Using Narrative Inquiry in Cultural Studies of Science Education

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Terms such as cultural broker and border crosser have been used in cultural studies of science education to bring about cross-cultural teaching and learning, especially with Indigenous learners. In order to understand how some people are successful as cross-cultural workers, particularly with Indigenous people, narrative inquiry can be used to bring together rich research data from a number of sources: interviews with participants, their writings, and other literature, both academic and populist and often themselves written as narratives. Narrative inquiry offers an environment for rich description of participants’ life histories, including critical events.

... the answer to the question, Why narrative? is, Because experience. (Clandinin & Connelly, 2000, p.50)

Life experiences and background are obviously key ingredients of the person that we are, of our sense of self. To the degree that we invest our ‘self’ in our teaching, experience and background therefore shape our practice. (Goodson, 2008, p.11)

In undertaking the original research I sought to find out why some people seem to be able to work cross-culturally and it seemed natural that I would ask a group of successful practitioners how this happened for them. Firstly I examine the strengths of qualitative research methodology in this project. I focus particularly on the richness of description which qualitative research avails me as a researcher and the use of narrative which values multiple narratives of human experience. I consider narrative analysis as a methodology, based on people’s experiences, alongside other analytical tools which are useful in understanding narratives. I present life histories as a way of focusing on the stream of events from the participants’ lives and the use of critical event analysis to examine those events as a means to understand what led the participants to becoming cross-cultural workers.

Denzin and Lincoln (2000) comment that qualitative researchers “seek answers to questions that stress how social experience is created and given meaning” (p.8, their emphasis) influenced my decision to use a qualitative research methodology to find out why other people seemed to be able to work cross-culturally. Denzin and Lincoln (2000) also portray the qualitative researcher as a bricoleur or quilt maker. They describe the qualitative researcher-as-quilter as one who “stitches, edits, and puts slices of reality together” (p.5). This is translated as enabling the researcher to form one perspective from multiple ones.

Qualitative data can be collected in short answer format and in numerical format such as a Likert scale but the most characteristic form is in narrative form (Polkinghorne, 1995). It
was because I wanted to get close to people’s understanding of cross-cultural work through their experiences (Clandinin & Connelly, 2000) that I chose to use interviews as my main form of data collection. Kvale (1996) describes interviews as conversations and indicates three types of uses, everyday interactions, professional interchange and philosophical dialogue. Although he suggests that a research interview falls into the category of professional interchange, philosophical dialogues promote conversations and the co-construction of knowledge. Kvale (1996) suggests using a semi-structured interview conducted around guiding questions that focus on particular themes. Guiding questions can be developed as starting points to generate follow-up, probing and interpreting questions (Kvale, 1996; Petrie, 2005).

There are several forms an interview can take including structured, semi-structured or unstructured. Unstructured interviewing, particularly open-ended in-depth or ethnographical interviewing, can provide a greater breadth of data than other types (Fontana & Frey, 2000) and attempts to understand rather than categorise as in structured interviews. Generally in semi-structured interviews the interviewer is not limited to the series of questions but uses them as a series of focus questions.

These questions may reflect the themes or sub-plots of the research. However Petrie (2005) considers that the way in which assumptions shape the development of the interview schedule can shift the interview process from an open-ended semi-structured one towards a more structured interview.

‘Yarning’ is a way of data collection which has been used as a way of including and valuing Indigenous Australians in research. It involves sharing of stories, a familiar traditional situation (Dunbar et al., 2002; Gilchrist et al., 2002; Purcell, 2002). Power (2004) uses yarning as a strategy in investigating the operation of an Indigenous Australian preschool. She adopts yarning as “informal conversational exchange rather than formal interviews” as she finds the formal interview approach “had raised anxiety levels and resistance” (p.41). Yarning is akin to conversation and chat which have been used in research with indigenous people (Bishop, 1996; Haig-Brown, 1992; Te Henepe, 1993) and is best represented as narrative. Bishop (1996, 1997) uses collaborative research storying in a way that amalgamates the western qualitative methodology of ethnography/narrative with Maori traditions (including storytelling and whanau, hapu and iwi), as a form of Kaupapa Maori research¹. Bishop (1996) points out the importance of the formal interview as conversation, the informal interview as chat and the need for collaboration between researcher and researched in constructing the final story.

