Learning as a Mathematics Teacher Educator through Narrative Interviewing

Laurinda Brown
University of Bristol, Graduate School of Education

Over many years, I have carried out narrative interviews with practising mathematics teachers for a range of purposes: on their first lessons of the school year; on their role as mentors for mathematics student teachers; and focusing on their learning as teachers of algebra to year 7 students (to mention a few examples). I focus on two strands that illustrate my learning as a mathematics teacher educator; the first on what I have learnt about interviewing, particularly narrative interviewing where stories are co-constructed during the interviews; and the second on my learning about mathematics teacher development that gets applied back into my work on a secondary one-year PGCE course.

Key words: Mathematics education; narrative interviewing; story; mathematics teacher education; co-construction.

Introduction

At the University of Bristol, Graduate School of Education there is a Narrative Inquiry Centre (NIC) and an EdD Pathway centred on Narrative Inquiry. One of the courses on this programme is Narrative Interviewing. When I audited this course, Cathy Reissman and Jane Speedy led the sessions together. Cathy Reissman, in an early session, discussed going back to interviews she had conducted many years earlier and re-analysing them from her current perspective. This got me thinking about the many interviews I had conducted over the years, from which I had not shared my learning. The interviews I had conducted were more like conversations than structured or semi-structured formal social science events and, at the time, although formative of my own learning about learning to teach mathematics, I felt that the texts would be judged not to be research. I was not doing it properly. Consequently, the interviews remain unreported. For the session at the BSRLM day conference, I shared with participants that I had conceived the idea of going back and looking again at the transcripts of the interviews I had conducted and was wondering about writing a book focused on re-working not only interview data but also lesson observation data. The focus of this paper is interviewing. Given whatever happened in the session, I was interested in feedback as to whether participants would read such a book. Similarly, after reading this paper, I would be happy to receive any similar feedback.

Story

Before focusing on narrative interviewing, and knowing that I have already reported in some depth on the idea, I would like to distil out what I mean technically when I use the word story. When writing papers, I will often entitle them using the word 'Story' as in 'Story of Silence' (Brown and Coles 1996) or 'Story of Sarah' (Brown and Coles 1997). On reading the 'Story of Silence' paper in 1996, Dick Tahta counselled not to use the word 'Story' because readers might dismiss the ideas as being fiction. However, I persisted because there were two aspects to 'story' that

seemed important to me at the time, and are still important. For the first global storytelling conference, with a colleague, Alf Coles, we wrote about our practice as mathematics teacher educators:

> When working with teachers who wish to develop their practice there is a power in the use of story. In the sense offered by Bateson (1979):
>
>> A story is a little knot or complex of that species of connectedness which we call relevance... we face connectedness at more than one level: first, connection between A and B by virtue of their being components in the same story and then connectedness between people in that all think in terms of stories. Context and relevance must be characteristic not only of all so-called behaviour (those stories which are projected out into 'action'), but also of all those internal stories... I offer you the notion of context of pattern through time. (13-14)
>
> The prospective teachers need to make the connections themselves between the stories that are offered. It is their pattern that connects (Bateson, 1979). We cannot make their connections for them, but we can, through the mechanism of telling stories within the group, open up the space of possible connections and they can share what the stories severally mean to them. Bruner (1998) talks of 'framing' when discussing the 'organisation of experience' and 'the role of narrativised folk psychology':
>
>> Framing provides a means of 'constructing' a world, of characterising its flow, [...] what does not get structured narratively suffers loss in memory. [...] framing is social, designed for the sharing of memory within a culture. (Brown and Coles 2012, 56)

So, the two ideas that I want to focus on in relation to narrative interviewing are 'framing through flow', from Bruner (1998) and 'relevance and context of pattern through time', from Bateson (1979).

