

# WHAT IS IT LIKE TO BE HERE? A METHODOLOGY

TONY COTTON

Mathematics Education tends to contribute to the regeneration of an inequitable society through undemocratic and exclusive pedagogical practices which portray mathematics and mathematics education as absolute, authoritarian disciplines.

At the annual conference of the *International Group for the Psychology of Mathematics Education* in 1996, a colleague Peter Gates and I argued that a separation of the psychological and the social presented an unhelpful way of setting an agenda for mathematics education for a fair and just society. We suggested that the struggle for a more just society required an exploration of the political dimensions of mathematics teaching and learning and that through these social dimensions we would arrive at the heart of teaching and learning theories (Cotton and Gates, 1996). As a result of discussions with colleagues arising from this paper, a group *Mathematics Education and Society* (MES) was formed. This group held its fourth conference in the summer of 2005 in Australia.

The quotation which opens this article, taken from the aims of MES, suggests that one challenge, for members of MES and for other mathematics educators, is to explore research processes and research that offer a view of mathematics and mathematics education as democratising and inclusive. Such research would develop a view of learning and researching mathematics that is tentative, multi-faceted and participatory: that task this article addresses.

More recently, I have drawn on post-modern ideas to support me in developing ways of working for social justice through researching mathematics education. Recent papers have suggested that the most important thing we can do as researchers and teachers is become aware of "what, what we do, does" (Cotton and Hardy, 2000, p. 277). Drawing attention to the panopticon [1] may change the way we operate. This is one way in which the psychological and the social are seen to be knitted together.

There is an additional problem for the writer of research, the question here is *what can we say about what we do and what does what we say, do?* The Foucauldian notion of archaeology helps here. Foucault, describes *archaeology* as

[ . ] an attempt to describe discourses. Not books (in relation to their authors), not theories (with their structures and coherences), but those familiar yet enigmatic groups of statements that are known as medicine, political economy, and biology. I would like to show that these unities form a number of autonomous, but not independent, domains, governed by rules, but in perpetual

transformation, anonymous and without a subject, but imbuing a great many individual works (Foucault, 1972, back cover)

He goes on to describe a notion of "things said". This notion immediately revisits the question, *what can we say?* Archaeology explores how 'things said' come into being, how they are interpreted, transformed and articulated. The aim of such an archaeology is to expose the ideology present within current practice and, through this description, offer a view of possible futures. I have attempted to write this article to engage you, the reader, in a personal archaeology through the responses required in the final section of the article, returning to the view of research as tentative, multi-faceted and participatory and taking Barenboim and Said's (2004) warning seriously:

The moment you start boxing people in, you give them a sense of insecurity and produce more paranoia. You produce [ . ] more distortions. (p. 27)

So, I will describe a methodology which takes as its starting point the *voice* of those engaged in the research. It suggests that the exploration of educational settings should be a collaborative activity engaging those who live and work in the settings as well as the researcher. This gives a much deeper understanding of the current context within the setting and offers areas for intervention and action by all engaged in the research. This also aims to be an article that requires active collaboration from its readers. As Maclare (2003) suggests:

Rather than aspiring to clarity [ . ] a more appropriate obligation for discourse-oriented, deconstructive writing would be to seek to engage readers – in the sense of catching them up in the movements of the text. This obligation would relieve writers of their responsibility to consider the effects of power and exclusion that might be implicated in their writing. On the contrary, since power and politics are implicated both in clarity and complexity there is a need for continuous reflection on the possible effects of one's writing, even when one can never predict absolutely what those effects will be. (p. 118)

## Voice, narrative and social justice

But what is justice? Justice is allowing people to live in the way for which they evolved. Human beings have an emotional and physical need to do so, it is their biological expectation. They can only live in this way, or all the time struggle consciously or unconsciously to do

so [...] We can express this basic need in many ways: aesthetic, intellectual, the need to love, create, protect and enjoy. These are not the higher things that can be added when more basic needs are met. They are basic. They must be the way we express all our existence, and if they do not control our daily life then we cannot function as human beings at all. (Bond, 1983, *Lxiv*)

