Chapter 3: Research design and methodology - *Paging through the programme guide*

3.1 Introduction

Browsing through a commercial TV schedule serves a dual purpose. Not only does the viewer ascertain in which time slot a particular programme will be screened but also reads the summary in order to establish its content, duration, as well as popularity or parental guidance rating. Television audiences plan their prime time viewing accordingly. In the same way, this chapter serves to elucidate on the research design and justify the methods selected for data collection. I begin by explaining the theoretical underpinning of this study, placing it within the interpretivist paradigm and bounding it as a case study. Next, I provide an overview of the exploratory stages of the research, moving on to the formal phases where I then document the strategies deployed as well as the instruments designed for data collection. I also explain the macro and micro data analysis process. The chapter concludes with a description of the methods used for enhancing the validity of the study and also identifies its limitations.

A review of current literature on interactive television indicated that extensive research exists on the implementation and evaluation of this delivery mode (Kearsley, 1998; Love & Banks, 2001; Westbrook & Moon, 1997; Whittington, 1987). Several comparisons of student achievement in ITV and face-to-face learning environments have also been documented (Chapman, 1996; Collins & Pascarella, 2003; Heiens & Hulse, 1996; Hodge-Hardin, 1998; Kendal & Oaks, 1992; W. W. Miller & Webster, 1997; Ritchie & Newby, 1997; Rovai & Lucking, 2003) while other studies focussed on student achievement, perceptions or attitudes (T. D. Anderson & Garrison, 1995; Beed et al., 1992; Biner, 1995; Biner, Dean, & Mellinger, 1994; McHenry & Bozik, 1997; Pamerleau, 1996; Pool, 1996; Pugh & Siantz, 1995; Swan, s.d.; White et al., 2000; Wynia, 2000). My inquiry has been positioned in terms of what has *not* been explored *i.e.* reasons for the lack of learner participation in the context of interactive television.

The purpose of this study was to identify possible reasons for poor learner-presenter interaction during televised instruction even though the supporting technology permits bi-directional audio links. I wished to illuminate this phenomenon by endeavouring to solve

the following academic puzzle: *Why do learners refrain from asking questions during educational broadcasts even though technology allows for synchronous oral presenter-learner interaction?*

3.2 Research philosophy

Although qualitative research was at one time considered inferior and controversial, the qualitative-quantitative debate no longer commands centre stage. Qualitative research is well established as a rigorous discipline and is applied by academics of note in the social and educational sciences *e.g.* Cresswell (1998), Denzin & Lincoln (1994), Dey (1993), Guba (1989), Krathwohl (1993), LeCompte *et al* (1992), Merriman (1998), Miles & Huberman (1994) and others. This approach to knowledge production is now fully fledged and so widely acknowledged in the broader research domain that I need not indulge in an extended defence of its merits. The substantial bank of methodological writings published by authors who have added ”significantly to the existing edifice of thought on qualitative methods and the world view behind them” (Tesch, 1990 p. 16) also justifies my point.

This inquiry is not set against the backdrop of critical theory although the *TeleTuks Schools* project lends itself to being considered a social issue *e.g.* a community project established by a powerful learning institute attempting to improve Grade 12 pass rates in disadvantaged communities. My study is not about learners changing or recreating their world by becoming empowered although educators or presenters could be viewed as powerful or even oppressive in some circumstances. There is no foregrounding of power discourses, critical consciousness or political emancipation. I take no overt ideological stance nor do I attempt to identify the underlying hegemony. No political activism is prevalent. I had fleeting deliberated whether I should address the study as an action research project since sufficient collaboration between participants and researcher existed. A second consideration was that a change of practice may have been advocated but the technological evolution of video streaming was advancing too rapidly to allow for such a project to bear edible fruit. I would at best only have managed to describe a single research cycle in my thesis without leeway to implement any intervention.

Since aspects of an oral communication cycle, and by implication human interaction and social relationships are under scrutiny, this research is framed within the interpretivist tradition. A central tenet of this paradigm is to refute the existence of an objective reality. As Merriam (1998) states: “…reality is holistic, multidimensional and ever-changing; it is

not a single, fixed objective phenomenon waiting to be discovered, observed, and measured as in quantitative research" (p. 202). The assumption underlying qualitative research that reality can never fully be declared or understood, implies that knowledge creation (research) can only discover an approximation of the truth or provide perspective rather than truth (Patton, 1990). It is these multiple perspectives of realities and consultation or better still, collaboration with all role players in a particular social setting that allow for a richer understanding of a reality.

The justification of my choice lies therein that primarily, the study is set in a particular context that relies heavily on the personal insight of the researcher as co-creator of meaning. Secondly, my description of reality is systematic but not confined to a rigid, prescriptive framework. Appropriate to this framework is the mixed-mode/hybrid methodology I have chosen. Multiple data sources and collection methods as well as the natural setting in which I gathered substantial situational information has rendered rich description. My personal inclination to reflective thinking has also enabled me to gain an understanding of the direct experience and perceptions of the participants in this study within their unique context.

Since the *TeleTuks Schools* project as the unit of analysis, not only involves various role players, but also has a definite context set within specific parameters, it can rightfully be considered what Smith in Merriam (1998) calls a "bounded system" (p. 27) and classed within the research genre as a case study. Yin (1994) in turn, suggests that a case study is the preferred strategy when the researcher asks "How" or Why" questions and has little control over actual behavioural events or when the focus of the study is on contemporary phenomena. The notion that the researcher is separate from the subject of study is not compatible with interpretive philosophy. I too, cannot separate myself from what has been studied, all the more for having worked so closely with the project over several years in a variety of roles *(See §3.3.6 Personal role as researcher)*. A case study allows an investigation to retain the holistic and meaningful characteristics of real-life events and its unique strength lies in the richness of evidence it generates. It is the rigorous and fair presentation of such empirical data that makes the case study a challenge, even more so since, as a research endeavour, it has been strongly criticised for bias. Having provided the preceding contextual background, I thus argue for the positioning of this research within the interpretivist framework. It is from this theoretical position that I turn to an explanation of the methodological process.

3.3 Research process

I offer a description of the informal, explorative phase of my data collection: In February 2001, I took over the responsibilities as project manager and considered it necessary to streamline and formalise several aspects relating to the *TeleTuks Schools* project, amongst others establishing the participation rate of schools and attempting to verify viewer statistics. Several more factors augured in favour of conducting a formal survey under controlled circumstances as an attempt at executing my brief. The University had just equipped another school with the necessary technology and conducting a survey could coincide with a follow-up visit on my part. Furthermore, I had been assisting two post-graduate students independently with their mini-projects related to why adult learners were not interacting with presenters during broadcasts. Based on certain of their findings, I had submitted an abstract for consideration to the organising panel of a national conference and required more data to enrich my presentation. Lastly and most importantly, a German exchange student who had been looking for some community service activity during the academic recess was referred to me unexpectedly. This fortuitous meeting became mutually very beneficial[12] as she was able to visit township schools and interact with the learners - not an experience easily managed on one's own - while I benefited from her computer literacy and research skills. In addition to all this, was the knowledge that conducting a survey during the forthcoming winter school (July 2001) rather than on a particular weekday would ensure a high return rate as well as a reasonably well-controlled context. It was thus expedient to initiate the anticipated pilot study without delay.

