Chapter 5: Significance and implications of the inquiry

Decoding the satellite signals

5.1 Introduction

Without a decoding device, satellite signals splash vibrating patterns across screens. In this chapter I wish to unscramble the coloured splodges, pulling them sharply into focused, crisp images of understanding. I firstly offer a synopsis of the study and then examine the data in the context of the theoretical framework. I base the discussion on the key constructs of the *TeleTuks Schools* project that were consolidated in the previous chapter. I also sketch the implications for research, policy and practice and suggest new channels of inquiry which relate to the "give and take" of the communication process, specifically in the domain of instructional television but applicable to a range of teaching-learning environments. The chapter concludes with a contemplative appraisal of the *TeleTuks Schools* project and the way forward for instructional television.

5.2 Synoptic overview of the inquiry

My research focussed on a single unit of analysis: the community project - *TeleTuks Schools* of the University of Pretoria, South Africa and I sought to answer the question *Why do learners refrain from asking questions during instructional broadcasts even though technology allows for synchronous, oral presenter-viewer interaction?* The exploratory nature of this question necessitated a particular line of inquiry since "human systems have a wholeness and integrity to them rather than being a loose connection of traits, necessitating in-depth investigation" (Cohen, Manion, & Morrison, 2000 p. 181). By implication, this inquiry was grounded in qualitative research since it entailed field research involving the presenters of telelessons, the viewers of these programmes and the site educators. Although I used an instrument traditionally associated with the positivist framework, my study was not theoretically positioned there as the questionnaire was not the dominant mode of data collection but served to guide the interviews that I conducted. The *TeleTuks Schools* project was the bounded system I chose to work with. I reported "the complex dynamic and unfolding interactions of events, human relationships

and other factors in a unique instance" (Cohen *et al*., 2000 p. 181) thereby classifying my inquiry as a case study among the various research genres. The outline of this primarily qualitative methodology as well as the justification thereof is outlined in Chapter 3 where I have also described the various instruments used for data collection.

In Chapter 1, I constructed the rationale explaining that apart from my personal interest in television as an instructional medium, presenters and management of the *TeleTuks Schools* project were puzzled by the poor learner participation rate during telelessons. In order to locate the South African television industry within the international context, I offered an overview of the evolution of television in industrialised countries, with special reference to the USA and Britain. I also clarified the distinction made between educational and instructional television, focussing on interactive television as a distinct form of this educational technology. In the same chapter I explained my use of terminology and graphically represented key constructs pertinent to this study in Figure 1.1. This section sought to define more clearly my connotations of these concepts. I delineated the scope of my inquiry clearly and also introduced my research design and methodology as being positioned within an interpretivist paradigm. Chapter 1 concluded with my suggesting some anticipated constraints of the inquiry and outlining the macrostructure of the study.

My exploration of the related literature as reported in Chapter 2, indicates how I reached a richer understanding of the delivery mode as well as potential reasons for poor interaction during televised instruction. I consulted numerous sources describing the use of ITV in various contexts. Many studies were in actual fact institutional reports with limited reference to issues concerned with interaction, suggesting how interaction could be increased rather than investigating reasons for particular viewer behaviour. Having set this background to the medium, I then gave a detailed description of the focus of my inquiry - the *TeleTuks Schools* community project - comparing it to systems used in other developing countries. The theoretical stance, which informs my inquiry relates to a synthesis of several communication models designed for mass media as explained in *§2.3 Channel 2: Social communication as theoretical framework.* This chapter closes with a dissection of the concept *interaction* as a key element of instructional communication.

I detailed my research design and its theoretical underpinning, motivating my choice of case study method within the qualitative research domain in Chapter 3. I provided a full description of research strategies, participants, sites, and support systems concluding with my personal role in the research process. I then reported on instrumentation and the data

collection process, which commenced with a questionnaire that had originally been used during the pilot study in 2001. This instrument informed the research question by indicating that there was no single explanatory variable and in order to triangulate data successfully, more sources were required. I designed a log sheet and requested presenters to complete them over a specific time period. Results from this instrument concretised the poor rate of both synchronous and asynchronous learner participation. In the meantime, I conducted interviews with Grade 12 learners who had been watching *TeleTuks* broadcasts. I then analysed videotaped broadcasts in order to determine which aspects of the presentation may have influenced the rate of interaction. I concurrently interviewed eight presenters who had been part of the project, some for many years. The telephonic interviews with educators from five participating schools proved fruitful too as they were able to verify data that had been forthcoming from the other two sources. In order to support my initial proposition that poor English proficiency was the prime reason for poor participation, I used the audio recordings of learner interviews to do a generic analysis of their English based on two formal assessment grids. Although proficiency was below average, other constructs seemed to be more of a barrier than language.

The volume of unstructured data I had collected called for a more systematic and efficient method of analysis. Technological advancements made in the field of CAQDAS have proved advantageous for the qualitative researcher who has to process large raw data sets. In terms of the methodological process, *Atlas.ti*™ proved an essential tool for me too, as I was able to integrate nineteen data sets into a single Hermeneutic Unit, permitting me to work efficiently at detail level as well as holistically without becoming lost in the complexity of material. I thus prepared the transcripts and field notes formally collected between June 2001 and June 2003 as textual data files so that these could be captured as primary documents in *Atlas.ti*™. This qualitative data analysis software package served to consolidate all data as a single unit facilitating analysis remarkably well. Using the analytical software was one of the means I had of enhancing the validity of my inquiry. In *§3.6 Methodological constraints*, I elaborated on certain limitations of the methodology and the study. Some of these related to participants' voices having been refracted due to the process of researcher interpretation and representation. This may have resulted in an incomplete and selective text from which I endeavoured to make sense of the participants' experience. Furthermore, as it was a single case study, generalisability to other students, course formats and training organisations is low but acceptable as transferability was not part of the aim.

In Chapter 4, I presented the research findings as revealed by an inductive analysis of the research data. Three main families (Presenter, Viewer and Context) had emerged as possible areas germane to poor interaction. Although I discussed these three categories in detail as separate entities, their interrelatedness offered some elucidation of why learners did not respond as expected during televised instructional episodes. I clustered the various empirical findings from each category into three themes: Paradoxical perceptions, Presenter nescience, and Problematic practicalities and partnerships. A close scrutiny of these gave rise to the overarching sense of mismatch that I have elaborated on in *§5.3.2 Mismatch as intrusive interference.*

In Chapter 5, I offer an integrated interpretation of the key findings and conclude that the rate of learner participation during interactive TV lessons was not influenced by an isolated factor as originally conceived but rather a combination of other variables. In the case of *TeleTuks*, it has to be accepted that due to technological constraints *i.e.* the lack of a video link or telephone in the viewing venue, synchronous interaction would be rare. More sites than expected did not have the bi-directional link. At best, intra-action and more explicit interaction with peers and the content could have been planned. Both technical and methodological design limitations were complicated by ineffective communication skills on the part of both the sender and receiver of instructional messages. Apart from intensive training in the use of the ITV system and grounding in some distance education principles, presenters needed to be adept at designing and delivering telelessons. Although cultural reticence was not a significant factor, a noticeable number of viewers refrained from participating as they lacked the confidence to speak publicly. There were multiple assertions by the participants themselves that this was English proficiency-related. Incongruence between my findings and initial suppositions led me to propose a theory based on instructional dissonance. I also put forward possible avenues for further exploration relating to interaction in any instructional environment in this chapter under *§5.4 Recommendations for further research*. It would be appropriate to remind the reader that while I have discussed instructional television as a basis for setting up my position, I consider many of the statements made applicable to the traditional classroom setting and the current video conferencing swell as well. I have woven throughout the chapters, the theme of interaction as a basic component of any meaningful communication act, but of particular significance in instructional episodes.

