

Theatre and Research in the Reproductive Sciences

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Abstract This paper explores the power of theatre to engage the public and my personal journey using theatre as a research tool in reproductive science. I argue that the capacity of theatre to simultaneously engage the minds and hearts of audience members *qua* research participants affords audience members the capacity to provide researchers with insightful comments informed by the scientific, social and tacit knowledge derived from the performance, integrated with their lived experience. Theatre is a particularly important research strategy when investigating public understandings and desires about complex issues such as those related to reproductive and genetic science.

Keywords Theatre · Reproductive science · Research tool

Background: theatre and social issues

Augusto Boal¹ claims that “[t]heatre is the first human invention,” leading to all other discoveries. From Sophocles’ *Oedipus the King*, to Skot’s *Everyman*,² to Shakespeare’s tragedies, to Arthur Millers’ *The Crucible*,³ to Frayn’s *Copenhagen*,⁴ theatre-audience members have been engaged in ethical and social issues for thousands of years. Edward Batley and David Bradby⁵ write that over the years “[t]heatre has not only stimulated and provoked new thinking about justice and morality but it has also presented audiences with alternative social, cultural, humanitarian and political models.”

¹A. Boal, *The Rainbow of Desire—The Boal Method of Theatre and Therapy* (New York: Routledge Press, 1995), 13.

²J. Skot., *Everyman*. Reprinted by WW Greg (Louvain: Uystpruyst, 1904).

³A. Miller, *Arthur Miller's Collected Plays with an introduction* (New York: Viking Press, 1957).

⁴M. Frayn, *Copenhagen*. Methuen Drama (New York: Knopf Publishing Group, 1998).

⁵E. Batley, and D. Bradby. *Morality and justice: The challenge of European theatre*. *European Studies* (Amsterdam: Rodopi Bv Editions, 2001), 8 and 10.

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Alan Busst⁶ describes theatre as a dominant force of moral exploration in the French Romantic Period (1815–1840) “because poets and artists were valued as educators,” and members of the public from all socioeconomic strata could easily access their works. David Whitton⁷ believes that theatre, “inspired by social justice,” was an important force in France from 1890 in “the socialist workers’ theatre movement,” and as “public theatre,” until 1968. He draws attention to Vilar’s⁸ view that theatre should be treated as a “public service exactly like gas, water, or electricity.”⁹ Theatre has assisted in the democratization of countries for many centuries, such as in plays like Friedrich Schiller’s *Wilhelm Tell*¹⁰ in Germany,¹¹ and the work of Augusto Boal, who used theatre to bring the concept of democracy to Brazilians.¹² Boal described his work as “[t]heatre helping to bring out social transformation.”¹³

Background: mine

Theatre and research in reproductive science began for me when I was in medical school. I did not imagine it began then. Indeed, I did not imagine, being consumed by science and sport in equal measure, that my addiction to literature would have been cured by “miles of medical ink.”¹⁴ Of the several sciences in which I was embedded, physiology enamored me, particularly endocrine physiology, with, as one of my professors effused, its “symphony” of hormones, elegantly “conducted” by the pituitary gland to instruct all body functions. In my clinical years, I witnessed the cacophony resulting from the smallest perturbation in the sensitive score.

In the spaces between medical school training were the wonderful summers. I worked at a summer camp, where, in addition to helping children learn to swim and canoe, I wrote parodic adaptations of Broadway musicals that the campers and staff would perform. However, graduation marked the end of summers of imagination and the beginning of year-round immersion in reproductive physiology.

First, there were four years of residency in Obstetrics and Gynecology, during which, in addition to much clinical learning and call, I began researching the relationship of reproductive hormones to breast and uterine cancer.¹⁵ If estrogen and other reproductive hormones could cause breast and uterine cancers, other hormones might be used to treat or even prevent these cancers. I was fortunate to receive funding for three years on a Medical

⁶ A.J.L. Busst, “Moralizing and the stage: French Romanticism’s uneasy marriage.” In *Morality and justice: The challenge of European theatre*, ed. E. Batley, and D. Bradby (Amsterdam: Rodopi B.V., 2001), 143.

⁷ D. Whitton, “Whatever happened to théâtre populaire? The unfinished history of people’s theatre in France.” In *Morality and justice: The challenge of European theatre*, ed. E. Batley, and D. Bradby (Amsterdam: Editions Rodopi B.V., 2001), 54.

⁸ J. Vilar, *Le théâtre, service public* (Paris: Gallimard, 1975).

⁹ D. Whitton, “Whatever happened to théâtre populaire? The unfinished history of people’s theatre in France.”

¹⁰ F. von Schiller, *Wilhelm Tell* (Chicago: University of Chicago, 1972).