Narrative interviewing

The ideas from Bateson's and Bruner's writing on story, particularly 'framing through flow' and 'relevance and context of pattern through time', have combined, since the early days of my career, to inform my practice as an interviewer. In early research, I used to do interviews but not report on them because, in the 1980s and 1990s, structured or semi-structured interviews were considered to be 'real' research. Now, narrative interviews are an accepted practice in narrative research. As Reissman (2006) says, "Narrative interviewing has more in common with contemporary ethnography than with mainstream social science interviewing" and quotes Mishler (1986), "Participants engage in an evolving conversation; narrator and listener/questioner, collaboratively, produce and make meaning of events and experiences that the narrator reports" and Gubrium and Holstein (2002), "The 'facilitating' interviewer and the vessel-like 'respondent' are replaced by two active participants, who jointly produce meaning", in her contribution on *Narrative Interviewing* to *The Sage dictionary of research in the social sciences*.

Putting these ideas together, for me, narrative interviewing involves a co-construction of the interviewee and myself the interviewer. The interviewee is the narrator of their experience, in 'flow' in Bruner's sense, so the interview has a focus, for example, a teacher telling the narrative of their first lesson with a new group of children soon after the start of the academic year. We seek meaning together in relation to this 'flow'. Also, the exploration is to uncover the 'relevance' seen in an energetic distillation of, for instance, an articulation of the pattern over time of what mathematics teaching is for them. My roles as interviewer are to ask questions when I

know that I do not understand; tell stories from my own experience to say what I think is meant; and ask always for more detail from their experience. We (narrator and interviewer) do not deal in theoretical discussions divorced from practice or experience – labels relate to details of actions. In what follows, for two cases, I will firstly illustrate how the ideas of flow and relevance support my design of a sequence of interviews, followed by, in each case, stories from my own experience as a teacher educator to show how these narratives have supported me in developing my practice.

First set of interviews – the influence of teachers on children's image of mathematics

Design: The first sets of interviews that I conducted as part of a research project were for the dissertation of my Masters in Education degree at the University of Bristol. These interviews were of teachers of mathematics across a range of philosophies and 6 of their children to investigate 'the influence of teachers on children's image of mathematics' (Brown 1992, 30), defined as "how the children's personal theories of mathematics have undergone a common change or adaption through working with the teacher". Given that I had to justify my research design, I described the interviews with the children as 'clinical interviews' after reading an article by Ginsburg (1981). This article introduced me to probing and contingent questions but I wrestled with how I would know when, in the interview, each child would reveal something about their image of mathematics. I decided to give a 'flow' (as I would now describe it) to the interviews with the children through them (again, as I would now describe it) staying with the detail of some lessons experienced with the teacher (when what they were doing felt like mathematics; when they felt good; when they felt bad) after we had done some mathematics together with the child choosing from a range of possible activities. The final question I would now describe as getting to the 'relevance', the pattern over time of their image of mathematics, which often provoked an energised answer:

> What I am interested in is your image of mathematics. So far you have indicated
> in your responses to the various statements and activities that maths is … Is there
> anything else you'd like to add that has not been covered so far to the question:
> What is mathematics to you? (Brown 1992, 31)

The energised answers might take the form of "Yes, yes, yes, and …", to my tentative suggestion, or "No, no, no … what I think mathematics is is …".

What eventually I reported on in the dissertation were the, to me, surprising similarity between the energised articulations of the children and their teacher: Teacher A: influence through challenge; Teacher B: influence through philosophy; Teacher C: influence through structure; and Teacher D: influence through enjoyment. I had certainly weighted the investigation towards there not being any connection: through the teachers choosing their 6 pupils and 2 of them being in tune with what they did, two not liking their style or underperforming and 2 to make up any imbalances for me to interview. I remember being surprised by the consistency of the wording.

Learning: As an interviewer, I learnt to use the technique of asking interviewees to stay with the detail of their practice, thus finding a flow to the interview that did not need me to keep asking questions. There was then a build up to an articulation from the interviewee about the focus of the interview, which in this case was a statement that I was construing as their image of mathematics (relevance). No matter how long an interview might take, the phrases that stay with me and that I

use are the ones newly created energetically in the moment, rather than reported, well-rehearsed phrases that do not seem to live for the interviewee.