5.3 Implications of inquiry

I offer my nuanced understanding of why Grade 12 learners did not interact by referring back to *Figure 4.1 Reasons identified for not asking questions*. In some cases, viewer satisfaction implied no need to phone in while passive viewer behaviour customarily related to watching public television also accounted for the lack of learner response. However, the most obvious reason for not calling in was that no connection in the form of an available or operational telephone link existed. This was an unanticipated explanation for low learner participation as such a link was a pre-requisite for being equipped and technically and logistically all factors appeared to be operational at the origination site. This technical barrier accounted for why several schools were not responding and was beyond the control of the presenter, for no matter how well interactive tasks may have been integrated into the instructional design, viewers would not have been able to give feedback due to technological limitations. This aspect of the communication loop was also compounded for those viewers who did have the necessary technology in that interaction was asymmetrical. This implies that although viewers could speak back to presenters, neither party used the same medium to communicate. Presenters spoke directly on air and learners communicated via telephone, which has its own visual barriers. Asymmetrical communication lowers levels of interaction (Borsook & Higginbotham-Wheat, 1991; Cronjé, 1996). Furthermore, interaction was asynchronous as making a telephone call imposed a time delay, albeit of a few seconds or until the presenter invited calls. By implication interaction was not spontaneous and thus potentially low.

Contrary to the initial hypothesis that guided this study, language proficiency was not the primary reason for lack of learner responsivity during interactive television instruction, despite viewers' expressive skills being limited. Although generally learners' oral proficiency was problematic, those with sufficient confidence interacted. My analysis of their overall proficiency also claims that the learners perceive themselves to be proficient in English but that their receptive skills and thus comprehension of content may be lacking as much as their expressive skills. This is a definite research area I intend to pursue later.

The disconcerting discovery that presenters silenced learners was contrary to my initial supposition of the prime reasons for poor interaction being inherent in the learners. These presenter-related factors, rather than language proficiency, combined to ensure low

reciprocity in the viewer audience. It is now apparent that presenters played the compounding role in stifling interaction since despite their teaching experience, meticulously preparation and good face-to-face track record, these presenters not only had a misconception of mediated interaction but also had insufficient background knowledge of the recipients of the message. The preconceptions presenters held of the target audience's frame of reference, needs and level of proficiency resulted in, amongst others, a patronising attitude. Inadequate ITV lesson designs which require different strategies and resources, led to presenters creating few opportunities for synchronous interaction. Learning outcomes were not clear and "interaction" limited to scores of rhetorical questions. Although diligent planning, thorough preparation and enthusiastic delivery were evident, the instructional message was not as well crafted, as the presenters believed they had formulated it. Not only the formulation of the message but also the presenter's speech personality (Hyde, 1979) in particular the lack of pauses and pacing, affected potential interaction negatively. Applicability of content being presented was, at times, questionable while time constraints also muted any potential attempts of learners to interact.

Despite several technical limitations, the collaborative partnership between technicians and presenters was inexcusably unexploited. The complexities of transmitting subject content via television, as a mass medium requires teamwork to produce and deliver. This method of instruction requires advance planning and optimising a collaborative partnership between technicians and presenters in this context, could have enhanced delivery. Furthermore, the contextual factors in a developing country with specific reference to technological dynamics, are dissimilar to those found in industrialised countries, *e.g.* inadequate connectivity, lack of bi-directional video equipment and insufficient bandwidth. These inhibiting factors linked to the mode of delivery, prevent presenters from gauging the success of their message, since non-verbal behavioural cues are not observable.

Interestingly, the assumption by presenters that cultural reticence was an acute reason for not asking questions was invalidated as both site educators and Grade 12 participants unanimously claimed that a new dispensation had arrived in which learners were encouraged to ask questions and even challenge educators. This false perception highlighted instead the lack of understanding among presenters of how cultural norms and customs governing interaction between learners and educators had changed. In addition, although learner inhibition associated with self-esteem was evident, it had a negligible

influence on participation rates and seemingly pertained to limited language proficiency instead.

I clustered the various empirical findings from three categories that encompassed the viewer, presenter and context category into the following themes: Paradoxical perceptions, Presenter nescience, and Problematic practicalities and partnerships. A fine combing of the themes gave rise to a sense of mismatch or noise. In several instances, the presenters' message was distorted in such a way by several factors that its delivery or decoding was not aligned to expectation. I shall elaborate on these discordant notes later in *§5.3.2 Mismatch as intrusive interference.*

Even TV tales serve not only to delight but also often have a didactic moral hidden within the text and as I decoded the data at a complex level, the five key findings revealed another dimension. I pinpointed an unpredicted disparity between my initial propositions about why learners were not participating and the eventual findings. The data indicated several facets that ought to have dovetailed neatly but which were at variance with each other. These discrepancies resulted in mismatches of expectations, needs and application.

So what do the findings mean? My interpretation is based on an informative rather than a transformative stance and I have discussed the findings in a descending hierarchy of influence. I thus consider issues linked to technical relationships, cultural reticence, and learner inhibition to be subsidiary contributors to poor participation. With this inference as the establishing shot of my discussion, I proceed to interpret the findings against the chief thrust of this inquiry that relates to interaction or the lack thereof. I also discuss mismatch as an intrusive interference in the instructional communication process.

5.3.1 Interaction revisited

Anderson and Garrison (1998) advocate that educational communication should be reciprocal, voluntary (consensual) and collaborative. Such characteristics ought to facilitate the construction of personal meaning and support deep learning. However, the intricacies of an educational transaction are further complicated when learners are geographically isolated from the instructor and communication is mediated by technology. Since learners rarely responded to information supplied by the presenter in an discernible

manner, I revisit the initial notion that viewers and presenters were to have communicated on equal terms within the complexity of the *TeleTuks* milieu.

Television *per se*, is not an interactive medium. However, coupled with other technologies, it has interactive potential (J. Barker & Tucker, 1990; Bates, 1995; Ostendorf, 1989; Van Zyl, 1996). Interaction, on the other hand, is a complex process of various behaviours that not only occur within a particular context but are also affected by such. The label *interactive television* has misrepresented the potential of the medium since it implies that interaction is an inherent characteristic of the medium and thus ensures presenter-viewer interaction. Yet inserting technology into the instructional event does change the communication dynamics. Engelbrecht (in press) in her research on an e-learning Masters programme in Taxation found that "… as a result of the lack of interactivity between students and contract teachers during the live television broadcasts of lectures, they were abandoned for pre-recorded lectures". The implication being that the exact same technology was still being used but interactive possibilities purposefully excluded because students had not been responding. Her research also showed that instructional design was impoverished resulting in the lack of interaction. This is reminiscent of the conduit theory described by Clarke (1983) and is an accurate depiction of how the *TeleTuks Schools* project merely uses technology as a conveyor of the message. Clarke argues that it is the method and not the medium that influences the quality of what we learn (or teach). This implies that it is not the ITV technology that matters but rather the way in which the instructional episode is designed to take advantage of its strengths, amongst others its visual impact potential and ability to reach large, remote audiences simultaneously. Barker (1995) too, claims that the key success factor of distance learning is not the medium but the teacher and well designed instruction: "No technology can overcome poor teaching; poor teaching is actually exacerbated in distance education applications" (p. 3). Cyrs and Conway (1997) also support this view stating that "… we do not learn from the technology of television; we learn from competent and well prepared instructors and the instructional strategies that they utilize" (p. 4).