Bond's view of *social justice* echoes a Rawlsian conception. A socially just society would be one in which we would be happy for our worst enemy to choose our place. Perhaps, a more pertinent metaphor for mathematics education is the image that a socially just mathematics education system would be one in which we would be happy for our own children, or children that we hold dear, to replace any other child within that system. If there are any children in situations in which we would not willingly place our own, injustice exists. And the question we should ask is, *what should we change in order to create a 'more just' situation?*

Such questions are not easy to form Eisner (1991) suggests that the question "what is it like to be here?" (p. 72) is nontrivial and that such a question can only be answered by researchers taking a careful and rigorous approach to qualitative research. Such an approach to qualitative studies takes the issue of 'voice' as primary Schratz and Walker (1995) ask the question:

If we are to find ways to make research democratic then we have to find ways to break the mould that confines research to a highly selected group of specialists (p. 14)

For Schratz and Walker, the social specificity of research makes any claims to truth problematic. Indeed, such claims to truth may be oppressive in themselves and reflexivity may become the main focus of concern for the researcher engaged in democratic research. The purpose of such work is not to tell truths about the world but to open up spaces that allow us all to think about how our worlds may be changed. As Lessing (2002) reminds us, truth is elusive:

How little I have managed to say of the truth, how little I have caught of all that complexity; how can this small neat thing be true when what I experienced was so rough and apparently formless and unshaped. (p. 13)

But the search for *truths* supports us in finding arenas in which to work for social justice. For if

we don't believe the things we put on our agendas will come true for us, then there is no hope for us. We're going to be saved by what we seriously put on our agendas. We've got to believe in our blueprints. We've got to believe in our beautiful, impossible blueprints (*ibid*, p. 553)

The research model offered here may be used amongst the learners in our classrooms, the parents within the communities in which we work, the teachers and other workers in our educational institutions and the politicians whose decisions impact on the living and working conditions of all those engaged with mathematics education. The individual commentaries of everyday experience offer the multiple perspectives required to build mathematics education research based on the ideals of social justice. The model and

the writing of this article also attend to the requirements of "discourse-oriented research" suggested by Maclare (2003) when she writes:

A discourse-oriented research would attend to the multiplicity of meanings that attach to (and divide) the people, spaces, objects and furniture that comprise its focus – the teachers, children, classrooms, textbooks, policy documents – and to the passion and the politics that are inevitably woven into these meanings. (p. 12)

In this way, we acknowledge and value differences within individual experiences. Narrative, as a methodology, can empower individuals, offer a way of finding 'voice' and discovering that others want to hear our story, to share it and to act with us in writing our futures. If we listen carefully to these stories we hear the creaking of the foundations of injustice built into our educational institutions over centuries.

Narrative empowers as we find that there is shared vision which can affect change within personal spheres of influence and which can contribute towards a more just society through education. It offers the empowerment described by Rappaport (1981) as being

based on divergent reasoning that encourages diversity through the support of many different local groups rather than the large centralised social agencies and institutions which control resources, use convergent reasoning, and attempt to standardise the way people live their lives. (p. 19)

and that

provides niches for people that enhances their ability to control their lives and allows them both affirmation and the opportunity to learn and to experience growth and development. (*ibid*, 1981, p. 19)

### **What makes a good story? Voice, crucial descriptions and critical narrative.**

My books are a series of introductions to matters and agendas unfinished. Like memory, it has gaps, amnesia, fragments of past, fractured present. To those who have not lived it, it might appear opaque; those of us living it will recognise the map (Jarman, 1992, p. 5)

#### **Marie's Monologue**

I'm just fed up - you know  
I'm always getting bad grades- you know

I'm always getting stressed

All the time

I always work hard

People put me under pressure - you know  
If I don't get good marks and all that

People just laugh at me

They say - you're crap, you can't get good marks anyway

When I go home I always get  
Well - you don't work hard enough  
You need to pass your exams to get a good job  
It's always the same things  
I just feel horrible

I feel really stupid  
 Well  
 I do my best anyway  
 BUT I'm always getting criticised and stuff

I've been working hard in Drama  
 And in that Talent Show I did a really good mask dance  
 I was really pleased with that  
 In my English - I done a lot -  
 I've been writing out an essay  
 And I think I done really well in that  
 So I'm really pleased with that

I want to go on to Further Education  
 I want to further my Drama career  
 I just want to do my best  
 To have a nice comfortable life

'Voice' has been defined as privileging experience over theory as a basis for understanding (Hadfield and Haw, 2000). The main concerns of those researching with 'voice' at the heart of their research being work with marginalized or 'silenced' groups; inclusive and democratic research; the challenge and critique of processes which silence; and participation and empowerment within and through the research process.