¹¹ E. Batley, and D. Bradby, *Morality and justice: The challenge of European theatre. European Studies*.

¹² A. Boal, *The Rainbow of Desire—The Boal Method of Theatre and Therapy*.

¹³ *Ibid.*

¹⁴ J.A. Niskier, “The yellow brick road of medical education,” *Canadian Medical Association Journal*, 1997, 156, no. 5:689–691.

¹⁵ I. Ramzy, and J.A. Niskier, “Histologic study of ovaries from young women with endometrial adenocarcinoma,” *American Journal of Clinical Pathology*, 1979, 71, no. 3:253–256.; J.A. Niskier, I. Ramzy, and J. A. Collins, “Adenocarcinoma of the endometrium and abnormal ovarian function in young women,” *American Journal of Obstetrics and Gynecology*, 1978, 130, no. 5:546–550.

Research Council of Canada Fellowship to study further the relationship of reproductive hormones and cancer. Working in a reproductive science laboratory in California, I spent much of my time wearing my imitation down-filled winter jacket as I measured the effects of free estrogen on its blood binding proteins¹⁶ and cellular receptors¹⁷ inside the infamous “cold room,” where these sensitive hormone interactions were protected from the “denaturing” effects of heat. The more we investigated these interactions, the more we were convinced that reproductive hormones caused breast and uterine cancer.¹⁸

On returning to Canada, I continued my research on reproductive hormone-related cancer in a laboratory adjacent to the hospital where I cared for patients with this condition. I was now focused on preventing these cancers and tried to prevent naturally occurring rabbit uterine cancer with progesterone.¹⁹ However, the larger my clinical practice and family grew, the less time there was for research, and there was no time for imagining, let alone writing plays. Indeed the arts had evaporated from my life, forever I thought (if I ever thought about it), but the convergence of three unforeseen streams took me to using theatre for reproductive science research.

The first stream was genetic science, which turned into a torrent following Kary Mullis’ Nobel prize-winning discovery of the polymerase chain reaction (PCR).²⁰ PCR allowed the multiplication of DNA millions of times²¹ and became the bright new silver hammer that caused scientists of many disciplines to find a nail in their research. My Department’s Research Director’s nail was preimplantation genetic diagnosis (PGD),²² and I was encouraged to work with the clinicians in our Reproductive Endocrinology Unit (at that time second in the world in creating families through IVF) to use PCR to genetically test IVF embryos. The theory was that giving women the option of testing IVF embryos would avoid their consideration of amniocentesis at sixteen weeks of

¹⁶ G.L. Hammond, J.A. Niskier, L.A. Jones, and P.K. Siiteri, “Estimation of the percentage of free steroid in undiluted serum by centrifugal ultrafiltration-dialysis,” *Journal of Biological Chemistry*, 1980, 255, no. 11:5023–5026.; J.A. Niskier, G.L. Hammond, B.J. Davidson, A.M. Frumar, N.K. Takaki, H.L. Judd, and P.K. Siiteri, “Serum sex hormone-binding globulin capacity and the percentage of free estradiol in postmenopausal women with and without endometrial carcinoma. A new biochemical basis for the association between obesity and endometrial carcinoma,” *American Journal of Obstetrics and Gynecology*, 1980, 138, no. 6:637–642.; P.K. Siiteri, J.T. Murai, G.L. Hammond, J.A. Niskier, W.J. Raymoure, and R.W. Kuhn, “The serum transport of steroid hormones,” *Recent Prog.Horm.Res.*, 1982, 38, 457–510.

¹⁷ J.A. Niskier, and P.K. Siiteri, “Estrogens and breast cancer,” *Clin.Obstet.Gynecol.*, 1981, 24, no. 1:301–322.; P.K.Siiteri, G.L. Hammond, and J.A. Niskier, “Increased availability of serum estrogens in breast cancer: A new hypothesis,” *Banbury Report No. 8: Hormones and Cancer*, ed. M.C. Pike, P.K. Siiteri, and C. W. Welsch (Cold Spring Harbor, N.Y: Laboratory Press, 1981).

¹⁸ Ibid; J.A. Niskier, G.L. Hammond, B.J. Davidson, A.M. Frumar, N. K. Takaki, H.L. Judd, and P.K. Siiteri, “Serum sex hormone-binding globulin capacity and the percentage of free estradiol in postmenopausal women with and without endometrial carcinoma. A new biochemical basis for the association between obesity and endometrial carcinoma,” *American Journal of Obstetrics and Gynecology*, 1980, 138, no. 6:637–642.

