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Theatre, education and the politics of life itself: Theatre of Debate

Over the first two decades of the twenty-first century, one UK-based theatre company systematically engaged with emergent themes in the biological and related sciences probably more than any other, at least in terms of the number of productions, collaborations with scientists and other experts, and total audiences reached. Unlike the practices discussed so far in this book though, most of Y Touring Theatre Company's work was not presented within theatres. Over this time Y Touring worked largely, although not exclusively, within state-funded secondary schools, most often targeting their work at audiences of secondary school students (11–18). Over a 25-year period from 1989 to 2014, the company toured one or two new productions every year, often of a newly commissioned play, with each play responding to a range of complex themes and reaching several thousand young people and their teachers on each tour. Y Touring was closed as a division of Central YMCA in 2014, but core members of the company have continued to work as the independent charity Theatre of Debate. I devote this chapter to a study of Y Touring's work partly because of the length of time over which the company worked in the field and the consequent depth and breadth of their practical exploration of science in performance. However, my focus on Y Touring recognises the significance of their work not just in quantitative terms but also as a carefully designed dramaturgical

approach that they have called Theatre of Debate. The implications of this approach go beyond producing performance. Theatre of Debate also constitutes a distinct form of pedagogy and political practice, where science in performance connects ways of knowing within the context of public education.

Theatre of Debate, as a dramaturgical approach developed, evolved and used consistently by the company, extends from the point of conception of a project through the development of themes, the making of a play and associated educational programme, and its production, normally as live theatre but sometimes also in television drama or filmed performances. The company's practice has also involved a particular approach to the touring and performance of the plays in schools or elsewhere and engagement with audiences both through the live performance and beyond.¹ This dramaturgical approach, I suggest, incorporates: a serious engagement with a range of expertise within a process of co-production; the framing of scientific objects as issues through dramatic narratives and debate; a commitment to the exploration of a politics of life; and the development of particular forms of speculative theatrical debate as pedagogy. As such Theatre of Debate makes a significant contribution to the practice of knowledge repair that I attempt to locate within science in performance. That it has mostly taken place within state education and involved large, diverse groups of young people also demonstrates the democratic possibilities of educational theatre as a way of knowing.

In this chapter, I examine the key features of Theatre of Debate in several ways. In the first section I track Y Touring's 25-year history, giving an overview of their overarching political concerns as reflected in the programmes developed over this period. During this time the company has consistently responded to scientific and technological developments particularly within the life sciences. I argue that this body of work constitutes a creative engagement with what Sarah Franklin (2000) and Nikolas Rose (2007) call 'the politics of life itself'. Theatre of Debate involves processes through which forms of life and the technologies that might be adapting or giving rise to new life forms are understood as sources of power and subject to political contest. I go on to discuss Theatre of Debate as an ethopolitical dramaturgy bringing together the politics and ethics of the life sciences through dramatic narratives, examining the way the practice has engaged with genetics and genomics. In the second half of the chapter, I extend my discussion of Theatre of Debate as a dramaturgical approach, outlining further aspects of the process and how it constitutes an intervention into education that values and promotes embodied knowledge, what I call, following Rose, 'somatic expertise'. In these sections, I describe the development of a specific project

dealing with the politics of neurotechnologies, called *Stunted Trees and Broken Bridges*, and discuss a range of responses to the work.

Theatre of Debate

There are two driving concerns that connected the work of Y Touring over 25 years. These concerns constitute a productive tension central to the dramaturgy and politics of the practice. On the one hand, the practice shows a sustained commitment to engaging with young people, from 9–18 but primarily within the 14–18 age range, manifested both in the concentration on touring to secondary schools and in representing young people and their concerns through dramatic narrative. This engagement with young people has been extended through debates, discussions, workshops, programmes run at the venue One KX,² collaborations with youth theatres and media activity. All these activities have exemplified a particular concern with supporting young people's sense of their own position within a pluralistic, changing society. On the other hand, Y Touring's Theatre of Debate has also sustained a sense of curiosity for emergent objects from science and technology. Many of the plays produced or developed by the company introduced or even proceeded from specific concepts, diagnoses or technologies often associated with biomedicine. In the 1990s this included HIV/AIDS, Friedreich ataxia, pre-implantation genetic diagnosis, xenotransplantation, depression and genetic modification. In the 2000s this meant stem cells, organ transplants, behavioural genetics, post-traumatic stress, dementia, animals in health research, climate change, surveillance, clinical trials and electronic patient records. In the 2010s they tackled pharmacogenetics, cancer, neurotechnologies, nutrition and diabetes. While live theatre remained at the core of the company's aesthetic, they experimented with a wide range of media including electronic voting technologies, various web platforms, social media, broadcast television, video/DVD production, cinematic screenings, virtual reality and others, often finding ways of integrating these technologies within the live programmes.

Theatre of Debate owes much to the Theatre-in-Education (TIE) movement that in most histories dates from the 1960s.³ Nigel Townsend, who founded Y Touring in 1989 and remained artistic director over the whole 25 years, had trained at Bretton Hall on the pioneering Drama Education course run by John Hodgson, going on to develop his skills as artist and educator as an actor-teacher with Coventry's now famous

Belgrade TIE in the early 1970s and working for many of the other leading TIE companies. As has been well documented elsewhere, Belgrade TIE pioneered an approach and set of principles that became a kind of aesthetic and political benchmark for subsequent practices in educational theatre and applied theatres more broadly (Jackson 2007; Nicholson 2009). Townsend was a Belgrade company member on programmes such as *Pow Wow* (1973), an interactive narrative for 7- to 8-year-olds set in a Wild West show addressing racism and colonialism from the points of view of settlers and indigenous peoples, and the trilogy of plays about environmental issues *Rare Earth* (1973), that can perhaps be seen as a specific precursor to Y Touring's work with socio-scientific themes.

Townsend left Coventry and moved to London, via theatre jobs in different parts of the UK working for some significant companies including Gay Sweatshop, Unicorn Theatre and Cockpit Theatre. In 1987 he was offered a job developing a new strand of performance practice for the Central London YMCA club. While Y Touring often had a somewhat uneasy relationship with the Central YMCA management, the practice clearly maintained an affinity and a relationship with the youth work of the YMCA. The Central YMCA was the first branch of the international Christian youth organisation which maintained its historic concern with young people's health and fitness. Since its foundation in 1844 the YMCA had developed a worldwide range of youth work practices appealing to 'mind, body and spirit'. The association has been credited with the development of basketball and volleyball in a form of what has sometimes been termed 'muscular Christianity' (Putney 2001). In the early twenty-first century, this historic mission was interpreted by Central YMCA principally via their management of a large fitness gym in central London (Central YMCA 2016). In many ways, Y Touring's attempts to engage young people with the politics of the mind and the politics of the body, albeit within a more secular frame of reference, was very consistent with this ethos, even if the YMCA management might not always have appreciated this. This ethos was combined in Y Touring's practice with some of the philosophy of the TIE movement. At Belgrade and elsewhere, TIE had been underpinned by a combination of progressive, child-centred educational philosophy and sometimes revolutionary Marxist politics. The clear legacy of TIE in Y Touring's work is evident in the concern with the development of particular forms of dialogical theatre. Y Touring's work therefore combined a youth work sensibility – a concern with young people's self-realisation – with the dialogical pedagogy of TIE.

As has already been referred to in this book, the HIV/AIDS pandemic has played a significant role in shaping the politics and aesthetics of science in performance and this is also born out in the early history

of Y Touring. The company's first production was their 1989 tour of *The Inner Circle*, a play by US playwright Patricia Loughrey that had initially been developed and produced by Ed Decker at the New Conservatory Theatre Center in San Francisco. The play toured in the USA in the 1980s and subsequently in the 1990s became a popular play for US high school productions (Educational Theatre Association 1992, 1994). It has also been translated into a number of other languages and performed internationally in over 500 productions ('Patricia Loughrey – Plays' n.d.).⁴ The play responded to the HIV/AIDS pandemic focussing on the experiences of four young characters. The story contains a number of facts about transmission of the virus but within an engaging narrative recognisable to its intended audiences of young people. The perspectives of the characters also reflect a range of social attitudes typical of the time including the stigmatisation and discrimination around AIDS. Y Touring's UK version of the play adapted it for its British audiences and incorporated a workshop that included hot seating the characters – a technique used by Belgrade and other TIE groups which remained a key feature of Y Touring's practice. The production gained support from Crusaid, an HIV/AIDS charity that subsequently merged with the Terence Higgins Trust, and the Hampshire and Dorset Health Authorities. It toured UK schools for eight years, even reaching the Orkneys, showing the sustained importance of the theme but also how extraordinarily successful the theatre project was in addressing what was a very difficult issue for schools, particularly at that time.