The monologue that opens this section comes from earlier unpublished research in which I was exploring young people's responses to the changes in mathematics education as a result of recent curriculum innovations imposed by central government. The young woman 'Marie' delivered the monologue direct to camera in one of the final research sessions. She had found it hard to articulate her feelings in many of the earlier sessions but on this particular morning asked me to take a video camera out of the room and set it up to record herself "Can I just say something?", she asked me, "but I just want to tell the camera".

The monologue above offers a powerful articulation of *what it is like to be here* and both critiques the policy which positions the actors in schools and stirs us into action. This action will vary dependent on our positions within our educational systems but the action aims to support those teachers who strive to engage with the complex educational problems involved in working and teaching young people at risk of exclusion from education. Secondly, such a narrative challenges commonly held beliefs about the efficacy and effectiveness of 'one cure fits all' policy developments.

The use of 'voice' within research texts is not unproblematic. The development of powerful narratives takes work. The narrative above offers both a critical and a representative voice (Hadfield and Haw, 2000). A critical voice which seeks to challenge existing structures and assumptions about working practices. Authentication comes both from an awareness of the teller of the story as to the purpose of asserting her voice and the particularity of her experience. The theme of representation aims to raise arguments and issues that are often marginalised in policy making.

The notion of *crucial descriptions* has been developed by Vithal (2002). For her, a crucial description - a vignette which attempts to integrate a critical perspective - must satisfy four conditions. These are conditions of

- *transparency*, which enables the reader to see through the language of description into the particular context that enables critique
- *transformacy*, which offers the potential for such a description to effect transformative change in the reader, both in thought and action
- *generativity*, which is the potential the description has for generating theory and informing new practices, and
- *exemplarity*, which is the extent to which the description connects the complexity of content with the complexity of theory.

*Marie's Monologue*, I would argue, meets these requirements. My evidence for this is the response to the monologue by audiences to which I have told the story. I would also argue that the description meets the requirements of 'voice' offered by Hadfield and Haw. Again, the only evidence I can draw on is reader and listener responses, suggesting that researchers working in the field of 'voice' must find ways of disseminating and reporting their work that takes the idea of audience very seriously.

Nussbaum (1986) suggests that from Aristotle there are four sources of *techne*. *Techne* is often translated as 'science' but Nussbaum sees it as an opposition to *tuche* or luck. So, here *techne* allows us to apply our knowledge to our world, giving us some form of control rather than simply succumbing to luck. Nussbaum (1986) describes *techne* as being "concerned with the management of need and with prediction and control concerning future contingencies" (p. 85). If we live by *techne* we possess "some sort of systematic grasp" that will allow us to enter a "new situation well prepared, removed from blind dependence on what happens" (*ibid.*, p. 85). We may argue that such a person in possession of *techne* can be described as empowered.

The four sources of *techne* are *universality*, *teachability*, *precision* and *concern with explanation*. (Nussbaum, 1986)

Universality and explanation yield control over the future in virtue of their orderly grasp of the past; teaching enables past work to yield future progress; precision yields consistent accuracy, the minimisation of failure (*ibid.*, p. 97)

This conception allows us to return to Bond's and Rawls's view of social justice. If we feel in control of our future, if we can understand how our previous work moves us forward and if we feel in as much control as we can expect of our future(s), we are moving towards social justice.