Van Zyl (1996) purports that there is nothing intrinsic to the ITV medium that guarantees success but that the character and personality of the presenter is decisive. These views suggest that the medium should not affect the quality of learning and are supported by other researchers (MacKinnon *et al*., 1995; McCleary & Egan, 1989; Ritchie & Newby, 1997). Not wishing to enter the Clarke-Kozma debate, it is credible that what affects

learning most is not the delivery mode but the instructional methods and tasks learners are required to perform (T. Anderson, 2002).

In face-to-face instructional contexts, educators are able to see whether students are engaged or need to be brought back on task. Even covert involvement with content *i.e.* thought processes, is evident in note taking, body language and facial expression. Not only were there "reduced levels of discourse" (Oliver & McLoughlin, 1996 p. 117) during *TeleTuks* broadcasts but the lack of visual feedback in the form of non-verbal cues exacerbated the sense of speaking into a void as experienced by the presenters:

> *I was often just teaching in a vacuum, it was very difficult for me, to know that … that my content was getting across and that they were understanding* (P4:34 11-14).

It is likely that such learner behaviour as described in the preceding section, was manifested during the receipt of the broadcasts but since the ITV presenter could not see this form of feedback, communication was compounded and without feedback there is no interaction, merely a one-way delivery of instructional content. Bates (1995) states that it is unwise to assume viewers are passive if they do not respond overtly as the presentation may stimulate deep thought, challenge the values of viewers or raise awareness. However, such internal processes were not evident to the ITV presenter and in terms of observable synchronous interpersonal interaction, the Grade 12 audience was passive. This mirrors the instructional studies reviewed by Chu and Schramm (1967) that were based on a mass media model *i.e.* one-way transmission of information with limited and delayed feedback. Despite the *TeleTuks* initiative being labelled interactive (Addendum 27), it in reality closely resembles the transmission model of mass communication: the transmitting of one-way messages, in this case selected Grade 12 curriculum content. Since the medium was designed for mass communication to unknown, diverse audiences, it is questionable whether without sophisticated bi-directional, symmetric communication the traditional classroom experience can be approximated. However, I disagree with Van Vollenhoven (1999) who claims that more sophisticated equipment will ensure more interaction and that an "all or nothing" (p. 158) approach to investing in state-of-the-art technology is the solution for poor learner participation. Apart from such an extravagant claim not being aligned with the monetary realities of a developing country, it is not the equipment but rather the implementation thereof that determines the success of a telelesson. Nonetheless, the value and contribution of ITV could be heightened by careful design, integrated with other educational efforts and improved delivery despite the technical limitations. Oliver and McLoughlin (1997) also suggest that we refocus the view-finder and exploit technology as

more than merely “a device to deliver content”, harnessing it rather as “a resource that can display creative ideas, provide support for inquiry and extend thinking…” (p. 363).

The actual nature of television watching is by implication a passive pastime rather than an active engagement and this living room behaviour seems to be mirrored in the ITV class as Daunt (1997) suggests that “From years of watching commercial television students come with expectations of how information should be packaged. Because the presenter appears on a monitor they expect to sit back and be entertained” (p. 110). Perhaps these expectations need to be challenged and ITV viewers oriented towards appropriate ITV behaviour, which differs from watching television at home. It is not a leisure activity and requires purposeful engagement and focus. However, since viewing is voluntary and non-participation has no negative outcome, viewers are likely to feel even less compelled to ask questions. Nevertheless, lack of “individualised overt participatory behaviour” (Zhang & Fulford, 1994 p. 63) does not imply lack of involvement. Monson (1978) refers to “anticipatory alertness” (p.18) implying active listening and mental processing and suggests that such unobservable conduct is probably more important in the participation and learning process than perceptible actions. Having said that, perceptions of interaction may also be as effective as actual interaction. Kruh and Murphy (1990) phrase this concept of interacting via another’s experience as “silent participation” (p. 6). I here turn my attention to Bandura’s theory of observational learning (1969; 1989) or vicarious learning - a concept, which suggests that active learning actually takes place when interaction between others, is observed rather than when the learner explicitly participates. In the on-line environment Beaudoin (2002) refers to this “invisible” behaviour as “lurking on the periphery of course activity” (p. 148). Fulford and Zhang (1993) examined learner perceptions of ITV and found that the critical predictor of satisfaction with the course was the perception of overall interaction regardless of the actual personal communication with the instructor. Barty (1998) in his study offered no explanation for why students rarely interacted with studio teachers but indicated that they preferred to watch a teacher interacting with learners in a studio location. One *TeleTuks* presenter did invite a learner to the studio and taught her as an individual while being filmed. A positive change of pace and viewer attention (mine!) was evident, supporting Kearsley (1995) who states that the potential for interaction is an important design feature even if students do not take advantage of it. During interviews, two other presenters wondered whether having learners in the studio would not facilitate their teaching:

> *…but I think I would like to have had even two or three learners in the studio to interact with just so that my style of, even if they weren't on camera, that style going across to the learners, is more of a personal style. I did find with my whole style it affected my whole teaching method* (P19 18-22).

> *… and I think it might be good if some of those people, learners were brought into the studio or at least the presenters meet the learners so that you have some faces to think about, imagine when you're teaching. It's not good to teach nothing. So at least you could imagine somebody else. I sometimes think that I should bring one of my pupils and let her sit in and ask questions… I've thought of that several times, I just wonder whether it wouldn't slow everything down* (P14, 251-261).

In the preceding quotation, the closing reference to how studio interaction may have affected the pace of teaching reinforces the presenter-orientated style of instruction and is inadvertent confirmation of the viewers' complaint about the speed of delivery.

Although the *TeleTuks* project anticipated a dialogue-type interaction with the learners during each broadcast, the narrow definition of interaction being only an oral response to a presenter's questions or challenges may need to change focal plane and include more than just being able to speak back to the teleteachers. Any interchange of meaningful communication also what I term *intra*-action, should have been encouraged as reflected in the various types of interaction identified by amongst others, Moore (1989), Klingsheim and Kristiansen (1993) and Anderson and Garrison (1998) in distance education. In terms of the *TeleTuks Schools* context, interaction between learner-presenter was anticipated although peer interaction (learner-learner) could also have been effected. Logistics prevented disseminating instructional resources and post-transmission support but for example, had worksheets been provided, learners could have been guided to interact with the standardised content matter. In view of these restrictions imposed on *TeleTuks* presenters, I propose capitalising on a dimension of interaction described in communications science as intra-personal communication (Steinberg, 1995). I phrase this intra-action, or reflective communication with one's self, in Moore's style calling it: I-me communication. Lauzon's definition (1995) suffices for my explanation:

> Our capacity to reflect on our knowing and reflect on how we come to know in order to derive meaning is essential for personal growth and development and realising our potential. We integrate emerging constructions into our personal paradigm and redefine our relationship with the world (p. 12).

