



Research Councils UK

# What's in it for me?

The benefits of  
public engagement  
for researchers



## FOREWORD

BY PROFESSOR ALAN THORPE  
CHAIR OF THE RESEARCH COUNCILS UK  
EXECUTIVE GROUP

Public engagement can provide substantial benefits to the researchers involved in engaging the public, as well as providing a major contribution to society. Engaging the public can also improve the quality of research and its impact, by widening research horizons. We achieve this through involving, listening and interacting with the public (from science communication in science centres or festivals, to consultation and public dialogue).

Public engagement   
enhances research so that  
it contributes positively to  
society and results in greater  
relevance, accountability  
and transparency

Research Councils UK (RCUK) believe that public engagement should be a part of every skilled researcher's portfolio. Engaging with a non-specialist audience can enhance skills including improved communication and influencing skills. Other benefits include a higher personal and institutional profile and forming new partnerships from networking opportunities. The increasing number of researchers engaging with the public find it enjoyable, rewarding and that it provides enhanced career progression.

Institutions can also benefit through increased student recruitment and additional funding.

*The benefits of public engagement for researchers* includes a selection of some of the highlights and first-hand experiences of a range of researchers across the UK to give you a flavour of the positive benefits arising from engaging with the public.

This publication is part of our efforts to encourage researchers to engage with the public and embed public engagement in the higher education and research sectors so that it is valued as an important activity. To this end, RCUK, the Funding Councils and the Wellcome Trust established the Beacons for Public Engagement initiative to inspire culture change in Higher Education Institutes (HEIs) and help researchers in overcoming barriers that they may encounter in engaging with the public. The initiative's National Coordinating Centre for Public Engagement provides support to researchers through sharing best practice and highlighting opportunities for training and funding (please visit [www.publicengagement.ac.uk](http://www.publicengagement.ac.uk) for more information). Further opportunities to support researchers engaging the public are available on the RCUK website. [www.rcuk.ac.uk/per](http://www.rcuk.ac.uk/per)

A handwritten signature in black ink, reading "A. Thorpe". The signature is written in a cursive style with a long, sweeping underline.



CAREER  
INSPIRATION  
RAISING  
YOUR PROFILE  
DEVELOPING  
SKILLS  
ENHANCING  
YOUR RESEARCH

**Inspirational learning curve**

Gaining the award of a Chair early in your career because of your contribution to public engagement, as reported here, may be a top-end benefit. But the evidence is mounting that, for researchers at all levels, active public engagement can prove an inspirational learning curve. The rewards for individuals often follow from improved skills in networking and influencing, leading to improved career opportunities. Also, innovative ways of reaching a wider range of audiences can open up fresh perspectives on research as well as enhancing the profile of a researcher, their work and their institution.

# CAREER INSPIRATION

## Early promotion

“My promotion to Professor of Physics came a few years early”, recalls **Professor Jim Al-Khalili** an Engineering and Physical Sciences Research Council (EPSRC) Senior Media Fellow at The University of Surrey. The result of his growing success in public engagement, from books and press articles to broadcasting, was the creation of a Chair in public engagement which led on to the early physics chair. A highlight of his broadcasting appearances has been a BBC4 TV series on the discovery of the atom and its exciting science.

His physics research has benefited too: “My public engagement activities have given me a new perspective and broader outlook to my own research work. For example, I have recently collaborated with a microbiologist, applying quantum mechanics to biology, which arose from new contacts. Public engagement has also made me more aware of the ethical implications of research and the obligation to explain to the public what researchers do”.

Jim’s outstanding public engagement achievements have understandably raised his profile and reputation, and the university has benefited too: “My being in the public eye has helped raise its profile. For example, my lectures on behalf of the British Council have attracted more overseas students to study at Surrey. And some students say they chose to study at Surrey because they have encountered my work on TV or read one of my books.”



Professor Jim Al-Khalili  
of The University of Surrey



My promotion to  
Professor of Physics  
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## Profound impact

Cell biologist **Dr Kelly BéruBé** of Cardiff University, whose research focuses on pollutant-induced lung disease, has seen how public engagement activities have improved both her personal skills and opened up doors for influence. In 2009 an instant profile boost came from her contribution to a Cheltenham Science Festival panel discussion which resulted in over 50 worldwide media items on the research she described concerning micro-lungs.

Dr Kelly BéruBé  
of Cardiff University



I won a number of national and international research accolades for which I would not have been recognised if I had not been engaging with the public on a regular basis



Later in 2009 she was invited to the House of Lords to speak to MPs and Peers about the use of human tissue in clinical drug trials, to push for a regulatory requirement of drug testing in human tissues. Such events, together with her team's range of engagement activities on respiratory health for the young and the local community, are highly beneficial according to Kelly. "It instils a sense of well-being for your academic career that in turn has a profound impact on your university's and funding agencies' profiles. It builds up when your name makes the rounds in local, national and international schools, organisations and social events," she says.