I would suggest that Vithal and Nussbaum give us powerful tools with which to analyse the narratives we produce. I would also argue that the exploration of narrative using these tools is both pedagogical and a model of research as praxis. To return briefly to 'truth', I suggest that the knowledge produced by such narratives takes a different form. I want to offer the term *critical narrative* to describe the work produced through this process. In this case, the knowledge produced can be seen as a form of critical and emancipatory knowledge described by Morrow (1994) as,

Our individual and collective consciousness of reality in order to maximise the human potential for freedom and equality (p. 146)

The following section of this article describes a process through which such critical narratives may be unearthed, and offers readers opportunity to begin the exploration themselves.

### What is it like to be here

Yeah – we'd love to hear your story  
Just as long as it tells us where we are  
And that where we are is where we're meant to be

Oh, come on, make it up yourself  
You don't need anybody else  
And I promise I won't sell these days to anyone else  
but you  
No one but you

(Pulp ~ *Glory days*)

#### 1. Defining the problem

Often we begin research with a clear view of the question we want to ask. This first stage suggests a more tentative beginning to research. It also suggests that the formation of the question should be collaborative. In a sense, the only fixity is our sense of the 'here'. This opening phase starts to dig into the question, *what is it like?*

Three techniques that allow us to explore this question collaboratively are those of photography, drama or anecdoting. The use of disposable cameras within the space we are exploring asks individuals to take snapshots of images that have key meanings for them. Drama vignettes allow us to explore such snapshots in a little more detail. Alternatively, asking individuals to write, in some detail, a critical incident which describes for them *what it is like to be here* gives the group a range of perceptions with which to begin the exploration.

Sketch an image or insert a photograph or a description (or use all three) that captures for you *What is it like to be researching mathematics education?*

the images or anecdotes we analyse our images through *naming*. This takes the form of creating 'titles' for the images or anecdotes, which capture for us the 'meanings' underpinning the image.

Write a title for the image you have created above

#### 3. Digging deeper

At this stage, we, the group of people who have generated the data, begin to analyse the choices we have made and look for common themes. This can take the form of sharing anecdotes in the larger group. Individuals read their personal anecdotes and the rest of the group respond to the anecdote by sharing any stories of their own that they feel resonate with the initial anecdote. Similarly, photographs and images will generate further images or stories. It may be, at this stage, that photographs and images are re-named. If the group has chosen to create dramatic vignettes as an initial description of what it is like to be here these can be re-written and re-played by other members of the group.

Share your initial image/anecdote with a colleague – ask them to sketch an image which describes their interpretation of this image/anecdote in this space.

#### 4. Unearthing the question

The research group now has a collection of images which have been named and renamed, played and replayed, stories that have been told and retold. The next phase asks the group to respond to this process in the form of questions. A technique, which has been effective, is to ask individuals to write down three questions that they would wish to work on as a result of the process so far. Pairs then share their questions and reduce these to two questions they are both interested in. Groups of four then repeat this process as a form of filtering the questions. This process continues until the group can focus on a single question that they wish to explore.

#### 6. Analysing the narratives

The group now revisits the collection of images and narratives with the key question in mind. Photographs and images can be treated as 'units of meaning', or 'anecdotes' broken down into 'units of meaning', which can be sorted. Collaborative analysis can now take place with the group sorting the images or the 'units of meaning' into sets that seem to share 'meaning' and naming and re-naming as the analysis progresses. As they are named and re-named it is likely that

#### 2. An archaeology on ourselves.

This phase explores the reasons we have made the choices we have in the first phase. The research remains at an individual level. In preparation for the collaborative analysis of

Form a question which is raised for you by the process so far

images or text will move between sets. Once they are formed and named, images or sections of narrative can be selected which ‘typify’ this group. The key ‘critical narratives’ can now be analysed for *transparency*, *transformacy*, *generativity* and *exemplarity* and their capacity in these areas discussed.

Return to your initial image – jot ideas in the boxes as you contemplate Vithal’s criteria for a ‘crucial description’

Transparency

Transformacy

Generativity

Exemplarity

## 7. Presentation

The research process described above demands innovative and collaborative forms of presentation. The use of video, theatre or multiple voices with response from the ‘audience’ treats the results of the research as a staging point on a journey rather than a task completed. The response is necessary, allowing us to authenticate the ‘critical narratives’. At this point we are sharing.