There are key aspects to this first production that are important in understanding the significance of Y Touring's work. Firstly, that while continuing to draw on the artistic and educational practices of the TIE movement, *The Inner Circle* represented a distinct form of educational theatre through the way it engaged with health, both in terms of biomedicine and young people's sense of self. Secondly, Y Touring's approach to theatre and education was a co-production process involving close collaboration with non-arts charities and health authorities. Both these dimensions of the practice reassemble practices of educational theatre in relation to a growing sense that the political rests as much in individual lifestyle choices – matters of life and death – as it does in collective affiliations. This perspective reflects sociological shifts such as the changing role of women, globalisation, civil rights, gay rights and identity politics. Such shifts have been influenced by and expressed through notions of biopolitics. Michel Foucault claimed that, in the modern era of biopolitics, 'the life of the species is wagered on its own political strategies' (1979, 143).

Biopolitics or the politics of life are inextricably entangled with changing conceptions of life emerging from the biosciences and the changing

technologies that impinge on and, to a greater or lesser extent, influence the way we live. Sarah Franklin describes such changes as ‘transformations and realignments of life, labour and language’ (Franklin *et al.* 2000, 193). The YMCA’s historical approach to youth work combining architecture, physical exercise regimes and spiritual wellbeing and the TIE movement’s approach to embodied learning across the school curriculum both demonstrate reflexivity towards biopolitical experience. Both movements worked within and with established institutions of church and state but with creatively innovated sets of political practices that may not immediately have been recognised as such. Central YMCA evolved from its initial nineteenth-century origins, in the bedroom of a draper George Williams near St Paul’s Cathedral, to an organisation open to all faiths and none (Gilderson 2019). Its biopolitical practice has been dominated by a commitment to sporting exercise and physical training, but it has also integrated this with other kinds of artistic and educational activity.⁵ Y Touring’s practice emerged from this intersection. The company brought to this a consistent engagement with the biosciences presaged by the emerging environmentalism within TIE reflected in *Rare Earth* and the health activism around HIV/AIDS reflected in *The Inner Circle*. As such the politics of the company’s practice seemed to track closely the way the ‘politics of life itself’ evolves as an iteration of biopolitics.

Y Touring’s work though cannot simply be seen as health or environmentalist education or activism, even if some of their projects have engaged with these fields. Their intervention into the politics of life, rather than espousing a particular activist agenda, has been to open up emergent objects, ideas and technologies to ethical evaluation through the Theatre of Debate process. The consistent position has been to resist premature closure to such evaluation, whether this might happen through ideological, moral or scientific rationalisation. Theatre of Debate is therefore an ‘ethopolitical’ practice. Nikolas Rose explains ethopolitics as allowing ‘the possibility of opening up the evaluation of forms of life and self-conduct to the difficult and interminable business of debate and contestation’ (1999, 192). Theatre of Debate’s engagement with the biosciences and concern with emergent objects and forms of life has not come with an easy acceptance of scientific or other discourse that might assume priority or authority over articulating the facts of such life. Staging the ‘politics of life itself’ even involves resisting premature closure over what might constitute life and an examination of the proposition that life itself is not (or no longer) co-extensive with living beings.⁶ Theatre of Debate constitutes a particular pedagogy that cuts across knowledge boundaries, as defined within schools via curriculum or teacher specialisation, and has mobilised diverse forms of expertise in reworking both pedagogy and curriculum.

The rise of genetics and neuroscience has played a central role in the contemporary politics of life and, as such, provides a thread through Y Touring's practice. Theatre of Debate has sustained an exploration of genetics and genomics from the 1995 production and tours of *The Gift* by Nicola Baldwin, dealing with the ethics and politics of genetic screening, through to and beyond the 2011 production of *Dayglo* by Abi Bown that examined the potential of genomics to personalise drug treatments.⁷ These two productions show something of the evolution of thinking and applications of genetics over the period, and how these conceptions intersect and are co-produced with popular narratives and particular ethical debates. *The Gift* featured ethical issues that arise from single gene disorders, relatively rare inherited autosomal recessive conditions, which can be passed on from parents to children by a particular genetic mutation. This illustrates the so-called 'gene-for' paradigm whereby genetic factors are seen as determining health or particular traits. If you inherit two copies of the gene, then you will definitely develop the condition. *Dayglo* featured a character whose brother has sickle cell disease, another autosomal recessive single gene condition, but this is juxtaposed with the story of a character with a faulty BRCA1 gene, linked to an increased susceptibility to breast or ovarian cancer.⁸ So-called faulty or mutated BRCA1 and BRCA2 genes can result from many different small changes to DNA, called single nucleotide polymorphisms (SNPs), but even inherited forms of breast cancer depend on a number of factors beyond these genes; so testing positive for BRCA 1 or 2 only means an increased probability of developing breast cancer rather than its certain onset. Breast cancer can of course be developed without either of these genetic profiles. Neuroscience and its evolution, alongside changing conceptions of mental health, was also a recurrent theme from the 1996 production of *Cracked* by Nicola Baldwin through to the 2012 play *Stunted Trees and Broken Bridges* by Ben Musgrave.⁹

Genetics and neuroscience are both clearly burgeoning areas of science and technology. They are also co-produced with and by a popular imaginary with its own discourses, narratives and iconography familiar to scientists and non-scientists through popular media, internet memes and entertainment. As José van Dijck (1998) has argued, 'popular images of genetics are not created by either social or professional groups, but evolve from the continuous interaction between these groups in the realm of culture'. These images are not fixed but transform over time through this interaction. Van Dijck goes so far as to say that the evolution of genetics should not be seen as a series of discoveries by scientists but as 'conceptual shifts, scaffolded by images and imagination' (1998, 179). It is the perceived gap within this co-produced imaginary, so between

the understandings and feelings of scientists, policy-makers and other sections of populations, that has driven public engagement policies, performance pressures and funding discussed in Chapter 1 of this book. Theatre of Debate has operated within and across this gap, dramatising a process of co-production in a way that connects up scientific conceptions of genetics or neuroscience with a more popular imaginary. In this way, Y Touring's 'genetic imaginary', to use Sarah Franklin's (2000) term, or indeed what might be called their neuro imaginary, are distinct from those circulating both within scientific journals and within mass media. In fact, Theatre of Debate might be better termed a process for imagining genetics or neuroscience rather than a coherent or consistent 'imaginary' because of the way it resists closure or the imposition of a particular frame. It exposes the process as process and gives audiences purchase on it, deliberately inviting their imaginative participation. This is a significant departure from dominant narratives and imaginaries circulating across much of the popular media.

Franklin, for instance, has argued that blockbuster Hollywood movies, like *Jurassic Park*, tend towards a tone of 'moral denunciation' in their treatment of science, even as the film and its merchandise celebrates it and performs its own commodifications of it (2000, 202). She argues that this is facilitated by the particular ways that the film manipulates 'the axis of the visual', inviting the audience to look behind the scenes 'speaking precisely to the knowledge of its audiences that there is more going on than meets the eye' (2000, 216), feeding off and reflecting popular ambivalence towards genetics that I have discussed already in this book. The speculative dimension of the film, the exploration of the possibilities of the technology, is closed off, in ethical if not economic terms, by the moral certainty of the conclusion. Its social critique is then somewhat undermined by the way the film and its spin-offs exploit the profitability of biotechnology. Audiences are positioned as cynical 'public witnesses' of science but, at the same time, as consumers and potential dupes of global biotech. Similarly, much media reporting of neuroscience speculates about the potential of neurotechnologies such as functional magnetic resonance imaging (fMRI) but tends to do this within a kind of closure about the knowledge, rarely addressing the limitations of the research or the technology itself. This tends to reinforce notions of 'neuro-realism' and 'neuro-essentialism', whereby brain imaging data is presented both as a kind of 'ultimate proof' about a phenomenon and as a novel essence of humanity, superseding notions of personhood, the self or the soul (Racine *et al.* 2010, 728). At the same time, such media coverage also tends to reach premature ethical closure

about the technology through an exploration of benefits or more rarely its potentially damaging consequences.