3.3.1 Pilot study

For the pilot study, the target group comprised the Grade 12 learners from four secondary schools in Atteridgeville, a township area of the capital city - Pretoria situated in Gauteng, and three learning centres in rural areas, *viz*. Limpopo, Mpumalanga, and North West province (Addendum 2). A short cover note describing the nature of the survey was sent to adult facilitators who supervised groups of, on average, forty learners per venue. One hundred and ninety-six learners participated by completing a questionnaire that set out to establish possible reasons why learners did not interact as the technology permitted. A

[12] Sonja Altnoeder was eventually able to attend the conference with me affording her further opportunity to see another part of South Africa and experience cultural exchanges as well as engage with other students and academics. She has since returned to Germany to continue her postgraduate studies, yet we still correspond.

research assistant tallied these responses manually and although the data generated was modest in scope and only quantitative in nature, tentative findings helped identify and shape early hypotheses. Based on this initial investigation and after discussion with my proposed supervisor about possible research questions, I enrolled for a PhD degree. The research design of this present study is a product of my experiences as the project manager of *TeleTuks Schools* while appointed in the Department of Telematic Learning and Education Innovation at the University of Pretoria.

3.3.2 Formal data collection strategies

Although the data gleaned during the pilot study in 2001 offered valuable insight into viewer profile and led to certain adjustments in logistics and organisation of the broadcasts, it did not suggest a key explanatory variable that explained why learners refrained from asking questions during telelessons. Several subsidiary uncertainties relating to the lack of oral interaction had been spawned by the pilot study and I hypothesised that some or at least a combination of factors might account for this phenomenon. I therefore decided to use multiple data sources and collection methods in order to establish more accurately, those factors that were inhibiting oral interaction during televised instruction.

Data collection had been an on-going, albeit informal process since my appointment to the project and included some field notes documenting my specific observations over the period 2001-2003. As from June 2002, driven by my initial propositions, I started collecting relevant data formally and systematically. Instruments - with particular reference to the questionnaire - were also refined as the research process unfolded. For this study, I used a mixed-method approach to data collection for both descriptive and explanatory purposes. I used quantitative instruments (questionnaires and presenter logs) in conjunction with qualitative methods and strategies (learner group interviews, presenter interviews, video analyses, transmission observation, researcher field notes). By utilising a small-scale quantitative approach, I endeavoured to establish *how* prevalent poor participation was while rich experiential data *e.g.* interviews identified *why* learners refrain from interacting during televised instruction.

3.3.3 Participants

With reference to participants in this study, I gathered data from all the educational role-players involved in the *TeleTuks Schools* project. I solicited three sub-groups for participation. Initially I had reckoned that each group carried equal significance in terms of their contribution to the study. As the analysis progressed, it became evident that in the context of my studies, the learners and presenters dominated while the educators - although a significant part of the project dynamics - were in actual fact more a source of information, verifying or clarifying what learners had said, rather than active role players.

Grade 12 learners who regularly watched *TeleTuks* in 2002/3 and constituted the actual viewers participating in this community service project formed the largest group of respondents (See Addendum 5 for on-site photographs). Their ages ranged between 17 and 20 years. None spoke English as a mother tongue and the sample groups were representative of typical township (urban) and rural communities. By virtue of their educational experience at the time of participation (a minimum of 11 years' schooling), they were considered very dependant on teacher guidance and few would be reliant on their own motivation for academic progress. Furthermore, they would be unaccustomed to a technology-mediated learning encounter. Five educators from selected viewing venues participated in semi-structured telephonic interviews, while the content presenters of English, Mathematics, Science and Geography were interviewed individually. Participation was voluntary and with informed consent, where applicable. Anonymity and confidentiality were guaranteed, and although all participants had the right to withdraw from the study at any time, none did so. I adhered to ethical principles as laid out by the American Psychological Association (2002) and the Research Ethics Committee of the examining institution (UP) (Addendum 6).

I acknowledge that there was no constancy among the participants as individuals since presenters as well as educators are replaced annually and Grade 12 learners generally pass through the system after successfully completing the matriculation exit examination. This lack of continuity was a marked characteristic of the target groups I had identified as central to my research. Furthermore, I chose not to involve the studio crew and technicians, as they were students who work by rotation roster and had no interest beyond earning pocket money by carrying out their duties effectively. Other administrative and managerial staff played a supportive rather than an active role in the research process.

3.3.4 Research sites

In terms of research sites (Addendum 2), all schools in this study are easily accessible by road although some in the rural province of Limpopo are not tarred or signposted. All schools are within an hour's drive from some large industrialised town. Cornerstone College, in Gauteng province is the closest participating school to the ITV studio in Pretoria, being only 15 kilometres away while the furthest viewing venue, Makikhele Secondary in the Limpopo province is situated more than 500 kilometres and 5 hours' drive away. I approached schools in both urban and rural areas to participate in this study but it was not possible to determine in advance exactly which schools would be committed for the duration of the research as several external factors such as lightening strikes and burglaries militated against initial commitment.

Rural areas are commonly defined as industrially undeveloped, outlying areas, often inhabited by subsistent farmers. Dwellings are simple; some built from mud and thatch; others of corrugated iron sheets. Infrastructure is limited to running water and electricity in some homes. Within each community several languages are spoken. English would only be heard on radio or television, barely ever on the street and then only used by second language speakers as a common medium of communication. None of the schools participating in this study are situated in isolated parts but scholars would not be able to walk to town. Phalaborwa schools have been equipped with all the required technology donated by the local mining companies. Reference to urban schools implies that these schools are situated on the outskirts of large industrialised cities in what are traditionally called townships *i.e.* underdeveloped suburbs - an unfortunate legacy of the Apartheid era that also enforced geographical segregation. Notwithstanding a decade of democracy, only Black learners attend these schools although several would have White teachers on the staff.

The following research activities were carried out on site at each viewing venue situated on the participating school's property:

- actual interactive broadcasts (daily as well as the annual Winter school)
- completion of questionnaires. This was orchestrated via television and monitored at four sites by a field worker
- Grade 12 group interviews.

The *TeleTuks* studio and adjoining seminar room, both situated on the main campus of the University of Pretoria (Law building - Room 3.58) also served as vital sites for data collection as it was here that apart from watching some live broadcasts, I conducted several presenter interviews. I have documented the facilities used to transmit televised instruction each day in Table A26 (Addendum 26).

3.3.5 Support systems

In order to execute this study successfully, I was reliant on several support systems *viz*.:

- an information specialist from the on-campus Academic Information Services for assistance with inter-library loans, information searches and journal specifications.
- the appointed statistician responsible for assisting post-graduate research.
- the staff of the Department of Telematic Learning and Education Innovation (TLEI), with special reference to the division in which the *TeleTuks Schools* project resides. Ms Faith Ndlovu as current project manager was a close ally. I am indebted to her for arranging the school visits and for accompanying me to all sites. She not only primed site facilitators about my research and thus elicited a supportive response but also co-ordinated my data collection with studio crew.
- Officials of the applicable provincial Departments of Education from whom I needed to obtain permission to collect certain data. In this category I also refer to the educators and the Grade 12 learners who participated.
- Several academically more experienced colleagues who were willing to act as critical discussants of my efforts.
- Specialists outside the faculty with whom I had made electronic contact were also supportive. These persons are in the field of instructional television, on-line and language learning and educational media.