## 8. Evaluation

The group returns to the first stage of the process. Individually, each contributor imagines a single image or a story from the process that they feel represents a critical moment for the group. Sharing these images allows the group to decide the direction for the future.

## Final thoughts

Research is not an activity we step away from. As researchers, we are constantly on the look out for evidence that we are on the ‘right track’. This article and my work can be seen as a plea

for research that will unfreeze the icy and constant experience of being addressed as only a social construct

for the benefit of the propagation of the *status quo*; research where the tension between the world that is illustrated and a world that is being illuminated can make us live and learn again in that critical, questioning state so necessary to our very breathing; research, therefore, that will hurl itself against the current order of things; research that is not a calling card for a career but research that will march straight past this present Praetorian guard of positivism and quick fix solutions and by so doing will deliver a wonderful surprise. (after Karlin, 2002)

## Notes

[1] Foucauld's construction of *surveillance* draws on the idea that the most efficient form of prison was one in which the warders all sat in a central tower which overlooked all the cells which were arranged so they could all be viewed from the tower – a panopticon. He suggests that individuals within a society operate in ways that conform to hegemonic ideologies as if they were constantly overlooked by warders

## References

- Barenboim, D and Said, S (2004) *Parallels and paradoxes: explorations in music and society*, London, UK, Bloomsbury Publishing.
- Bond, E (1983) *Lear – author's preface*, London, UK, Eyre Methuen.
- Cotton, A and Gates, P. (1996) 'Why the psychological must consider the social in promoting equity and social justice in mathematics education', in *Proceedings of the twentieth annual conference of the International Group for the Psychology of Mathematics Education*, 2, Valencia, Spain, University of Valencia, pp. 249-256.
- Cotton, T and Hardy, T. (2003) 'Problematising culture and discourse for mathematics education research: defining the issues – tools for research' in Valero, P. and Zevenbergen, R. (eds), *Researching the socio-political dimensions of mathematics*, Dordrecht, The Netherlands, Kluwer Press.
- Department for Education and Skills (2002), <http://www.dfes.gov.uk>, accessed May 9, 2007
- Cotton, T (2005) 'What can I say, and what can I do: archaeology, narrative and mathematics education research', in Walshaw, M. (ed.), *Poststructuralist ideas informing practice in mathematics education*, Greenwich, CT, Information Age Publishing.
- Eisner, E. (1991) *The enlightened eye – qualitative inquiry and the enhancement of educational practice*, New York, NY, Macmillan Publishing Company.
- Foucault, M. (1972) *The archaeology of knowledge*, London, UK, Routledge Falmer.
- Hadfield, M and Haw, K. (2000) *The voice of young people: hearing listening, responding*, Nottingham, UK, University of Nottingham.
- Jarman, D (1992) *At your own risk: a saint's testament*, London, UK, Vintage Books.
- Karlin, M. (2002) 'Endpage', *Vertigo* 2(3).
- Lessing, D. (2002 edition) *The golden notebook*, London, UK, Harper Collins Publishers.
- Maclure, M. (2003) *Discourse in educational and social research*, Buckingham, UK, Open University Press.
- Morrow, R. with Brown, D. (1994) *Critical theory and methodology*, London, UK, Sage Publications.
- Nussbaum, M. (1986) *The fragility of goodness: luck and ethics in Greek tragedy and philosophy*, Cambridge, UK, Cambridge University Press.
- Pulp (1998) Excerpt from the lyrics of 'Glory days' taken from the album *This is hardcore*, Island records.
- Rappaport, J. (1981) 'In praise of paradox: a social policy of empowerment over prevention', *American Journal of Community Psychology* 9, 17-25.
- Schratz, M and Walker, R. (1995) *Research as social change*, London, UK, Routledge.
- Vithal, R. (2002) 'Crucial descriptions: talking back to theory and practice in mathematics education through research', in *Proceedings of the Third International Mathematics Education and Society Conference*, Helsingør, Denmark, pp 501-511, <http://www.mes3.learning.aau.dk/Papers/Vithal.pdf>, accessed May 9, 2007