Management and presenters need to reconsider the insistence on oral interaction being desirable since several studies based on technology-rich environments also indicate that viewer participation is overestimated and the interactivity permitted by technology, underutilised (Howard, 2002; Nahl, 1993; R. Oliver & C. McLoughlin, 1997). The fact that even a face-to-face teaching situation is not necessarily instructionally rich *per se* has also been under-exposed (Van Dijk & De Vos, 2001). Moreover, very specific techniques need to be introduced in face-to-face instruction in order for significant interaction to take place

and unless co-operative tasks are designed, there is little guarantee of this occurring spontaneously. Involving learners at a distance is no less challenging but requires a different approach since each second of airtime counts.

ITV is only a financially viable technology when fee-generating enrolment figures are high. As a community project, *TeleTuks Schools* has always been reliant on corporate sponsorship for funding and has thus never been a cost-effective means of serving even large audiences. The phasing out of this community service due to budgetary constraints endorses Van Zyl's (1996) belief that "…interactive television, as a stand alone medium, is not a useful educational tool in large-scale educational programmes as it becomes neither cost-effective nor interactive" (p. 96). Therefore, taking the cost of airtime into account, it may be judicious to plan tasks that elicit interaction asynchronously. Apart from creating opportunities for various types of interaction, presenters could encourage asynchronous communication via alternative technologies *e.g.* phone calls after broadcast or e-mails (Addendum 24). I accept that this mode ruptures interaction (Van Dijk & De Vos, 2001) but the advantage of delayed feedback is that it "provides an opportunity for reflection and deliberation not found in any synchronous learning environment" (T.D. Anderson & Garrison, 1998 p. 103). In addition, the frequency of interaction is inversely proportionate to the size of the audience (Borsook & Higginbotham-Wheat, 1991). Many viewers attempting to participate simultaneously would be foiled by time constraints and logistics *i.e.* the availability of incoming lines and inadequate technical support. This would limit the number of synchronous exchanges during a telelesson and bears out Van Zyl's view that "ITV initiatives aimed at large numbers cease to be interactive" (1996 p. 36). By reviewing the current format of daily telelessons, a shift in the strong focus on synchronous interaction could be achieved without compromising on an active, deep learning experience or quality education in its broader sense. In the same frame, Moore's "transactional distance" (1991), Kozma's constructs (1991) that related to physiological and technological interactivity and Anderson's "equivalency theorem" (2002) also need further scrutiny. Although Kearsley (1995) also endorses the importance of interaction in contemporary distance education, he admits that "it is not clear from research or evaluation data that interaction does improve the quality of learning" (p. 366).

Moreover, the concepts of interaction and feedback as key elements of the face-to-face communication cycle need to be deciphered as they may not be such vital constructs in communication theories related to mass media. Such contentions as well as the many technical restrictions advocate using televised instruction as a one-way experience, incorporating principles that hold viewers' attention to the small screen while elaborating

on other forms of interaction as propounded by Moore (1989), Kruh and Murphy (1990), Fulford and Zhang (1993) and Anderson and Garrison (1995). It may also be cautionary to heed the counsel of Paterson (2004a in press) who explains that where mass media are employed in developing societies, community newspapers and radio prove far more accessible and useful than television. His view, shared by Smith (1995), is that the entertainment function of television overrules all else in the developing world. Where television has succeeded as an educational tool, it is only when very specific viewing conditions were met *e.g.* small groups with an able teacher to introduce them and lead a discussion afterwards. Van Zyl (1996) also contends that ITV interaction occurs optimally when learners have a common base of knowledge and are all equally fluent in the language of instruction. Both these factors are at variance in the *TeleTuks* context and have accounted to a degree, for low reciprocity. In retrospect, questions that arise are:

- What rate of interaction was anticipated?
- Who decided this?
- What would have been a satisfactory rate?
- Why was only an oral response considered to be interaction?
- When would a telelesson be rated as successful?

I now elaborate on some practical implications related to the presenter-viewer dyad and foreground language and communication barriers as intrusive noise elements of instructional communication and by implication, interaction.

I share the view that teaching is a communication art (Main & Riise, 1995). I also accept the interdependent relationship between source and receiver as described in the classical work of Berlo (1960) and thus it follows that the presenter and viewer must both play an active role in the process of making meaning. Berlo furthermore proposes that the channel, or medium through which something is conveyed, is an active determinant of the meanings humans receive as they communicate, stating that “the choice of channels is an important factor in determining the efficiency and effectiveness of communication” (1960 p. 68). Despite its importance, he posited that it is merely one of several elements of the communication cycle.

In any instructional episode, the primary message being conveyed is the content of the subject material. In terms of the *TeleTuks* project, the nature of television as a mono-directional communication channel complicated the transfer of this message between presenter and viewer and its effectiveness considerably. The lack of visual feedback hindered the interactive process and presenters in particular, experienced a sense of

disconnectedness from the viewers with whom they were communicating. Feedback on the sender's message is thus more than just words but includes subtle non-verbal clues that learners have comprehended. In this regard, the role of site educators as a facilitator of learning appears to be underestimated (Bader & Roy, 1999; Hootstein, 2002; D. M. Moore *et al*., 1991; M.G. Moore, 1995). They could act as local gauges of the learners' satisfactory receipt of the message, indicating to the presenter by phoning in whether the pace of delivery is too fast or whether the level of explanation is acceptable. How to effectively include site educators as part of the instructional team requires further exploration.

Good presenter explanations and full comprehension of the content by some viewers accounted for viewer satisfaction with the broadcasts and implied that these learners had no need to phone in. But although most presentations were skilfully executed and supported by visual cues, the essential dynamics of the teaching-learning dyad were missing: two-way dialogue. While I agree that the responsibility for initiating interaction lies primarily with the presenters (B. O. Barker, 1995; Kearsley, 1995; D. Laurillard, 1993; Van Zyl, 1996) they ought to have engaged viewers as co-participants of the instructional process. The common understanding among participants in a communication episode is that the source (presenter) allows for a response after message delivery yet presenters did not create opportunities for phoning in; neither did they capitalise on other forms of interaction. This supports the analysis of teaching via ITV done by Oliver and McLoughlin (1997) that instructors underutilise opportunities afforded by the medium to assist cognitive interactions. Their study also revealed that instructors use the audio channel to give instructions and deliver content material in an explanatory one-way talk mode. Those questions that presenters posed "tended to be narrow and convergent, requiring little reflection of consideration on the part of the learner" (Zhang & Fulford, 1994 p. 9).

Drawing on the commercial ITV findings of Van Dijk and De Vos (2001) again, the one-sidedness they describe, resembles *TeleTuks Schools* in that the supplier (the equivalent of the presenter in instructional ITV) not only takes responsibility for initiating interaction but also uses more of the total interaction time than does the consumer (learner). Borsook and Higginbotham-Wheat (1991) suggest that optimal interaction occurs when there is a balance of control between the two communicators. Although their study focused on adult learners and the computer, any imbalance in the locus of control diminishes interaction as mirrored in the tightly presenter-controlled *TeleTuks* scenario. My surmise is that in many instances, face-to-face instruction suffers from the same malady.

