNESCO Office in Venice.

Other partners include the city of Florence, CIGA, Fondazione Giannino Bassetti for Responsibility in Innovation, Galileo Museum of Florence, International School for Advanced Studies (SISSA), Italian Society for Social Studies of Science and Technology (STS Italia), National Institute for Astrophysics (INAF), National Research Council (CNR), TU Delft and UNESCO Office in Venice.



INIZIATIVE · EVENTS

La partecipazione pubblica alle decisioni su scienza e tecnologia

Observe ha partecipato a una significativa esperienza di coinvolgimento dei cittadini, promossa dalla Regione Lombardia e in collaborazione con la Fondazione Giannino Bassetti, sulle sperimentazioni in campo aperto di OGM. È stata la prima esperienza italiana di una *consensus conference* su questi temi.

www.fondazionebassetti.org

Public Participation and the Governance of Innovation

Observe has taken part in a significant experience of citizen engagement, promoted by the Lombardia Region, Italy, and in collaboration with Fondazione Giannino Bassetti, on open-field experimentation with GMOs. This has been the first consensus conference in Italy on these issues.

Bioteχνologie dal laboratorio alla piazza

BioPOP, un'iniziativa europea affidata a giovani ricercatori, ha portato la scienza nelle piazze. Observe ha valutato l'impatto di questa iniziativa sul pubblico e sugli stessi ricercatori.



www.biopop-eu.org

Biotechnologies from lab to square

BioPOP, an European initiative organized by young researchers, has brought science into the streets. Observe has evaluated the impact of this initiative on the public as well as on the researchers involved.

EscoNet

The European Science Communication Network

Insieme a università e istituti di ricerca di 12 Paesi europei, a partire dal 2005 Observe contribuisce alla prima rete europea di formazione dei ricercatori alla comunicazione della scienza e al rapporto tra scienza e società, coordinata da University College London.



www.esconet.org

Together with universities and research institutes in 12 European countries, since 2005 Observe has contributed to the first European network for the training of researchers in science communication and in the relationship between science and society, coordinated by University College London.

INIZIATIVE · EVENTS

Partecipazione e comunicazione su questioni ambientali

Il progetto è sorto per iniziativa di un consorzio di comuni vicentini per coinvolgere soggetti privati e pubblici nel dibattito sugli interventi di tutela delle risorse idriche. Observe ha lavorato con le scuole, organizzato una mostra fotografica di carattere storico-ecologico e curato la realizzazione di un documentario.



www.ato-parco.org

Participation and communication on environmental issues

The project has been developed by a consortium of local governments in the Vicenza area in order to involve private and public actors in the debate on the environmental protection of water resources. Observe has worked with school students, organized a picture exhibition on ecological history, and filmed a documentary.

Il coinvolgimento del pubblico nel dibattito sul cambiamento climatico

Observe partecipa al progetto europeo ACCENT, le cui attività sono gestite da 15 organizzazioni che ospitano science centres. Observe cura la valutazione del coinvolgimento del pubblico e l'analisi dei dati sugli orientamenti dei cittadini nei confronti del cambiamento climatico.

do you commit to action on climate change?



www.i-do-climate.eu

Public involvement in climate change debates

Observe is partner of the European ACCENT project, which involves 15 organizations hosting science centres. Observe is in charge of the evaluation of public engagement as well as of analyzing data on citizen attitudes to climate change.



OBSERVA IN CIFRE (FINO A DICEMBRE 2010)
OBSERVA KEY FIGURES (UP TO DECEMBER 2010)

| | |
|---|--------------|
| Seminari organizzati · <i>Seminars organized</i> | 32 |
| Progetti conclusi · <i>Projects completed</i> | 24 |
| Libri pubblicati · <i>Book publications</i> | 13 |
| Comunicati stampa inviati · <i>Press releases issued</i> | 643 |
| Contatti per invio comunicati stampa · <i>Contacts for press releases</i> | 2583 |
| Newsletter pubblicate · <i>Newsletter issues published</i> | 62 |
| Iscritti alla newsletter · <i>Newsletter subscribers</i> | 1372 |
| Visitatori del sito (gen-dic 2010) · <i>Website visitors (Jan-Dec 2010)</i> | 28019 |