3.3.6 Personal role in research process

Until early in 2002, I was considered an insider of this project owing to my close involvement with departmental staff, educators at participating schools and provincial officials as well as being the *TeleTuks* presenter of English. I had also presented a credit-bearing compulsory module (Academic Writing) to postgraduate students of the Department of African Languages via ITV for six years. Since January 2003, I not only handed over full responsibility to my successor but also terminated all my ITV teaching

commitments. My role as researcher could hence be termed that of a well-informed outsider.

As is characteristic of rigorous qualitative research, I declare my realisation that consciously or subconsciously the overt, visible ways in which I differ from the majority of participants with whom I interacted may have permeated my judgments and interpretations. I do not share the racial identity of the researched, and thus acknowledge my Whiteness (Nkomo & Dolby, 2004) as a potential factor that could also have influenced the way in which learners and educators responded towards me. I chose not to assert my religion or gender since I believed neither of these constructs would have a sufficiently marked influence to skew data.

Although I worked in close conjunction with the network described in the preceding paragraph, I primarily did my research independently, consulting with my supervisors as the need arose. As doctoral student, I was responsible for:

- designing all the instruments save those which assessed oral proficiency
- obtaining permission and adhering to ethical research principles
- conducting all the interviews
- transcribing the oral data
- analysing the videotaped broadcasts and presenter logs
- coding all data using *Atlas.ti* ™
- keeping informal field notes, which primarily documented my observations and cognitive, physical and emotional reactions to my teaching experience and the many frustrations, experienced while managing the project and eventually doing formal research.

My role also included extensively reviewing current literature related to instructional television and the role of interaction in instruction. Furthermore, I consulted with the appointed statistician when analysing questionnaire data as well as with colleagues from the TLEI department when interpreting the qualitative data collected during transmission analysis, interviews and discussion groups. My initial findings were discussed with my supervisors before being documented and finally submitted with a compact disc. This format afforded me the unique prospect of including audio and video clips as rich visual data thereby to a degree simulating the experience of an ITV participant for the examiners - albeit on a personal computer monitor!

3.3.7 Instrumentation

In this study, field notes and personal reflection accounted for informal data collection while I used seven formal instruments to gather data, each informing the research question in a particular way. The first was a once-off survey using *questionnaires* voluntarily completed by Grade 12 learners who attended the annual winter school held in July 2002 and 2003. This survey offered the biggest portion of learner-related data, and set out to test some of the early propositions I had had about why learners refrained from interacting with presenters. The questionnaire (Addendum 7) used during the pilot study in June 2001 served as a starting point as it had already been formalised according to the University of Pretoria's specifications for data capturing. I negotiated the vital expertise of a University statistician and this person assisted me with the initial drafting of the questionnaire and also helped with the interpretation thereof. However, I have not used statistical methods, as I did not attempt to measure a particular phenomenon. Percentages served as tentative gauges of interaction and guided my questioning during the semi-structured interviews.

I formulated fifteen questions and designed the questionnaire to fit on a single A4 page (back-to-back) but having to list all 11 official languages in three questions stretched it to three pages. I instructed learners to read each question or statement and then mark the appropriate block. Apart from eight questions formulated to gather bio- and demographic detail, six others sought to garner information about the actual broadcasts. The pivotal Question 10 asked the respondents to answer Yes/No to sub-statements starting with the lead-in statement: *I know I can ask a question but I don't because….* This question offered definitive data coupled to five topics of inquiry that related to language proficiency; the presenter; technology; as well as cultural and personality variables. I arranged the possible reasons why learners did not ask questions in alphabetical order to achieve a random scattering. This ensured less chance of learners being influenced by patterned or categorical statements and I thus avoided a "yes-set" for this section. Three sub-questions allowed for an open-ended response. Initially I planned to translate the questionnaires into a regional majority language allowing the respondents a choice between English and a more familiar language, but the pilot study done in 2001 clearly suggested that English was the Grade 12 learners' preferred medium of communication.

I considered the collection of viewer data most effective during the annual winter school, as classroom circumstances were then more predictable and controlled. Unfortunately,

although 72 schools claimed to be committed to this project, several were unable to participate in the 2002 winter school as they had either arranged their own learner support programme or the schools were expected to attend district initiatives of the governmental education structures. Eventually only thirteen schools from my designated regions (urban/rural) indicated their availability and willingness to participate in the survey and I dispatched fifty questionnaires to each of these venues. I did not use scientific sampling of sites but worked with the data from schools that had returned questionnaires. The tally for 2002 was 168 questionnaires submitted by five schools. Urban areas were represented by two private schools providing schooling for learners from townships. The rural component comprised learners from a deep rural area on the border of Mpumalanga and Limpopo Province and those in a large mining town in North West province. The explanation that site educators gave for not being able to keep the commitment to participate was that technical problems had apparently been experienced - an unlikely reason had the Grade 12 learners been tuning in regularly during term time. It is, however, possible that once the television equipment has been unplugged with the purpose of securing it elsewhere, the satellite signal is scrambled and thus needs to be reactivated by phoning the service provider. Supervising teachers would need to know how to act under such circumstances in order to rectify the situation on site. It may also just have been a credible excuse offered to the principal by teachers not willing to supervise learners during their holidays. As anticipated, a similar situation arose during the June 2003 winter school. As further illustration of research hurdles I encountered, I offer the following incident: In June 2003, visits to two participating sites proved fruitless as no one except the facilitator was in attendance although the telelessons were being blasted across the playground.

In preparation for the second round (July 2003), I sent thirty-five questionnaires to all schools in the selected regions that had indicated they would be participating *i.e.* 350 questionnaires were distributed. On this occasion, six schools returned 115 questionnaires (four rural and two urban/township). Apart from a telephonic orientation with the facilitator of each participating school, I included a cover note (Addendum 8) indicating the nature of my research with the batch of questionnaires. I personally dispatched the documentation via private courier to the various venues that had indicated their intent to participate in the winter schools and included a pre-addressed and stamped return envelope. Cost and distance were the prime reasons for only being able to place an independent field worker at four sites. I scheduled both 2002 and 2003 surveys on the day on which Mathematics would be televised. The reasoning behind this decision was that many learners generally attend this slot and thus a sizable response could be

expected. It was, however, not possible to ascertain how many learners attended the particular Mathematics sessions but may not have participated in the survey. Immediately prior to the administration of the questionnaire on the selected day, the current *TeleTuks* project manager introduced and explained the research project live on air, invited learners to participate but stressed the voluntary and confidential nature of the exercise. She then offered step-by-step instructions on how to record the responses, pointing out possible pitfalls and commenting on how the questionnaire was to be administrated by the site educator afterwards. The duration of this explanation was 8:09 minutes. This was longer than anticipated and may have caused the learners to rush completing the questionnaire in order to still have a break between sessions.

