Anthony G Tuckett outlines the strategies and operational techniques he used to attain rigour in a qualitative research study through relying on Guba and Lincoln’s trustworthiness criterion. Research strategies such as use of personal journals, audio recording and transcript auditing, and operational techniques including triangulation strategies and peer review, are examined.

Introduction

This article discusses the trustworthiness criterion of Guba and Lincoln (1989) and research strategies and operational techniques (Lincoln and Guba 1985) I employed to meet it in a qualitative research study into truth-telling in high-level (nursing home) aged care.

Practical guidance is provided for handling some of the issues and complexities related to maintaining rigour in qualitative research. Readers may more fully understand my experiences, research choices and theoretical position by referring to the first article in this two-part series (Tuckett 2004a); other related papers have also been published (Tuckett and Stewart 2004, Tuckett and Stewart 2004a, Tuckett 2004b).
Rigour in qualitative research

I would have liked to have honoured Sandelowski's (1993) commentary, which states that:

'research is both a creative and destructive process; we make things up and out of our data, but we often inadvertently kill the thing we want to understand in the process. Similarly, we can preserve or kill the spirit of qualitative work; we can soften our notion of [rigour] to include the playfulness, soulfulness, imagination, and technique we associate with more artistic endeavours, or we can harden it by the uncritical application of rules. The choice is ours: [rigour] or rigor mortis.'

In so doing, I might have been more playful, sometimes soulful and even artistic. But rigour in qualitative research 'is as much situated and linked to the politics and particularities' of centres for research as it is to 'following established methods and practices' (Ezzy 2002). As a result, I took the following approaches.

The language (and the meanings attached to it) that describes terms for establishing and assessing rigour in qualitative research vary from that of traditional positivist studies. But the criteria for rigour in qualitative studies – the ‘goodness criteria’ (Miles and Huberman 1994) or ‘trustworthiness’ criterion (Lincoln and Guba 1985) – ‘parallel’ traditional terms (Schwandt 1997, Guba and Lincoln 1989).

Some care is required to avoid uncertainty with these parallel concepts. On the one hand, the understanding that positivist reliability can be aligned to ‘confirmability’ (Clarke and Wheeler 1992) is incorrect. On the other, Zyzanski et al’s (1992) claim that ‘reliability is equivalent to credibility and dependability, as compared to validity, which is closer to confirmability’ indicates confusion. And the assertion that Lincoln and Guba’s (1985) trustworthiness criterion includes ‘triangulation, prolonged engagement, negative case analysis and auditing’ (Caulley 1999) is imprecise.

Drawing from the literature, Table 1 (reading left-to-right) shows the positivist rigour criteria and associated qualitative rigour criteria for trustworthiness (Guba and Lincoln 1989), evaluation criteria (Guba and Lincoln 1981) and criteria for rigour (Sandelowski 1986). It then shows the respective research strategies and operational techniques (Lincoln and Guba 1985) I employed in the study.
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1. Guba and Lincoln (1989); Lincoln and Guba (1985)
2. Guba and Lincoln (1981)
4. Lincoln and Guba (1985)
Research strategy

Researcher as instrument

The credibility of research resides in part in the skill and competence of the researcher (Angen 2000). Sandelowski (2002) argues that where interviewing defines the qualitative research endeavour, training is required. I had served a 'period of apprenticeship' that involved reviewing the relevant literature and experience in:

- group and in-depth interview methods (Tuckett 1998, Angen 2000)
- facilitating small and large group discussions among undergraduate and post-registration nursing students focusing on general healthcare issues and ethics
- interviewing residents, patients and patients’ families during geriatric, acute adult, and emergency paediatric admissions to hospital
- mentoring undergraduate nursing students in high-level (nursing home) aged care clinical practicums since 1992.

Field notes and personal journals

Keeping field notes contributed to the credibility and dependability of the study. Field notes are 'analytical in themselves' in that they contain 'immediate and later perceptions and thoughts' about the research participants (Rose and Webb 1998, Tuckett 2004b). As such, field notes were the medium for employing strategies that facilitated constant comparison of data (contributing specifically to credibility). They also:

- became another 'data source' that contributed to credibility and dependability in the context of data triangulation (Higginbotham et al 2001, Rice and Ezzy 2000)
- provided a record of coding, writing and theorising that can be made available for auditing
- offered a vehicle for reflection about the research process (Koch 1994) and my role and potential influence on data collection.