Observa collabora con prestigiose **istituzioni nazionali e internazionali**.
*Observa collaborates with prestigious **national and international institutions**.*

- Bielefeld University
- CERN
- Con.Scienze (Conferenza Nazionale Permanente dei Presidi delle Facoltà di Scienze e Tecnologie)
- CRUI (Conferenza dei Rettori delle Università Italiane)
- Ecsite (the European Network of Science Centres and Museums)
- European Association of Young Biotechnologists
- European Commission – DG Research
- Gran Sasso National Laboratory
- INAF (Istituto Nazionale di Astrofisica)
- Istituto Superiore di Sanità/Centro Nazionale Sangue
- Istituto Veneto di Scienze, Lettere ed Arti
- King's College London
- Lancaster University
- London School of Economics
- Pompeu Fabra University
- Sciences-Po University
- UNESCO
- University College London
- University of Oslo

Le principali attività di ricerca sono realizzate grazie al sostegno della **Compagnia di San Paolo**.
*Observa's key research activities benefit from the support of the **Compagnia di San Paolo** Foundation.*

OBSERVA NEI MEDIA
OBSERVA IN THE MEDIA

Le attività di Observa godono di una **significativa visibilità nei media**. Articoli e interviste sono apparsi, tra l'altro, su:

*Observa activities have **high visibility in the media**. Articles and interviews have appeared in, amongst others...*



e su **testate internazionali** di Belgio, Brasile, Cina, Giappone, Polonia e Stati Uniti.

*... and also in **international media** in Belgium, Brazil, China, Japan, Poland and USA.*

Numerosi programmi radiotelevisivi e siti web hanno citato dati e ricerche di Observa.

Numerous radio and television programmes and websites have cited Observa data and research.



Dai risultati delle ricerche di Observa, inoltre, sono state tratte numerose pubblicazioni su **riviste internazionali** con referees e in volumi pubblicati in Italia e all'estero.

*Results from Observa research projects have been used by numerous articles published in peer-reviewed **international journals** and also by books published in Italy and abroad.*



COME DIVENTARE SOCI DI OBSERVA HOW TO BECOME AN OBSERVA MEMBER

Observe non dipende da enti privati né pubblici: le attività sono finanziate attraverso i progetti realizzati, i contributi dei soci sostenitori e le eventuali donazioni.

L'adesione ad Observe è libera e aperta a tutti, ha durata annuale e dà diritto a:

- partecipare alle iniziative pubbliche di Observe e ai seminari di formazione interna;
- ricevere copia dell'Annuario Scienza e Società dell'anno in corso al momento dell'iscrizione e le più recenti pubblicazioni del centro;
- ricevere la newsletter periodica ed essere informato sulle attività e le iniziative;
- accedere tramite password ai materiali di ricerca disponibili sul sito www.observe.it

Per aderire è sufficiente prendere visione dello statuto, compilare la domanda di adesione disponibile sul sito web di Observe, alla pagina "diventa socio".

È possibile destinare il 5% della dichiarazione dei redditi a Observe. Il codice fiscale da segnalare è 95065120248.

Per ricevere gratuitamente la newsletter mensile di Observe, scrivere a observe@observanet.it

Siamo anche su Facebook:
Observe Scienza Società.

Informazioni, pubblicazioni, notizie e rapporti di ricerca:

www.observe.it - www.scienceinsociety.eu
Viale Fusinieri, 65 – 36100 Vicenza
Tel & fax: 0444 305454

Observe is not affiliated to any private or public organization. Its activities are funded by specific projects, members' contributions, and donations.

Subscription is open to all. It can be renewed every year and gives entitlement to:

- *attendance at the association's public events and training seminars;*
- *a copy of the Annuario Scienza e Società (Science in Society Facts and Figures) of the current year at the moment of subscription;*
- *the periodical newsletter and information about the association's activities and events;*
- *access with a password to research materials available at www.scienceinsociety.eu*

To subscribe, it is sufficient to read the articles of association and fill in the application form available on the Observe website, at the page "members".

