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Mark Walport and Ian Jones

Left: *Leap Of Faith*, 2000 © Art of Regeneration
 Below: *The Gift*, 1996 © Robert Workman



Bring science to life: Y Touring, drama and the Wellcome Trust

By Mark Walport and Ian Jones

For 15 years, the Wellcome Trust has been a major funder of Y Touring's projects. One of the Trust's key aims is to engage young people and adults with issues in biomedical science, and drama-based approaches are an excellent way in which this can be achieved.

The Wellcome Trust first supported Y Touring in 1995, when it provided funds for *The Gift*, Nicola Baldwin's play about genetic selection. Since then, the Trust has provided support for 12 Y Touring plays, most recently through a large Engaging Science Society Award. The topics covered have been remarkably diverse, ranging from young people's mental health, embryonic stem cells, the use of animals in medical research, memory loss and clinical trials (see Box). All have been highly topical, and raise issues of great social and ethical significance.

Back in 1995, the use of drama to explore socioscientific issues was not well established, and the relationship

between theatre company and medical research charity may not have seemed like an obvious one. In fact, the timing was important. The Trust was beginning to expand both the scale and type of public engagement work supported, while Y Touring was keen to explore some of the challenging social and ethical issues being raised by biomedical research.

Having addressed various health and social issues, and developed a successful methodology for using drama-based approaches in education, Y Touring was well-placed to extend its work to biomedical science. Throughout, there has been a close working relationship between the Trust and Y Touring. It is important that each play is scientifically credible (as well as genuinely engaging theatre), and the Trust has been able to provide scientifically qualified staff to act as advisers – not to promote any particular point of view but to ensure that plays provide a realistic context in which to explore social and ethical issues. In each project, this has involved much creative and constructive dialogue.

But why would a medical research charity be interested in drama in the first place? In the mid-1990s, the Trust was undergoing a major expansion, supporting biomedical research on an increasingly grand scale. It was beginning to provide major funding for the Human Genome Project, through its support for the Sanger Centre at Hinxton near Cambridge (now the Wellcome Trust Sanger Institute). The increase in funding was enabling the Trust to be both bold and imaginative in its support – as with its decision to increase support for human genome sequencing to enable the Sanger Centre to sequence a third of the human genome and ensure that sequence information remained in the public domain. Similarly, the Trust was able to make major awards in Public Engagement, such as £17.8m funding for the Wellcome Wing at the Science Museum, which opened in 2000, along with substantial funding for other Millennium Science Centres and museums.

As well as these major initiatives, the Trust was also moving towards supporting more imaginative and creative forms of public engagement. The Trust had had a long-standing commitment to communicating its work, and biomedical science more generally, to broader audiences. It had established the ‘Science for Life’ exhibition at its headquarters in Euston Road, London, and hosted visits from school groups – young people being seen as a particularly important group to reach.

Valuable though these activities undoubtedly were, there was a growing awareness that they were not appealing to all audiences. They were also rooted in an essentially one-way form of communication, with experts imparting their superior technical knowledge to passive, less well-informed audiences – at odds with an increasingly empowered and demanding populace. Many potential audiences were dissatisfied, disenfranchised or simply disengaged.

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A variety of approaches were promoted to broaden the horizons of public engagement with science. The ‘Sciart’ initiative was launched in 1996, aiming to support creative partnerships between scientists and artists. Over several years, the initiative supported a wide range of innovative projects, largely in the visual arts. Two years later, the Science on Stage and Screen initiative, running for two years, promoted work in the

performing arts and multimedia. Science Centrestage, launched in September 2001, provided an opportunity for young people in schools to develop works of drama and dance, culminating in a National Festival of Drama at the Royal Opera House. Between 2003 and 2006, the

Y Touring plays funded by the Wellcome Trust

The Gift (1995) by Nicola Baldwin, Genetic Selection

Cracked (1996), by Nicola Baldwin, Mental Illness

Pig in the Middle (1998), by Judy Upton, Xenotransplantation

Learning to Love the Grey (2000), by Jonathan Hall, Stem Cells

Scenes From the Fair (2000), by Jonathan Hall, Inherited Disease

Born of Glass (2000), by Rhiannon Tise, Reproductive Technologies

Leap of Faith (2000), by Nicola Baldwin, Risk

Genes R Us (2000), by Rahila Gupta, Human Genetics

Mind the Gap (2004), by Abi Bown, Memory Loss

Every Breath (2005), by Judith Johnson, Animal Use In Research

Starfish (2008), by Judith Johnson, Clinical Trials

Breathing Country (2008), by Ben Musgrave, Electronic Patient Records

Pulse funding initiative provided support for young people’s performing arts projects (including the development of several plays by Y Touring).

In fact, the past decade has seen the Wellcome Trust support a wide range of imaginative projects, either directly or through its funding schemes. Its funding has helped launch highly successful public engagement ventures such as Café Scientifiques and Cambridge’s Naked Scientists. It worked with partners such as the Science Museum and the British Museum to present innovative exhibitions, forerunners of the acclaimed events and displays at the Trust’s own Wellcome Collection, which opened in 2007. The auditorium at Wellcome Collection has hosted a wide range of dramatic performances.