Ethopolitical dramaturgy: staging the politics of life

Theatre of Debate provides a contrasting dramaturgy, a distinct way of positioning its audiences and consequently a somewhat different political practice to this otherwise dominant model. It shares a mode of speculative theatricality, examining the (often very near) future possibilities of emergent technologies and changing conceptions of life. However, rather than a process of closing off, Theatre of Debate relies on an iterative process of opening up genetics and an ethopolitical perspective and thereby an opening up of possible futures. This hopeful yet pragmatic perspective, which displays a concerted resistance to economic or technoscientific determinisms, is reflected in Y Touring's sustained commitment to working primarily for young people and within education. Such opening up relies on dramaturgical processes that are consistently reflexive and responsive towards the shifts in contemporary biopolitics. Rose (2007) has examined these shifts, which he refers to as 'mutations', in some detail and there are key elements of his analysis that are useful in exploring Y Touring's Theatre of Debate.

For Rose, shifts in contemporary biopolitics constitute 'styles of thought' that are manifested in technologies and shape emergent forms of life. The first of these trends, that Rose calls 'molecularisation', connects many of the central themes of different Theatre of Debate projects. To some extent, this is a shift in scale, life is visualised and conceived by biomedicine at the molecular level rather than the whole organism or set of organs. If the narrative concerns of educational theatre were hitherto concerned primarily with (whole) human bodies, communities and societies, contemporary biopolitics forces attention towards these bodies as made up of components that might be recombined, exist outside the body and be subject to a variety of medical and other interventions. Molecularisation relies on a whole range of genomic and information technologies and on technologies that can visualise the body at the molecular level. Such technologies and their connected molecular concepts and imaginaries pervade Y Touring's plays. For instance, brain imaging, its limitations as representation and how it sets up a particular

imaginary about life is a central concern of *Mind the Gap* and *Stunted Trees and Broken Bridges*. DNA sequencing technologies provide part of the premise for *The Gift*, *Dayglo*, *Making Astronauts* and other plays. A second and linked trend is what Rose calls 'optimisation' (2007, 15). Biomedicine in the twentieth century was primarily concerned with establishing the norms of life, then pathologising and treating departures from these norms where possible. Biomedicine in the twenty-first century identifies susceptibilities of and possible enhancements to the body and so proliferates the potential for technological interventions among populations who might previously have been considered healthy. Theatre of Debate plays tend to pose questions about technologies of optimisation, whether this is the potential for cognitive enhancement dealt with in *Mind the Gap*, the neurotechnologies in *Stunted Trees* and *Broken Bridges*, or the susceptibility to particular inherited conditions dealt with in the genetics plays.

Questions of optimisation and molecularisation are often interlinked in the dramaturgies of these plays. For example, the narrative of *The Gift* by Nicola Baldwin, first produced by Y Touring in 1995 and toured again to UK schools in 2000, relies on a set of technologies, developed in the 1990s, whereby the gene for a particular recessively inherited condition can be identified in adults who have the condition or carry the genetic mutation for it.¹⁰ Pre-implantation genetic diagnosis emerges from this technology in combination with existing infrastructures for assisted reproduction (IVF). It enables would-be parents to test embryos for a condition which may be present within their family history.¹¹ By using this process and only reimplanting embryos without the gene, such conditions might potentially disappear from families and societies. Families undergoing such processes normally receive genetic counselling that explains the condition, its mode of inheritance and some of the other factors and risks that they might need to consider in deciding whether to use the technology. *The Gift* features these technologies and a speculative projection of them, but also, by playing out the narrative across three generations, it tracks how particular decisions made on a molecular level might have implications for individuals, families and societies.

The Gift tells the story of three generations of the Kay family. It opens in the year 2030 as Mark Kay, nearing his 16th birthday, falls out with his father Ryan. The story then flashes back to the year 2000 when Ryan was himself a teenager.¹² Ryan's sister, Annie, is a promising footballer but starts to experience 'little gaps' and loss of balance (Baldwin 1995, 10). Annie is eventually diagnosed with Friedreich ataxia, a rare inherited degenerative condition of the nervous system. As a doctor later explains to Annie and her mother, 'Friedreich ataxia is passed on in families in a

way we call “recessive.” A recessive disorder is going to be relatively rare, as you need both parents to be carriers’ (1995, 12). That is to say, Annie has inherited two copies of the gene from her parents who are both carriers and therefore has the condition. The subsequent implications of this are presented in the imagined futures of 2014 and 2030. In 2014, Ryan has discovered that both he and his wife Jennifer, with whom he wants to have a child, are carriers. In order to ensure that his child does not inherit the condition, he selects an embryo without the gene before it is fertilised in vitro and then implanted in Mark’s mother, Jennifer. Mark is aware of this but in the opening scene he has discovered that his father also selected a genetic profile which accounts for his sporting prowess – the gift of the play’s title. Mark has found out because, in the 2030 of the play, ‘at schools all over Eurasia’ 16-year-olds routinely undergo genetic profiling. He is sent his profile in advance and is furious because, as he says, ‘the one thing I ever thought I was any good at turns out to be just another thing you gave me’ (Baldwin 1995, 4).

The Gift imagines the body at a molecular level, where the health of a body is determined by a particular sequence in a particular section of a chromosome. Friedreich ataxia results from a repeated triplet of nucleotides, GAA in the familiar four letter script that represents the structure of DNA (Campuzano *et al.* 1996). The characters in the play often talk about a ‘rogue gene’ or ‘wretched gene’ that has wrecked the family. The gene has developed a malign agency independent of the people it makes up. Within the narratives, the characters’ experiences of their bodies as whole are juxtaposed with the way the body can also be visualised and perceived at the level of organs, cells or molecules separable or independent from the body. Facing Mark’s predicament in *The Gift* means joining up molecular understandings of life with a molar sense of self. It also requires an appreciation of his relationships and family history. A genetic imaginary conjured up by the potential of screening technologies sits beside a brother’s relationship with his sister, a nephew’s memories of his auntie and a fictional adolescent’s particular sense of self.

The narrative builds on contemporary possibilities in genetic screening (for conditions like Friedreich ataxia) and more speculative notions such as the possibility to select an embryo for sporting prowess. Optimisation of life is therefore framed in a number of different ways within the play: as life without Friedreich ataxia, life without the prospect of passing on the condition to children, life with particular athletic talents. The play unpacks the way that the idea(l) of optimal life is a function of family, society and technology in different conjunctions at different times. Before Annie is diagnosed, she is a successful footballer and affectionately teased by her brother for this perceived challenge to gender norms. The new

technologies are themselves depicted in the play as transforming from a contemporary clinic to a futuristic genetic screening centre where genetic profiles can be conjured onto computer screens. Visions of optimisation also repeatedly generate disagreement. Ryan and his wife Jennifer disagree about genetic selection – she wants a ‘natural pregnancy’ – and he can only just about persuade her to select out Friedreich ataxia. Unbeknown to her, he also selects for athletic ability, provoking his son’s angry outburst years later.

José van Dijck, writing around the same time as *The Gift* was first produced, outlined a ‘recurring paradox... between increasingly hybrid technologies and scientific practices, and their monolithic or purified representations’ (1998, 194). As technologies become composed of more and more elements – private and public sector research, biological processes, information technologies, social infrastructure, multiple professional specialisations – the imaginary can be dominated by a single vision and a simplistic moral evaluation either approving or condemning. *The Gift* cuts against such purification, neither constituting critique nor promotion. It also locates both technologies and evaluations of them within changing socio-cultural contexts, unfixing them and throwing them open to question. Within the relatively short and uncomplicated narrative of *The Gift*, genetics is situated in a public health service, private corporate offices, a family home and on a tennis court. It has eugenic potential as well as the potential to avoid a cruel and debilitating disease and is intertwined with complex socio-cultural idea(l)s about the optimisation of life and the perfectibility of the human body.

Ethopolitical questions emerge through Mark’s and his parents’ fictional experience. His parents’ choices around genetic screening and decision not to reveal this to Mark are put into question. Ryan’s decision, and the audience’s understanding of this, is shaped by his relationship with his sister Annie and her experience of Friedreich ataxia, but clearly also by views on other issues such as his apparent desire for a successful and athletic child, perhaps itself also shaped by his memory of his sister’s thwarted ambition as a footballer. Ryan’s capacity to undergo the genetic screening process, interpret the genetic profiles and intervene in it without his wife’s knowledge is a result of his income and training as a geneticist, a career choice clearly influenced by his sister’s story. Mark’s anger when he finds out what his father had done is clearly driven by the disruption to his sense of self caused by the knowledge. There is no sense in which the choices made by the characters are capricious or lightly arrived at and so these choices cannot be simply evaluated.