¹⁹ J.A. Niskier, M.E. Kirk, and J.T. Nunez-Troconis, “Reduced incidence of rabbit endometrial neoplasia with levonorgestrel implant,” *American Journal of Obstetrics and Gynecology*, 1988, 158, no. 2:300–303; H. A. Shahabi, T.W. Hutchens, J.L. Wittliff, S.D. Halmo, M.E. Kirk, and J.A. Niskier, “Physicochemical characterization of estrogen receptors from a rabbit endometrial carcinoma model,” *Estrogen Receptors In Endometrial Cancer* (New York: Raven, 1984).

²⁰ K.B. Mullis, and F. Faloona, “Specific synthesis of DNA in vitro via a polymerase-catalyzed chain reaction,” *Methods in Enzymology*, 1987, 155, 335–350.

²¹ Ibid.

²² A.H. Handside, J.K. Pattinson, R.J. Penketh, J.D. Delhanty, R.M. Winston, and E.G. Tuddenham, “Biopsy of human preimplantation embryos and sexing by DNA amplification,” *Lancet*, 1989, 1, no. 8634:347–349.

pregnancy and genetic termination of their pregnancy weeks later should a genetic condition be found.²³

After several years of “perfecting” PGD technology on mouse embryos, a woman being treated in our Unit indicated that she had a serious genetic condition and planned to have amniocentesis if she was lucky enough to become pregnant through IVF. The staff suggested that this woman be offered PGD, and she was approached in this regard with Research Ethics Board (IRB) approval. After an extensive informed choice process (if informed choice can ever exist in the context of IVF),²⁴ we performed Canada’s first PGD. When a leak to the press indicated what we had done, Canada’s national media networks descended upon me, followed immediately by a deluge of calls from prospective parents across Canada requesting the opportunity to have PGD.

I had been warned by my friends in Canada’s strong feminist movement that PGD was an inappropriate focus of research for a feminist like me. Abby Lippman, then President of the Council of Responsible Genetics, cautioned me particularly loudly. I rebutted that “slippery slopes could be melted by sensitive scientists.” However, after more than half of the Canadians who called our Unit indicated that the genetic condition they wanted to avoid was XX (chromosomal marker of a woman), and many others requested PGD to avoid conditions in their child other than the lethal anomalies we had imagined, I dissolved my research program, wrote an academic paper expressing my ethical and social concerns regarding PGD to clinicians and scientists,²⁵ and wrote the play *Orchids*²⁶ to bring my concerns to the general public.

The second stream was a tax-break. Government cutbacks to funding of both higher education and healthcare had closed our University’s ethics institute (ethics is frequently the first to go under financial foment), and its philosopher-ethicists had relocated. The Dean of Medicine, thinking I must know something about bioethics because of my concerns regarding ethical issues in PGD (and knowing I was paid by him), asked me if I would take over the teaching of bioethics. Of course I agreed (you can’t say no to your Dean), but knowing I had limited skills in traditional ethics teaching, and because of the third stream, a children’s literature stream, I had the courage to insist that I use theatre and other narrative forms to explore ethical issues in the classroom.

The children’s literature stream was sourced in the stories I read to my children each night as they settled into bed. One of their sleepover friends termed these stories “The Thought-for-the-Night.”²⁷ One night, while reading *The Little Prince* by Antoine de St. Exupéry to them for the first time, I came to the place where the wise Fox advises that “*It is only with the heart that one can see rightly for what is essential is invisible to the eye.*” I must have read this line over and over as one of my children asked, “Are you okay Dad?” I responded, “It’s bedtime,” so I could reflect on what I knew was an epiphanic phrase.

²³ J.A. Niskier, and R.E. Gore-Langton, “Pre-Implantation Genetic Diagnosis: A Model of Progress and Concern,” *Journal of Obstetrics & Gynaecology of Canada*, 1995, 17, no. 3:247–262.

²⁴ S. Sherwin, *No Longer Patient: Feminist Ethics and Health Care* (Philadelphia: Temple University Press, 1992); F.E. Baylis, “The ethics of ex utero research on spare ‘non-viable’ IVF human embryos,” *Bioethics*, 1990, 4, no. 4:311–329.

²⁵ J.A. Niskier, and R.E. Gore-Langton, “Pre-Implantation Genetic Diagnosis: A Model of Progress and Concern.”

²⁶ J.A. Niskier, “Orchids: Not Necessarily a Gospel,” *Mapa Mundi: Mapping Culture/Mapping the World*, ed. J. Murray, (Windsor, Ontario: University of Windsor Press, 2001), 61–109; J. Niskier, *Orchids: Not Necessarily a Gospel Original Touring Production*, Louise Fagan, 1998.