In the context of contributing to trustworthiness, the research participants' personal journals assisted in reducing two potentially negative influences on credible data.

First, in common with other researchers, I was concerned about how far the research process itself could influence the findings (Tuckett et al 1985). For
instance, I tape recorded care providers and residents during interviews; could this process make them self-conscious and affect their responses? The potential threat to credibility this posed was diminished through the use of the research participants' personal journals. It gave them an opportunity to write down their understandings and meaning about truth-telling before (or after) the group discussion (Tuckett and Stewart 2004, Tuckett and Stewart 2004a).

Second, the research participants' personal journals reduced 'groupthink' (MacDougall and Baum 1997) or the 'bandwagon' effect (Carey 1995), in which participants acquiesce to the majority view and are unwilling to dissent and therefore remain quiet (Sim 1998). As with the potential effect of a tape recorder, the potential threat to credibility posed by groupthink was tempered by offering research participants the opportunity to write down their impressions, views, and understandings before the group discussion began.

I had generated four 'stories' from my preliminary qualitative study into lying and deception in general nursing practice (Tuckett 1998). The 'stories' provided an element of homogeneity for the group interview and personal journals. In this way, the story as the stimulus increased the 'consistency of judgement' about the raw information by increasing (to some extent) the 'consistency of setting' in which the data were collected (Boyatzis 1998, Goodwin and Goodwin 1984).

**Tape recorder, thematic log and auditing transcripts**

The tape recording aimed to counter criticism of qualitative research as 'prone to systematic bias' (May 1991). Recording group discussions and follow-up in-depth interviews facilitated credibility and dependability of the data collection procedure (Peräkylä 1997). Bias during analysis was also eliminated through member checking and triangulation (see below).

I kept a thematic log during the group discussion and follow-up interview as part of my field notes, and this added to the overall accuracy (or 'authenticity' (Cutcliffe and McKenna 2002), or 'truth value' (Sandelowski 1986, Ericksen and Henderson 1992, Miles and Huberman 1994). I used the thematic log to summarise a group discussion or interview, noting immediately in the field notes any themes that captured ideas that were credible to the participants (Tuckett and Stewart 2004).
Transcript auditing aimed to ensure accuracy. A transcriber was hired to create the verbatim transcript, which meant that I had to audit every transcript against the original audio tape. Auditing transcripts involves careful listening, reading, re-reading, and 'preliminary thematic identification (memoing)' of the taped and transcribed text (Miles and Huberman 1994). It was a lengthy process, but it was extremely important for me in getting close contact and familiarity with the data and, consequently, in gaining confidence in its overall trustworthiness (Boyatzis 1998).

In addition, marginal remarks — that is, the writing of ideas — were made directly onto the transcript. While codes were written on the left-hand side of the transcript page, corresponding remarks were written on the right-hand side (Miles and Huberman 1994). Remarks included:

- ideas about ideas (theorising)
- instructions for me when seeking clarification in the follow-up in-depth interview
- 'negative cases' (see below) (Peräkylä 1997)
- cross references to data within the same transcript or references to data in other transcripts.

Making remarks during the transcript reading not only erected signposts for later reflection, but also reduced the tedium of coding (Miles and Huberman 1994). In reducing the tedium of coding, marginal remarks helped 'prevent or lessen errors and distractions' related to my mood and style (Boyatzis 1998).

Auditing transcripts was also integral to the operational technique of member checking (see below). Effective member checking relied on the production of an accurate transcript, given that an aim was to produce a valid research account (both descriptive and theoretical).

**Operational techniques**

*Purposeful/theoretical sampling and constant comparison*

The operational techniques of purposeful/theoretical sampling and constant comparison were discussed in the first article of this two-part series (Tuckett 2004a). Purposeful/theoretical sampling contributes to credibility (Roberts and Burke 1989, Brink 1991) because participants were sought on the grounds that they were likely to have and share their understanding of truth-
telling. Transferability is facilitated because sampling aimed to include 'the widest possible range of information for inclusion in the thick description' (Lincoln and Guba 1985). Constant comparison of data added to credibility (Ambert et al 1995, Brink 1991) since the research strategies employed contributed to data accuracy.