The dramatic structure of *The Gift* opens up an ethopolitical perspective on genetic screening partly through the way it spreads the narrative

across three generations and across 30 years, enabling the debate to examine implications of technology across a significant timespan, through a play and discussion that mostly takes less than two hours. It also opens up the perspective by playing out the processes, transformations and implications of molecularisation and optimisation on characters that are otherwise ordinary, depicted in everyday relationships with parents or siblings, making everyday choices about having children. Unlike *Jurassic Park*, or many other popular treatments of genetics, the central characters are not exceptional figures, motivated by hubris or living within a dystopian autocratic regime pre-empting ethical evaluation.

If *The Gift*'s approach to opening up an ethopolitical perspective relies on the story playing out over generations and decades, Abi Bown's *Dayglo* makes use of parallel narratives crossing generations and social divides. In the play, two young people, Stella and Noel, meet each other in the fried chicken takeaway shop where Noel works. Stella's mother Evelyn has been diagnosed with breast cancer. Stella has been separated from her mother whose lifestyle as an iconoclastic rock star seems to have affected their relationship. After Evelyn's diagnosis though, Stella comes to see her mother and they both begin to rebuild their relationship. At the same time Stella and Noel become friends and are attracted to each other. They have things in common: they are the same age and share an experience of coping with illness in the family – Noel's brother has sickle cell disease. As with *The Gift*, the ethopolitical perspective emerges in *Dayglo* as the possibilities and limitations of biomedicine open up within the narrative and are faced by the different characters.

Dayglo plays with the perspectives of different generations. Evelyn lives life according to an anarchic ethos defined by her career as a punk singer.¹³ She is confrontational in her dealings with the medical establishment and although she has a mastectomy, she is resistant to further testing and treatment. In fact she does not want to know any more about her condition. 'Never Google, never worry', she says (Bown 2012, 10). Her daughter Stella seems very different. Faced with her mother's condition she ploughs through internet forums and social media searching for information about breast cancer. She is keen for her mother to have a MammaPrint – a genomic test that can predict if a cancer is likely to spread – and a BRCA test to find out if the cancer might be inherited. She also researches their family history looking for the illness across previous generations.

Stella and Noel's relationship is tested by the apparently different status accorded to breast cancer and sickle cell disease. Noel is frustrated by what he sees as a lack of availability of screening and treatment for sickle cell, which he links to the marginalisation of those with the condition.

Sickle cell disease is prevalent among black and minority ethnic communities.¹⁴ Noel suspects that research is curtailed by a lack of potential profit to be made from treatments. He speculates on the likelihood of personalised medicine being developed for his brother Josh in a witty dialogue with Stella comparing the economics of pharmacogenetics to the economics of fried chicken. At the chicken shack where Noel works, Hester from the pub likes Peri Peri sauce, but the owner of the takeaway is not going to go to the trouble of making it, especially as Noel points out because: 'Hester's a cleaner – she can't afford to splash out on some fancy chicken recipe, she'll eat southern fried like the rest' (Bown 2012, 16). As in *The Gift*, genetics is not monolithic. Within the scientific discourse, genetics and genomics are differentiated in the tests for different conditions. The technologies are constituted by science *and* economics. They save or prolong life as well as make profits for pharmaceutical corporations.

In *Dayglo*, *The Gift* and indeed the other Theatre of Debate plays, ethical perspectives are interwoven with explorations of hybrid technologies, economics, ethnicity, age, family background, personality, even affiliation to popular sub-cultures and other aspects of identity. Knowledge developed by the characters in these plays draws on professional, scientific expertise but equally from the experience of patients, carers, families and friends. Knowing is resourced by a symbolic and metaphorical vocabulary drawn from science but also from sport, fast food and music that all shape the feelings of the individual characters and popular feeling more broadly. Political agency in the plays emerges from the ability to mobilise this vocabulary in relationships between non-experts and experts and between non-experts as well as negotiating and, to some extent, unfixing the symbolic vocabularies of authorised scientific discourse. That scientific discourse relies on metaphor and symbolism at all can be rather opaque. Jackie Stacey has drawn attention to the way that biomedicine tends to use metaphor covertly, 'effectively covering its figurative tracks' (1997, 52). The proliferation of metaphor, analogy and simile in the plays helps to uncover these tracks. In the plays, the vocabularies are very often in the hands of non-professionals. In *The Gift* Annie explains the inheritance patterns of Friedreich ataxia to her brother using coins. In *Dayglo* Noel has his fried chicken analogy for the bioeconomics of pharmacogenetics.

Political activism within both *The Gift* and *Dayglo* takes novel symbolic and associational forms – a key theme of the next chapter in this book. In *The Gift*, Annie joins a group of patients with Friedreich ataxia, who replace the friendship and collective affiliation of her football team. Annie, Ryan and their mother campaign for rights to genetic testing for

under 16s on behalf of Ryan and other young people. Ryan and Jennifer fall on opposite sides of debates about genetic testing but still have a child together. In *Dayglo*, Stella goes online to gather information about breast cancer and makes friends with people through social media whom she connects with over her relationship to breast cancer and genetics. Noel does a sponsored run for sickle cell research. Ethopolitical affiliation and ethopolitical action are depicted as taken in relation to and through the body.

Perhaps the key respect in which Theatre of Debate functions as pedagogy and politics is the way that it brings together different conceptions of the body. It connects the scientific or biomedical body – subject to the institutional power of schools, hospitals, research centres and private industry – with the felt body as experienced in emotional or affective terms and the social body, constituted in relationships between family or friends. Ethopolitics demands a merger or intersection of these frames. Such a political move is of course in line with broad trends in feminist theory and practice which have attempted to challenge established distinctions between public and private spheres (Fraser 1990). It is also consistent with the politics of feminist sociologists who have challenged how societies value and frame feeling as labour or work (Hochschild 1979). The particular contribution that Theatre of Debate makes as educational practice, however, is in the way that feeling is constituted and valued as a way of knowing. Knowledge derived from feeling interacts with and is held together with other ways of knowing through the dramaturgy of the plays and indeed through other features of the practice I explain in the next section.

Many of the characters in Y Touring's plays exemplify ways that felt knowledge and disciplinary knowledge of biomedicine are synthesised in ethopolitics. Rose calls such emergent knowledge 'somatic expertise', registering the way it is knowledge held in and of the body but also increasingly valorised as expertise that can be gained and sold as labour (2007, 28–9). Somatic expertise, for Rose, gives rise to what he calls 'pastoral power' – power constituted in 'the relation between the affects and ethics of the guider... and the affects and ethics of the guided' (Rose 2007, 74). Such relations are frequently staged in the plays, for example in the kind of formal genetic counselling between the Kays and clinicians in *The Gift* or indeed in the informal discussions between characters in *Dayglo*. This expertise clearly includes scientific knowledge: the understanding of principles of genetic inheritance and some of the nuances of the genetics of particular conditions. However, it might also include an appreciation for how ethical positions in relation to particular scenarios might be informed by particular emotional dynamics, family experiences, national

histories (e.g. of eugenics), religious beliefs and other factors, as I have tried to outline in relation to *The Gift* and *Dayglo* in particular. Brian, an oncology nurse, treats and befriends Evelyn in *Dayglo* and his apparent wisdom and skill are rooted as much in his campy humour and ability to relate to both Evelyn and Stella as they are in his technical understanding of cancer genetics. In an opening scene of the play, before Stella returns to Evelyn, he does not so much explain Evelyn's diagnosis in biomedical terms as in relational terms, reflecting on the difficulty of sharing the diagnosis with a 'teen, probably nursing a grudge – the worst kind' and how 'this illness tears families apart'.

The characters represent clinical professionals such as nurses and doctors who would be recognisable to young audiences and whose authority is both extended and challenged within life politics and by their development of somatic expertise. However, they also include the novel authorities who emerge within life politics, such as genetics counsellors and forensic neuroscientists. Importantly, the plays also show the acquisition of such knowledge and power within and without professional roles and institutionally defined frames. In *Dayglo*, Noel has an understanding of genetics gleaned from his brother's sickle cell disease. Stella learns about cancer genetics from social media. Disciplines and institutions have an uneasy hold on somatic expertise and therefore pastoral power. If genetics within Theatre of Debate is not monolithic, then knowledge about it cannot be easily contained within monolithic institutions.