Asked if she had achieved things in her research that would not have been possible without public engagement, Kelly's response was unequivocal. "I won a number of national and international research accolades for which I would not have been recognised if I had not been engaging with the public on a regular basis", says Kelly. To illustrate the point she quotes examples like her lecture tour on nano-toxicology in Australia and being invited to be a scientific advisor for the Safer Medicines Trust.

## Priceless feedback

Priceless questions and feedback and a career boost were the results of a public engagement journey according to **Professor Alan Winfield** of The University of the West of England, Bristol. It arose from him leading *Walking with robots*, a project that took the UK's intelligent robotics research to the public, reaching close to 80,000 people over three years and culminating in the UK's first festival of robotics in 2009. The result of this was a recent award of an EPSRC Senior Media Fellowship. He is increasingly in demand for public lectures in the UK and overseas including a recent series of lectures in Japan to schools and professionals.

Professor Alan Winfield  
of The University of the West of England, Bristol



Engaging the public in, for example, interpretation of research results can directly improve the depth and quality of that interpretation and feedback into new research questions which has added a new dimension to my research

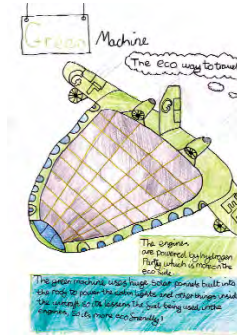
The impact of the project feedback which benefited Alan's research and career came from: "Presenting my research to all kinds of audiences, from children to families, to Lords and MPs, from inner city teenagers to sophisticated adults", he says. "It really sharpened up my thinking". He believes that engaging the public in, for example, interpretation of research results can directly improve the depth and quality of that interpretation and feedback into new research questions – a virtuous circle. Another result was a deeper understanding of the ethical and societal impact of intelligent robotic technologies which he says has: "added a new dimension to my research, writing and ongoing public engagement work".

## Rewards of Future Flight

The award of a prestigious inaugural prize for education innovation, and a boost for student recruitment, were key benefits for **Dr Kenji Takeda's** career as a result of creating a *Greener flight* competition for youngsters. Dr Takeda and colleague **Dr Simon Newman**, both aerospace engineering researchers at The University of Southampton, were awarded funding by EPSRC to develop their *Future Flight Greener by Design* website-based competition to enable youngsters to design virtual green airliners.

Along with the education prize from the Royal Academy of Engineering and British Nuclear Fuels Ltd. (BNFL), Kenji also benefited from career enhancement such as being invited onto the Royal Aeronautical Society's Greener by Design Advisory Committee. This led on to a RAeS Best Paper Silver Award in 2008 for a review of the effects of aviation on the environment.

*Future Flight* also took off for the university says Kenji: "As a result of the project and activities in high performance computing a Smallpiece Trust residential course, supported by Microsoft, was created in which youngsters could use *Future Flight* software to design an airliner; build a supercomputer and fly their aircraft in our state-of-the-art flight simulator. Many of the school students who come on such courses end up as undergraduates at Southampton and other universities".



[www.futureflight.org](http://www.futureflight.org)

The award of a prestigious inaugural prize for education innovation, and a boost for student recruitment, were key benefits



Bennett Young  
of The University of Manchester



Public engagement re-enthused  
me about my research. It was  
fun, new and creative.





## Career-changing moment

The personal implications of public engagement for **Bennett Young**, a PhD student at The University of Manchester who ran an *Alien Plant Invasion* public engagement event funded by the Biotechnology and Biological Sciences Research Council (BBSRC), were career changing. The experience that motivated him was an event attended by 500 people, at Manchester Museum in 2009 for the general public, focused on how plants evolved into a diversity that enables them to survive, and how humans have harnessed evolution in commercialising plant species.

“Before the summer, I was having doubts about my research” recalls Bennett, “preparation for *Alien Invasion* took several weeks and in the process it re-enthused me about my research. It was fun, new and creative. Sometimes you lose sight of that when you’re just working on the research.

Some of the PhD students involved felt they got a lot out of the experience too” concluded Bennett. “People who worked with me reported that kids had said something really simple that made them realise that they had never thought about those implications.”



# RAISING YOUR PROFILE

## Reputation-enhancing nuclear exposure

The headline-grabbing incident of the polonium-210 poisoning of a Russian living in London changed the research world of **Professor Paddy Regan**, a nuclear structure physicist at The University of Surrey. His research was suddenly in the spotlight and a steep media learning curve began with his exposure to a stream of media activity, as Paddy explains: "More than 50 national and international media interviews followed with the likes of ITN, CNN, Channel 4 and Sky News. For me it became a golden opportunity to get across the real-life applications of the pure Science and Technology Facilities Council (STFC) funded research in which I was involved like health, energy and defence."