I requested site educators and field workers to administer a refined version of the 2001 pilot study questionnaire during the annual winter school in July 2002 and 2003 and the 277 responses that were eventually processed, were representative of both urban and rural schools. Once again, I relied on self-selected sampling as the actual number of learners completing the questionnaire could not be predicted in advance and I wanted as much valid data as possible. Once the learners had completed the questionnaires, the on-site supervisors collected them and sent them directly to me for data entry and analysis. A good return rate was possible, as the survey had been completed under controlled circumstances during the winter schools. I discarded six questionnaires in total, considering them invalid due to many unanswered questions. The on-campus Department of Statistics (Faculty: Agricultural and Environmental Sciences) processed all questionnaires. Ten target sites returned the completed questionnaires within three weeks while the responses from one site in rural Limpopo (July 2002) drifted around in the South African postal system for five months due to an inadequate hand-written postal address - despite my having included a self-addressed and pre-paid envelope. I sent all facilitators who had assisted in this survey a follow-up letter thanking them for their co-operation.

After some engagement with the survey data I decided to collapse the two sets (2002 and 2003) since, in the first place, a comparison of raw data revealed no apparent differences in responses *i.e.* deviations or obvious extremes and I had never intended to work comparatively in any event. In the second instance, a pilot study had been done although not formally for my studies. By implication, the two sets were in actual fact the second and third time that the same issues had been investigated using exactly the same questionnaire in very comparable circumstances. Furthermore, as stated earlier, there could be no continuity regarding the Grade 12 participants in any event and rather than

view the collection of data as two separate occasions, I argued that the *period* of collection spanned two winter schools *i.e.* June 2002 - June 2003. Finally, there was no overlap regarding the participating schools and geographic representation was thus improved. I therefore report results of the questionnaire survey as an integrated set drawn from eleven sites and comprising 283 respondents (Addendum 9).

The questionnaires had generated data that seemed to support some of the speculations I had had as project manager but also raised new questions. I needed to determine the way forward. I decided to juxtapose the viewer data (Grade 12 learners) with that offered by the presenters and educators (adults) and then equalize both sets with a sample analysis of the actual broadcasts. This route, I argued, would allow me to compare the responses with what the viewers actually said to my face. I would also hear the young learners' voices first, helping my interpretation to be less contaminated by adult perceptions. Furthermore, I could probably challenge these perceptions using first-hand observations. The questionnaire was thus deemed an exploratory mechanism with which to guide the learner interviews.

The second means of gathering data was to conduct *semi-structured interviews with Grade 12 learners* guided by a schedule developed after analysing the survey data (Addendum 10). The chief reason for conducting such discussions was to sample rich primary data from which I could describe and assess the actual English proficiency of the viewers. I gauged these oral data using the International English Language Testing System (IELTS) as well as the Gauteng Education Department Grade 12 oral assessment rubric (Addendum 11). I believed this method would support or disprove my hypothesis that poor English proficiency was the deterrent to phoning in with questions. It also afforded me the opportunity of being on site where the daily broadcasts took place, giving me a sense of the *TeleTuks* target audience's immediate context. Bio- and demographical data obtained from the questionnaires, augmented by the authentic speech data recorded during the interviews, allowed for in-depth descriptions and rich data to triangulate with the questionnaire data as well as the adult interviews.

Although sufficient permission slips had been sent to schools for parents to complete, I did not expect a high return rate as the interviews primarily took place after school and transport issues militate against many learners remaining behind once the final school bell has rung. Initially, I had planned to speak to between three and five learners at each selected site, sampling being determined by availability of learners *i.e.* those whose parents consented to their children participating in the interviews after school. However,

at all sites with the exception of one in urban Gauteng, the educator who had been responsible for arranging matters had as many as sixteen learners (all with written parental consent) in a classroom. Although I had not been prepared for this change in plan, I adapted to the circumstances since I sensed that it was not a regular occurrence for rural learners to interact with a *lekgoa* (White person) and did not know on what grounds to exclude a learner from the interview. I was also uncertain about possible cultural implications should I have insisted on the original request being enforced.

The larger group impeded the procedure in all cases as noise levels were higher resulting in loss of sound quality in recordings and since more learners were answering, I was getting fewer in-depth comments. The length of the interviews ranged from fourteen to twenty three minutes; the longest being that of the smallest group with the most talkative learners interviewed at a private school in urban Gauteng. I transcribed these interviews verbatim and coded them manually. I requested a mother tongue speaker of Tswana to check my transcriptions as I had had difficulty in decoding certain learners' exchanges. She was able to fill in some blanks; her ear being more attuned to the cadence of Black South African English. I recorded and reported her off-the-cuff remarks as part of my own observations.

Once I had finalised the transcriptions *i.e.* printed them out double spacing on A4 pages with sufficient white space for annotations and codes to be written down, I read through the texts several times in order to get a global impression of the content. For clarity's sake, I had indicated all adult speech (myself and occasionally my colleague or site educators) in bold type, keeping the Grade 12 learners' speech unmarked. Having decided to use a system of open coding, I next used pencil marks to identify units of meaning. It was not difficult to identify topics as my initial questions had intended to elicit comments about certain variables. I then wrote down twenty-seven reasons - as suggested by the Grade 12 viewers' responses - why they had not interacted with the presenter. These were grouped into five categories relating to the presenter, content matter, technology and the learners' English proficiency as well as personal factors. An elementary visual code was then assigned to each of the responses and a colour to the main categories (Addendum 12). At this stage, I noted but did not code other responses that seemed unrelated but showed promise. I read the texts several more times in an attempt to check coherence and to establish relationships or lacunae. At this stage I was coding and categorising manually by pasting scraps of paper on a sticky board under various headings and then regrouping them as my thinking changed. Once I had grasped the process of manual coding well, I switched to using scientific computer software able to

facilitate qualitative data analysis as I have explained in *§3 4.2 Explanation of computer aided data analysis process.*

Having completed data collection from the Grade 12 participants, the purpose of the third phase was to establish the nature and frequency of interaction during televised instruction. I requested presenters to complete a *log sheet* of learner responses for a period of ten consecutive lessons in 2003 (Addendum 13). There was a fair amount of reluctance in this regard as presenters felt it was a waste of time to complete a form when no one had called in. I managed to collect 11 forms in the period 31 May 2003– 30 August 2003[13] although presenters claimed that they often did not complete a form if no calls had been forthcoming. Constructs to tick off included the type, frequency, duration and nature of the responses as well as an elementary caller profile. Had I originally believed that the very lean data generated by the presenters' logs was indeed an accurate reflection of the rate of participation over a period of time, I may not have been so distressed to discover how little presenter-initiated interaction existed. This realisation became evident as I viewed the videos as a fourth step in the data collection process.

My initial plan had been to execute a structured *content analysis* of authentic video material. I had envisaged using a formalised taxonomy of interaction strategies (Addendum 14) developed by Dr Catherine Fulford of the University of Hawaii. This tool facilitates the analysis of discourse strategies during two-way interactive television in formal distance education courses. I had hoped to triangulate the oral responses of the Grade 12 learners with the presenter logs and then bear this out with an analysis of the televised presentation of content matter. The video data available were, however, inappropriate to my intentions and I had to adjust my collection strategy. I selected English, Science and Mathematics telelessons since these three disciplines had the largest viewership. As my viewing progressed, I decided to watch three broadcasts relating to Geography and Career Guidance as a control measure as well. I had also judged that three hours of videotapes per content subject would offer a representative perspective on how presenters structure interaction during broadcasts. I sampled a total of 18 hours from both the July 2002 and 2003 winter school archives. After watching only three broadcasts - a telelesson from each subject - I realised that the only semblance of interaction that was evident, was several rhetorical questions asked by the presenters. This sobering discovery implied discarding the application of the formalised taxonomy of interaction strategies.