The development of an institutional infrastructure for ethopolitics and somatic expertise in the UK coincides with the history of Y Touring, and indeed the period covered by this book, and has been the subject of much political debate in this time. For example, the UK Human Genetics Commission, a non-departmental public body, was created in 1999 and then abolished by the government in 2010. The independent Nuffield Council on Bioethics, which has been involved in several of Y Touring's projects, was established in 1991 and is sustained by a mixture of charitable and public money. Bioethics as a broader discipline had roots in the much older system of medical ethics. However, medical ethics was primarily a matter for the medical profession. Bioethics has only emerged since the 1970s as a much more inclusive area of debate, where the views of a much wider section of society are considered of relevance, and therefore has much wider implications for education (Chadwick and Wilson 2018).

Y Touring's work has offered numerous stagings of encounters in which pastoral power is produced within the theatrical frame through the exercise of somatic expertise. In doing this, the practice offers insights into how this power is constituted that are hard to access elsewhere, outside personal experience, given that these encounters are almost by necessity

held in private. Even professional bioethics according to some commentators has been rather slow to examine what people actually do and think when faced with complex medical scenarios (Borrey *et al.* 2005). Such knowledge therefore has unsurprisingly made relatively little inroads into general educational curricula for young people. From the late 1990s there were initiatives to steer the English school science curriculum, particular in the 14–16 age range, more towards an approach that brought in some of what I am calling ethopolitics. Some of the pedagogical challenges identified in relation to this move had to do with how to make philosophical and sociological questions about science accessible to this age group (Millar and Osborne 2000).¹⁵ Theatre of Debate goes some way to meeting this challenge: its significance as pedagogy rests in its mode of producing and framing somatic expertise for and with young people. In the rest of this chapter I will explain how this approach extends beyond the dramaturgy of the plays throughout a creative practice of (etho)political education.

Ethopolitical education: overflowing frames, emerging issues

Y Touring as a company sustained their practice over 25 years because of a capacity to engage with scientists and scientific discourse and develop relationships with the emerging institutions and sponsors of bioethics, most notably in their relationships with organisations like the Nuffield Council on Bioethics and the Wellcome Trust. At the same time as maintaining these institutional relationships, the company accommodated their practice to the shifting demands of state schools in the UK, satisfied the evolving biopolitics of Central YMCA, supported and developed a group of writers and other artists, while also valuing the experience and perspectives of young people and a variety of somatic experts. This may sometimes have seemed like political and epistemological contortionism to the managers of the company. However, I would argue that this process of co-production constitutes Theatre of Debate as an ethopolitical educational practice.

The process relies on the co-production of knowledge within a series of overlapping frames and consistently allows, even prompts, this knowledge to overflow these frames. As I will go on to discuss, with reference to the sociology of Michel Callon (1998), technoscientific knowledge tends to overflow frames. This overflowing gives rise to issues. As subsequent

work in the politics of science and technology studies has argued, issues assemble and mobilise publics (Marres 2012). It is the exploration of issues that provides the terrain for politics and debate. Theatre of Debate is therefore not so much an issue-based practice as a practice whereby issues are created. The practice relies on engaging with the multiple individuals and institutions I have just characterised, as participants and audiences, all of whom bring with them their own ways of framing knowledge. Again, holding together this collective is a key dimension of Theatre of Debate as ethopolitical practice. At this point in the chapter, I should acknowledge this reflection emerges in part from my own changing relationship with the company, which itself has been informed by different but overlapping frames for viewing the practice: as funder, as commissioned evaluator and as academic researcher.¹⁶

I will illustrate and discuss the Theatre of Debate process here with reference to a project conducted by Y Touring in 2012–13, initially entitled ‘Brainwaves’ and leading to the play *Stunted Trees and Broken Bridges* by Ben Musgrave. As the second to last play before Y Touring closed as a division of Central YMCA and re-emerged as the independent Theatre of Debate, it shows the latest iteration of a process which had become tried and tested by that point. The exploration of a project with a neuroscientific theme here also complements the focus on genetics and genomics from the first half of this chapter. The starting point of most Theatre of Debate projects is framed by an advisory group or in funding applications within a loosely scientific discourse about an emergent object of science and technology – a novel technology, diagnosis or form of life. The Brainwaves project was described at its outset as being about ‘novel neurotechnologies’. Such a starting point may, of course, risk a framing according to the discourses and ideology of experts on an advisory group or funding body that comes to determine the practice.

Roger Wooster has criticised the emergence of what he terms theatre in health education in the 1990s for what he perceived as a narrow approach driven partly by project funding instead of ongoing support from Local Education Authorities. For him this led to a tendency to ‘teach “about” specific issues determined by the purse-holder’ (Wooster 2016, 189). Wooster specifically theorises the pedagogy of ‘classic TIE’, or what he calls ‘conceptual TIE’, as developing critical consciousness in terms of the Brazilian educator Paulo Freire’s *conscientização*. He equates work that is issue-based with work that is message-driven or framed in a way that is necessarily uncritical and therefore de-politicised. For him, such practice loses its counter-hegemonic function and becomes more closely associated with the didactic banking model of which Freire is so critical. This critique may well be justified in response to some practice,

although to apply it broadly to theatre in health education risks underestimating the political dimensions of health and the ways that this theatre practice engages with the politics of life itself. Such a critique also conceives of the 'issue' as necessarily fixed or closed and somehow outside the realm of the political instead of the necessary terrain of political debate.

The Theatre of Debate process does not start from an issue so much as an object, in this case novel neurotechnologies, and the initial framing is not allowed by the process to dominate the practice, in fact the initial project title 'Brainwaves' already offers a different framing. Issues in any case are not outside ethopolitics but constitutive of them. Within Theatre of Debate, issues emerge and evolve through the course of a project that incorporates a number of stages including: advisory group discussions, pre-script workshop, writing, feedback and revision of drafts, rehearsal, performance and pre- and post-performance workshops and debates. Each of these stages makes use of a range of events and aesthetic forms that articulate the issue through: presentations, narrative, characterisation, visual and linguistic metaphor, sound, music, scenography, debate and other modes of interactivity including electronic voting and social media.

In Theatre of Debate, the writer has played a central role in framing the issue through narrative and character development, as I have discussed in the first half of this chapter. However, the writer's script follows the identification of an overall theme – scientific object – by the company's advisory group. A brief for the writer is then normally set up by a workshop process in which a number of experts as well as teachers and young people participate. In some cases, a number of writers were invited to these workshops and pitched synopses to the company. In other cases, the workshop was oriented towards a writer who had already been selected for the project. This was then explored via a workshop which involved ice-breaker activities, a number of presentations from experts followed by discursive and imaginative exercises involving the experts, teachers, artists and young people examining the implications of the presentations and developing possible scenarios or narratives that might emerge from them. This whole process is managed and facilitated by core company members and normally led by the artistic director, Nigel Townsend.

The company has often captured the workshop process for later use by the writer and others via different modes of graphic note-taking. The image in Figure 4.1 by a graphic artist is from the notes of the workshop held in 2012, which led to *Stunted Trees and Broken Bridges*. This image gives an artist's impression – or framing – of the objects emerging from presentations given as part of the workshop. They include



Figure 4.1 Brainwaves graphic note

a variety of potential technical devices including drugs, electrodes and scanners. The notes also gesture towards possible ways that these devices could be framed or assembled as technologies – military, therapeutic, judicial – from which issues might emerge. In the middle part of the graphic there are the images of the electrode and a lie detector test and

the quotation ‘thought crime is not a crime’ that evoke possible imagined scenarios that might include that of *Stunted Trees and Broken Bridges*.

The curating of the presenters, the assembly of the other workshop participants and the facilitation of the workshop are all important dimensions of the ethopolitical dramaturgy. The tendency of these workshops is to multiply the way that the initial object ‘novel neurotechnologies’ might be framed, and to open up the possibilities for issues to emerge from objects. Expert speakers introduced quite a wide range of different objects into the process and used quite a range of rhetorical strategies, grounding their explanation of technical devices within narratives and posing ethical questions and unresolved dilemmas to the other participants. This rather belies any sense that the role of experts in such a collaborative process is to present value-free facts that artists then make into an emotionally engaging narrative set into a credible, social context. The workshop process is therefore not just to generate issues from a set of objects existing only within the context of the laboratory, but rather to assemble and map objects and emergent issues collaboratively. The expert speakers can be seen as Latourian ‘spokespersons’ for nonhuman objects – in this case cochlear implants, neurons, electrodes, scanners, etc. – as well as intermediaries for other individuals and groups whose perspectives they might represent, such as individual patients, advocacy groups and other scientists (Latour 2004b).