²⁷ J. Niskier, “Preface,” *From the Other Side of the Fence: Stories from Health Care Professionals*, ed. J. Niskier, (Halifax: Pottersfield Press, 2008), 11–15.

During the night, I came to the understanding that we should explore ethical issues with our hearts, rather than just cognate principles and theories with the same computer-like “objectivity” with which we medical types were instructed to cognate symptoms and signs of disease.²⁸ So a few weeks later, when my Dean informed me of my new role, I was confident that by exploring ethical issues with hearts as well as minds, the students would learn much more than I even could imbue through theories and principles.

I began in 1993 to engage my students’ hearts and minds in the “Yellow Brick Road” narrative bioethics program.²⁹ In this curriculum, each bioethics exploration (e.g. professionalism, resource allocation, research ethics) begins with a “narrative surfacing vehicle” (play, poem, readers’ theatre, film) to bring learners to the position of the person inside the patient³⁰ or the person *qua* caregiver³¹ immersed in the ethical issue. Within three years of commencing the narrative ethics program, our medical students took two plays to the general public; however, it took almost another decade before I explored the power of theatre as a research instrument.³²

Capacity of theatre to engage the public in social issues

Before Antoine de Saint-Exupéry claimed, “*It is only with the heart that one can see truly, for what is essential is invisible to the eye,*” philosopher David Hume wrote that “[r]eason is, and ought only to be the slave of the passions.”³³ More recently, bioethicist Leon Kass argued that emphasis on the purely rational or logical ignores “what genuinely moves people to act—their motives and passions...loves and hates, hopes and fears, pride and prejudice.”³⁴ Ann Hunsaker Hawkins³⁵ writes that moral choice is an act involving all our mental faculties—reason, intuition, emotion, imagination—working in concert. Anna Quindlen, Pulitzer Prize-winning *New York Times* columnist and author of the health-related novels, *One True Thing*³⁶ and *Black and Blue*,³⁷ stated when she left journalism to write novels that “[f]acts sometimes need fiction to be told truly.”³⁸ Nadine Gordimer, Nobel Laureate, concurs, “There is always more truth in fiction.”³⁹

David Burrell and Stanley Hauerwas⁴⁰ believe that narratives “offer us a way of experiencing... without experimenting with our own lives.” Martha Nussbaum⁴¹ suggests

²⁸ J.A. Nisker, “The yellow brick road of medical education;” J.A. Nisker, “Narrative ethics in health care,” *Toward a moral horizon*, ed. J.P. Storch, Rodney, and R. Starzomski Pearson Education Leadership and Practice, 2004.

²⁹ *Ibid.*

³⁰ J.A. Nisker, Chalcedonies, *Canadian Medical Association Journal*, 2001, 164, no. 1:74–75.

³¹ *Ibid.*; J.A. Nisker, “Narrative ethics in health care.”

³² J. Nisker, D.K. Martin, R. Bluhm, and A.S. Daar, “Theatre as a public engagement tool for health-policy development,” *Health Policy*, 2006, 78, no. 2–3:258–271.

³³ D. Hume, *A Treatise of Human Nature* (London: J.M. Dent & Sons, 1934).

³⁴ A. H. Hawkins, “Medical ethics and the epiphanic dimension of narrative,” in *Stories and their limits: Narrative approaches to bioethics*, ed. H.L. Nelson (New York: Routledge, 1997), 153–154.

³⁵ *Ibid.*

³⁶ A. Quindlen, *One True Thing* (New York: Random House, 1994).

³⁷ A. Quindlen, *Black and Blue: A novel* (New York: Random House, 1998).

³⁸ A. Quindlen, *Charlie Rose Show*, PPS, 1998.

³⁹ N. Gordimer, CBC Radio, 1999.

⁴⁰ D. Burrell, and S. Hauerwas, “From System to Story: An Alternative Pattern for Rationality in Ethics,” *Knowledge Value and Belief*, ed. H.T. Engelhardt. and D. Callahan (New York: The Hastings Center, 1977), 129.

⁴¹ M.C. Nussbaum, *Love’s Knowledge* (New York: Oxford University Press, 1990), 39 and 316.

that “[b]y cultivating our ability to see vividly another person’s distress, to picture ourselves in another person’s place—we make ourselves more likely to respond with the morally illuminating and appropriate sort of response.” Martha Montello⁴² believes that stories allow us to “feel the same things the characters do and from their same perspective... [and] that set of emotions and way of knowing is embedded in us, a part of us.” Howard Brody⁴³ writes that “Human beings understand their experiences in and through the telling and hearing of stories.” Joe Winston describes how theatre goes beyond the printed page to bring a “sensorial impact”⁴⁴ through its use of sets, costumes, and sometimes music. Martha Nussbaum describes how a theatre-audience member “makes sense of the suffering by recognizing that one might oneself encounter such a reversal.”⁴⁵

I found theatre to be “a powerful antidote for the ‘ethics–eyelid reflex’ and other non-verbal expressions of disinterest” in non-science (or “non-sense”) that are “contagious” in communities of medical students and professionals.⁴⁶ Trisha Greenhalgh and Brian Hurwitz⁴⁷ support this concept in medical education, as “we cannot elucidate with our familiar scientific tools, the meaning that narrative gives to sequences of events.”