[13] As final confirmation of poor participation rates, I asked presenters to complete log sheets during Spring School 2004. Four calls, two synchronous and two asynchronous were logged during 20 broadcast hours.

I had not intended to analyse the actual instructional design of each lesson as I had erroneously accepted that presenters were executing guidelines as received during their initial orientation[14]. After much deliberation, I viewed the next episodes focusing more on the instructional design using an elementary evaluation sheet I had originally designed for presenters as a self-evaluation tool (Addendum 15). I carried out my post-transmission observations at different times of the day in order to prevent fatigue bias. The first viewings were done cold *i.e.* I had no prior idea of the content or presenter. Eventually I had reviewed and analysed approximately 24 hours of videotape. As I viewed the broadcasts, I made copious notes of my observations and personal reactions. Each televised slot was scheduled to last 45 minutes and had a similar format: The screen would display the forthcoming programme details accompanied by synthesised up-beat music. The opening shot revealed the presenter who then greeted viewers and proceeded with the instructional event with varying degrees of enthusiasm. In some cases, presenters extended an invitation to phone in, but generally no reference was made to this possibility. In some broadcasts, a chiron with the studio phone number would flash on the screen for two seconds. All presenters regularly glanced at the studio clock that had been so incorrectly positioned that the obvious turning of a head to check time became distracting to the viewer. Each session closed with the presenter indicating what was to follow and the suggestion that learners take a short break. The link logo would appear with the studio phone number and the same synthesised music played repetitively for ten minutes.

It needs to be stated that unlike many studies discussed in the literature, the *TeleTuks* presenters have no participants at the origination site and when talking to the camera, visualise a group of approximately 30 learners at the various remotes sites. The size of such groups would be considered average in the South African context but large by comparison to the developed world. Even more so, if it is taken into account that potentially several hundred viewers watch the broadcasts simultaneously. It was also the potential size of the viewer audience that had created the expectation of greater learner participation.

In Chapter 4, I report the collection of video data in the persona of viewer thereby attempting to share with the reader my experience of watching the screen in a similar fashion, as the Grade 12 learners would have done. While viewing, I documented my

[14] I had drafted guidelines printed in a booklet (R. Evans, 2000) and several of the current presenters had attended a 5-hour training session I had hosted.

observations pertaining to the presenter, the instructional design and delivery of the content. I occasionally noted technical matters. My physical and emotional reactions accounted for more data. This deviation from the traditional research format is an attempt to give the reader a greater sense of viewer perspective than could a formal description of each transmission.

I turn now to my fifth instrument - *semi-structured interviews with presenters.* I had sent out electronic requests to nine presenters. Eight responded and declared their willingness to participate in my research. One had relocated and offered to answer the questions in writing while seven presenters who had been involved with the project over an extended period, agreed to an interview at a time and in a location of their choice. I interviewed seven presenters: six females and one male. One is an experienced secondary school teacher while two offer Grade 12 learners extra lessons after hours. The remaining four presenters are all employed by tertiary institutions. All presenters are considered to be subject experts. I interviewed one presenter at home; three chose their offices as a suitable venue and the rest were interviewed in a sound proof and private breakaway room close to the *TeleTuks* studio on the UP campus.

Although I audio taped the interviews to ensure accuracy of reporting, participants were assured of confidentiality and if preferred, I would erase the tapes once I had completed the study. They would be able to verify my findings and access to the final study would also be possible. In my electronic request, I had also committed myself to maintaining the ethical principles of anonymity and confidentiality and had asked for their voluntary consent. I did not request that a consent form be signed since apart from their electronic acceptance of the above, they were mature, intelligent adults supportive of my line of investigation and familiar with research protocol. Prior to the start of each interview, I once again explained the above ethical matters. I also briefed them about how I would report their contribution. I drafted a set of pre-determined, open questions to stimulate dialogue. I encouraged interviewees to speak to a variety of issues relating to teleteaching, as my purpose was to describe their experiences rather than evaluate the project or their performance. These interview questions (Addendum 16) were generated from or partially stimulated by my own observation of the telelessons as well as the learners' responses in both the survey and the interviews. Presenters all spoke freely and I rarely needed to probe points for elaboration.

I recorded all interviews using two cassette players. My experience of using a compact, state-of-the-art electronic device (Sanyo Digital Voice Recorder ICR-B35) when

interviewing the learners had not been satisfactory, as the sound quality had been compromised in the interest of an unobtrusive recording device. I chose to use a large tabletop Bell & Howell AC tape recorder as well during the adult interviews, primarily for improved sound quality. I had, in the mean time, also been referred to a person with experience in transcribing research data and the older generation cassette was more acceptable to her as well. Once she had prepared the transcriptions, I did a global analysis of the presenters' contribution looking for themes and patterns in their responses. I also judged this method to offer richer experiential data so I did not do a content analysis. I also included the written response of the presenter who had had a prolonged involvement with *TeleTuks Schools* but whom I had not been able to interview face-to-face. I was able to follow up on certain of her statements electronically again.

Initially I had thought the length (approximately nine pages per interview) and simplicity of my transcriptions did not merit the steep learning curve that working with computer-aided qualitative data analysis software (CAQDAS) would impose. However, looking at the data as a complete unit of meaning rather than three separate units *i.e.* learners, presenters and educators changed the scenario. My reassessment of all the data collected at that stage, indicated the need for a more formal data management system to facilitate what I had been processing manually. After a discussion with a specialist in the field of e-learning who encouraged me to investigate the use of *Atlas.ti*™*,* I switched to this method, also judging this route to enhance the confirmability of my study.

I had anticipated conducting a *focus group discussion* with educators who act as supervisors during the broadcasts as the sixth phase of data collection. This discussion was to have taken place in October 2003 following the annual review meeting of all role-players involved in the *Schools* project. Invitations are always sent to all schools but attendance is dependant on travelling opportunities and individual schedules. On average, only a dozen or so educators from schools in close proximity to the university campus usually arrive. The aim of such a discussion was to verify data put forward by the Grade 12 viewers *e.g.* that there is supervision in the class during broadcasts. I had also hoped to glean further understanding of interaction in their face-to-face instructional settings. Finally, I wished to determine educator views on why learners were reluctant to interact during broadcasts. Getting the educators together - especially in a representative group - proved to be the most tenuous phase of the research procedure and did not materialise as originally planned. Consequently I had to keep devising new strategies for obtaining vital data.