As a teacher educator, I work with PGCE student teachers to this day so that they need to articulate their practice throughout the year. The research for my mathematics education Masters convinced me that it did not matter what the belief of the teacher, their conviction and honed practices would influence their students' image of mathematics positively. Our website statement advertising our Mathematics PGCE programme states that "There is not one way of teaching mathematics" and the student teachers need to work at developing a set of strategies that will support their students' learning. These strategies will be linked to their beliefs and we seek always to encourage students to articulate the detail of their classroom experiences.

I did a pre-visit interview with each of the four teachers, followed by observing them teaching. In the literature, there are comments about teachers not describing what happens in their classroom or what they are working on in their teaching accurately. I found that teachers talk in terms of what they are working on and do not have necessarily an awareness of the continuum of practice in which an observer would embed their observations. For example, a teacher might say they believe in using questioning for assessment for learning and are working on doing this. An observer, with experience of a continuum of lessons given by various teachers, might make a judgement that, since only three questions were asked that the teacher is wrong in some way. Well, from the teacher's point of view, these might be three questions more than they usually ask!

Second set of interviews – first lessons

Design: Over time, my practice of interviewing became more of a co-construction in that I would feedback where I was at about the focus for the interview both during and at the end of an interview, gaining energised statements throughout the interview. After the work for my Masters, I became interested in how the classroom cultures of experienced teachers are developed. Seeing experienced teachers at work was mysterious because the children and the teacher seemed to know what to do with little need for explicit articulation. I observed teachers earlier and earlier in the year and the same thing applied. Many teachers did not want an observer during their first lesson of a new academic year with a group, so I had the idea of, again, taking a range of teachers with different beliefs and structures within their schools but this time interviewing them in relation to the first lesson or lessons that they had given to a new group that they taught. This research, although influential on my development, has not been formally presented as a paper. The narrative, in the sense of Bruner's 'flow', for these first-lesson interviews, was provided by the teacher telling the detail of their first lesson or lessons of the school year with a class. The relevance, in Bateson's sense of story, was provided by their talking about how their teaching was organised, for example, teaching strategies that they commonly used whenever they were teaching and probing for why these strategies were used. Energised comments were provoked throughout the interviews, for instance, after reporting that they had told a story to their class in their first lesson, I asked, "where does the story come from?" The reply, energetically, seemed to get at the heart of what they were trying to set up and do as a teacher, their motivation, "I like to give things a story because I like to give children a natural language as a parallel to the mathematical language. When you've got a story if it's amusing or catchy in any way they might get interested in the

first place and it gives a simple language with which they can converse with one another."

Learning: Again, I had confirmed through doing these interviews my growing conviction that there is not one way to teach mathematics. As an interviewer I was becoming comfortable with allowing the knot of relevance to emerge through keeping attention on the process of telling the detail of the lesson, say. For the teachers in their first lessons, what seemed to be important was doing an activity that they were comfortable with, that they had done many times before, linked to a purpose like 'story' to allow them to attend to what their children brought with them and set up the rules of the community they liked to work with and begin to learn about how their pupils learned mathematics. In these early lessons, the teachers were explicit about the way they wanted their pupils to act, both in terms of expected routines and about doing mathematics. These comments about what happens Alf Coles and I have come to call metacomments.

Thoughts

In reflecting on these two cases, I am struck by how being a narrative interviewer and how I am as a teacher and a teacher educator are similar: the importance of setting up the culture from the first meeting and being aware enough to comment about what is happening, ourselves being in flow and attending to and sharing the patterns over time that are emerging. These metacomments, contingently made from the flow of experience, seem to provoke the energized comments of relevance from the interviewee.