Theatre as a tool to present health research

Through theatre, reason and compassion can combine to provide audience members with understandings of research findings. Perhaps the first use of traditional theatre to present research was Peter Brook’s 1976 play, *The Ik*,⁴⁸ based on anthropologist Colin Turnbull’s ethnographic research and book, *The Mountain People*.⁴⁹ Anthropologist Victor Turner⁵⁰ engaged his students with theatrical renderings of his ethnographic field notes for their better appreciation of the cultures studied. Although not an expression of particular research findings, scientists have assisted the Wellcome Trust (United Kingdom) in using theatre for public education in science for over a decade⁵¹ through “Science on Stage and Screen.”

Theatre has also been used by health researchers of many disciplines to present their findings to health professionals⁵² and the general public.⁵³ Using breast cancer patients as co-writers and actors, Ross Gray (psychology), and Christina Sinding (social work), with

⁴² M. Montello, “Narrative competence,” *Stories and their limits: Narrative approaches to bioethics*, ed. H.

⁴³ H. Brody, *Stories of Sickness* (New Haven and London: Yale University Press, 1987), 463.

⁴⁴ J. Winston, *Theorising drama as moral education*. *Journal of Moral Education*, 1999, 28(4), 459–471.

⁴⁵ M.C. Nussbaum, *Upheavals of thought: The intelligence of emotions*, 2001, Cambridge: Cambridge University Press.

⁴⁶ J.A. Niskier, “Narrative ethics in health care.”

⁴⁷ T. Greenhalgh, and B. Hurwitz, *Narrative Based Medicine: Dialogue and discourse in clinical practice* (London: BMJ Books, 1998).

⁴⁸ P. Brook, *The Ik* (London: Round House, 1976).

⁴⁹ C. Turnbull, *The Mountain People* (New York: Simon & Schuster Inc., 1972).

⁵⁰ V. Turner, *The anthropology of performance* (New York: PAJ Publications, 1986).

⁵¹ S. Webster, *Science on stage and screen: Thoughts on a Wellcome Trust conference* (London: Wellcome Trust, 2000), 3.

⁵² R.E. Gray, C. Sinding, and M. Fitch, “Navigating the social context of metastatic breast cancer: Reflections on a project linking research to drama,” *Health*, 2001, 52, no. 2:233–248.

⁵³ J.A. Niskier, “Narrative ethics in health care;” A.L. Cole, and M. McIntyre, “The Love stories: About caregiving and Alzheimer’s disease,” [DVD], 2006, available from <http://www.oise.utoronto.ca/research/mappingcare/>; G.J. Mitchell, C. Jonas-Simpson, and V. Ivonoffski, “Research-based theatre: The making of I’m Still Here!” *Nursing science quarterly*, 2006, 19, no. 3:198–206.

director and scriptwriter Vrenia Ivonoffski, developed *Handle with Care*,⁵⁴ and using the stories of prostate cancer patients, *No Big Deal?*.⁵⁵ Ardra Cole and Maura McIntyre, again with director Ivonoffski, brought their research on Alzheimer's Disease to the public in the plays *I'm still here*,⁵⁶ and *The Love stories: About caregiving and Alzheimer's disease*.⁵⁷

I had the privilege of collaborating with nursing and ethics researcher, Vangie Bergum, in juxtaposing her research on “[t]he experience of becoming mother through birthing, adopting and placing a child,”⁵⁸ and my research regarding the exploitation of socio-economically disadvantaged women as egg “donors”⁵⁹ and as surrogate mothers⁶⁰ into the play, *A Child On Her Mind*.⁶¹ The Electric Company Theater Society, working with playwright Mitch Anderson,⁶² created *The Score* for the 2000 Human Genome Organization's conference in Vancouver with genetic scientists and conference organizers, Michael Hayden and Lap-Chee Tsui, providing the science.