The dramatic media exposure plus a series of speaking engagements at schools and science festivals have been a big advantage for Paddy: "It has certainly led to meetings that would otherwise have not occurred and has had a reputation-enhancing effect with the wider scientific community."



Professor Paddy Regan  
of The University of Surrey



My public engagement experiences have substantially enhanced my understanding of the links between fundamental research and the needs of UK plc.

"Also, I now sit on the STFC's Education, Training and Careers Committee and feel that my public engagement experiences have substantially enhanced my understanding of the links between fundamental research and the needs of UK plc."

He has also noted that several students have said they applied for physics at Surrey having seen one of its scientists on TV. "There is a perception of research excellence which can go together with good public engagement work, and has institution wide benefits" he says. "In The University of Surrey's case demonstrating public engagement for STFC grant applications is often praised by grant referees". And for personal satisfaction it is difficult to top his conclusion that, "Real-life issues associated with radiation has been one of the most interesting scientific journeys I have been on in the last decade".

## Men in White boosts research profile

**Dr John Chilton** of The Peninsula College of Medicine and Dentistry at The University of Plymouth, the man behind the *Men in White* initiative, has seen exciting benefits arising from it. They include achieving major profile for the university and a thriving event for 150 sixth formers at the labs during Science Week each year. *Men in White* is the parody title of a programme which engages with school children and adults, dealing with health science topics of concern to many people.

There have been substantial benefits for the research department and the reputation of the university, including funding as John explains: “*Men in White* is regularly in the local papers and I’ve been on the radio to discuss science issues. We now have a very good local profile. Funding included a Biotechnology and Biological Sciences Research Council (BBSRC) Public Engagement Award enabling us to put on a roadshow at a shopping centre.”

John has also found some major impacts in terms of reaching young people and attracting them to science research: “There is beginning to be a tangible impact in terms of interest among potential students about attending the university to take degree courses. We are starting to get people who say that they’re interested in the degree courses because they have been on a *Men in White* event”.

He also sees real benefits in terms of enhancing the quality of the research the team does: “Public engagement does help because it boosts awareness of why we are doing research and making it accessible.”

Dr John Chilton  
of The University of Plymouth



There is beginning to be a tangible impact in terms of interest among potential students about attending the university to take degree courses

## Bonus from *Brain Bus*

A *Brain Bus* which toured around Manchester paid off handsomely with high-profile benefits for the researchers and The University of Manchester. It attracted media coverage, including the organisers appearing on breakfast TV, during National Science Week and Brain Awareness Week, in 2008 and 2009.

The popular *Brain Bus* visited secondary schools, public libraries and Manchester Piccadilly railway station to engage with school children and members of the public. The minibus carried a series of activities relating to the brain, and a team of young scientists including PhD and postdoctoral researchers were present to demonstrate them. Feedback given by the public was very positive and formal evaluation feedback has encouraged the team, led by **Dr Stuart Allan**, to aim to reach audiences they do not normally reach, for example by the Bus visiting schools in less well-off areas.

This sort of public engagement is important to the reputation of the university, and to promoting greater understanding of the value of the university and its role in research, as emphasised by **Professor Dame Nancy Rothwell**, Deputy President and Deputy Vice-Chancellor at The University of Manchester: "I want engagement to help people to understand what a university is and what it does. The university has traditionally been quite detached from people in less well-off areas – we aim to change this."

Another public engagement activity featuring a six-foot high image of a brain at a supermarket display helped the researchers involved hone their communications skills with the public. Nancy stresses the advantages of such initiatives: "Public engagement is enjoyable and makes you think about communication – what does your audience want and need to hear? It brings self-awareness, grounding and less isolation which can benefit your research."

Professor Dame Nancy Rothwell  
of The University of Manchester



It brings self-awareness, grounding and less  
isolation which can benefit your research



This sort of public engagement is important to the reputation of the university, and to promoting greater understanding of the value of the university and its role in research



## Lovable robot wins profile

Engaging the public with a lovable robot has led to a big win in terms of benefits to the department and university, reports **Dr Matthew Studley** of The University of the West of England.

The benefits began with Matthew's first ventures into public engagement using a remote controlled robot sheep dog which the public could use to herd a flock of robot sheep. Stemming from an EPSRC Partnerships for Public Engagement Award: "We got our young researchers immersed in public engagement and we all learnt a lot about how to get a message across to a very varied audience." Matthew's next initiative was to present to the public the lovable *Heart Robot* which reacts in an emotional way with people. This led to debates within Matthew's research team about the impact of emotional machines on society, and plans to investigate the psychological impacts of such interactions.