To receive the Observe newsletter free of charge, write to observe@observanet.it

*We are also on Facebook:
Observe Scienza Società*

Information, publications, news and research reports:

*www.observe.it - www.scienceinsociety.eu
Viale Fusinieri, 65 – 36100 Vicenza (Italy)
Tel & fax: +39 0444 305454*

ALCUNI CONTRIBUTI DAL SITO WEB OBSERVA SOME CONTRIBUTIONS FROM OBSERVA WEBSITE

THE SCIENCE CULTURE INDUSTRY AND ITS IMPACTS

By Martin W. Bauer, London School of Economics

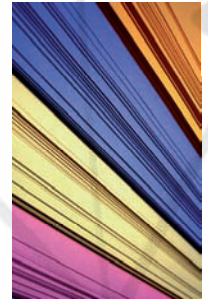
In the 1985 the Royal Society of London published a seminal report calling the scientific community to task to take responsibility for the public's understanding of science. Since, much has happened across Europe which widely took inspiration from this call out. The report stimulated social research and mobilised resources to strengthen the capacity of science to reach a wider audience with a thriving science culture industry.

Two things had happened. Environmental disasters like Seveso, Bophal, and Chernobyl had reminded many that once successful scientific and technological projects of modernisation could develop massive credibility gaps in the wider public. Furthermore, Finance Ministries increasingly agonised over the allocation of R&D budgets, trying to get more private funding. Once it was clear that the running of science was no longer left to the scientists, the scientific communities were pressed harder to make their case in public.

Many universities set up programmes to educate communicators, either to give writers a science brush up or scientists a career change. The science journalism community reorganised. Scientific institutions lobbied the mass media for more airtime and news space. Science museums diversified and revamped themselves into edutainment centres for family and schools. The science culture industry boomed over the last 25 years riding the waves of triumphalism created by new genetics and biotechnology, computing and the internet, endorsing the apocalyptic visions of climate change, and jumping on the band wagons of neurosciences, synthetic biology and nanotechnology.

Research on the public understanding of science shows that some things change and others stayed the same. Overall, science news increased dramatically since the 1990, and this is a global trend; so has the workload of science journalists. However, there is mounting concern about inflationary 'dumbing down' and 'churnalism'; good science reporting is being threatened by precarious working conditions. The basic concerns of science communicators have shifted from educating a seemingly illiterate public, to shaping more favourable attitudes, to engaging more of a dialogue between science and the public. Some time ago, the deficit was on the side of the public, now all parties recognise the need to learn from each other.

The data on public attitude accumulating since the 1980s shows several things: the science literacy of the adult population has improved; the debates over nuclear power, new genetics and the environment have educated the public. However, in a county like Italy, it is not the youngest generation that is most literate, but the baby boomers and the generation that followed. There is a risk that science culture passes by the youngest. Among all this improvement, men continue to show better on science literacy than women, with signs of convergence among those born since the late 1970s. With proliferating science news, somewhat paradoxically, interest in science news is declining; the older aged go for medical news, while the younger put their attention to new inventions and discoveries. Public expectations are rising. More and more people see that science and technology makes our lives healthier, overcome shortages, create opportunities and make working life more interesting.



On these utilitarian achievements the societal authority of science is built, which pays off when providing the facts over climate change. However, the naïve view of many scientists ‘the more you know, the more you love science’ is not much in evidence. What might still be true in India and China, no longer holds in Europe. Literacy brings also negative expectations of powerful and thus dangerous knowledge, awareness of the irrelevance of much science in everyday life, dissatisfaction with the speed of change, and a growing recognition that science and technology might not be the solution to climate change; that lies in individual change of practice, which traditionally is religious quest.

The research into public attitudes to science presses on with old and new topics: deconstructing popular myths remains on the agenda, so does keeping favourable attitudes towards science during political controversies. And much effort goes into engaging dialogue to build a ‘sensus communis’, i.e. widening the moral community, rather than pressing through with technocratic delusions. New research, more aloof from practical imperatives, will investigate the growing ‘science culture industry’ and its unintended consequences. The professionalization of Public Relations in and around Research Labs and Universities increases the risk of fraud, hype and ritual research to seek attention rather than to build the knowledge base for the future. Thus, public understanding of science research fosters a critical public opinion in the knowledge society.