3.2.1 Ethical considerations

Traditionally there are three ethical concerns in undertaking interviews in qualitative research: informed consent, right to privacy and protection from harm (Fortuna & Frey, 2005; Kvale, 1996).

Informed consent is informing participants about the purpose of the investigation, its design and the potential risks and benefits from participation. It includes receiving voluntary consent to use material from a participant after they have been informed truthfully regarding

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¹ Kaupapa Maori, meaning the Maori agenda, articulates the desire for Maori self-determination in a variety of ways (Bishop, 1996; Smith, 1999). It articulates the desire for self-determination in research by indigenous peoples worldwide (e.g. Battiste & Henderson, 2000; Quartermaine, 2003) in preserving their culture – including language, knowledge and worldview.
the nature of the research. Informed consent can be withdrawn by the participant at any time, a right to which they are informed from the beginning.

The right to privacy or confidentiality is designed to protect the identity of the participant, so that normally they cannot be identified in the research report or ongoing presentations. This may be done by changing names of participants, institutions and locations, or by encoding these data. If they may be identifiable, participants need to agree about the level to which they are identified, in writing (Kvale, 1996).

Protection from harm or beneficence includes preventing any physical, emotional or other kind of harm. Kvale (1996) suggests that the personal nature of the interview may lead some participants to disclose information they may later regret and that researchers need to be sensitive to the depths to which they probe.

Usually a researcher in an institution makes a submission to an ethics committee associated with their institution and in the submission they identify how they intend to address these three concerns.

3.3 Postmodern thought and narratives

Postmodern theory represents one philosophy behind knowledge production resulting from the qualitative interview (Kvale, 1996). As noted earlier (section 2.1.2), postmodernism rejects the notion of a universal truth or ‘master narrative’ and instead promotes a plurality of discourses (Giroux, 1992). This new knowledge can be collected through interviewing as narratives or stories, “with the collective stories contributing to uphold the values of the community” (Kvale, 1996, p.43).

Narrative data in their basic form are described as ‘prosaic discourse’ by Polkinghorne (1995), “text that consists of complete sentences linked in a coherent and integrated statement” (p.6). Narratives can be considered as stories (Clandinin & Connelly, 2000; Connelly & Clandinin, 1990; Polkinghorne, 1995) when the events and actions are organised by a plot. However Polkinghorne (1995) cautions regarding the possibility of misrepresentation in using the ‘story’ terminology as fiction rather than nonfiction. Connelly and Clandinin (1990) discuss the role of narrative inquiry in qualitative research on practicing teachers. They consider that listening to teachers and other learners and their life stories both in and out of the classroom can lead to writing “narratives of what it means to educate and be educated” (p.12). There is a need for collaboration, joining with their participants to produce collaborative stories which merge the experiences of the participants and the researchers.

An important part of this type of research is the inclusion of the participants in constructing the final narrative: “When both researchers and practitioners tell stories of the research relationship, they have the possibility of being stories of empowerment.” (Connelly & Clandinin, 1990, p.4). In storied narratives, the subject matter of the story is human action or human experience which is unique to each human being; storied narrative “preserves the complexity of human action with its interrelationship of temporal sequence, human motivation, chance happenings, and changing interpersonal and environmental contexts” (Polkinghorne, 1995, p.7).

Polkinghorne (1995) suggests that there are two approaches to narrative inquiry, narrative analysis and analysis of narrative. In narrative analysis, the data elements are configured into a story “that unites and gives meaning to the data as contributors to a goal or purpose” (Polkinghorne, 1995, p.15). Sources for the data can include interviews and the writings of participants, which reveal the uniqueness of the individual case. The outcome is a story which explains how and why an individual acted in a particular way. Polkinghorne refers to analysis
of narrative as ‘paradigmatic analysis’ as it relates to the themes or sub-plots guiding the research. Analysis of narratives can start with a series of stories to look for common ideas across them, developing the concepts from the data instead of imposing outside theoretical concepts, and relationships between categories. The outcome is the development of general knowledge about a collection of stories. However, as Polkinghorne (1995) warns, this kind of knowledge “underplays the unique and particular aspects of each story” (p.15).