In conversation with others (I seem to have spent most of my life in such conversations, especially with Dick Tahta, who was a critical friend until he died), it is possible to use the processes above to learn in a similar way. In the most recent times before he died, I would send Dick stories of my practice as a teacher educator and he would edit and comment on my stories like I would for the teachers I narratively interview. Here is an edited by Dick piece of writing:

> Jane was quite difficult in her relations with others in the group. She was quietly confident about her own opinions and sure that she could help the pupils with whom she worked. She 'knew' that she would be a strict disciplinarian and that there would be no nonsense in her classroom. She would make sure of that! She asked me to come and see one of her classes, in some distress because she could not get them to do anything and there was a riot each time she saw them. This was a small group of children and she had just about given up on them.
>
> She had already developed a technique of 'giving them something to do so she did not have to work with them as a whole class because she could not control them' and so the lesson consisted of individual conversations between her and the pupils.
>
> She was approachable because children would come to her with a problem - in some frustration - and she did not shout at them or raise her voice. She simply did not listen to what they had to say. They would give her their exercise book and she would start in on an explanation or something and then say, "go back and try that". Often there would be a look of puzzlement on the face of the pupil concerned and a shrug of the shoulders as if to say, "what was all that about?"
>
> In talking about the lesson afterwards she was clear about what was happening but not about why, nor about what she might change. I related the incidents about the conversations and we worked on how she might be different. I suggested that she not

> say anything at all when the children came up to her - just focus on keeping still and attending.

> On the Friday morning session in the university, she related in some detail how she had been amazed that the children spoke and had these ideas and were able to say where the problem was. She told the story excitedly about one child who started talking and then did the familiar, "oh I know, thanks miss" and walked away. This did not fit with her images of her own schooling, which was in silence (her silence) but she recognised something in the way some of the pupils responded that she valued. It took some time before she was able to listen, hear and respond but she had begun to extend her range of skills.

Some of my learnings through interactions after crafting the writing were to do with the support needed by student teachers to develop a way of being in the classroom that they value in supporting the learning of the students. I recognise problems created by not listening and have realised that working to develop listening skills in others is not necessarily that difficult a task as long as I am prepared to say what might feel like difficult things. I learnt from interactions with Dick, effectively narratively interviewing me, that these seemingly difficult things to say will not be heard if they are too problematic. The striking thing for me is that the process, looking across narrative interviews, is the same, however, there is substantive work done by the children learning mathematics; teachers learning their children; and mathematics teacher educators learning their mathematics prospective teachers.

References

Bateson, G. 1979. *Mind and nature: a necessary unity.* New York: E. P. Dutton.

Brown, L. 1992. 'The influence of teachers on children's image of mathematics'. *For the Learning of Mathematics* 12(2): 29-33.

Brown, L. and A. Coles. 1996. 'The Story of Silence'. In Proceedings of the 20th Conference of the International Group for the Psychology of Mathematics Education (PME), ed. L. Puig and A. Gutierrez, 145-52. Valencia: University of Valencia.

Brown, L. and A. Coles. 1997. 'The Story of Sarah'. In Proceedings of the 21st Conference of the International Group for the Psychology of Mathematics Education (PME), ed. E. Pehkonen and A. Gutierrez, 113-20. Helsinki: University of Helsinki.

Brown, L. and A. Coles. 2012. 'Staying with the detail: The use of story as a pedagogical tool within teacher education'. In *First Global Conference on Storytelling; Prague, Czech Republic, 13-15May, 2011.*

Bruner, J. 1998, 8th printing, original 1990. *Acts of Meaning.* Cambridge MA and London: Harvard University Press.

Ginsburg, H. 1981. 'The clinical interview in psychological research on mathematical thinking: aims, rationales, techniques. *For the Learning of Mathematics* 1(3), 4-11.

Gubrium, J. and J. Holstein. 2002. (Eds.) *Handbook of Interview Research. Context and Method.* Thousand Oaks: Sage.

Mishler, E. 1986. *Research interviewing: Context and narrative.* Cambridge, MA: Harvard University Press.

Reissman, C. 2006. 'Narrative interviewing'. In *The SAGE Dictionary of Social Research Methods* ed. V. Jupp, at: www.srmo.sagepub.com/view/the-sage-dictionary-of-social-research-methods/n125.xml, accessed 24.4.13.