Dr Matthew Studley  
of The University of the West of England, Bristol



It developed my skills – I can now talk confidently to a wider range of people

There was another impressive spin off for the research team: "Some important impacts were the collaboration between scientists and artists in Bristol, people talking about the subject and opening up future possibilities of work and projects, including offers of work for a number of people who had been involved" says Matthew.

In terms of his own research, Matthew noticed a more personal impact: "It developed my skills – I can now talk confidently to a wider range of people. It means putting yourself in lots of different situations where you talk to people: to schoolchildren, to Members of Parliament, to people at a café scientifique".

"The positive media coverage for the university has been useful for the profile of the university, with seventy-two articles in mainstream newspapers worldwide, more than 2,100 blog references, and television features and news in the UK. And the university has benefited from a good effect on recruiting able and motivated undergraduates to this area, because they know that interesting things are going on and that they might be involved."



# DEVELOPING SKILLS

## Fresh perspectives

“The most important benefit was giving a fresh perspective for my research, and being asked questions about what my research was for.” This is one of the reactions from PhD student **Aikaterini Chatsiou** of The University of Essex during her placement with a school near Colchester as part of the RCUK Researchers in Residence scheme. A student of computational linguistics, she found that facing the class of 12 year-olds was a rewarding lesson for her: “They were persistent questioners and the research was of better quality because I had to answer deep, hard questions.”

Building confidence and communication skills was also a clear benefit for Aikaterini, “If you can convince a 12 or 13 year old that what you are doing is useful, you get more self confidence... with them you have to drop the jargon and I learnt skills for speaking to non-technical audiences.”

Alexei Poliakov  
STEM Ambassador



Students were very good at finding easy and unconventional solutions to problems scientists have been struggling with for many years

Another researcher **Alexei Poliakov** had a similar benefit from his role as a Science, Technology, Engineering and Mathematics (STEM) Ambassador, a scheme which provides scientists and engineers to engage young people's interest in careers in science. His experience of running a workshop for secondary school students was a revelation: “I became more confident in communicating in front of mixed and unprepared audiences... and very surprisingly I found that the students were very good at finding easy and unconventional solutions to problems scientists have been struggling with for many years”.

At Warwick University **Nick Barker**, who was awarded a Teacher Fellowship by The Royal Society of Chemistry (RSC), has also seen the benefit for researchers and the university from his schools public engagement programme. The science workshops for schools held in the university and at schools in the area have had a noticeable impact on postgraduate demonstrators. The Director of Research Support Services, has also seen “a positive effect on the Department's UCAS Admission process, and the publicity in the region and around the University has been beneficial”.



## Knife crime sharpens skills

Researching the sharpness of knives does not seem an obvious route to experiencing the benefits of public engagement. But **Professor Sarah Hainsworth** of The University of Leicester whose research is closely linked to knife crime has found that developing her public engagement skills has helped her in briefing the courts on stabbing incidents. And it is an important role with 30% of murders committed annually with a knife or sharp instrument.

Sarah who has featured in the media and given a series of talks to the public says about her public engagement: "Talking about your work to a general audience is really helpful because it can be really hard to communicate in general terms things that as engineers we take for granted."

Professor Sarah Hainsworth  
of The University of Leicester



Developing my public engagement skills has helped me in briefing the courts on stabbing incidents

Acting in her professional capacity in courts dealing with serious crime, the lessons in public communication have an added benefit: "One of the things that I need to be able to do is communicate effectively with judges and juries, and thinking about some of the questions that arise when I'm talking about my work helps guide the future direction of the research and generate new ideas for approaching the problem. And thinking about communication definitely helps with interdisciplinary collaborations within the university".

## Disaster widens public horizons

Psychologist **Dr John Drury's** research into the impact on the behaviour of survivors of the tragic London Transport bombings of 2005 have widened his horizons beyond expectations. The only study of its type, his findings on collective resilience naturally roused the interest of those professionals who could be faced with dealing with such incidents. But the experience also made him think that wider public engagement would open up new horizons for him. "I realised that my topic and my own research could easily be made accessible and engaging to different audiences", he explains, "I therefore developed my public speaking skills in communicating science. For example, I spoke at a psychological science in society event held at the British Science Festival in 2007". His public engagement approach has also helped in developing a Continuing Professional Development (CPD) module for professionals that is based on science but is user friendly and understandable.