3.3.1 Life histories and critical events

Teachers’ life history is a genre which explores teachers’ life-worlds in their “political and social contexts and historical patterns and parameters” (Goodson, 2008, p.vii). Life histories are one way of understanding how people see the evolution of their careers, especially in teaching (Goodson, 2001, 2008; Goodson & Sikes, 2001; Middleton, 1993; Sikes et al, 1985). Life histories are adapted from life stories, the stories told usually in interviews, through analysis and interpretation by the researcher (Goodson, 2001, 2008). Goodson (2008) considers that listening to the teacher’s voice is of prime concern when teachers talk about their work and that the data they supply should only be dispensed with when it is proven to be irrelevant or redundant. Life histories of teachers are generally portrayed as narratives, often as auto/biographies and stories (e.g. Ashton-Warner, 1963; Harrison, Allan, Phillip & Reid, 2004; McCourt, 2005; Nelson, 1989).

The analysis of life histories (Goodson, 2001, 2008; Goodson & Sikes, 2001; Middleton, 1993; Sikes et al, 1985) is primarily at the individual level and incorporates some of the analytical framework of critical event analysis (Sikes et al, 1985; Tripp, 1994; Webster & Mertova, 2007). This interpretative technique is used to identify the critical incident or event which projects a person into a different career path from that held formerly. Critical incidents are considered by Webster and Mertova (2007) to be changes arising from conflict between a person’s worldview and a new experience. These incidents are change experiences which can be positive or negative, in the same way in which the culture shock experience can be positive or negative. Woods (1993) considers that critical incidents are “unplanned, unanticipated and uncontrolled” (p.357), seemingly relating to the nature of a teacher’s career (Sikes et al, 1985). Sikes et al (1985) suggest there is a typology of critical incidents which can affect teachers’ careers:

- Extrinsic: causes are external to the individual, such as social change or policy innovation.
- Intrinsic: occurring within the natural progression of a career, such as promotions and transfers.
- Personal: projecting an individual into a different career path.

However, Geijsel and Meijers (2005) and Pillsbury and Shields (1999) both consider that critical events, which they term ‘boundary experiences’ and ‘precipitating thoughts or events’ respectively, could result in either creating more flexible or more rigid boundaries.

Personal critical events appear to have the potential to bring about changes that relate to teachers’ identity and are generally less predictable. There appears to be a link between critical incidents and the concept of identity learning (Geijsel & Meijers, 2005) which I discussed earlier in section 2.3.1 in the context of culture shock. Both critical incident and identity learning are described as conflicts between previously held views and a new experience, in which the incident may have positive or negative outcomes. Accordingly, identity learning can take place as a positive response to a critical incident whereas a negative response can lead to reinforcement of previously held views.
3.4 Verification in qualitative research

Verification or ‘confirming the truth’ has always been part of qualitative research (Kvale, 1996) and much of the early research on verification was done to appease the perception of quantitative researchers that qualitative research was not as objective as quantitative research. However postmodern theorists reject the idea of a universal truth so that many qualitative researchers (e.g. in Denzin & Lincoln, 2000) have more recently sought to define their own ways of approaching this aspect of their research. The traditional approach involves the concepts of generalisability, reliability and validity (Kvale, 1996).

In a positivist approach, generalisability leads to universal laws of human behaviour but in a postmodern approach this is considered unwarranted. However generalisability has the potential to demonstrate, particularly through case studies, what could be, so that the research becomes transformative (Kvale, 1996). The idea of reliability in qualitative research is couched in terms of replication (Cohen, Manion & Morrison, 2000) or consistency (Kvale, 1996). Although replication is considered essential in quantitative research and may be possible in qualitative research, it is generally unlikely where the research is focusing on individual’s personal experiences.

Validity is more closely associated with knowledge and truth, particularly concerning positivist notions of truth through the quantification of results (Kvale, 1996). This is generally not an option with qualitative research. Kvale suggests that validation is not only a step in itself in undertaking qualitative research but also needs to be incorporated in all stages of the research, “on the quality of craftsmanship during investigation, continually checking, questioning, and theoretically interpreting the findings” (p.241). Triangulation is a technique which has been used to validate traditional or positivist qualitative research. In triangulation the researcher uses data from a variety of sources to validate findings (Richardson, 2000).