Atypical (negative) case
Following-up the atypical experience (Morse 1991) or the 'deviant case' (Peräkylä 1997) challenged the adequacy of insights, and in turn challenged me to formulate more dependable (Brink 1991) and credible conclusions (Baum 2002, Brink 1991, Denzin 1989, Guba and Lincoln 1989, Luborsky 1994, Mays and Pope 1995, Miles and Huberman 1994). Rather than discount those participants deemed outside the 'general', the atypical (negative) case was analysed to 'give impetus, strength and rigour' to the development of my argument (Peräkylä 1997).

Registered nurse (A-RN1) represented an atypical case. A-RN1's understanding about truth-telling was embedded not only in her role as a registered nurse (team leader), but also as a daughter - one of the residents in her care was her own mother. Rather than set her views aside as 'different', she was purposefully followed-up in an interview because she gave me an insight into the consequences of this dual role/relationship and its impact on her understandings of truth-telling.

Member checking
Many writers define a process of confirming or refuting meaning as 'sending it back' to the participants to ensure that what was understood was credible (Baum 2002, Ambert et al 1995, Guba and Lincoln 1989, Ramos 1989, Kvale 1983). Not all agree, however, that 'member checking' (Forrest 1989) or 'respondent validation' serves a useful purpose (Angen 2000, Morse 1991, Sandelowski 2002).

Angen (2000) identifies member checking as a mechanism for attempting to identify a 'fixed' or 'static' truth - a 'fixed reality'. This is inconsistent with the view that meaning and understanding are open to interpretation over time, when framed in symbolic interactionism and social constructionism.
(my theoretical stance and epistemology). Sandelowski (2002) believes that 'members are not always the best judge' of what counts for valid research. This view, that members make incompetent judges (Morse 1991), is not one I entirely share.

I took the view in the study that participants needed to recognise something of themselves and their world in the theorising if any claim for credibility was to be made. Furthermore, reading Morse closely, she states that member checking 'as an indicator of validity is nonsense' when invoked at the end of the study. What Morse does advocate, and what was implemented in this research, was the verification of content 'step by step, piece by piece, during the research process' (Morse 1991, italics added).

An example of member checking occurred at a follow-up in-depth interview, after initial coding, writing and theorising following the group discussion. The exchange shown in Box 1 involves registered nurse D-RN4 (incomplete exemplar).

In this example, member checking allowed me not just to 'play back' what the research participant had said (description), but also to clarify and 'interpret the significance of their self understanding' in ways the participant may not have been able to (theorising) (Grant and Giddings 2002).

Two triangulations: method(ological) and investigator

Triangulation is understood as 'involving varieties of data, investigators, and theories, as well as methodologies' in the investigation of the same phenomenon (Denzin 1989). In this definition and attendant explanation, 'methodologies' actually refers to methods (Bednarz 1983, cited in Greene and Mc Clintock 1985).

The rationale for triangulation is that it attempts to overcome any inherent weakness or bias of a single research strategy. Trustworthiness in my qualitative research was premised on two types of triangulation -- 'method(ological)' and 'investigator' (Denzin 1989).
Method(ological) triangulation refers to combining dissimilar techniques for data collection about the same phenomenon. Specifically, between-method or cross-method triangulation was used, whereby different data collection methods (such as the personal journal, group discussion, interview and my field journal) were used to collect data about truth-telling (Denzin 1989, Willms and Johnson 1993, Tuckett and Stewart 2004, Tuckett and Stewart 2004a). Consequently, any potential weaknesses in, for example, the group discussion (groupthink) or interview (perceived absence of anonymity) were countered by the research participants’ personal journals.

A caveat is necessary to balance the proposition that methodological triangulation promotes credibility (Miles and Huberman 1994). It aims to enhance the credibility of overall findings through congruence and/or complementarity of the data from each method. I examined data to find ‘similarity, consistency or congruence of results’ and sought ‘one set of (data) enriching, expanding upon, clarifying or illustrating the other’ (Greene and Mc Clintock 1985). I noted in the field notes my awareness of congruence:

‘July 27 2001: Thematic congruence: (1) Emergence from interviews and journal agree. (2). Emergence and congruence from different carer groups ie PCA→RN (3) Emergence and congruence from across care locales.’

Later, I was able to note my awareness of complementarity:

‘September 17 2001: Credibility & (triangulation/dependability): different carer(s) perceive X about other carer(s) Y and carer(s) Y describe own perception as X. ie carer describes the action, event, understanding of the nurse and the nurse spontaneously expresses consistency (same same).’
Investigator triangulation uses multiple observers, as opposed to a single observer (Denzin 1989). Triangulation in my research extends to triangulating analysts (Patton 1990, Denzin 1989) – that is, utilising a second investigator (my academic supervisor) to analyse some of the data and compare findings.