Figure 4.2 illustrates the experimental, improvised stories generated by and generative of discussions of issues by the mixed groups involved in

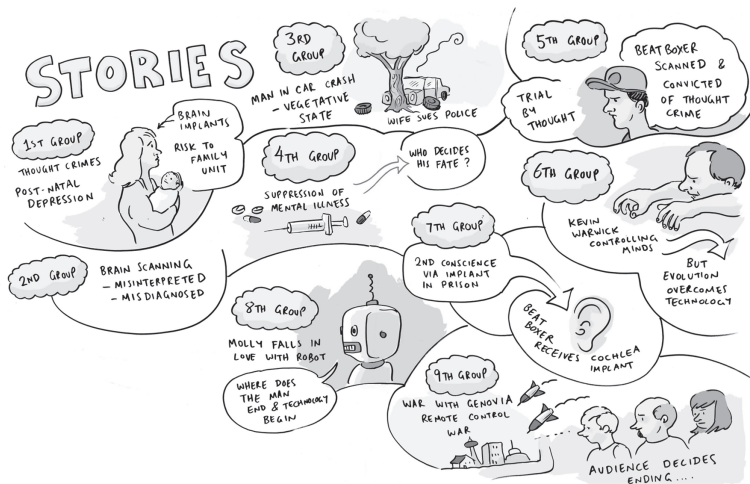


Figure 4.2 Brainwaves graphic note

the Brainwaves project, including experts, teachers, students and artists, at the end of the day after a number of presentations and creative exercises. The image gives an insight into the issue framing process prior to the work of the writer but after the presentations illustrated in Figure 4.1. At this point, it is possible to detect objects and issues from the previous image – a scanner, drugs, a syringe – but there are new objects, characters and settings. This image also suggests a reframing of the issues, the still hypothetical statement ‘thought crime is not a crime’ has been located within the context of post-natal depression or within the life experience of a young beatboxer. The writer Ben Musgrave then worked with this material and his own research in producing a script which was further developed with dramaturgical input from a number of those who took part in the workshop as well as Townsend. Musgrave’s script for *Stunted Trees and Broken Bridges* shows many traces of the research and development workshop, for example in its central thematic, which explores the potential use of brain scanning technologies within legal contexts: an emergent issue through the first decade of the twenty-first century with brain scanning used for the first time in both sentencing and convictions.

Musgrave’s play was set in the year 2017 (for the 2013 tour). Emerson is 18 years old, has recently lost his mother and has been expelled from school. He finds comfort in free running on the roofs and ledges of the estate where he lives. After a violent reaction to provocation by a local drug dealer, he is charged with grievous bodily harm and faces trial. His girlfriend, Hayley, supports him and they both befriend Miles, another boy at their school who is troubled and socially isolated. During the police investigation Emerson undergoes a brain scan by a forensic investigator, Jeanette, for use as evidence in his trial.¹⁷ In sentencing, he takes the option offered by the judge to choose an experimental deep brain stimulation procedure to control his aggressive impulses rather than a prison sentence.¹⁸ At the end of the play eight years have passed and Hayley, now a lawyer, returns to challenge Jeanette’s evidence in another case.

The issues in the play emerge from the relative experiences of the two boys Emerson and Miles and the dialogues between Jeanette and Hayley. Emerson is diagnosed with Antisocial Personality Disorder by Jeanette in the course of the investigation, which provides both mitigation in his trial and opens up the possibility of the medical intervention within the sentence. At the end of the play eight years on, he has not reoffended but he has changed. There are side effects to the technology including not being able to experience the ‘buzz’ he got from free running, a loss of confidence and a change in his relationship with his girlfriend. Miles displays a number of behaviours that trouble him throughout the play,

but he is not diagnosed in terms of any recognised condition. At the end of the play in a monologue he reflects back:

But then I went to university.

And I started meeting people, all kinds of people, some of them a bit like me.

And I realised even though I was different, and I didn't feel like everybody else did... neither did anybody else!

And I wasn't alone. (Musgrave 2012, 69)

Jeanette defends her work and the move to 'neurojustice'. There have been fewer wrongful convictions; there is reduced violent crime; Emerson and others have been kept out of prison. Hayley questions the notion of a 'normal brain' and draws attention to side effects of diagnosis and treatment and methodological critiques of imaging studies referring to small sample sizes and the homogeneity of control groups (Figure 4.3).

As I have commented on above in relation to *The Gift* and *Daylo*, the science and technology here is presented as hybrid and open to question. Even Musgrave's script and the staging in performance by the actors, designer Jaimie Todd and director Nigel Townsend do not bring closure or a final frame. As in the TIE tradition, the end of play is not the end of the Theatre of Debate process. After the play has finished the audience are posed a series of questions, listed in Figure 4.4, which they vote on



Figure 4.3 Jeanette (Heather Bleasdale), Emerson (Petrice Jones) and Hayley (Sophie Gerrish) in *Stunted Trees and Broken Bridges*

Q1	Should courts be allowed to use brain scanners as a way of determining whether a defendant is lying or not?
Q2	To what extent do you think Emerson was responsible for his actions?
Q3	Do you agree with the judge's decision to sentence Emerson using deep brain stimulation, a technology that intervenes with the brain, to manage his condition?
Q4	Should neuroscience inform the law?
Q5	How far do you think we should research into neurotechnologies?
Q6	Would you use a technology that intervenes with the brain if you were ill?
Q7	Would you use a technology that intervenes in the brain for non-medical purposes, such as gaming or improving your cognitive skills?

Figure 4.4 Debate questions for *Stunted Trees and Broken Bridges* (Finegold *et al.* 2014)

using electronic handsets. The voting results are shown on a screen and a facilitator from the company poses follow-up questions to the audience inviting volunteers to say how they voted and why. During this process, actors still in character comment on their perspectives on the questions and answer questions from the audience.

This questioning invites a reframing and is generative of different issues partly through the way that it repositions the audience in relation to the narrative of the play. Questions 6 and 7 were asked both before and after the play and seem to position the audience as potential patients who might need to give their consent or consumers who are offered different forms of therapeutic or technological interventions. Questions 1 to 5, which were only asked during the debate after the play, reposition the audience as citizens or 'somatic experts' in Rose's terms. The company collated the votes from across the tour, which reached a total audience of 4,951 across 63 performances.

Some students changed the way they voted in response to questions 6 and 7 when they were posed again after the play. When asked about non-medical uses of technology (question 7) before the play, there were similar proportions of students voting 'no' (41 per cent) and 'yes' (44 per cent) with the rest 'unsure' (15 per cent). After the play, this shifted with an apparent move from 'yes' (33 per cent) to 'no' (53 per cent). Students seemed slightly less inclined to consider the non-medical use of

neurotechnologies. In the question about medical interventions (question 6), there seemed to be a move from 'unsure' (34 per cent) before the play to 'no' (34 per cent) after the play with 'yes' shifting only marginally down (44 per cent before, 42 per cent after). However, this rather obscures a greater degree of flux under the surface as records of the patterns of voting showed movement between positions in all directions.

It is not the case here that the ethical judgements made in response to the voting questions were reliant or contingent on specific outcomes of objective (science) learning. Many students voted the same way before and after the play, which also rather belies any idea that the programme created engagement within a completely disengaged group. In this case, students had opinions on the questions and interest in them before the programme, in that they voted yes or no rather than unsure at the start of the event, and could even provide reflection on their position in discussions I observed before the performances. However, some Theatre of Debate projects have worked with objects that were either very new or very remote from everyday experience. In either case, the learning about scientific objects is related to the shifting ethical positions taken by students. The programmes even make links between them, for instance in positions taken by characters in the plays. However, particular understanding rarely determines an ethical position, let alone provides a simple rationale for making a particular choice or voting decision. The uncertainty, contest and shifting terrain is the substance of what students learn. They are also, importantly, learning to be moved and move their own views around in relation to what they know. This is the kind of learning that those advocating changes in the science curriculum at the turn of the millennium seemed to be calling for.

New science and technology often becomes framed in a specific, dominant and fixed way early on in its development and, as discussed earlier, science and technology can become monolithic in the process. An aspect of this phenomenon is what scholars in science and technology have called black-boxing, whereby a concept or device becomes a fixed entity: a black box that cannot be opened for development, reframing, questioning or critique (Pinch 1992). This can have an imbalanced but uncontested influence on alternative ways of knowing. *Stunted Trees and Broken Bridges* highlights how this might happen within the context of neurotechnology. In the play, the character of the judge jokes to the forensic neuroscientist, 'you'll have us all out of a job' (Musgrave 2012, 56), succinctly encapsulating concerns about the growth in the use of neuroscientific evidence in law without sufficient public debate. The shifts in student opinion as a result of watching the play and taking part in the debate suggest that the experience facilitated an unfixing of opinion that might be a result of increased knowledge, a greater appreciation of social

implications of technologies or a mixture of the two. It is the very experience of changing one's mind and the process by which students might do this that I suggest underlie its value as pedagogy. The debate questions challenge students to respond speculatively as patients or consumers making choices about their own health or cognitive enhancement and then to think as citizens, voters or jurists in making judgements about broader ethopolitical questions. A further change in frame happens when students see the patterns of their collective voting and discuss why they or others might have voted in such a way or indeed changed their minds as a result of the experience.