However many researchers consider that these are no longer suitable in postpositivist approaches to qualitative research and they have considered a range of alternatives.

3.4.1 Postmodernist alternatives

There are a number of alternative techniques which have been used by postmodernist theorists to make sense of their work while maintaining the plurality of discourses.

Richardson (2000) uses crystallisation rather than triangulation as a way of visualising validity in postmodern research; the metaphor refers to the multiple facets of the crystal as an analytical device. Examining the various stories is similar to looking at the different facets of the crystal, as they tell more about the same idea but from different angles and gives them more dimensions, unlike triangulation which fixes the stories only in same dimensions. A number of stories around the same theme can offer different facets of the theme (or crystal).

Voice refers to how researchers allow their informants to be heard directly, allowing participants to speak for themselves in the texts that the researcher creates (Lincoln & Guba, 2000). Voice also includes that of the researcher, allowing them to be located within the text although realising that the authoritarian nature of the researcher’s voice is neither absent nor hidden. In writing a narrative there is a problem of maintaining a balance between the researcher expressing their voice and telling of the participants’ storied experiences (Clandinin & Connelly, 2000).

Reflexivity is where a researcher takes on the role of both inquirer and respondent in the process of researching, “the process of reflecting critically on the self as researcher” (Lincoln & Guba, 2000, p.183). Reflexivity affects the choice of research problem and those who are engaged with in the research, as well as the self in the research setting. However solipsism,
regarding the self as the object of real knowledge, and narcissism, overstating the value of one's own contribution, need to be avoided in considering both voice and reflexivity (Clandinin & Connelly, 2000; Richardson, 2000).

In describing and interpreting the experience of other people there are two related issues termed 'the crisis of legitimation' and 'the crisis of representation' (Lincoln & Denzin, 2000) and with them the overarching power relationships between researcher and participant. The crisis of legitimation relates to the authority of the text, the claim that “any text makes to being accurate, true, and complete” (Lincoln & Denzin, 2000, p.1051). This means that the text is faithful to the context and individuals it claims to represent, and addresses the interests of those studied as well as the researcher. The crisis of representation asks about those who have been omitted from the research and whether they should be included. Often it may be considered that the researcher has misused their power to silence members of their community. Brenner (2006) considers that “interviewers must often bridge power differentials between themselves and informants that are based on age, race, social class, language, and gender” (p.368).

3.5 Design for this research

The research undertaken in this thesis revolves around the experiences of a group of eight people whom I considered had worked successfully in cross-cultural settings with indigenous people. The selection of the participants is somewhat eclectic: originally they were to have some cross-cultural experience in science education and research and some of them do have this. Over time and as I read further, I came across names of people who had reflected on their cross-cultural experiences both personally and academically; three participants were selected in this way. There also appeared to be a need for ‘hands-on’ experience in indigenous communities as well as later leadership experience which could be provided by other participants. Several of the participants had worked in indigenous communities early in their careers and three had subsequently worked in them at a later stage as principals. Some of the participants fit more than one criterion. There was also a practical aspect that they needed to be accessible to be interviewed. Details regarding the inclusion of each participant are given below (section 4.2).

I anticipated that the participants would relate their stories as ‘rich text’ and this seemed to imply that a qualitative methodology would be the most effective way of collecting and analysing the data. The richness of human experience (Clandinin & Connelly, 2000) can be retained through qualitative research involving interviewing and the production of narratives.

Throughout this thesis I refer to the group of eight people as participants rather than interviewees, informants or other terminologies. This acknowledges their roles in actively engaging with the researcher in the meaning-making process of the research (Hampton, 1995; Stonebanks, 2008), their collaboration with the researcher (Bishop, 1996), their involvement in conversations (Bishop, 1996) or yarning (Power, 2004) with the researcher. This methodology is consistent with methodologies considered appropriate for research with indigenous peoples and I expect that this approach will facilitate access to the research by indigenous peoples.