Dr John Drury  
of The University  
of Sussex



The most important benefits I have gained from these public engagements are to see the influence of my research, and to have gained the communications skills to be able to get the research across to any audience I am put in front of



John's public profile began to grow: "I had a lot of popular media interest and each feature and media appearance raised my profile and that of my department and The University of Sussex. The most important benefits I have gained from these public engagements are to see the influence of my research, and to have gained the communications skills to be able to get the research across to any audience I am put in front of", says John.

## The benefit of hearing public views

An exhibition visited by around 100,000 people as part of the 2008 Tall Ships events in Liverpool proved to be an intensive skills building experience for the scientists involved.

The project called *Sailing over Changing Seas*, jointly developed by The Natural Environment Research Council (NERC), six marine centres, and the British Geological Society, aimed to reveal to visitors the importance of what's happening beneath the waves. **Phil Williamson** who helped coordinate the event saw a key collective benefit arising from the eight months of planning: "The long timescale for the evolution of the project allowed for good relations to develop between the eight wide-ranging research institutions and communications specialists involved. Also the event was very popular with the team we had on the stand and they wanted to do it again. And it was a challenge for them presenting topics that the public had heard about like climate change, and others that most people weren't aware of like the changing abundance of plankton."

**Jackie Pearson** of the National Oceanography Centre, Southampton, who brought the project to fruition with Phil also saw the benefits for the scientists who took part. "I felt that the questions from the public made the researchers stop and think as they raised issues and expressed views that otherwise might not have been considered." says Jackie. She observed that one researcher who volunteered to work on the stand reacted with surprise when he encountered scepticism about the influence of human activity on climate variables. "This type of insight into public perceptions can help the way we communicate research outputs."

[www.sailingoverchangingseas.org](http://www.sailingoverchangingseas.org)



Jackie Pearson  
of the National  
Oceanography Centre



I felt that the questions from the public made the researchers stop and think as they raised issues and expressed views that otherwise might not have been considered



# ENHANCING YOUR RESEARCH

New research dimensions often emerge from public engagement. Sometimes it is an unexpected spin off like the case of a small boy at a public exhibition who inadvertently opened up new research paths and collaborations in engineering. Or it can be a practical solution as with the physicist who mobilised thousands of the public to free-up a logjam in his project. These and the other examples of how public engagement enhances research, highlighted here, reveal the wide range of positive benefits that are achievable.

## Public impact on the medics

A direct impact on Medical Research Council (MRC) funded research being undertaken at The University of Manchester has resulted from working with patients' groups to advise clinicians researching brain disease, especially in relation to strokes.

**Professor Dame Nancy Rothwell**, Professor of Physiology at Manchester and the Principal Investigator for the Manchester Beacon for public engagement, explains the impact that the public can have on their thinking: "There are experiments that we wouldn't have done without engagement. There is a naivety of the questions that we are asked in public engagement that helps us see links we might otherwise overlook, for example, "If I have flu, am I more likely to have a stroke?"

"We are trying to understand and model the disease process. Engaging with the public makes you think more about what you are doing and its value. It means that you don't just take the easy way. This is the case for medical science and also for the basic science. We have to study the important questions. Public engagement gives you a sense of what is important. We need to be able to answer the question does this really matter? Engaging with the public on this helps us avoid going down the wrong track."

On the other side of the UK in Norfolk, Lecturer **Dr Laura Bowater** in the School of Medicine, Health Policy and Practice, at the University of East Anglia has a similar perspective from her projects concerning personalised medicine. She derived particular benefit for one of her projects which was to investigate whether giving scientific information in different ways can influence public views on how decisions about receiving certain drug treatments are made. "It can make you and the research more focussed and give you better insight. In health science there are a number of hoops you have to go through like working with ethical committees and you have to be able to write good participant information sheets." Laura's conclusion on the beneficial feedback for research is that, "Giving these things to a lay audience helps researchers crack that part of the research work".

An added factor for Laura is through building up better communication with the public: "Our campus is on the outskirts of town and is seen as an ivory tower so we have a real social responsibility to build links with our local community – this can have a benefit for us".



Professor Dame  
Nancy Rothwell  
of The University of Manchester

There are experiments that  
we wouldn't have done  
without engagement

## Citizens jury boosts research

“It has refined my research ideas completely”, says **Dr David Chadwick** following his experience of leading a project on how the management of livestock and their manures affect water quality, funded by the RCUK Rural Economy and Land Use Programme (RELU). David, at North Wyke Research, found that the interdisciplinary nature of the project opened up opportunities for publishing in a much wider range of journals. This was a particularly tangible benefit for David and the research team which included representatives from the Universities of Lancaster and Exeter.