Professional playwrights, novelists, and screenplay writers can also be researchers in the reproductive sciences if they rigorously investigate the experience of persons with illness, their family members, clinicians, and scientific concepts. The insight of Margaret Edson exuded in her play *Wit*,⁶³ in which the central character has ovarian cancer, could only come from multiple interviews, careful analysis, and sensitivity in its writing, which, according to Laurel Richardson,⁶⁴ continues the research through the writing. Caryl Churchill's well-researched understanding of assisted reproduction and human reproductive cloning brings the audience members experiencing her play, *A Number*, to an intimate understanding of not only of the science of *in vitro* fertilization and human reproductive cloning, but of the motivations of average human beings and potential pitfalls of reproductive technology. Novels from Aldous Huxley's *A Brave New World*,⁶⁵ to Ira Levin's *The Boys from Brazil*,⁶⁶ to Kazuo Ishiguro's *Never Let Me Go*,⁶⁷ span

⁵⁴ V. Ivonoffski, and R. Gray, *Handle with care? Women living with metastatic breast cancer [Performance Script]* (Toronto, Ontario, Canada: Psychosocial and Behavioural Research Unit at Toronto Sunnybrook Regional Cancer Centre, 1998).

⁵⁵ V. Ivonoffski, and R.E. Gray, *No big deal? [Performance script]* (Toronto, Ontario, Canada: Toronto Sunnybrook Regional Cancer Centre, 2000).

⁵⁶ G. J. Mitchell, C. Jonas-Simpson, and V. Ivonoffski *Research-based theatre: The making of I'm Still Here!*.

⁵⁷ A.L. Cole and M. McIntyre, *The Love stories: About caregiving and Alzheimer's disease* [DVD], 2006.

⁵⁸ V. Bergum, *A Child on Her Mind: The Experience of Becoming a Mother* (United States: Bergin & Garvey, 1997).

⁵⁹ J.A. Nisker, “Physician obligation in oocyte procurement,” *American Journal of Bioethics*, 2001, 1, no. 4:22–23; J.A. Nisker, “Rachel's ladders or how societal situation determines reproductive therapy,” *Human Reproduction*, 1996, 11, no. 6:1162–1167; J.A. Nisker, “Anniversary of injustice: April fool's day,” 1994. “Will the Enactment of Bill C-6 be the birthday of equitable reproductive health care in Canada,” *Journal of Obstetrics & Gynaecology of Canada*, 2004, 26, no. 4:321–324; J.A. Nisker, “In quest of the perfect analogy for using in vitro fertilization patients as oocyte donors,” *Womens Health Issues*, 1997, 7, no. 4:241–247.

⁶⁰ S. Rogers, F. Baylis, A. Lippman, J. MacMillan, Parish, and J. Nisker, “Policy statement: preconception arrangements,” *Journal of Obstetrics & Gynaecology of Canada*, 1997, 19, no. 4:393–399.

⁶¹ J. Nisker, and V. Bergum, “A Child On Her Mind,” *Mother Life. Studies of Mothering Experience*, ed. V. Bergum, and J. Van Der Zalm (Edmonton, Alberta: Pedagon Publishing, 2007); J. Nisker and V. Bergum, *A child on her mind [Premier]* (Edmonton, Alberta, Canada: Canadian Bioethics Society Annual Conference, 1999).

⁶² M. Anderson, “The Score,” The Electric Company Theater Society, 2000.

⁶³ M. Edson, *Wit 2001* (New York: Faber and Faber, 2001).

⁶⁴ L. Richardson, “Writing: A Method of Inquiry,” *Handbook of Qualitative Research*, ed. N.K. Denzin, and Y. S. Lincoln (Thousand Oaks, CA: Sage Publications, 2000).

⁶⁵ A. Huxley, *A Brave New World* (United Kingdom: Chatto and Windus, 1932).

⁶⁶ I. Levin, *The Boys from Brazil* (New York: Random House, 1976).

⁶⁷ K. Ishiguro, *Never Let Me Go* (New York: Random House, 2005).

varying degrees of wonderful imagination and insightful research. These plays and novels provide the public with an understanding of reproductive science and inherent social issues in an engaging manner, well beyond newspaper and magazine articles.

Theatre as a research tool

Not only is theatre useful to present research findings but important as a tool to do research.⁶⁸ Through theatre, reason and passion can combine to allow audience members to offer insights to researchers.⁶⁹ By helping audience members *qua* research participants feel the position of the person in the play and better understand the healthcare issues in which the person is immersed, audience members can provide more informed, insightful and diverse comments (data) than possible through other research strategies on complex scientific and social issues.⁷⁰ According to Sandra Jovchelovitch and Martin Bauer,⁷¹ “narratives have become a widespread research method in the social sciences” that are particularly useful when investigating ‘hot’ issues and projects “where different ‘voices’ are at stake.” As there are many “hot issues” in reproductive science and many “different voices are at stake,”⁷² theatre is particularly useful in providing information to research participants *qua* audience members on complex issues, in reproductive and genetic science. Audience members may provide their informed opinions and comments on these complex issues for research purposes, in theatre auditoria discussion,⁷³ break-out focus groups,⁷⁴ or surveys.⁷⁵ This data can then be analyzed using qualitative methodologies to express what audience members (and, if diverse enough recruitment occurs, the general public) feel about the scientific and social issues in reproduction and genetics.⁷⁶