Complementing these activities has been an extensive programme of work in the formal science education sector, not least the partnership with the UK Government to establish a National Network of Science Learning Centres to provide high-quality continuing professional development opportunities for teachers. During the bicentenary celebrations of Darwin’s birth in 2009, the Trust ensured that all the UK’s publicly funded schools received experimental kits illustrating Darwin’s ideas.

Y Touring's Trust-funded projects therefore form part of a wider portfolio of work aimed at promoting public engagement with science. But why is drama such a valuable way to engage the public?

Drama might seem very remote from the world of scientific discovery. Can drama really bring anything to science? The work of Y Touring and of other companies supported by the Trust demonstrates that it definitely can, and that there is a strong mutually beneficial relationship between the performing arts and science. It has a potentially important role to play in both informal and formal education.

What is surely significant is that all good drama triggers some kind of emotional response – be it the elation of an uplifting production or the sense of grief triggered by moving stories and performances. As any cognitive neuroscientist (or poet) will point out, emotional responses establish particularly strong memories. Chances are that a student will remember a compelling piece of drama more readily than a typical science lesson. Moreover, an emotional response will help students to empathise with a character's situation and how scientific and medical issues impact on their personal circumstances.

Indeed, the performing arts are a powerful way to engage young audiences, particularly young people who have found little in formal science education to interest or excite them. Drama can provide a way to explore topical issues and to consider different perspectives on such issues. It provides young people with an opportunity to ask questions, to have their curiosity and interest stirred; it provides a platform for discussion and

dialogue.

Drama projects – and other forms of performing art, such as dance – can help to break down barriers, make science seem less intimidating. They can help to demystify science, shedding light on the processes and concepts of science and on the kind of people who work in it. With its daunting vocabulary, specialist knowledge and unique ways of doing things, science can be alienating, particularly to young people. Drama provides a forum in which the results of science can be discussed along with its possible implications and how scientific knowledge is generated – highly relevant to the important 'How Science Works' curriculum theme.

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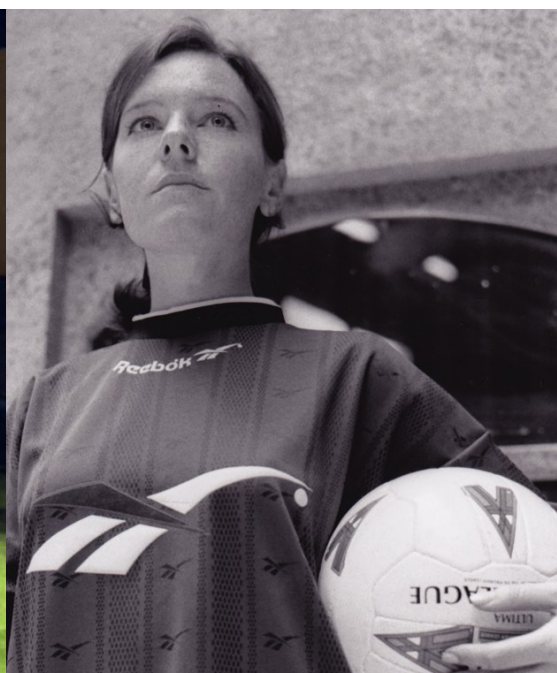
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And it is not just young people who benefit. Scientists who participate in such projects also have their horizons broadened and look with fresh eyes at what they do, how they communicate with others, and how they view the possible social impact of their work.

Drama may therefore have a role in informal education, but can it convey knowledge? Of course, drama is not intended to be a routine

From Left to Right:
Scenes From The Fair, 2000
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The Gift, 1996
 © Robert Workman



pedagogical tool. Arguably, what it does best is to engage at an emotional level, forging connections between young people's own lives and scientific issues with socially significant implications. In doing so, it helps provide a more well-rounded education, a more nuanced view of the knowledge gained through formal education.

Through this type of approach, young people are more actively engaged in creating their own understanding, drawing upon those with specialist knowledge but also adding something else – a greater sense of relevance, of how the knowledge sits in relation to what else they know and what else they think and feel.

It may not just be young people whose education benefits from cross-fertilisation between science and the arts and humanities. Medical education has also experimented with the use of drama, with at least some evidence that it affects trainee doctors' ways of thinking about the patients' experience of illness.¹

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Jonathan Osborne, formerly of King's College London and now at Stanford University in California, pointed out recently that, while discussion, conflict and argument are an essential part of the scientific process, they are almost entirely absent from science education.² As a result, students may be gaining a misleading view of what science is actually like, as well as missing out on a valuable mechanism of learning: “[S]cience can appear to its students as a monolith of facts, an authoritative discourse where the discursive exploration of ideas, their implications, and their importance is absent ... Students then emerge with naïve ideas or misconceptions about the nature of science itself.”