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WHY SHOULD WE LEARN TO MAP TECHNO-SCIENTIFIC CONTROVERSIES?

By Bruno Latour, Université Sciences-Po, Paris

Why should we learn to map techno-scientific controversies? A quick glance at newspapers would be enough to answer this question. When science experts openly show their contribution, this is the phenomenon we are unexpectedly witnessing: the debate *continues*, nay it *restarts* even more heatedly. Just think of asbestos, GMOs, stem cells, discussions on the environmental impact of new motorways, SUVs in town and then you will notice experts’ remarkable inability to secure the end of the debate and “silence” anyone.

Before getting indignant at such “widespread irrationality” and “loss of trust in experts”, we should acknowledge to what extent the spread of science and technology has turned us all into participants, whether voluntary or not, in large experiments, some of which take place on a planetary scale. Some participants are in the laboratory as researchers, some are backers, some act as witnesses, and finally some others act as guinea pigs. Whether it is about global warming, plans for unemployment, mobile phones, passive smoke, speed cameras, oil reserves or the European constitution, we all embark on experiments whose protocol might sometimes be sought in vain. As Peter Sloterdijk explains, the artificial and fragile globe we live in, requires the controversial participation of all its members.

If scientific truth can no longer impose itself, this is not due to the irrational behaviour into which common people would have stumbled, rather, because people now act as co-researchers. If people entered a laboratory it was precisely to deny those truths that were trying to “impose” themselves with no discussion and to have them be down-and-out.

In a word, indisputable facts are now questionable - all the better for rationality. The problem is that we do not yet have the media, the reflexes, the tools, the mental habits that would put us at ease with facts that, from now on, are *questionable*. Still imbued with traditional epistemology, we turn to manuals just as if they were scientific catechisms. We are stunned when we realize we no longer have to get used to dogmas, but rather to *controversies*. Such freedom, such a free examination scandalizes us. We perceive this situation as a loss, rather than a gain. A famous spine surgeon suggested me a painful surgery. After surveying all the options available in Paris, I ventured to say to him that there were different versions of my illness, but he replied haughtily: “Sir, there are no different ‘versions’. You have been misinformed ... “. This surgeon too thought truth should prevail; he thought that indisputable facts would have taken my back under his scalpel. Most fortunately, my back fully recovered thanks to a completely different “version”.

A new question therefore arises for all researchers, users, donors, private citizens, students or journalists: how to express the *competing versions* of the same techno-scientific *issues* that, on all interesting topics, require our attention and our deliberation? In other words, how to find an objectivity not based on silent admiration but on the whole range of contradictory opinions related to conflicting *versions* of the same stakes? How can we connect these versions so that we could be able to form an opinion of our own? Cartography of techno-scientific controversies, as I have defined it, must make this bet. Fortunately, new information techniques partly allow us to make up for the chaos of information, rumours, news these very same techniques had dipped us into in the first instance.

A simple example can make us understand the importance of these media. A mother loses twice her young son: social workers, then police, then the court charge her with maltreatment and are ready to lock her up in jail, having the medical expert, delegated by the court, confirmed the charge. Though, the mapping of controversies reveals a far more contrasted landscape. British medical researchers use the term “shaken baby syndrome” to designate not a crime but a disease whose origin might be genetic. Consequently what is considered “truth” in France may be an error on the other side of the Channel. Are these two different versions? Absolutely! Should we wallow in relativism by returning the two versions back to back? Of course not, since it is possible to track down the Anglo-Saxon researchers today, to find their papers, determining their relative credibility and comparing this chart of competences to the French situation. Once the family mother is released from jail, who will ever dare say, that the power of science and reason had been superseded? Who will dare say that it would have been better to hide the respondent and her lawyers the existence of such controversial scientific area?