3.5.1 Data collection through interviews

The data collection for this research was undertaken primarily through individual interviews with each of eight participants by the researcher and was augmented by referring to the participants’ writings. The interviews were based around a series of semi-structured questions which are reproduced in appendix 1. The questions were prepared as a result of my
own experience and reading the literature. They were prepared primarily to consider the participants’ understanding of culture brokerage: how they came to be cross-cultural workers, what did they do and how did it influence their work. The questions were originally devised to be submitted to the ethics committee in 2003 and were basically left unchanged during the interview stage.

Prior to the interview each participant was sent a copy of the Participant consent documentation (Appendix 1). This 4-page document included a letter of introduction, information about the project, a list of questions which could be asked, and a copy of the participant consent form. Generally these were e-mailed to the participants beforehand; in one case they were posted.

Each of the participants was engaged in an interview of about one hour’s duration. The interviews were recorded on audiotape, transcribed by the researcher and returned to the participant by e-mail shortly after the interview for comment. The version returned by each participant is the version referred to as excerpts in the data chapters.

The questions used in the interviews relate to the three main themes or sub-plots to be researched and around which the data chapters are organised:

- Childhood and early career experiences relating to the initial border crossing (chapter 5)
- Experiences as cross-cultural workers, particularly their understanding of the role of culture broker (chapter 6)
- Advice regarding teachers in cross-cultural settings (chapter 7).

The ethics committee accepted that in this thesis the participants would be identified, particularly as I wanted to be able to use their research literature as a secondary source. This was detailed in the information sent to each participant as part of the informed consent procedure. A copy of the research consent form is provided in appendix 1. I addressed the three concerns regarding informed consent identified by Fortuna and Frey (2005) in the following ways:

1. Each of the participants acknowledged informed consent by signing the research consent form which they received with a covering letter prior to the start of the interview.
2. They were aware when signing the research consent form that they were signing away their right to privacy, however in doing so it was acknowledged that they could withdraw from the research at any time.
3. To protect them from harm, the research consent is assumed to extend only to the production of this thesis. They will not appear in any ongoing publications by the author without their further consent and researchers using the thesis as a secondary source have been asked to refrain from identifying the participants (see Ethical considerations and research consent, p. iv).

The proposal was submitted to the ethics committee of the School of Education of the University of Waikato, which approved the proposal during 2003.

3.5.2 Narrative inquiry

In chapter 4 there are eight stories of cross-cultural experience which describe the unique experiences of each of the participants. The stories have been developed from the interviews with the participants. The structure of the interviews provides the time range and criteria around which the plot is developed and clarifies the meaning events have as contributors to the story (Polkinghorne, 1995). These were synthesised into the three main ideas or sub-plots which are examined in the data chapters (chapters 5-7). However it should be noted that these
are not the only stories to be considered in this thesis. As well, there are the stories told by numerous others which have informed some of the literature examined in chapter 2, particularly section 2.3, about their experiences working cross-culturally.

Both the narrative analysis and the analysis of narrative approaches (Polkinghorne, 1995) are used in the treatment of the data in this thesis. Narrative analysis led to the creation of the stories for each participant. In part, some of the data consists of a life history where the participant discusses their childhood experiences as well as their early career experiences with indigenous people. The participants’ voices are heard particularly through the extensive interview extracts used. However, the stories have been subsequently edited to cameos – sketches or portraits – of the participants for inclusion in the thesis (chapter 4), in particular relocating much of the interview and literature data which gave life to the stories and reassigning it to the data chapters. This was because it was considered to be of more value in the subsequent paradigmatic analysis of narratives. The narrative story for Glen Aikenhead is included as appendix 2 to complement the cameo.

In the analysis of the narratives, common concepts are developed from across the participants’ data derived from the stories are compared with each other and other research literature. The participants’ responses are within the context of their experience and they “describe when events occurred and the effect the events had on subsequent happenings” (Polkinghorne, 1995, p.12).

In this thesis, life histories of the participants are incorporated into the first half of chapter 5 and the analyses can be found there. The individual experiences of the participants are then subjected to paradigmatic analysis (Polkinghorne, 1995) consistent with notions of border crossing in the remainder of the chapter. The analysis in chapters 6 and 7 is more in keeping with analysis of narratives (Polkinghorne, 1995) although the participants often refer to events within the context of their life histories.