The literature suggests that not only does teaching via technology require particular skills but that presenters experienced in and accustomed to teaching face-to-face will need to learn new skills and apply different strategies to be successful (T. Anderson, 2002; Butcher, 2002; Cyrs & Conway, 1997; Luck, 1997; Nahl, 1993; Price & Repman, 1995; Rao & Dietrich, 1998). Presenters and learners alike need orientation and training in using the medium effectively. According to Cyrs and Conway (1997) the lack of staff training is "the Achilles heel of teleteaching" (p. 20). Lochte (1993) designed a five day workshop for sixteen participants while Van Vollenhoven (1999) proposes a similar course aimed at orientating both the presenters and viewers. However, both these models are too condensed in terms of time and attempt to replicate face-to-face teaching rather than capitalising on the unique capabilities of the delivery mode. Self-help guides like those designed by Greer (1995) Klivans (1994), Lawyer-Brook and McVey (2000) as well as the definitive guide by Cyrs and Conway (1997) are better suited to the working schedule of presenters who can consult the relevant sections in their own time after a technical orientation in the studio. Although Beaudoin (1990) makes explicit recommendations regarding presenter guidance and states that "training be continued until instructors have developed protocols for teaching at a distance and have mastered the teaching technologies" (p. 27-28), further research needs to be done on the type of training ITV presenters require in order to be effective distance instructors. As Whittington (1987) citing personal communication with Bergin tenders "Television instruction is neither superior nor inferior to traditional classroom presentation. The question is not which medium works best, but what is effective instruction?" (p. 54).

I next refer to the chunking of content discussed earlier in Chapter 4, and specifically to the term *grain size* as a key ingredient for instructional interaction. This concept denotes the length of time that a communicative sequence takes to complete before a next one can be initiated. By implication the longer it takes before a learner can interrupt or take action the less likely there is going to be interaction (Borsook & Higginbotham-Wheat, 1991). Teleteachers may thus need to reconsider the rigid structure and very controlled presentation of their lessons since their current methodological approach does not encourage participation.

Where instructor and learner are separated by distance, participatory activities (interaction) requires careful planning and instructional design well in advance of the teaching situation (Kruh & Murphy, 1990; MacKinnon *et al*., 1995; Monson, 1978). By implication, teleteachers require a sound understanding of interaction as an instructional

tool and should know how to design technology-mediated learning opportunities that entail more than just posing a question and awaiting an answer. Having said that, an underestimated element of communication is the use of what Barker (1995) terms, "structured silence" (p. 8). Effective use of this powerful tool would allow learners to intra-act *i.e.* reflect and process in silence while engaged with content. Presenters were inclined to give instructions and then fill the silence with repetitive comments and distracting remarks. Presenters need a well-grounded and coherent perspective on higher order thinking skills, methodology and using television as an effective teaching medium. Besides the importance of training and adapting for ITV, the optimal choice of instructor may lie in personality rather than experience and teaching expertise as Main and Riise (1995) suggest "Distance learning may depend even more on instructor charisma and style than the traditional classroom in which case instructor characteristics are important to examine in terms of their effect on interaction" (p. 11). Hardin (personal e-communication, 16 February 2004) too, believes that ultimately the deciding success factor for student participation and satisfaction is the presenter's personality. This variable also emerges as a possible research avenue.

Although I have not approached this study from a pragmatic point of view, certain research findings suggest constructive strategies for improving current programmes by a change in practice *i.e.* the way in which presenters' structure and present content to remote learners. Apart from restructuring design, demands made on interpersonal communication skills are even greater when students are not physically present cf. telephone tutoring (Pugliese, 2000). I turn now to discuss the implications of learners' poor English proficiency as a barrier to interaction.

It is common linguistic knowledge that second language learners' receptive skills (listening and reading) are more developed than their expressive skills (speaking and writing) until they achieve near-native proficiency in the target language. By implication, viewers would understand the English used during instructional sessions better than they would be able to express themselves in the same language. Although eleven languages are officially recognised in South Africa and all have equity of status but not necessarily of use, English enjoys an unparalleled standing despite its colonial legacy. Mkabela and Luthuli (1997) term this, "linguistic dependency" (p. 50) and point out that "Competence in multiple African languages has not been permitted to outweigh the handicap of not speaking the imperial languages … and it is internalised that [English] is as superior as its native speaker" (p.51) thus substantiating why being able to communicate well in English is generally considered a status symbol in South Africa. Respondents may therefore have

claimed to comprehend all the presenter said and believe that they had no problem rather than admit to limitations regarding their own fluency of expression.

While the vast majority of South Africans are at least bilingual, only 8.2% of the total population of 44,8 million people, claim English as their mother tongue. This figure primarily comprises 39,3% of the White community and 93,8% of the Indian (Asian) community (Statistics South Africa, 2001). Many respondents claimed to be bilingual and even multilingual and showed a strong preference for using English at home (19.4%) and especially among friends (58.4%) yet one of the reasons why some learners did not ask questions relates to their limited re-coding ability, which in turn is linked to expressive language deficiency. In the case of *TeleTuks* viewers, upon receipt of a message coded in English they can only internalise this message after a complex cognitive decoding process that furthermore entails translation into their primary language. This dual process of interpretation is followed by attaching meaning to the message from their personal context (Freysen & Briel, 1991). By the time this process is complete, linguistic input by the presenter (sender) has been so great that the viewers have no time to formulate feedback, let alone in an unfamiliar code. I adapt Freysen *et al*'s (1991) definition of *re-code* to mean the act of formulating a reply to a particular message. This extract encapsulates the difficulties related to re-coding in a second language:

> *I think that the worst thing about teaching Black children through the medium of English is the fact that they don't form proper concepts in their own language because they stopped using it fairly early in their primary schools and they never acquire enough English, I'm talking very general now, of course there are lots who managed to overcome this barrier. But a large number of them, … they don't have good ability in their home language and they don't have ability in their second language. They fall in between the two. Now if you, particularly in English if you give them some concepts and they don't understand them, they don't know how to ask about them. They don't know how to formulate a question in English because they are not sure what you are talking about. I suspect with a lot of them, … if they loose a thread at the beginning of a class, they've lost it* (P3: 55 64-77).

Those viewers who had enough confidence, ventured interaction regardless of their proficiency. This draws attention to the increasing allure of English as a preferred instructional lingua franca in the South African education system and its ensuing consequences for learning and teaching. The mastery of oral language, as the prime code of not only social communication but also learning, remains a variable that needs further investigation.

In order to improve interaction at a distance, learners may need to be taught how to take responsibility for their own progress becoming active participants in the learning process

rather than passive receivers of information. They may, for instance, need to develop questioning skills and conversational strategies as well as learn the language structures for *e.g.* interrupting with a question ("*May I please ask you something*?" or "*I have a question, please*?"). This would include appropriate points at which to break into the discussion as well as means of turn taking. Viewers need to realise that their academic success rests primarily within themselves. Here too, lies unexploited research potential.

5.3.2 Mismatch as intrusive interference

While engaging with learners in the rural areas, I became aware of a tension between what I was hoping to achieve and what they wanted to gain from a discussion with a researcher. I embodied the University of Pretoria thus regardless of my role as academic, I was a university representative and could therefore answer questions relating to enrolment, application forms and life in the city. This was a critical incident that alerted me to several other factors that were at variance with each other. I identified two domains that created cognitive and affective uncertainty as I grappled with and reflected on the data: my initial propositions that were not validated as well as a tension that existed between policy and practice.

I now explain in what way my initial propositions about why learners were not participating were surprisingly disparate with the eventual findings listed in *§4.5 Discovery channel: main findings*. In the first place, I was caught off guard by the exceptionally poor rate of interaction evident during broadcasts. The anticipated level of limited interaction was so low, that I had to adjust my research strategies, substituting a content analysis of interaction types for a generic evaluation of the telelessons.