Part of the challenge to (political) participation occasioned by life politics is in shifting forms of expertise already discussed and shifting relationships between ways of knowing. In his examination of the emergence of the interdisciplinary field of 'neurolaw' that covers the same terrain as *Stunted Trees and Broken Bridges*, Martin Pickersgill explores knowledge hierarchies and the way knowledge disciplines are imagined:

Law is imagined as first, epistemically subordinate to neuroscience, and second, highly plastic: neuroscience not only should but could enhance legal institutions and processes. At the same time, *science* is imagined as having an intrinsic normativity that demands attention and action, and *scientists* are understood to be key figures needing to be enrolled as part of the assemblage of actors that can and must effect this legal shift. (Pickersgill 2011, 36, italics in original)

Central to the production of this new discipline and epistemic relationship is what Pickersgill, after Jasanoff and Kim, calls a 'socio-technical imaginary'. Disciplinary pedagogies and indeed broader knowledge practices that separate the social from the technical and indeed the social and the technical from the imaginary frustrate the development of individual capacity and the formation of social processes that might offer critical purchase on socio-technical imaginings. This critical purchase, I argue, relies on ethopolitical pedagogies and the development of somatic expertise.

Ethopolitical education and somatic expertise

My use of the concept of framing here has been influenced both by understandings of the way theatre-in-education makes use of different frames to reposition the audience in ways that support learning, as well as the centrality of the idea of issue framing within science and technology

studies (Callon 1998; Jackson 2007).¹⁹ As Michel Callon points out, there is a tendency in contemporary technoscience to produce 'hot' situations in which frames cannot contain the interactions within them, producing what he calls 'overflows'. For example, the institutions of bioethics emerging in the 1990s and early 2000s could be regarded as attempts to contain overflows from the pre-existing ways of framing genetics, neuroscience and their new technologies. It is in the overflowing of frames that objects become issues and it is issues that constitute the political, providing the terrain for debate, problems to be contested and mobilising collectives as publics. Institutions, in particular educational ones, have a tendency to bring premature closure or containment through the imposition of particular frames. In this way the heat is dissipated, publics are demobilised, engagement stops and ethopolitics is curtailed.

Ethopolitical education requires processes that sustain engagement, allow the generation of heat, the emergence of issues and the mobilisation of publics. Ethopolitical education needs to be felt as well as thought, relying as it does on the development and valorisation of somatic expertise: the capacity to feel one's way through an issue and sense the emergence or premature closure of issues through the imposition of particular frames. Many of the responses to the Theatre of Debate process that I have heard in discussion with young audience members have mixed references to devices, science and technology with the language of feelings, either commenting directly on their own experience or on the experiences of characters in the drama:

And the way being told something just because someone's in a white jacket. You get a bit... you panic.
It's about different people, how differently they react to other people and how they can overcome it with the technology these days.²⁰

Students here are identifying particular ways technology shapes and is shaped by embodied experience. This includes the way technology might include social or symbolic features such as the authority provided by a white coat. Young people also directly referred to the way the feelings of the characters generated their own felt experience:

It's like abstract and disturbing, like the way they all move around and stuff like that.
Also, you can almost feel the mood of the characters. It kind of gives out that emotion.

The experience of watching the play is reflected on as embodied, generative of feeling at the same time as the audience members recognised the co-production of this somatic experience with science and technology.

Audience members also showed sensitivity towards the way characters in the plays developed somatic expertise. They commented on how this expertise is created and particular ways it might be used, for instance within frames provided by professional or disciplinary roles:

[the play] showed clearly, like, how she [Hayley] held in everything about Emerson, like, everything had happened and then taking it on, like, when she was older, when she was a lawyer and stuff. And then she compared it to a different situation with that Sammy.

Sometimes these responses also went beyond what could easily be articulated in discourse:

We were all talking and then Miles mentioned his mum and everyone went 'oooooh', like we knew he [Emerson] were gonna smack him.

When student audiences responded to voting questions that repositioned them from theatre audience member to potential consumer, citizen or ethicist this shift is not just discursive, it is embodied. Such shift in perspective or indeed the shift by which one changes one opinion on an issue as referred to above is a somatic practice. It involves the exercise and development of somatic expertise.

The development of somatic expertise through Theatre of Debate though has not been restricted to its mostly young audiences but has also been reflected on by artists, scientists and educators. Again this is often in terms that stress the learning as embodied experience and as a challenge to established ways of framing or locating knowledge. The software engineer, Martyn Thomas, who was an expert advisor on two projects Y Touring worked on with the Royal Academy of Engineering, that dealt with privacy and surveillance and electronic patient records respectively, commented in an interview how when attending his first Theatre of Debate workshop he 'experienced a massive culture shock' (Theatre of Debate n.d.). He talks about participating in ice-breaker activities with the group of students involved in that workshop as a 'daunting experience' and remarked that 'it's not the relationship you expect to have when you go into somewhere as, in quotes, an expert'. He goes on to explain the way that the process changed both how he delivered his presentation and the kinds of questions and interactions he had with the young people and others at the workshop. He alludes to the removal or reduction of barriers, that he seems to understand as two-way, that is to say as much a barrier to his understanding of young people's perspectives as their understanding of his expertise.

As I have discussed in Chapter 1 of this book, performance pressure and performance management are manifested in various contexts in

which science is performed. This has been particularly the case within school education in the UK, where a succession of reforms since the Education Reform Act in 1988 has attempted to standardise performance measures at the level of the nation, the school and the child and thereby enact particular hierarchies of knowledge and disciplinary boundaries.²¹ The period during which Y Touring operated saw increasing expectations for arts and education organisations funded through the state or even from the charitable sector to provide evidence of the efficacy of their practice according to more or less precisely delineated value frameworks. The position of the practice at the interface between different, sometimes contradictory, frames of reference demanded a nimble approach that, as I outlined at the start of this chapter, was resourced by the origins of the company in TIE, health activism and youth work and the early experience of collaborating with health authorities on work within schools.

Over 25 years, the company therefore had to frame and reframe its own practice many times in negotiations with different ways of understanding and valuing learning. Y Touring was consistently able to articulate the value of its performances in a range of terms right up to its last two productions *Stunted Trees and Broken Bridges* and *Hungry* by Sarah Daniels. Since 2014, Townsend has again had to rearticulate the value of work in the terms of the new independent company Theatre of Debate. Figure 4.5 demonstrates the efficacy of the *Stunted Trees and Broken Bridges* programme in terms that might be described as scientific literacy.²² The sections in the middle of the bars attest to the development of a dimension of somatic expertise that includes the comprehension of socio-scientific discourse.

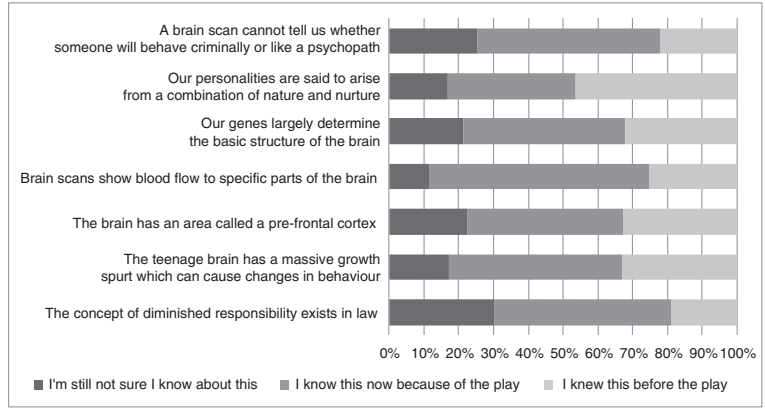


Figure 4.5 Student self-assessment against learning outcomes

That the Theatre of Debate practice could be accounted for in terms that were intelligible to schools and funding authorities and were politically pragmatic does not detract from the extent to which it should be considered as a critical or challenging form of pedagogy for such institutions. Ultimately the closure of Y Touring in 2014 perhaps showed the difficulty of maintaining such political positioning. Central YMCA's concentration on a biopolitics of self-health – of gyms and healthy eating messaging – perhaps finally departed too far from Theatre of Debate's somewhat different approach to ethopolitical education.