I researched and wrote the play, *Sarah’s Daughters*, as a research tool to study public perceptions of genetic testing for adult onset inherited conditions⁷⁷ and at the

⁶⁸ J.A. Nisker, “Narrative ethics in health care;” J. Nisker, D.K. Martin, R. Bluhm, and A.S. Daar, “Theatre as a public engagement tool for health-policy development;” J. Nisker, “Theatre as a Health-Policy Research Tool,” *Handbook of the Arts in Qualitative Research: Perspectives, Methodologies, Examples, and Issues*, ed. J.G. Knowles, and A.L. Cole (Thousand Oaks, CA: Sage Publications, 2008).

⁶⁹ *Ibid.*

⁷⁰ J. Nisker, D.K. Martin, R. Bluhm, and A.S. Daar, “Theatre as a public engagement tool for health-policy development.”

⁷¹ S. Jovchelovitch and M.W. Bauer, “Narrative Interviewing,” *Qualitative Researching with Text, Image and Sound: A Practical Handbook*, ed. M. Bauer and G. Gaskell (London: Sage, 2000), 67.

⁷² J. Nisker and A. White, “The CMA Code of Ethics and the donation of fresh embryos for stem cell research,” *Canadian Medical Association Journal*, 2005, 173, no. 6:621–622; J. Nisker, and R. Mykitiuk, “Social determinants of the ‘health’ of embryos,” *The “Healthy” Embryo: Social, Biomedical, Legal and Philosophical Perspectives*, ed. J. Nisker, F. Baylis, I. Karpin, C. McLeod, and R. Mykitiuk (Cambridge University Press, in press 2009); J. Nisker, “Distributive Justice and Infertility Treatment in Canada,” *Journal of Obstetrics & Gynaecology of Canada*, 2008, 30(5), 425–431.

⁷³ J. Nisker, D.K. Martin, R. Bluhm, and A.S. Daar, “Theatre as a public engagement tool for health-policy development.”

⁷⁴ S. Cox, M. Kazubowski-Houston, and J. Nisker, “Genetics on Stage: Public Engagement in Health Policy Development on Preimplantation Genetic Diagnosis,” *Social Science & Medicine*, 2009, in press.

⁷⁵ *Ibid.*

⁷⁶ *Ibid.*; J. Nisker, D.K. Martin, R. Bluhm, and A.S. Daar, “Theatre as a public engagement tool for health-policy development.”

⁷⁷ J. Nisker and A.S. Daar, “Moral presentation of genetics-based narratives for public understanding of genetic science and its implications,” *Public Understanding of Science*, 2006, 15, 113–123.

same time, investigate the ethical issues arising in using theatre as a research tool.⁷⁸ This research consisted of twelve nested case studies, each containing a performance of the seventy-minute play followed by a one hour audience discussion that was taped and transcribed for qualitative analysis.⁷⁹ The script was based on key informant interviews, literature review, and six script readings for key informants and portrayed communities.⁸⁰ Key informants and involved communities checked the script and its portrayal to be sure “I got it right.” Over twelve hundred audience members were engaged in this research.⁸¹

Audience members participated in multidirectional learning,⁸² receiving information from the script, from its performance, and from the comments of other audience members, and had forwarded their comments to other audience members (to which other audience members could also respond).⁸³ The analysis of audience members’ comments suggested that a play written to explore complex genetic policy issues could engage audience members emotionally and cognitively in the position of the characters, promote the understanding of the genetic-policy issues, and allow audience members to provide informed and diverse opinions on the policy issues.⁸⁴ Further, compared to other public deliberation strategies,⁸⁵ theatre engaged more citizens than are generally surveyed through public opinion polls, and many times that number can be engaged in strategies that educate citizens prior to soliciting their opinions (e.g., citizen juries), and at the same cost per citizen engaged.⁸⁶ Theatre has also been used to do research on the views of high school students,⁸⁷ health professionals,⁸⁸ patients, and family members⁸⁹ regarding genetics. For example, after seeing the play “Un jeu de société ou Pourquoi se gêner,” initiated by a research team led by Hubert Doucet and Isabelle Gareau directed by Michel Cormier, students commented on genomic issues.