I have used the idea of critical incidents in analysing the participants’ early careers (chapter 5), making some use the typology of critical incidents of Sikes et al. (1985; see section 3.3.1 above). However I found the distinction between ‘event’ and ‘incident’ not to be of particular value. The participants identified defining moments in their careers, many of which are unplanned – ‘happenstance’ and ‘epiphany’ were expressions used by some of the participants – but for some, the defining moments take place over extended periods and are more subtle than to be described as an incident or an event.

### 3.5.3 Verification

I want to address some possible issues about the way in which semi-structured interviews were carried out, and in some ways this can also be seen as addressing issues such as validity in considering the responses. I positioned myself as researcher in this area as a person of some experience within the field and I was able to talk with the participants as an insider and as an equal. I have also worked in an indigenous community and I had a personal involvement in wanting to understand how others had resolved a situation I had found problematic.

As noted in the previous section, the voice of the participants was given high priority by the extensive use of quotations from the interviews throughout the narratives and thus into the data chapters. This was augmented by the use of quotations from the participants’ literature, not simply as an attempt to triangulate or validate the interview data, but to further illustrate the ‘facet’ (Richardson, 2000) or idea under discussion. Similarly, other authors are referred to or quoted from to enhance the ideas being explored.
In this research I have attempted to minimise any issues relating to abuses of power either by the researcher or the participants (Brenner, 2006). In general the conduct of the interviews was considered to be unproblematic although the participants often talked beyond the brokerage metaphor. The difference in age between the participants and researcher was not significant and our experiences are similar. Several of the participants I had known for some time and had worked with at some stage. I had had the opportunity of talking with the other participants before doing the interview itself; in only one case I interviewed a person whom I had not met previously and in that case we had a chance to talk over lunch before doing the interview. As noted above, I had worked with a number of the participants; in none of these cases was I in a direct line of management above any of them and in fact I had been in a subservient position to two of them. I had also retired and only one of the participants still worked for the same authority. Some of the participants were keen to participate as they considered the research may be of value in their own work.

In terms of representation, there are two main groups of people who are not represented in the data but who are significant in the story being developed in the thesis. The first are members of the groups of people who go into indigenous communities but who are not identified as cross-culturalists, and the second are the indigenous people.

Firstly, in section 2.3.3 above I identified four groups of people whom I considered, after examining the literature, could be found working in indigenous communities. I identified these as cross-culturalists (as positive workers) and expatriates, short-term stayers and nonconformists (as negative positions). Of the latter three, the expatriates are seen from a particularly negative perspective through the literature which is generally written by another party, not by the members of the group; what is heard from them is mostly anecdotal and unlikely to be written, although there are a few comments recorded in Jordan (2005). As I was interested more in people who had positive experiences and who were likely to be border crossers, I concentrated my interviews on them.

Indigenous people were not included in the research as it focuses on westerners working across cultures. There does not appear to have been any attempt elsewhere to research the opinions of indigenous people on this topic. Occasionally there are comments made by indigenous people elsewhere in the literature (e.g. Bishop & Berryman, 2006; Hickling-Hudson & Ahlquist, 2004) and in reports (e.g. Collins & Lea, 1999) which I have included in the thesis.

I also did not include younger workers and those of another non-European ethnicity as participants. I considered that the younger workers would lack the range of experiences of an older person but their voices can be heard in some reference material used (e.g. Annabella, 2007-08; Clark, 2007; Clarke, 2000; Jordan, 2005; Shaw, 2009). There is a lack of similar material from other ethnic groups and although there are many researchers who have written from this perspective on cross-cultural science education, they did not fit the criteria to which I finally found myself working.

3.5.4 Data presentation

The interviews have been used as a primary source of data presented in a series of narratives which have been edited subsequently to cameos of each of the participants. The cameos are presented in chapter 4. The data extracts from the narratives have been incorporated into the next three chapters where they are presented within the context of the three themes or sub-plots.

- Chapter 5: Early cross-cultural influences: Border crossing and beyond
• Chapter 6: Understanding culture brokerage
• Chapter 7: Teachers in cross-cultural settings