Dominant school curricula and pedagogies continue to demarcate knowledge in ways that tend to fragment and thereby limit development of somatic expertise. Critical science educators like Ralph Levinson (2010) have shown how rhetorical commitments to education for scientific citizenship and democratic participation are rarely reflected in curriculum reforms or dominant pedagogy. Many comments from teachers and students prompted by Theatre of Debate have contained implicit or explicit critiques of standardised curriculum or pedagogy. One student memorably remarked to evaluators from People, Science and Policy during the 2004–5 schools tour of *Mind the Gap*: 'the play is not really that relevant to our school work; it is more relevant to society... it gives us the chance to express our opinions in an open and adult way' (People, Science and Policy 2006, 8).

Students' comments about Theatre of Debate have also been reflexive about the way that knowledge is often fragmented within school learning and embodied or social learning is detached and separated from knowledge about science and technology. Such comments reveal the association of particular pedagogies with particular ways of knowing and the association of particular ways of knowing with particular rather limiting affects:

They gave you a story and showed you what happened. I thought it was going to be all scientific but it had a background to it.
I thought it was going to be quite boring but it was actually really exciting...
It's the word science, it makes you think of something where you're doing really hard work.
Yeah, like it'd be someone standing at the front talking for two straight hours.

The emphasis students have placed on felt responses to narratives about science and technology also suggest the need to value this as learning in a way that is not always properly articulated in theories of critical pedagogy, which focus on dialogue, discourse and deliberation. Theatre of Debate reorients educational theatre around the politics of life itself.

At the same time it offers a radical challenge to science education to remake itself as embodied practice.

Importantly, an ethopolitical education and the building of somatic expertise involves the integration of and negotiation between different ways of knowing and different ways of framing knowledge. The history of how AIDS activists were able to change the drug approval processes and approaches to clinical trials in the USA illustrated how ethopolitics relies on the integration of different ways of knowing, as well as institutional boundary-crossing and the juxtaposition of different ways of framing a problem. Activists drew on their embodied experience as patients and carers. They mobilised communities and founded new collectives. They forged alliances with drug companies, clinicians and scientific researchers. They also developed the capacity to use the language and practices of biomedicine often gained through informal study but sometimes within educational institutions.²³ This process had to be responsive to the emergence of a novel object, HIV/AIDS. Education for ethopolitics requires helping young people develop the somatic expertise to be able to respond to novel objects it might currently be impossible to predict.

Notes

- 1 Y Touring, while primarily operating as a theatre company, developed partnerships with video production companies and adapted some of their stage plays for television broadcast and/or video/DVD distribution. A filmed adaptation of *The Gift* by Nicola Baldwin was widely distributed in this way. The company were also early adopters of the convention where live theatre is filmed and then broadcast either live or recorded and then screened as live in cinemas and/or streamed online. Filmed performances of five Theatre of Debate productions are available via the Digital Theatre Plus archive: *Mind the Gap*, *Dayglo*, *Stunted Trees and Broken Bridges*, *Hungry* and *People are Messy*. I have used this archive www.digitaltheatreplus.com as a reference source for this chapter as well as having seen live performances on numerous occasions.
- 2 For a period of time Y Touring ran the venue One KX in Judd St close to King's Cross station in Central London, running programmes for local young people as well as developing their touring work.
- 3 See the successive editions of Tony Jackson's *Learning through Theatre* for a sense of the history, debates and evolution of the movement (Jackson 1986, 1993; Jackson and Vine 2013).
- 4 It is discussed briefly in Steve Ball's (1993) chapter of the second edition of *Learning through Theatre*.
- 5 Mark Harrod (2011) has reflected interestingly on the way the YMCA as a global 'values-based organisation' has held together sometimes competing value frameworks in different ways depending on the location of individual

- YMCAs. These reflections resonate with some of the conclusions I come to in this chapter about Y Touring's practices.
- 6 This proposition relies on histories of modern biology by Foucault (2001) and Canguilhem (1994) which underpin the work by later scholars including Sarah Franklin and Nikolas Rose whom I refer to in this chapter.
 - 7 A list of these Y Touring productions engaging in some way with genetics or genomics might include four plays commissioned for young people to perform between 2003–4 (*Scenes from the Fair* by Jonathan Hall, *Genes 'r' Us* by Rahila Gupta, *Born of Glass* by Rhiannon Tise and *Leap of Faith* by Nicola Baldwin) as well as Theatre of Debate projects such as *Pig in the Middle* by Judy Upton, *Sweet As You Are*, *Making Astronauts* and *Learning to Love the Grey* all by Jonathan Hall and *Nobody Lives Forever* by Judith Johnson.
 - 8 The relationship between the BRCA genes and breast cancer is more complex than the genetics of the single gene disorder, e.g. the FXN mutation that causes Friedreich ataxia featured in *The Gift*. There are many SNPs discovered to date that result in what is termed a faulty BRCA1 or 2 gene.
 - 9 Other Y Touring plays dealing with neuroscience or mental health have included *Mind the Gap* by Abi Bown and *Where's Your Head At?* by Rhiannon Tise.
 - 10 In the 1990s, specific genetic mutations were identified and tests developed for inherited conditions like Huntington's disease and Friedreich ataxia (Bates 2005; Campuzano *et al.* 1996).
 - 11 By 2019 400 conditions were approved for testing by the UK's Human Fertilisation and Embryology Authority (2019).
 - 12 In its tours the dates were adjusted so that the scenes with Ryan, Annie and their mother remained in the present. I am using the dates here from the tour which took place in 2000. It was also made into a video drama in collaboration with Maverick Films/Zenith North/BBC Learning Zone.
 - 13 The character was based on Poly Styrene the lead singer of the punk band X-Ray Spex who died of breast cancer in 2011 (Swash 2011).
 - 14 The gene for sickle cell is not linked to the gene for skin colour but rather to a certain level of resistance to malaria, so is more common in people whose heritage is in areas where malaria is prevalent. Race is used in medicine though as a proxy for an increased likelihood of certain genetic predispositions such as sickle cell, even though many scientists regard the concept of race as meaningless in (genetic) scientific terms (Root 2003). Sickle cell is a single gene disorder like Friedreich ataxia, but the same mutation in the β -globin gene can lead to a variety of symptoms (Frenette and Atweh 2007).
 - 15 Millar and Osborne's research informed the development by the University of York Science Education Group of the OCR *Twenty First Century Science* GCSE qualifications launched in 2006 (University of York Science Education Group n.d.).
 - 16 I worked with Y Touring 2002–9 as a project manager at the Wellcome Trust. I then was part of an evaluation team working with the company 2011–17 on projects created within this period. This chapter reflects from a position influenced by, but after, these relationships.

- 17 fMRI was used in sentencing evidence in a murder case in the USA in 2009 and in a murder conviction in India in 2008 (Miller 2009; Saini 2009).
- 18 The use of a brain implant in the story is more speculative within this (legal) context although it is now widely used in treatment for particular neurological conditions, e.g. Parkinson's (Wahlberg 2014).
- 19 These uses of the idea share a starting point in the work of Erving Goffman. Goffman (1986) showed how particular frames established the rules for social conduct within a certain context, setting up a boundary but not cutting the context off from the external world. Institutions establish frames that attempt to contain interactions between subjects and objects in order to perform their functions in education, health, criminal justice, art or other social fields.
- 20 Quotations from audience members in this section are drawn from focus groups after the performances held as part of the evaluation research on *Stunted Trees and Broken Bridges* that I conducted with Jo Hutchinson (University of Derby) and Peter Finegold (Isinglass Consultancy).
- 21 National performance is often evaluated via the Programme for International Student Assessment (PISA) tests established in 1997 by the OECD. Individual schools have been assessed since 1992 via the Office for Standards in Education (OFSTED) and school league tables. Individual children are assessed in nationally administered qualifications and via Standard Assessment Tests (SATs).
- 22 While these look like curriculum-based learning outcomes, they are not. They were developed retrospectively on the basis of the playscript rather than prior to its development as one, but not an exclusive, framework for evaluation. These learning outcomes can be related, but are not integral to, the school science curriculum. This process in itself reflects the way Theatre of Debate flexibly accommodated itself to the discourses and frameworks of its stakeholders while not allowing these frameworks to overdetermine the practice.
- 23 This history is documented in a number of texts (Epstein 1996; Gould 2009). It is discussed specifically in relation to scientific expertise by Harry Collins and Trevor Pinch (1998).