In South Africa, the academic year closes in December and starts again in mid-January. The rigorous routine associated with final examinations and administrative matters did not permit my imposing upon educators after October 2003. The first reasonable period to consider approaching educators again was mid-February 2004. I investigated several possibilities for getting them together, amongst others teleconferencing. Personal visits were not possible due to logistical constraints. As time was of the essence and feedback from educators was essential, I drafted eleven open-ended questions, which required a short paragraph-type response and piloted these with eight educators not involved with the project. Their feedback resulted in refining one question relating to the instructional behaviour of the educator. I successfully faxed the final two-paged questionnaire to 44 schools that were supposedly still part of the project (Addendum 17). Although I specified voluntary participation and anonymity, I also created an incentive in an attempt to encourage a speedy response. I even used airtime during one transmission to show the prize and remind educators to complete and return the form. The nil-return rate was more than disappointing. The daily pressure under which educators work, compounded by the approach of the April holidays could have accounted for this non-response as well as the fact that the third national elections with the related hype was a month away. Arguably, having to complete a questionnaire that had no immediate personal reward was just not priority!

My third strategy was to call schools and try to establish a convenient time when the *TeleTuks* facilitator would be available. This resulted in numerous fruitless phone calls. Schools dismissed at different times and once the school day had ended, no one answered the phone, despite the arrangement that I would call again at the agreed time. In some instances I was able to procure the educator's private phone number. I finally managed to conduct telephonic interviews with five educators (Addendum 18) and recorded the conversation using a speakerphone and the same tape recorder as used during the face-to-face interviews. My inquiry was geared to finding out how learners react in face-to-face situations and what type of interaction is evident in real-life classes. I also had these interviews professionally transcribed and the data sets served as confirming evidence.

In order to gauge the English proficiency of the learners, I had planned to conduct a personal face-to face interview with individual, regular viewers. This step was deemed redundant since I had recorded sufficient oral data during the second phase and had a usable and representative sample of rich primary data from which I could describe and assess the actual English proficiency of the viewers. I chose to use the Gauteng

provincial education department's Grade 12 oral assessment rubric as well as the Assessment Guide for the Speaking Module (part of the International English Language Testing System (IELTS) developed in the United Kingdom) (Addendum 11). Both rubrics, one local and one international, are widely used to assess and moderate the oral proficiency of second language speakers of English. I used both as a counter-check on each other and also to facilitate a crosscheck of my evaluation by any independent rater.

IELTS is administered in over a hundred countries by more than 950 certified examiners and as the training manual (The British Council, 1996 p. 1) states: "The aim of this Assessment Guide, therefore, is to standardise as far as possible both the administration and the marking of the IELTS Speaking Module, in order to ensure the stability amid consistency of all assessments" (p.1). A Band 6 rating is highly sought after by non-native speakers of English as this assists them in gaining access to most English-speaking universities. Persons wishing to emigrate to English-speaking countries require a minimum band score of 5 for each of the four components as acceptable evidence of their English language ability (Network Migration Services, 1999). The IELTS examination assesses a candidate's proficiency in the four basic communicative skills *i.e.* Listening, Speaking, Reading, and Writing. A proficiency rating it provided for each of the four modules and this is reported on a band scale ranging from Band 0 - 9. A candidate's overall Band Score for IELTS is the arithmetical average of the scores obtained for each of the four modules.

The core concepts that the GDE rubric judges, relate to learners being able "…to express their needs, desires, aspirations, opinions and feelings about everyday situations in an appropriate manner" as well as being able "to react appropriately to requests, questions, or texts that they are confronted with" (Gauteng Department of Education, 2003 p. 11). Assessors must also note the clarity and fluency of speech as well as the learners' ability to interact in a variety of oral genres *e.g.* conversation, discussion, debate and interviews. Having done innumerable oral assessments of ESL learners during my 25-year teaching career, I believe I was able to make fair and sound judgements from both the rubrics. I played the taped interviews and wrote comments about the learners' interaction within each context visited. Since the individual exchanges were generally limited in length and also since no learner could be singled out as highly proficient, I have presented a generic assessment of the learners' English proficiency. In order to draft this linguistic profile, I also evaluated the written, single-sentence responses taken from the open-ended questions answered as part of the survey. In terms of oral proficiency, I focussed on the following key aspects of spontaneous speech:

- Fluency - speed and rhythm, naturalness and clarity, linking of phrases
- Grammatical accuracy - Control of structures including tenses, prepositions
- Vocabulary resource - variety and correctness
- Comprehensibility - pronunciation, stress timing
- Appropriacy - register, response.

These *rubrics* are my seventh instrument and also constitute the final phase of my data collection. Bio- and demographical data obtained from the survey questionnaires, augmented the authentic data recorded during the interviews. I have inserted audio clips of actual learner data on the accompanying CD (Addendum 22). These have been offset against visual inserts of authentic televised broadcasts (Addendum 1).

A common means of gathering classroom data would have been to do a first-hand observation of what happens *in situ* during a live transmission. After careful consideration of logistical and ethical issues, I judged this instrument to be intrusive thus affecting learner behaviour. I therefore relied on informal *field notes* as well as personal reflective comments made in annual reports to endorse later findings and analyses. I consider these an eighth source of data.

3.4 Data analysis

Drawing on Miles and Huberman (1994), I endorse the notion that data reduction or selection, the choice and creation of systematic, inventive displays as well as the drawing of conclusions and the final verification of such, are all interwoven in the domain of qualitative data analysis. This interactive, cyclical process also requires careful documentation for possible replication and in this section I explain the process used for data analysis and how I reported the findings as a single data set integrated with supporting evidence.

3.4.1 Explanation of macro data analysis process

The qualitative methods as described in §*3.3.7 Instrumentation* were used to complement the quantitative survey data by providing rich participant data that triangulated with the written responses. Data analysis proceeded sequentially. Firstly, I analysed the survey questionnaire data, then I conducted the learner interviews. Next, I analysed the

videotapes thus providing a basis for the development of the presenter interview questions. The presenter interviews were followed by the telephonic interviews with site educators. Concurrent to these collection phases, presenters had been completing log sheets. While collecting all anticipated data, I started an iterative analysis of the resultant data. This integrative approach is a form of typological analysis established by LeCompte and Preissle (1992). I provide a summary of the various instruments I used and the categories that each addressed in Table 3.1.

Table 3.1: How each research instrument informed the categories related to the research question

Categories generated by research question	Questionnaire	Learner interviews	Presenter log	Video analysis	Presenter interviews	Educator interviews	Proficiency analysis	Field notes and reflection
Presenter	X	X		X	X			X
Learner	X	X		X	X	X	X	X
Language	X	X		X	X	X	X	X
Content		X		X	X	X		X
Technology	X	X		X				X
Educator						X		X
Interaction	X	X	X	X	X	X	X	X

As the analysis process unfolded, I elicited three emerging categories with related sub-divisions pertaining to the presenter, learner and ITV context from the data. I have summarised these categorised families with their emerging themes in Table 3.2. It is against the backdrop of these three categories that I present the data pertaining to each family.

Table 3.2: Summary of categories and emerging themes

Main categories	Sub divisions	Emerging theme
Learner	• Biographical details • Participatory behaviour • English language proficiency • Self-esteem or inhibition • Cultural reticence	Paradoxical perceptions
Presenter	• Profile • Lesson design - Knowledge of target audience - Formulation of outcomes - Structuring of learning event - Planning interaction - Choosing content material • Lesson delivery - Instructional behaviour - Use of visual material - Time constraints • Communication skills	Presenter nescience
Context	• Systems design: technology • Physical sites	Problematic practicalities and partnerships

Since the questionnaire survey generated the first data set, the data presentation in Chapter 4 commences with a learner profile, offering biographical detail as well as describing possible reasons for the lack of interaction, specifically those relating to the viewers' self-confidence and language proficiency. I also refer to the lack of interaction as suggested by the learners themselves and borne out by presenter logs. I next present a surface evaluation of their English proficiency. A detailed discussion of the presenter as a pivotal role payer in the interactive television classroom follows. Here I provide the learners' perspective as well as that of the presenters themselves. I also record my personal experience of watching a selection of their videotaped broadcasts through a narrative account. Thereafter I discuss in detail the actual lesson designs and comment on the presenters' lack of understanding of ITV and its interactive properties. I have examined how the data set answered the research question and in Chapter 5 I merge the findings with the theory into a more complex and integrated version of what I came to understand from the study.