Secondly, contrary to the initial hypothesis that guided this study, language proficiency was not the primary reason for lack of learner responsivity during interactive television instruction, despite viewers' expressive skills being limited. Learners sounded fluent but their actual performance was below par and at times incomprehensible yet they perceived themselves as good speakers of English. Although the English proficiency of the participants in this study is seemingly deficient in several respects, this variable can still not be isolated as the only compounding factor. Furthermore, the overwhelming support for English despite few educators having full proficiency in English as well as it not being the primary language of educator or learner, creates a mismatch between the medium of

instruction and the learners' dominant language. This semantic noise merits an in-depth inquiry with regard to its effect on learning.

Thirdly, presenter-related factors, rather than limited learner language proficiency combined to ensure low reciprocity in the viewer audience. It is now evident that the presenters played the compounding role in stifling interaction. Certain elements of instruction are common to all delivery modes and judging from the calibre presenter who is appointed to teach, one could have expected that "all good teachers go through such a process [planning], however tacitly and informally by means of which objectives are set, students are analysed, instructional strategies are selected and effectiveness evaluated" (Win, 1989 p. 37). However, despite their teaching experience, meticulous preparation and good face-to-face track record, these presenters were ignorant of their target audience's frame of reference, needs and level of proficiency. This mismatch of preconceived ideas and reality resulted in inadequate instructional design and delivery and as a corollary, silenced the recipients of the instructional message. A mismatch also existed between what was being presented and the learners' prescribed work or school schedule. The extract below glaringly illustrates how out of tune parts of the instructional message were:

Interviewer:	*Do you understand everything the presenter's saying?*
Learner:	*Yes.*
Interviewer:	*And you wouldn't ask a question either?*
Learner:	*When they talked about Macbeth and they do tell us about what to have about Macbeth but we don't have Macbeth.*
Site educator:	*They are not doing Macbeth. Those are the things you should tell those people are difficult because they bring Macbeth and we are not doing Macbeth*.
Interviewer:	*OK. What's the Shakespeare you are doing? Julius Caesar?*
Learner:	*No.*
Interviewer:	*You don't do Shakespeare? What are you doing?*
Learner:	*Handful of Life.*
Interviewer:	*Handful of Life. Short stories* (P1:1354-1367).

It is to be expected that learners would not have any questions if what was being discussed was unrelated to their needs or subject choice. I had hypothesised that the primary causal factor of poor interaction resided with the learners, in particular their English proficiency. It has, however, since materialised that the presenter played a far greater role in orchestrating or oppressing interaction than initially realised.

A fourth assumption among presenters had been that learners were not interacting because "it's not in their culture". Both educators and learners unanimously refuted cultural reticence as an explanation for low levels of interaction. This false perception

highlighted instead presenter ignorance of changed customs. Lastly, another initial supposition had been that learner inhibition caused low rates of interaction, yet this variable had a negligible influence on participation rates and seemingly pertained to limited language proficiency instead.

I had not anticipated these five incongruities.

The second area of definite mismatch suggested by the data existed between policy and practice. At times we had thought that broadcasts were being beamed into a void and that no one was making use of the service. This was disproved during the pilot study although it became evident that the daily broadcasts were not as well attended as those of the winter school. Low attendance would account for reduced interaction. Management had been under the impression that all seventy-two *TeleTuks Schools* were involved and many learners watched each afternoon when in reality only 14% of respondents did so. In addition, they believed all schools were connected to the studio by a telephonic landline, which was not the case. Such technological limitations were obvious but unanticipated reasons why learners could not phone in to the studio and accounted for some of the poor levels of interaction. As explained earlier, presenters too were considered experienced and thus effective yet their ITV skills and understanding of distance education principles and interaction were limited.

The potential of the telelessons to serve as an auxiliary training service has already been suggested by Sedibe and Evans (2000) yet *TeleTuks* planners had not anticipated any other target audience than Grade 12s preparing for their exit exam. Remarks that educators had apparently benefited from watching the telelesson as in-service training may oblige investigating such possibilities:

> *I think it's an excuse on the part of the teacher* [to phone in]. *I think a teacher needs an explanation. You've touched on something that the teacher hasn't been able to explain to the pupils, the pupils might identify - they might have asked the question to the teacher, but the teacher has got no idea on how to actually answer that question and I think that does touch on the qualifications, and not always what they should be and maybe that's why they don't really want to be identified, but it is, it's sort of, almost like upgrading teachers' qualifications than teaching pupils. The questions that I have had, I get that feeling* (P11:41 55-63).

> *I do think that it is also an aid that you can upgrade teachers' qualifications. That is something, if this whole project could also be extended to something like that, I think we would probably achieve a hell of a lot more, so you would have teachers involved, and maybe they would encourage pupils to be involved in a different way, maybe a dual system. Upgrading teachers on the one hand and those same teachers' pupils and maybe the teachers can say "It's not that intimidating, it's not that bad" maybe that way things…* (P11:16 157-164).

> *You see actually I've learned a lot out of her presentation, because some of the things that I was unable to can* (unclear) *... in a manner of speaking I'm in a position to can do that*…(P18:8 112–114).

Furthermore management assumed that technicians were performing effectively while in fact their not being on task, and not exploiting technology to enhance delivery created frustration for both viewer and presenter. Inadequate technician support may have further contributed to low levels of responsivity in that visual material could often not be seen and thus viewers could not reacted upon any instructions that may have been given. With so many factors at variance with each other, a final surprise was that in spite of the many limitations, the project enjoyed overwhelming support from all role players while presenters and viewers alike expressed their appreciation for *TeleTuks* programmes:

> *There's nothing wrong with your stuff or with the TeleTuks or anything I mean, according to me everything was fine and whoever came up with the idea, it was a brilliant idea. It's helping* (P1:118 530-532).

Presenters, with one exception, had a gratifying teaching experience:

> *Very definitely, last year for instance I had a number of calls, and especially during break time, during the winter school, I had one head boy phoning in expressing his deep gratitude for us taking the time presenting these things in such a lucid and laid back way. And especially the passion in* [sic] *which we present mathematics. So yes, I've never had any negative comments, I think the learners are exceedingly eager to learn. I think they see this as a major mechanism that could possibly help so I really think it only does a whole world of good, feedback has been superb, magnificent* (P13:19 212-219).

> *Ja, those moments when the learners phone and say to me: "I'm going to study engineering and this will help me pass". That sort of thing, and "Sir, I hope I can meet you on campus." That really stands out and one chappie has come up to me and said hello to me during February, and that really made a whole world of difference. That said to me, keep on doing what you're doing* (P13:21 232-237).

> *I think what stands out most is Faith coming to me saying that she has sat with this class in Hammanskraal and how much they love it and how much it means to the teacher and to the learners and how grateful they are and to think that I'm actually touching the lives of other people in this way and whenever I start, I'm hoping that I actually would make a difference to somebody. So that's the best thing about it and if I manage to do what I've prepared and finish by half past three, that's great* (P14:21 209-215).

Despite these positive accounts, it would be prudent not to equate enjoyment with learning as no evidence of knowledge or skills acquisition was sought. This study has not in any way investigated the efficacy of the ITV delivery mode or the effectiveness of the instruction. Here too, is another unexplored research avenue.