Dr David Chadwick  
of North Wyke Research



It vastly changed networking opportunities, bringing different experts together, and has been the most enjoyable project in my career to date

“Public engagement within the project was important because my previous research had concentrated on management alone but the added social science component answered the need for a broader more integrated approach from public and stakeholder engagement”, David explains. “The study involved interviews with farmers, and key stakeholder but, for me, the real public engagement came towards the end of the project with a Citizens Jury funded through a linked Department for Environment, Food and Rural Affairs (DEFRA) project. This two-day event considered broader questions such as who was responsible for pollution. It provided valuable findings which reaped major benefits for the research outcomes and became part of the final research reports.

A beneficial spin off for David personally was that, “It vastly changed networking opportunities, bringing different experts together, and has been the most enjoyable project in my career to date”.

## Local knowledge improves flood study

**Professor Sarah Whatmore** of The University of Oxford has good reason to value highly local knowledge on the kind of flood risks that have recently led to disastrous consequences in parts of the UK. For her, the benefit from the public has been a direct contribution to delivering improved research results for new flood risk models tailored to local water catchment areas. Her innovative approach to public engagement enabled those affected by flooding to collaborate in the whole research process sustained over a year. It involved natural and social scientists in the research team working closely with volunteers from communities in Yorkshire and Sussex.

What differences did the close public involvement make to the research results? There were some key advantages according to Sarah: "The flood risk models are better calibrated to the local environment through being informed by the public's local knowledge. The people actually affected by flooding contributed to improved flood model specification as well as sharing in collaborative ownership of new ways of flood amelioration". Another factor identified by Sarah is that the research has been robust and independent enough to, "potentially shift both the technical and political logjams that often characterise public controversies affecting local flood management risk". The work has also produced a tool kit web resource that the team and others can use for such modelling in future.

Career enhancement has also been a bonus for Sarah: "It has brought a lot of interest from academic, policy and civic quarters in the UK and beyond which has extended my range of contacts and led to new collaborative opportunities".

Professor  
Sarah Whatmore  
of The University of Oxford



It has brought a lot of interest from academic, policy and civic quarters in the UK and beyond which has extended my range of contacts and led to new collaborative opportunities

## Small boy sparks off new projects

The response of one small boy at a public exhibition has led to remarkable benefits in terms of research discoveries and the potential to build relationships with new partners for **Dr Bruce Davies** of Heriot-Watt University, Edinburgh. The interactive display, part of an EPSRC Partnerships for Public Engagement Grant, which paid off in this way was a feature of the Edinburgh International Science Festival and enabled the public to feel objects generated in the computer as if they were physical objects.

Dr Bruce Davies  
of Heriot-Watt University



We involved the Glasgow Occupational Therapy unit who are now very excited at the possibility of this as a new tool to help the significant number of children with motor control problems

The event led to some surprising spin-off in research discoveries, and the seeds of relationships with new partners', recalls Bruce. "A small boy with a form of motor control disability took part in the activities, which featured a pen attached to a robotic arm linked to a computer. Usually when he tried to write with a normal pen he would lose control and drop it, but university students at the event witnessed something completely unexpected. The boy was for the first time able to describe the shapes of virtual letters using the robotic pen. It had opened up a degree of control he had never had before".

The surprise finding from the experience of this boy showed the potential for learning from public experience, and how that could feed into future research development.

"We involved the Glasgow Occupational Therapy unit who are now very excited at the possibility of this as a new tool to help the significant number of children with motor control problems". Bruce also foresees potential for new research to help patients suffering motor control difficulty after injury.



## Lively audience sparks Tudor study

A lively audience for a Tudor play staged in the Great Hall at Hampton Court Palace provided an important lesson for the future research of **Professor Tom Betteridge** of Oxford Brookes University. The performance in 2009 of the 1533 bawdy comedy *The Play of the Weather* was part of Tom's research into early modern culture in collaboration with Historic Royal Palaces, and funded by The Arts and Humanities Research Council (AHRC). Tom observed a difference between performances to an invited audience and those for the general public as he explains: "The most obvious benefit from the public nights was that the interaction between the players and the audience – a key part of court drama of the period – was very different. The actors and researchers got a real sense of how the Great Hall might have functioned as a performance space".



Professor Tom Betteridge  
of Oxford Brookes University



The impact on my career has been significant, giving me additional skills and experiences and providing the springboard for other research

"The more spontaneous responses of the public audience put some of the research project's hypotheses under real pressure", says Tom. "This means that I need to find ways of more actively engaging with the public's responses to performed research to expand its scope and impact. I will need to consider methodology and handling of data that are new to me as a humanities researcher. For example, I am reconsidering the best ways of communicating the research such as whether an article or monograph is the best or even an adequate way of hypothesising how Henry VIII's court space might have been policed".

What has been the impact on Tom's career? "It has been significant giving me additional skills and experiences and provided the springboard for other research", says Tom. For example he has been successful in securing funding from the Wellcome Trust for a play about the fall of Anne Boleyn, and new contacts made have also led to being included in a bid to design a new visitor's experience at Hampton Court as an academic adviser.