We must get used to it: the demands of reason are far more complex than it seems. The prestige and interest of sciences rely on the possibility of being rightly discussed, not only by researchers. With techno-science spreading to all aspects of daily life, it is necessary for other media to prevent the untimely closure of what has become our common good.

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He was born in 1947 in Beaune, Burgundy, from a wine grower family, was trained first as a philosopher and then an anthropologist. From 1982 to 2006, he has been professor at the Centre de sociologie de l’Innovation at the Ecole Nationale Supérieure des Mines in Paris and, for various periods, visiting professor at UCSD, at the London School of Economics and in the history of science department of Harvard University. After field studies in Africa and California he specialized in the analysis of scientists and engineers at work. In addition to work in philosophy, history, sociology and anthropology of science, he has collaborated into many studies in science policy and research management.

Translated from French by Silvia Casini, image created with Wordle



25 YEARS OF PUBLIC UNDERSTANDING OF SCIENCE – WHAT NEXT?

By Helga Nowotny

The idea that science is 'in' and therefore part of society, has gained widespread acceptance. Interactions between "science" and "society" (which have existed since the days of Galileo) have multiplied at different levels. They have also taken different forms which partly mask the deep and irreversible transformation that science as an institution is undergoing in a society that has come to expect that its economic prosperity depends on it.

What seems certain for the 21st century, more than ever before: unless we get smarter, we will get poorer. The future will be shaped by science and technology –but equally by how society will use the fruits of curiosity, for which ends and through which kinds of institutions.

At the political and economic level public understanding of science translates as follows. Science is under pressure to 'deliver' in terms of results that will fuel economic growth, lead to the creation of new jobs and to general prosperity. In other words, science (meaning research and its relations to industry) is expected to make innovation happen – faster and faster.

But the public, i.e. political understanding of how science works, is also lagging. Universities in Europe are in dire need of more public funding, in order to be able to provide the next generation with the necessary knowledge and skills. Society needs the capacity to absorb the new knowledge generated by science. Also this is public understanding of science.

At the level of citizens and their everyday experience science and society interactions have become ubiquitous in often unexpected and unforeseen ways. Millions of 'users' already contribute actively their knowledge to the production of new information and communication technologies. In medical biotechnologies users (patients or potential risk groups) engage with science by actively contributing body cells, tissues or genes which form the necessary collective reference for any individual diagnostic or therapy.

The involvement of users has spearheaded a movement of 'scientific citizens' who discuss their role and rights in their interaction with science. The Internet has greatly increased access to scientific information, enabling citizens to get involved. They now expect to have their voices heard in decisions taken on their behalf and, increasingly, to take relevant decisions themselves.

The involvement of scientists and their organizations with the public has also significantly increased. Scientists had to learn, sometimes in the hard way, that engagement means more than experts providing information or advice to ignorant lay persons. Even if some of this interaction is delegated to the public relations units of scientific organizations, many scientists have understood that nothing can replace personal involvement. They also understand that the young have to become equally fascinated by science, if there is to be a next generation of scientists.

So, does this mean that everything is well? That we have arrived after 25 years of tensions and conflicts at a state where science in society has become fully integrated in our cultural, economic and political life?

Alas, no. More challenges lie ahead. The greatest is to establish a governance structure in which law, ethics and socially robust governance mechanisms will allow society to make optimal use of the enormous potential that science and technology have to offer.

Originally, science was a neutral undertaking that had to keep religious and political interference at bay. Science saw itself as reigned by 'facts', while 'values' belonged to society.



At the beginning of the 21 century, science offers so many scientifically and technically feasible options, that the choice among them inevitably becomes political in a deep sense. Science and society therefore need a new understanding of how their mutual relationship is changing by the way how both evolve. Only novel forms of engagement will assure that the fruits of curiosity are harvested for the maximum individual and public benefit.

Helga Nowotny is President of the European Research Council and Chair of the Programme Committee of ESOF2010.

Questi contributi, e molti altri, si trovano anche in italiano sul sito di Observa, www.observa.it, nella sezione "contributi".

More contributions in English and Italian on Observa website, www.scienceinsociety.eu, section "contributes".

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