As with the caveat for method(ological) triangulation, some clarification is required regarding the proposition that investigator triangulation promotes dependability (Miles and Huberman 1994, Denzin 1989). During those occasions in which the academic supervisor and I (as principal researcher) independently analysed the same qualitative data and then compared findings, the intent was not to build consensual understanding per se, but rather to seek multiple meanings to add breadth and depth to the analysis (Denzin 1989).

The process of triangulating analysts occurred on three occasions. In each case, the academic supervisor and I independently reviewed an audited transcript. ‘Marginal notes’ were also made on the transcripts by the second investigator (Miles and Huberman 1994). The academic supervisor and I then met for a discussion about our respective conclusions. I recorded the congruence and/or complementarity of the triangulation process in my field journal.

Three group discussion interviews were chosen – the group discussion for personal care assistants (PCA) at nursing home A, the residents at nursing home C and the registered nurses (RN) at nursing home D. The rationale for selecting these was:

- nursing home A was the site for the first group interview of personal carer assistants, evidenced the case for separating registered nurses and personal carer assistants (homogenising according to title), and contained an interesting atypical case
- nursing home C represented an early resident group and was the source for an emerging idea about awareness theory (Glaser and Strauss 1965), namely, residents’ awareness that family and care providers invoke ‘Don’t Tell Mum’
- nursing home D represented a later registered nurses group and was the source for an idea about ‘easing and omitting’ the truth in the residents’ ‘best interests’, and evidenced congruence with residents’ claim that family ‘Don’t Tell Mum’.

The use of a second investigator for improving trustworthiness in this research enabled the two observers to discuss each observation until agreement was
reached (Boyatzis 1998). Instances occurred during the comparison of findings where agreement was facilitated by my closer relationship with the data through my constant comparison of data and knowledge of the participant’s voice, emotions and body language from the group discussion, as recorded in the field notes (Tuckett and Stewart 2004).

**Thick description**

Thick description is proposed as advancing the claim for transferability of a qualitative study (Miles and Huberman 1994, Lincoln and Guba 1985). There is some agreement that ‘the burden of proof for claimed transferability is on the receiver (consumer)’ (Guba and Lincoln 1989) of the research. To this end, the consumer, not the researcher, 'does the generalisation ... it is up to the consumer to decide what aspects of the case apply in new contexts' (Wehlage 1981 cited in Peshkin 1993, italics added).

It is the knowledge that emanates from the study (Morse 1999) that is to be transferable. For the knowledge to be generalisable, the 'thick' description must include the research setting and information about participants, as well as in-context data and credible interpretation. Information and description of this kind was recorded and stored in:

- my field notes (field journal – see Tuckett and Stewart 2004)
- coded electronic and hard copy demographic and data files.

**Peer review**

Peer review, as a ‘type of investigator triangulation’ (Van der Heide 2001) involved the use of an 'objective other'. A reviewer with the following credentials was identified:

- previous professional experience as the Director of Human Resources for State Education in Queensland (Australia) and therefore knowledgeable about communication in organisations
- experience with overseeing, conducting and implementing research in education, most currently for Volunteering Queensland
- previous peer reviewer of Tuckett (1998)
- current service as volunteer manager for Volunteering Queensland
- experience of attending three times a week to his 98-year-old father who is a
resident at a nursing home operated by a different organisation than the one in this research.

The reviewer read and critiqued the research data and interpretations. His meticulous reading and marginal notes contributed to my additional reflection on process and content. Overall, the reviewer concluded that the work was 'comparable to my current nursing home experience'. He found the research 'interesting' and was 'associating with it the whole time' (researcher's field notes).

Conclusion
This article has reviewed Guba and Lincoln's (1989) trustworthiness criterion and the research strategies and operational techniques I employed to meet these criteria. As an examination of a rigour route in qualitative research, research strategies including the use of a field journal and research participants' personal journals, audio recording and transcript auditing, and keeping a thematic log during interviews were discussed and reviewed. Additionally, operational techniques, including using the atypical (negative) case, member checking, triangulation strategies, thick description and peer review were analysed.

Relying on accepted methods literature, this article presents examples from practice as a means to guide both novice and experienced nurse researchers in the sometimes difficult area of maintaining rigour in qualitative research.

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