3.4.2 Explanation of computer-aided qualitative data analysis process

While analysing the data, I initially studied the findings offered by each instrument as a separate entity and wrote a draft commentary per instrument. However, an attempt at integrating all the data during the discussion phase proved cumbersome and the quantity of data called for a more effective system of management and analysis. The second round of manual data analysis had also revealed emerging patterns and thematic relationships, which necessitated more integrative reporting. At this point I switched to using *Atlas.ti*™ - a computer-based system for analysing qualitative research data. Not only is this CAQDAS a powerful tool for the qualitative analysis of large bodies of textual, graphic and audio data but it also has immediate search and retrieval functions as well as a network-building feature (Muhr, 1997). The third step was thus to convert as many relevant sections of the unstructured data as possible into textual data files in order for these to be captured as primary documents in *Atlas.ti*™. I present a summary of the converted textual data files used for analysis and interpretation of my raw data in Table 3.3.

Table 3.3: Summary of data converted into textual files

Instrument	Primary document in *Atlas.ti*™	Research question related themes
Questionnaire survey	PD8, PD9 PD17	• Rate and type of interaction. • Reasons for not asking questions, • Biographical learner detail • Presenter, technology, language proficiency, cultural and self-esteem issues.
Learner interviews	PD1	• Rate and type of interaction; also in face to face learning situations • Reasons for not asking questions • Presenter, technology, language proficiency, cultural and self-esteem issues
Presenter logs	-	• Rate and type of ITV interaction
Video analysis	PD12	• Rate and type of interaction • Reasons for not asking questions • Presenter, lesson design, technology and language proficiency issues
Presenter interviews	PD2, PD3, PD4, PD5, PD6, PD7, PD11, PD13, PD14, PD15, PD19	• Rate and type of interaction; also face to face • Reasons for not asking questions • Target audience, teaching style, technology, language proficiency, cultural and learner confidence issues
Educator interviews	PD18	• Rate and type of interaction in face to face • Learners' self-esteem and English proficiency • Presenters, technology, cultural and issues
Proficiency analysis	PD1	• English language proficiency
Field notes and reflections	PD16	• Rate and type of interaction

Instrument	Primary document in *Atlas.ti*™	Research question related themes
		• Learners, presenters, technology, language proficiency, cultural and self-esteem issues • Management issues (not addressed in this study)

The term *Hermeneutic Unit* as coined by Muhr (1997) in his *Atlas.ti*™ computer-based research tool, refers to "an idea container" (p. 8) into which all associated material pertinent to a particular project is placed. Not only does the term describe the approach underpinning the design of this support tool for textual analysis but suggests that everything that is relevant to a particular research project - in this case my entire thesis - is treated as a single unit regardless of its size or the space in which it is located in the electronic environment. Addendum 19 contains the Hermeneutic Unit I created i.e. the body of research data used in this study.

I loaded nineteen primary documents comprising interview and video transcripts as well as extracts from questionnaires and field notes into the Hermeneutic Unit I had created, called *PhD thesis.* Next I set about selecting segments of text from the primary documents, which I considered intriguing or significant. This "arbitrary sequence of characters ranging from a single character, words, sentences, paragraphs or a whole file" (Muhr, 1997 p. 10) is called a quotation. Once it has been selected, an identifier is automatically assigned *e.g.* P1:21 34 - 38. This identifier allows for easy cross-referencing to appendices and has been used as a means of quoting from the primary documents. The first number indicates from which primary document the quote was taken, the second represents the number of the code that has been linked to it and the last set indicates the start and end line of the quote. The *Atlas.ti*™ programme requires such segments to be highlighted and then coded *i.e.* labelled with the selected keywords. I chose appropriate keywords to describe these text segments in an attempt to capture some meaning in the data. This breaking up of data into discrete parts is called open coding. These codes serve as "classification devices of different levels of abstraction to create sets of related information pieces for the purpose of their comparison" (Muhr, 1997 p. 11). This assigning process generated 1188 quotations and 145 codes. Thereafter I manually plotted the codes thematically using a large, sticky board which easily permitted the removal and relocation of initial codes. The headings or families under which I had pasted the codes were: Presenter, Learners, Technology, and Language. A new category had emerged from the learner interviews: Subject Material. Upon completion of this manual analysis, I created a new family of codes: Context. At this point, I transferred matters assigned to Technology and the systems design as well as a refinement of

educator interview data to this new family: Context. I also made a definitive change related to modifying Subject Material *i.e.* content presented during each telelesson as a sub division of Context. The process of "fracture[ing] data into concepts and categories" (Henning, Van Rensburg, & Smit, 2004 p. 131) allows for the clustering of data from various instruments under the same conceptual label. Several cycles of naming and redefining codes as well as refining various categories ensued. This re-grouping of discrete parts into new categories with different connections or crosscuts is known as axial coding and the researcher here operates at a conceptual level. I grouped several codes into a particular family in a continual process of analysis. I finally assigned several families constructed of codes to a network enabling me to identify meaningful relationships among the data bits. In an attempt to provide an example of an integrated data set, I have included one of these network views as a visual display (Addendum 20).

I have already explained how the textual quotes will be referenced. I quote participants verbatim (presented in italic type) and no attempt has been made to correct or edit their language usage. However, in order to respect their anonymity, survey respondents have been identified by a capital R followed by the numeric order in which I processed their questionnaire answers as well as the research year *e.g.* R34/03. Presenters, in turn have been assigned a capital letter representing their subject followed by the number representing the random order in which they were interviewed *e.g.* E3 = English, third presenter. This system is applicable to the site educators too *e.g.* S1.

Bearing the research question in mind, it stands to reason that the overarching and recurring theme was *interaction*. From the above explanation, it is also evident that the process of selecting and assigning is in itself an interpretative act (Muhr, 1997). I have endeavoured to elicit meaning from the data in a systematic, comprehensive and rigorous manner (Henning *et al*., 2004) using an inductive approach. My ultimate grouping accounted for all data collected using eight instruments and from here onwards I report on and discuss this Hermeneutic Unit as a single data set. In Chapter 4 I use an advance organiser to explain how the findings of each instrument have been presented in relationship to the main research question. I then discuss the data germane to the propositions in correspondence with my initial expectations indicating whether these were supported or disconfirmed. Several visual means of data representation have been included. Such displays simplify explanations and compact information (Leedy & Ormrod, 2001). My interpretation endeavours to describe research findings in a logical sequence, integrated with the relevant literature in order to provide substantiation for evidence. I spent much time ferreting out possible conclusions and my personal bias was consciously

monitored. Reflecting on what relevant evidence the research provided, I have made certain recommendations for further investigation in §5.4. Overall, I have reported my analyses and interpretations as scientifically *i.e.* as precisely and without prejudice as possible. I now discuss issues related to the validity and reliability of my inquiry in more detail.