These mismatches in expectations, needs and application were definite hindrances to effective interaction. In communication theories, anything that interferes with the delivery or interpretation of a message is classed as noise. Not only were these mismatches intrusive, but also in several instances, there was static and "snow" in the box. By this I mean that although the presenter's message had been formulated carefully and had been delivered to the Grade 12 viewers via available technology; it was distorted in such a way by several factors that the viewers' response was not aligned to expectation. In view of the above divergences, I propose as a theoretical contribution, a theory of instructional dissonance. Yet even as I formulated this proposition, a mismatch arose between what I had thought was my unique coinage of a concept but which, in fact, has wide scientific usage in various disciplines.

In media studies, the effects of mass media are often described using the terms, dissonance or resonance. All messages conveyed to a mass audience are potentially a source of dissonance to someone i.e. offensive and may be ignored or rejected. Dissonance occurs when two cognitive inputs are not aligned and psychological discomfort arises. Media producers attempt to sanitise messages in order to reduce such negative effects. Resonance on the other hand, is not the converse of dissonance but is used specifically in the realm of television to describe the close alignment between what viewers see on TV and their perception of reality i.e. the TV message reinforces or confirms their experience of the world and by implication the message must be credible. (Watson & Hill, 2003). My naïve smugness was further confounded by an impromptu *Google* search that spawned 70,800 hits for a key word search using "*dissonance in education*". I selected three articles from the field of Educational Psychology, which , explained a mismatch of some form in the students' learning environment. These studies were undertaken with higher education students in Finland (Lindblom-Ylänne, 2003), and Australia (Boulton-Lewis, Wilss, & Lewis, 2003) as well as with Israeli and UK students (Wisker, Robinson, Trafford, Creighton, & Warnes, 2003). Phrases used to described dissonance in the learning environment included: *incoherent patterns, converse terms e.g. dissonance – consonance, atypical combination of aspects, do not fit together, frictions, did not adapt to learning environment, fails to match, counterproductive, incongruent, breakdown or lack of coherent linkages, exhibited confusion between …, not compatible, clash or gap, non-alignment, disintegrated perceptions and approaches.* An appraisal of these phrases suggests that dissonance is always expressed between two variables; usually one actual and the other perceived *e.g.* students' conceptions of learning and their actual study behaviour or hoped for achievement and actual outcomes. These phrases also carry negative, detrimental associations.

My formulation of instructional dissonance hints at some of these characteristics but incorporates elements of communication rather than facets of the learning experience. By this I mean, instructional dissonance is the ignorance or denial of hindrances, barriers and distortions that permeate and negatively affect interpersonal communication between the instructor and student. Instructional communication is successful but not meaningful *i.e.* despite a carefully encoded message, which is sent untrammelled and also decoded (acknowledged) successfully, a mismatch of meaning (sense, utility) occurs. In order to start creating instructional equilibrium again, I underscore the importance of a meticulously encoded instructional message coupled with effective lesson design and apposite presenter behaviour during content delivery. In order to restore full balance, dynamics relating to the learners and technology also need consideration.

I may have been momentarily disillusioned to discover that the dissonance theme was not my unique nugget although my slant on a definition does differ. However, the realisation that all three these researchers (Boulton-Lewis et al., 2003; Lindblom-Ylänne, 2003, (Boulton-Lewis, 2003 #349, (Wisker, 2003 #348; Wisker et al., 2003) admit to dissonance only being evident after qualitative measures were introduced, reassured me. As Wisker *et al* (2003) acknowledge, the use of positivistic quantitative methods “fail[ed] to capture attitudes, feelings and developments” (p.92). In statistical terms, dissonance was an outlier sans numerical significance and not identified until a qualitative methodology was used. It has also been the choice of such a methodology that steered my deeper understanding of poor reciprocity in this study.

While several of the researchers with whom I communicated during my study have moved over from using ITV to web-based learning, I remain of the opinion that instructional television is still a relevant and unexploited medium within the South African context. Neil Butcher – editor of the Southern African Network for Educational Technology and e-Learning (SANTEC) electronic newsletter[24], reckons that my research is "well-timed" (personal e-communication, 8 January 2003) given the many educational developments taking place in RSA currently. Several large-scale proposals for the Presidential National Commission of Information Society and Development have been put forward with special

[24]SANTEC replaces the Telematics for African Development Consortium (TAD Consortium). This new network officially started operations on 5 June 2003 and aims to draw together individuals, institutions of higher education, relevant industrial organisations and other relevant institutions in Southern Africa as a learning community in an ultimately financially sustainable programme of research, training and professional services in Educational Technology and e-Learning thereby creating regional connections and effecting synergies among members. SANTEC membership is free and open to any individual or organisation with an interest in Educational Technology and e-Learning in developing environments, and particularly in Southern Africa. This electronic service assists those using information and communication technologies to improve the quality of education in the developing world.

reference to simultaneous multiple language on-line content development. A cursory survey of national government initiatives (Bridges.org, 2002) indicates moves to expand satellite-based education and training to various remote locations. Links with industry are also envisaged. Liberty Foundation is also about to launch a dedicated educational channel on *MultiChoice*™ and may well need data on programme development or choice of instructional language. Apart from taking cognisance of my findings when designing new ITV projects, another implication for practice, may be to resuscitate previous projects and run them more successfully this time round.

With reference to the interpretive significance of my findings, my study has pushed back the frontiers of knowledge by documenting a single institutional ITV experience in a developing country context. I have foregrounded the role of interaction in instructional television and suggest that this variable may be redundant in circumstances where technological resources are less sophisticated. However, I deem that instruction via this mass medium may still be effective without synchronous interaction. I also focused on the proficiency of learners in the language of instruction not addressed elsewhere within an ITV context and suggest that it plays a more significant role in academic progress than currently acknowledged. The mismatches relating to expectations and needs of role players also emphasise the importance of carefully formulated messages in an educational transaction potentially making my findings applicable to any blended means of instruction such as video-conferencing and even face-to-face. My reversal of the paradigm where the traditional classroom has always been the point of departure by which other methods have been gauged, is deliberate. Firstly, since face-to-face instruction *per se* has imperfections and lessons learnt from ITV could be used to improve chalk-face practice. Secondly, the distinctive characteristics of a particular technology need to be maximised in context rather than seeking to replicate classroom instruction.

5.4 Recommendations for further research

Any qualitative investigation uncovers more to scrutinise and whether one pans the horizon in a wide angle shot or creates depth of field by focusing on a single facet, much remains unseen. The instructional television landscape with its videoconferencing applicability is rich with possibilities for advanced research in educational issues. New frontiers to explore relate to the instructional process as well as the role and responsibilities of educator and learner within this context. I made suggestions for future

research intermittently and here topically group those, and others that have emerged, as critical questions:

Topic 1: Interaction as an essential construct in the teaching-learning environment

- How does the concept "interaction" apply to varying contexts? To what degree can interaction be effectively achieved in a geographically hampered learning context? What is the contribution of interaction in contemporary distance education?
- Are the concepts of interaction and feedback also key elements of communication theories related to mass media? Does face-to-face instruction not suffer from the same malady?
- How does interaction affect learning? Is interaction a necessary and sufficient condition for deep learning? Does interaction improve performance or the quality of learning?
- What is the quality of learning in telelessons with and without interaction?
- How can dissonance be minimised in instructional communication?
- To what degree can distance education theories regarding *e.g.* transactional or psychological distance be applied to enhance face-to-face instruction?