## Better quality grant applications

Some may raise their eyebrows at one researcher's conclusion that his experience of public engagement can lead to better quality research grant applications. But **Professor Colin Pulham** a chemistry researcher of The University of Edinburgh makes this claim, "especially for multi-disciplinary projects" he says.

Professor Colin Pulham  
of The University of Edinburgh



Without public engagement, I would have been less successful at gaining industrial funding. It enhanced my ability to interact with industrial funders who often have diverse backgrounds

Colin, who has actively promoted science to schools, community groups and other organisations throughout the region, has noticed some telling impacts on his career and also on his university: "Without public engagement, I would have been less successful at gaining industrial funding. It enhanced my ability to interact with industrial funders who often have diverse backgrounds", he says.

A key advantage for Colin personally arose from his engagement activity enabling him to hone his communication and influencing skills – he was voted best lecturer by his students in 2008: "A direct result has been more invited research talks which has also broadened my horizons and enabled me to make links outside of my main discipline" he says. Another benefit for him was that the activity allowed him to tackle ethical issues with more confidence which was important since some of his research is funded by the defence sector where these arise. He also ascribes his enhanced external profile to public communication. He quotes examples such as judging the European Commission Young Scientists Competition for three years and a collaboration with a university in the US which he says "was directly related to public engagement activities". He also thinks that his leadership in public engagement work contributed to him gaining promotion to his Chair.

For the university, Colin sees benefits from enhanced numbers of applications from potential undergraduates arising from the strong links with teachers throughout Scotland.

## Two biologists benefit from hundreds

A nationwide public engagement project which could help save trees from an alien moth attack has been made possible following a small-scale venture led by two biologists **Dr Darren Evans** and **Dr Michael Pocock** of the University of Bristol. Their initial success with a shopping centre display to engage the public on how natural pest control can work on plants, triggered an award of new funding to allow them to think big for a new research project.

The new project mobilised over 900 school students across the Bristol area to provide data on how effective natural pest control is at preventing the alien leaf miner attack that has swept through many of our horse chestnut trees. Darren explains the resulting boost to his research: "As biologists it's very exciting because this is the first time anyone has looked at how many alien moths on conker trees across the country have been attacked by natural pest controlling insects. We would not have been able to have such a large dataset without the children's involvement. The researchers and the university achieved a high profile through the project website attracting around 30,000 hits, and coverage in the media."

The results of the experiment are being prepared for publication in an academic journal, and the researchers are in talks with national broadcasting companies on running a high-profile project involving the public via a popular TV programme in 2010.

Dr Darren Evans  
of the University  
of Bristol



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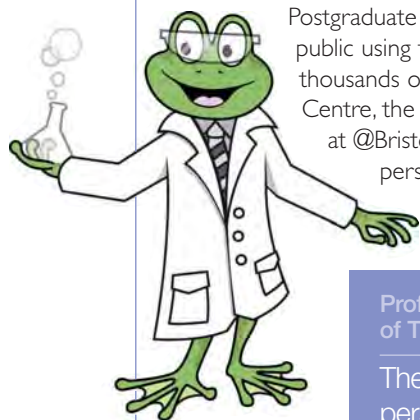


## Frog inspires industry collaboration

**Professor James Clark** of the Green Chemistry Centre of Excellence, at The University of York thinks that the Centre would not have developed such a close relationship on research and education with Boots plc had it not been for an EPSRC funded public engagement project based on a cartoon character *Fabs the Frog*.



James explains the impact of collaborating with Boots on the project, aimed at raising public awareness of the role of green chemistry in making products more environmentally friendly: "The initial public engagement work enabled the Centre to work more closely with them and we are now linked into a multi-faceted collaboration involving research, education and networking. For example, Boots commissioned and funded the Centre to do a feasibility study on greener formulations. They are also named as collaborators in research funding applications to study natural personal care ingredients using green chemical technologies". Another plus is the educational benefit arising from Boots representatives delivering invited lectures to students on the Centre's Masters Course in Green Chemistry and Sustainable Industrial Technology.



Postgraduate researchers at York have benefited from engaging with the public using the interactive display featuring the green frog which thousands of the public have already experienced at Glasgow Science Centre, the National Railway Museum and schools, and will also do so at @Bristol Science Centre. "The postgraduates involved have gained personally from increased confidence as well as greater understanding of the public's reactions", says James.