3.5 Strategies for enhancing the validity of this study

I here turn to what Lincoln and Guba (1985) refer to as the "trustworthiness, credibility, dependability and confirmability" (p. 302) of research *i.e.* how I addressed validity and reliability issues. As this study did not entail a large-scale statistical sampling, traditional reliability indices for my quantitative data were not considered appropriate. I constructed the questionnaire as an exploratory instrument to establish possible problems and did not design it for the numerical treatment of data. Results from 2001 pilot survey served as a formative evaluation of the content validity and I discussed these with an official university statistician who assisted me in refining the questions. Results obtained from the modified version used in the 2002 - 2003 period correlated with the pilot study. Input from several colleagues familiar with the *TeleTuks* project and its target audience helped improve content validity. Furthermore, I trialled the educator questionnaire with eight colleagues, prior to faxing it to 44 schools.

With regard to the elicitation of qualitative data, the extended period over which I had worked with this community project validates my personal observations. I also candidly explicated my assumptions regarding possible reasons for poor participation in advance. During the preliminary phase of the study, it was not too difficult to establish trust with the site educators as they still recalled my past involvement while the current project manager of *TeleTuks Schools* assisted me with the learner interviews. Her insight was of particular value as she has a deep understanding of the teaching and learning culture in township schools. Other members of TLEI have also been consulted in various capacities while colleagues peer-reviewed draft sections and engaged with my theorising. In addition, triangulation by means of multiple sources and the consultation of all role-players *i.e.* presenters, learners and educators strengthened the internal validity and reliability of my research. I was able to maximise validity by comparing the findings of certain instruments and requesting respondent validation (accuracy checks). Repetitive data confirmed several findings. Next, the authenticity and richness of oral data spawned thick

descriptions of participants' experiences that enhanced the anticipated multi-layered descriptions.

Contrary to Henning's view that the notion of independence is a remnant of naïve realism and concomitant issues of the positivist notion of interrater reliability (Henning *et al*., 2004), I felt that an outsider could offer fresh insight. I thus asked a colleague with many years' secondary school experience, to act as an independent assessor by assisting with the analysis and interpretation of interview transcripts and video-recorded material. It was not deemed necessary to design any further instrumentation or to institute interventions in order to augment or disprove data. Moreover, the use of a widely accepted international oral testing system and the official Grade 12 oral assessment rubric ensured a greater degree of objectivity when evaluating the viewers' language proficiency. The need for examiners to accurately assess oral work according to an acceptable, uniform standard is highlighted when one takes into account that in 2003, 440,367 learners registered for the Senior Certificate national exit exam (Department of Education, 2003) and that the overwhelming majority would have sat for English as an additional language.

Not only did *Atlas.ti*™ facilitate my task but using it also enhanced my analysis and made data segments easily accessible. The research community is able to scrutinise the coding and categories visible in the text segments for consistency by consulting aspects of the Hermeneutic Unit in Addendum 19. My trail of evidence is thus tangible and trustworthy showing a transparent and reliable methodological process, making an audit simple to replicate. The utilisation of CAQDAS also enhanced the precision with which I executed the research process and potentially authenticates this study. Finally, the systematic collection and detailed reporting of my procedures and the decisions I took as well as a careful explanation of my understandings of why learners did not ask questions frequently, strengthens the overall persuasiveness.

3.6 Methodological constraints

I have worked within an interpretivist paradigm, offering a more subjective and descriptive study. By implication, I have excluded positivist tenets and acknowledge that my observations are fallible. This fallibility may be heightened by the fact that my inquiry is theoretically underpinned by Western communication theories that may not be directly applicable to a developing country context. For readers to appreciate the context in which my research claims have been made as well as the constraints that may have been

imposed during the study, this section serves as a personal reflection on the research process and indicates any adjustments that may have been necessary. It needs to be read in conjunction with the anticipated limitations of the study as described in *§1.7 Anticipated research constraints.*

According to Mouton (2001) the main sources of error which could occur in a case study are potential researcher bias and lack of rigour in analysis. I endeavoured to restrict my prejudice by collecting data and documenting my evidence thoroughly. Furthermore, the use of a reputable data analysis software package dismisses any scepticism relating to flawed or shabby research procedures. Since I described a single case and did not do a comparative study, I concede that the case study methodology has low generalisability to other students and course formats. My findings are thus not necessarily applicable to all instructional television contexts although they may be transferable to other similar cases, specifically in developing country contexts. Although potentially I may have been biased, triangulating data produced by several instruments limited this, as did the use of member checks. I do, however, admit to the following limitations, which may have influenced the results. In the first place, the time constraints, against which I was working both in terms

of study deadlines and the rumoured termination of the service, implied having to work with available learners and presenters. I was, however, compelled to work meticulously as there was no room for error or loss of data. Secondly, the use of several instruments generated rich and extensive data, but I selected only those that related to the research question. I intend to mine the remaining data for publication purposes later. Thirdly, although I did not experience any gaps in or problems with my instrumentation, I ought to have phrased Question 10 subset 3 differently (*I believe it is not polite to interrupt the presenter by asking a question*). The word interrupt may have been ambiguous as explained under *Cultural reticence* in §4.3.2 rephrasing the question to suggest asking for clarification rather than being rude may have produced different data. In the fourth place, although Phalaborwa schools were 212 kilometres apart from those in Polokwane and 520 km away from Pretoria, the learners I interviewed in rural areas were all from the same province (Limpopo). The same applies to urban schools that, in turn, were all situated in Gauteng, ± 40 kilometres apart. Having said that, observations regarding learner response and language ability during previous site visits to other locations, did not differ at surface level from the visits designated as data collection opportunities.

A fifth limitation relates to my initial plan to have observed a focus group comprising between five and eight educators. This did not materialise and much wasted time and

frustration ensued. Although telephonically interviewing only five educators, I believe the quality of data produced was good and possibly more varied than had participants been influenced by others' opinions during a focus group. The means of interviewing sans visual cues also meant I listened intently and tried to interpret feelings in the same way as I would have had a learner called in to the studio during a broadcast. In retrospect, I could perhaps have interviewed technical staff for their version of events and opinion about why so little interaction was forthcoming but at the time I did not consider them to be key role-players. Finally, considering my role as researcher during the interviewing and data analysis process, I realise that my Whiteness may have influenced the way in which particularly the Grade 12 learners reacted during interviews. Although I have no concrete evidence to substantiate or counter my assertion, I believe that as stated in *§3.3.6 Personal role in research process,* my ethnicity did not impact negatively on the data provided nor on the research process. My sense was rather that my presence was an unusual occurrence and if anything, stimulated positive reaction. Furthermore, although I also endeavoured to render the experience of the participants as closely as possible, their voices have been diluted and refracted by my interpretation. This has made for a selective and thus partial text in my attempt to make sense of others' experience. I do not claim to have been unbiased as no interpretation can be entirely objective. Having outlined the methods and materials used in my inquiry, I offer an integrated analysis of the findings in Chapter 4.