Topic 2: The instructor-learner roles and responsibilities in the mediated learning event.

- How best can the selection of presenters (and site facilitators) be effected? What variables comprise the profile of an effective ITV presenter? To what degree is the presenter's personality the deciding success factor for student participation and satisfaction?
- What type of training would ITV presenters require in order to be effective distance instructors? What about quality control of ITV instructional design and delivery techniques?
- What viewing behaviour would ensure effective engagement during the learning opportunity? What is the efficacy of observational learning?
- How can learners be taught to take responsibility for their own progress and become active participants in the learning process? Is academic success directly related to learners' attitude and motivation?
- Which type of learner interacts during a learning event and why? Do different age groups/academic levels interact more readily?
- In what way could site educators assist in the facilitation of learning via ITV? To what degree could vicarious learning be taking place in site educators who watch

exemplary telelessons? How could this service be extended effectively as an auxiliary in-service training?

Topic 3: The role of the language of instruction in the learning event.

- How important is the mastery of oral language as the prime code of not only social communication but also for learning? What is the role of the language used for teaching (LOLT) in the learning process? What is the effect of the LOLT as opposed to mother tongue education? Why the allure of English as preferred medium of instruction rather than mother tongue instruction?
- What questioning skills and conversational strategies do learners whose mother tongue is not English need to acquire before using ITV successfully?

Topic 4: The role of the channel or medium in the instructional event.

- What is the suitability and efficacy of television as an educational delivery mode in a developing country?
- How does the delivery mode (*i.e.* television as a conduit for content) impact on the rate of learner participation during interactive TV lessons? Does type and rate of interaction differ when using different technologies?
- Is synchronous verbal interaction vital in a learning environment mediated by technology?
- To what degree does "edutainment" contribute to the learning experience?
- How appropriately can the content of the Learning Area: Languages programme be taught via instructional television?

Topic 5: Suggested developmental work

I envisage the development of a generic ITV training course, which could be adapted for specific contexts. Modules to include relate to training technical crew, training site educators to facilitate the learning experience, orientating learners to using the technology as well as appropriate viewer behaviour, effective instructional design and delivery for presenters, suggestions for maximising interaction, as well as the implementation of post-transmission *i.e.* asynchronous support systems for both students and site educators.

5.5 Epilogue

In this chapter, I have presented my interpretation of the findings representing the key constructs of the *TeleTuks Schools* project and conclude that the rate of learner participation during interactive TV lessons was not influenced by an isolated factor as originally conceived but rather a combination of variables. Although these variables influenced certain broadcasts singly, the ITV presenter as initiator of communication played the weighted role overall regarding the lack of interaction. Having outlined the implications of my study for theory, practice and for further research, I conclude with certain reflective comments in my closing shot before the credits roll.

The rumours relating to the future of the *TeleTuks* channel alluded to in *§1.7 Anticipated research constraints* are no longer whispers. A University of Pretoria draft report (T. H. Brown, 2004) outlines the proposed termination of the *TeleTuks Schools* project at the end of 2004. The cost of renting the satellite channel has become prohibitive. Large monetary donations have dwindled over the past few years as companies judiciously select charities or organisations that offer the best publicity mileage. Furthermore, although outreach programmes are a component of the University's role in the community, research and teaching are core business areas. Even though interaction with secondary schools as providers of undergraduate enrolments is vital, the University can no longer cross-subsidise projects with low return on investment. In addition, lecturers are becoming more e-literate and prefer to design web-based modules and use videoconferencing as a means of interacting with students resulting in fewer tertiary programmes offered via ITV. Current e-technologies, video-conferencing in particular, offer better synchronous interactive possibilities and are also more cost-effective for supporting small groups of students as only actual airtime is charged. Yet there is also some prejudice relating to IT popularisation and instructional television having lost its technicolor *i.e.* being outmoded which underscores "the fickle romance between educators and technology" (p. 4) described by Cuban (1986).

Embracing this next technological wave with more fervour than ITV, can perhaps be ascribed to what Jackie Fenn – an analyst for *Gartner Group*© - has coined the *Hype Cycle* (Addendum 28). He created this term in 1995 to illustrate what happens when new technologies are introduced: a sequence of user emotions manifests in a peak of unrealistic expectations of the product followed by a valley of disappointments. Only later do users truly understand the benefits, risks and applicability of the particular technology. The final height of the plateau varies according to how widely the technology can be applied or whether the benefits are limited to a niche market (McFedries, 2001). This switch from instructional television to an on-line learning environment reflects global

trends but may not be advantageous in a developing world context. Apart from access and connectivity hurdles, computers, unlike television sets, obligate individual rather than communal use which is disparate with the more collectivist culture evident in many developing countries (Du Plooy-Cilliers & Olivier, 2001; Mkabela & Luthuli, 1997; Van Staden *et al*., 2002). Furthermore, the literacy skills required for computer-mediated learning rely on the more sophisticated skills of reading for information and then reacting by typing written text. Television instruction, on the other hand, relies primarily on the basic oral skills of listening and speaking; modes of learning more familiar to those sharing a collectivist culture.

Apart from these social reasons why ITV could be a preferred medium in a developing country, the noticeable on-line shift in industrialised contexts does not imply that ITV as an instructional medium in developing countries is obsolete. Education providers may well be able to technologically leapfrog developments by implementing strategies and applications already tested in industrialised countries without bearing the accompanying cost of development. Fenn's Plateau of Productivity also recognises the real-world benefits of ITV technology applied within the requirements and constraints of particular educational contexts. This may circumvent the cynical but potentially accurate observation of Bates (1991):

> The history of education is littered with the corpses of technology-based projects that were killed because of high operating costs, problems of adaptation to local conditions, lack of skilled personnel to operate the technologies, and lack of effectiveness (p. 1).

However, despite the mismatches and pending closure of the channel, *TeleTuks* team members have not laboured in vain. After consultation with the studio manager, I conservatively estimate that more than 13,000 Grade 12 learners tuned in to the approximately 1,400 telelessons broadcast between 1996 and 2004 (Addendum 29). Given the dire circumstances in which many South African learners have been compelled to study, even flawed instruction is appreciated:

> *I think that one must realise that the whole project is wonderful in what it's trying to do. It has a lot of constraints as we've been saying, but it is a million times better than nothing. It is a wonderful generous project I think. And we must just look at ways of making it better...* (P14:25 246-248).

My inquiry is based on experience and insight of a unique and essentially personal nature. This is, however, aligned to my ontological and epistemological perspective, which declare that many realities exist and many understandings of reality are constructed by

each world participant. The fruition of this inquiry has added another. It has not revealed ultimate truth but has provided a better understanding of interaction during televised instruction as implemented in a developing country. The strident noises of the opening chapter no longer reverberate so loudly. In most instances, the cacophony has been muted; in others, a melody of anticipation hints. The score can still be revised. Ostendorf's (1989) view suffices:

> Interactive televised instruction offers a means to carry knowledge to the ends of the earth. It is our job to be sure that instruction is educationally sound, and that it makes the most of its delivery mode (p.95).

We thus need to persevere in our quest to understand interaction in teaching and learning contexts, with particular reference to those mediated by technology, since more so in remote areas or where resources are limited, the medium of television in a developing country has unique, instructional potential.