The capacity of theatre to engage large numbers of citizens in a deeply reflective manner⁹⁰ is a particularly important attribute when using theatre as a research tool for

⁷⁸ J. Nisker, D.K. Martin, R. Bluhm, and A.S. Daar, “Theatre as a public engagement tool for health-policy development.”

⁷⁹ Ibid.

⁸⁰ Ibid.

⁸¹ Ibid.

⁸² Ibid; S. Coleman and J. Gotze, *Bowling together: Online public engagement in policy deliberation*. (London: Hansard Society, 2001); P. Freire, *Pedagogy of the oppressed* (New York: The Continuum International Publishing Group, 2003).

⁸³ J. Nisker, D.K. Martin, R. Bluhm, and A.S. Daar, “Theatre as a public engagement tool for health-policy development;” S. Cox, M. Kazubowski-Houston, and J. Nisker, “Genetics on Stage: Public Engagement in Health Policy Development on Preimplantation Genetic Diagnosis.”

⁸⁴ J. Nisker, D.K. Martin, R. Bluhm, and A.S. Daar, “Theatre as a public engagement tool for health-policy development.”

⁸⁵ G. Rowe and L.J. Frewer, “Public participation methods: A framework for evaluation,” *Science, Technology, & Human Values*, 2000, 25, no. 1:3–29; J. Lenaghan, “Involving the public in rationing decisions. The experience of citizens’ juries.” *Health Policy*, 1999, 49, no. 1–2:45–61.

⁸⁶ J. Nisker, D.K. Martin, R. Bluhm, and A.S. Daar, “Theatre as a public engagement tool for health-policy development.”

⁸⁷ A. Bown, “Mind the Gap. Y touring,” 2004; I. Gareau and H. Doucet, 2008.

⁸⁸ R.E. Gray and C. Sinding, *Standing ovation: Performing social science research about cancer* (Lanham, MD: AltaMira Press, 2002).

⁸⁹ Ibid.

⁹⁰ J. Nisker, D.K. Martin, R. Bluhm, and A.S. Daar, “Theatre as a public engagement tool for health-policy development.”

health policy development.⁹¹ In collaboration with Susan Cox, a sociologist and ethics researcher, and funding from the Canadian Institutes of Health Research and Health Canada, the use of theatre as a health-policy research tool was examined as part of a national citizen deliberation on the testing of *in vitro* embryos for genetic markers (PGD).⁹² (The research assistant on this project, Magda Kazubowski-Houston is now an anthropologist). To this end, I updated the full-length musical play, *Orchids*, written a decade before,⁹³ with suggestions from Susan Cox, the Director, Liza Balkan, and Health Canada. The play was again based on many interviews with key informants from the involved communities who also checked the script and its portrayal for accuracy and sensitivity, so that audience members would receive appropriate information from the dialogue between characters.

Orchids engaged 741 citizens in twenty performances (four in French).⁹⁴ Most audience members were concerned about where to draw lines regarding for what conditions it would be appropriate to use PGD and as to who should decide where such “lines are drawn.”⁹⁵ Audience members made no distinction between PGD and prenatal diagnostic strategies such as amniocentesis in either the use of public funding or as to for what conditions the strategy was appropriate.⁹⁶ “Many audience members were concerned regarding the responsibility that all citizens bear in shaping future society by making individual choices that have collective effects and by making collective choices that will also have individual effects.”⁹⁷

Conclusion

By simultaneously engaging audience members *qua* research participants’ hearts and minds, theatre allows them to provide researchers with comments informed by the scientific, social and tacit knowledge derived from the performance, integrated with their lived experience. This is a particularly important capacity of theatre as a research strategy when investigating public understandings and desires about complex issues, such as those related to reproductive and genetic science.

⁹¹ J. Nisker, “Theatre as a Health-Policy Research Tool;” S. Cox, M. Kazubowski-Houston, and J. Nisker, “Genetics on Stage: Public Engagement in Health Policy Development on Preimplantation Genetic Diagnosis.”

⁹² S. Cox, M. Kazubowski-Houston, and J. Nisker, “Genetics on Stage: Public Engagement in Health Policy Development on Preimplantation Genetic Diagnosis.”

⁹³ J.A. Nisker, “Orchids: Not Necessarily a Gospel;” J. Nisker, *Orchids: Not Necessarily a Gospel Original Touring Production, Louise Fagan*.

⁹⁴ S. Cox, M. Kazubowski-Houston, and J. Nisker, “Genetics on Stage: Public Engagement in Health Policy Development on Preimplantation Genetic Diagnosis.”

⁹⁵ *Ibid.*

⁹⁶ *Ibid.*

⁹⁷ *Ibid.*