Professor James Clark  
of The University of York



The postgraduates involved have gained personally from increased confidence as well as greater understanding of the public's reactions

## Deprived areas guide urban project

The future direction of part of the EPSRC's research programme on sustainable urban environments has been guided by a public engagement project led by **Professor Malcolm Eames** of the Welsh School of Architecture at Cardiff University. His research benefited from reaching out to urban communities in deprived areas who would not usually be involved in urban sustainability debates to draw on their life experiences.

“We developed an engagement process over seven months, first setting up groups of participants including one with a range of residents from the community – such as young people, women, lone parents, and older people”, Malcolm explains. “The benefit to our research came from harnessing this local knowledge to generate a distinctive research agenda for sustainability. Issues had emerged on crime, safety and community cohesion which we had not expected and these are being fed into EPSRC's programme”.



Another spin off from engaging with the urban public has been the development of a novel methodology for use in future research into the needs of communities.

Professor Malcolm Eames  
of Cardiff University



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## Fifteen million reasons to thank public engagement

**Professor Peter McOwan** and **Dr Paul Curzon**, computer scientists at Queen Mary, University of London, have seemingly countless reasons to be thankful for a global campaign to enthuse students about interdisciplinary computer science. Apart from around 15 million hits on the campaign's website last year, the benefits to them range from awards for their improved teaching to fresh insights that have directly inspired new directions for research.



Dr Paul Curzon  
of The University  
of London



The data obtained from this was used in a publication which won a best paper prize, and has opened up a novel research methodology

The campaign, funded by a consortium of industry and EPSRC, has achieved its high audience reach through 20,000 copies of a free magazine sent to schools and a webzine with over 1900 visits a day. Aimed at presenting computer science in a fun, accessible and offbeat way, the magazine's impact led to it

being singled out for praise in an International Review of Computer Science of 2007.

Such acclaim for the project was of clear benefit for the two researchers, but their expanding role in public engagement opened up new ways of approaching their core work. A classic example stemmed from an online game created for the website to engage school students with topics related to human error; as Paul recalls: "The data obtained from this was used in a publication which won a best paper prize, and has opened up a novel research methodology." Another spin off for them came from using the project to engage users in ethical issues regarding robotic companions. The resulting data analysis raised issues which had not previously been considered within the campaign's consortium.

Summing up the personal benefits Peter says: "It helped gain me a National Teaching Fellowship and for Paul, the skills building led to his nomination this year by the Times Higher as Most Innovative Teacher. And we are both now far more aware of the impact of our research on the wider community".

## Thousands speed up galaxy project

Dr Chris Lintott a physicist of The University of Oxford, has succeeded in a bold initiative to free up a logjam in his research to classify galaxies by involving thousands of the public. This remarkable public involvement achievement is explained by Chris, an STFC Science in Society Fellow: "We needed to classify one million galaxies so we devised the *Galaxy Zoo* project to mobilise many people to do classifications independently which allows us to quantify errors in the results which is impossible from a single user. So we have managed to attract around 250,000 amateurs to become involved. By using their own computers with a specially designed software interface they could watch, research and contribute their findings".

Dr Chris Lintott  
of The University of Oxford



It is very empowering for the scientist because it means that a researcher can spend more of their time interpreting information, rather than simply collecting data



The *Galaxy Zoo* project led to plans for the Solar Terrestrial Relations Observatory (STEREO) project, which will look at the sun's solar storms to predict activity that could affect satellites. On its own, the project would not have the resources or computing power to be effective.

Chris believes that, "The observation research outcomes of a couple of dozen amateurs could exceed that of an expert. It is so radically different to just having one researcher. It is very empowering for the

scientist because it means that a researcher can spend more of their time interpreting information, rather than simply collecting data".

## Like having 106 research assistants

**Professor Kevin Laland** of The University of St Andrews had a big surprise when he opened up a major competition related to his biological research so that schools could participate. "It was like suddenly having 106 research assistants," said Kevin. The idea behind the tournament originally was to involve mainly academics to compete to provide solutions to the best ways of learning in a complex variable environment. "Involving schools as well was initially to promote the university, but we found the schools' entries were very good. The top school was a really serious candidate to win the tournament and the schools made a significant contribution to the project", explains Kevin.



Professor  
Kevin Laland  
of The University of St Andrews



Involving schools was initially to promote the university, but we found the schools' entries were very good



# THE BENEFITS OF PUBLIC ENGAGEMENT FOR RESEARCHERS

- Skills development
- Career enhancement
- Enhancing your research quality and its impact
- New research perspectives
- Higher personal and institutional profile
- Influence and networking opportunities
- Forming new collaborations and partnerships
- Enjoyment and personal reward
- Additional funding
- Increasing awareness of the value of research to UK society
- Increasing student recruitment
- Inspiring the next generation of researchers

Professor Dame Nancy Rothwell  
of The University of Manchester



Engaging with the public makes  
you think more about what you are  
doing and its value







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