Moreover, Osborne notes, there is evidence to suggest that when such approaches are introduced, learning outcomes are improved. This is very different from the way science is conventionally taught, and introducing more argumentation into science education would be challenging. Drama may be one way to open up the doors to a more collaborative discussion-based learning, seeding the ideas for debate and

argument. Other successful Trust-funded programmes, such as ‘Debating Matters’, organised by the Institute of Ideas, similarly provide scope for using argumentation-based approaches to tackle scientific issues.

It may be troubling to some in the arts community³ that by establishing close links with science, lured by the prospect of generous funding by the Wellcome Trust and others, the arts are in danger of losing their soul. Works become tailored to fit sponsors' needs, rather than reflecting artists' intrinsic inspiration. That it is surely an oversensitive response. Have artists ever been free of patrons' or sponsors' interests, or the vagaries of the market? Besides, the fields of interest of medical science are so broad, and so indelibly linked to the human experience, there is surely sufficient creative freedom enough for anyone. The rich diversity of Y Touring's portfolio is testament to the potential scope offered by science and medicine.

Strategic directions

We are continuing to support imaginative and creative drama projects through our Engaging Science programme (which includes our People Awards, Society Awards and Arts Awards). A notable recent example was ‘For the Best’, developed by Mark Storer and Anna Ledgard and performed at the Unicorn Theatre in London in 2009, which explored the lives of children on dialysis. Highly acclaimed, it was described by *The Guardian* as an ‘extraordinary, fierce and moving show’.

In 1997, Y Touring was awarded funds to develop a video of *The Gift*, and the development of ideas for film and television, through Broadcast Development Awards, is now one of our key priorities.

Again, the Trust has a considerable track record in this area. Our history of medicine programme has provided support for a number of dramatisations, including *Trafalgar Battle Surgeon*, an award-winning docudrama exploring the role of health and medical care in Nelson's famous victory, and a compelling account of the young doctors who helped treat liberated inmates of the Bergen-Belsen concentration camp at the end of the Second World War. Through Broadcast Development Awards, we have now funded numerous early-stage projects.

Even conventional documentaries can benefit from imaginative dramatisation – such as *The Great Sperm Race*, which portrayed sperm as athletes navigating a host of challenging terrains, symbolising the obstacles encountered in the female reproductive tract as sperm struggle to

reach the egg. Real-life drama is apparent in projects such as *The Operation: Surgery Live*, shown on Channel 4 and at Wellcome Collection in 2009.

Fifteen years after *The Gift*, what can we say about the relationship between science and drama? According to many, the 'dialogue model' has become the dominant approach to public engagement.⁴ Successful projects aim to stimulate conversations between scientists and the lay public, such as the exchanges between school students and researchers in *I'm a Scientist Get Me Out of Here*, a project funded by a Society Award.

More broadly, it is no longer unusual to see scientifically themed mainstream drama, and writers and film-makers have successfully tackled scientific topics, such as Michael Frayn with *Copenhagen* on the stage and *A Beautiful Mind*, exploring the life of mathematician John Nash, on the big screen. In the informal sector, science has become recognised as an important part of the country's intellectual and cultural milieu. This idea has been vigorously promoted by our own Wellcome Collection, which has incorporated drama into its activities, recently with the highly successful staging of *Pressure Drop*, written by Mick Gordon and featuring Billy Bragg and On Theatre.

As it continues to reveal more about the living world, and delves ever deeper into the behaviour of living organisms, biomedical research will undoubtedly continue to throw up new issues. For centuries, science has challenged existing frames of reference and overturned established certainties, which many have found uncomfortable. It is now seen as offering a route

to future health and prosperity. Arguably, science has never been as important as it is today.

Science has provided untold benefits, and has given us previously unimagined powers to shape our future. This unprecedented power should also give us pause for thought, however, and encourage us to think carefully about how we exercise this power. It remains essential that science maintains a strong relationship with the public, and is carried out with both public awareness and support. This is certainly the case at present.⁵ It is up to scientists to continue to discuss the nature and implications of their work, and to engage in meaningful dialogue wherever possible with members of the public, young and old. In this regard, drama will continue to have a vital role, inspiring, stimulating, probing and questioning audiences and participants alike.

Endnotes

¹ Pinching A, Teare J, Turley S. Dramatic clinical spaces. In: Levinson R, Nicholson H, Parry S, eds: *Creative Encounters: New conversations in science, education and the arts*. London: Wellcome Trust; 2008. pp. 90–108

² Osborne J *Arguing to learn in science: the role of collaborative, critical discourse*. *Science*. 2010;328(5977): 463-6

³ Glinkowski P, Bamford A. *Insight and Exchange: An evaluation of the Wellcome Trust's Sciart programme*. London: Wellcome Trust; 2009

⁴ Science for All Expert Group. *Science for All: Report and Action Plan from the Science for All Expert Group*. London: Department for Business Innovation and Skills; 2010

⁵ Butt S, Clery E, Abeywardana V, Phillips M. *Wellcome Trust Monitor 1: Tracking public views on medical research*. London: Wellcome Trust; 2010

From left to right:

Scenes From The Fair,
2000
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Pig In The Middle, 2000
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