USING INTERACTIVE TELEVISION IN THE IN-SERVICE EDUCATION AND TRAINING OF GUIDANCE TEACHERS

BY

MATSOBANE JOSHUA MAAKE
BA, BEd, MEd (JSTC)

submitted in fulfillment of the
requirements of the degree

PHILOSOPHAE DOCTOR

in the Faculty of Education
Department of Educational Guidance and Counselling
UNIVERSITY OF PRETORIA

Supervisor: Dr F Malan
Co-supervisor: Dr T H Brown
Co-supervisor: Prof L J Jacobs

DEDICATION

This book is dedicated to

my parents

DINAMA KILETŠI JOHANNES (late)

and

MOLAGARE SOPHIA

ACKNOWLEDGEMENT

My special thanks go to the following persons who jointly, and in various ways, contributed to the success of this research project:

- Dr F Malan for her supervision throughout this study. Her perceptive guidance yielded the desired results.
- Dr T H Brown, co-supervisor for his insightful guidance throughout the thesis
- Prof L J Jacobs, co-supervisor for his professional guidance
- Mrs A Grobler for typing the final product.
- Dr R Snyman for editing the manuscripts
- My wife, Matholwane Salmina and our children Kiletji, Lesibana, Molagare, Makgoka, Maite and Mankgowa for their untiring support and encouragement.
- Most importantly, thanks unto God.

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AN ORIENTATIONAL PERSPECTIVE

1.1 INTRODUCTION

Guidance teachers in South Africa in general and in the Northern Province in particular need to update their school guidance knowledge and counselling skills. Kwakwa (1996: 23) mentions that: *Rapidly changing technology implies that new methods of teaching are constantly introduced and that teachers should keep abreast of these changes*. Due to the large distances in the Northern Province, short and regular face-to-face contact courses for guidance teachers are not only time consuming and inefficient but are exacerbated by financial constraints and are not cost-effective.

The modern combination of technologies and the use of educational media through interactive television currently exploited are described by Butcher (1998:117) as *a crisis of confidence in traditional approaches to education, which have often confused education with transfer of information*. This study is focused on how technology is employed in distance teaching to enhance the creation of a supportgiving environment for the distant learner through upgrading guidance teachers and offering opportunities to interact. Aspects for staff development and training that are essential for the study were noted by Koble (1998:5) namely "teaching in the ITV classroom, development of interactive television skills, preparation for teaching in the ITV classroom, designing and developing content for ITV classroom delivery as well as the importance and role of the facilitator".

1.2 PREMISES

The study is based on the assumptions that distance education institutions have been established on the premise that they will:

- Provide in-service education and training at lower costs
- Fulfil the educational needs of the disadvantaged section of the population
- Advocate optimal utilization of various media for didactic communication which will bridge the gap between the institutions and the distance learners
- Promote professional growth of the guidance teachers by influencing the phenomenon of organizational health which includes such factors as social climate, trust, open communication and peer support for change in practice.

1.3 TITLE

The title of the study reads thus: USING INTERACTIVE TELEVISION IN THE IN-SERVICE EDUCATION AND TRAINING OF GUIDANCE TEACHERS. A clearer perspective of the title will be gained by defining and clarifying the concepts in the current study.

1.4 CONCEPT ELUCIDATION

The key concepts that this study employs are: *guidance, guidance teachers, interactive television, in-service education, in-service training, in-service education and training, counselling skills, distance education, distance learners and support-giving environment.*

Table 1.1 reflect the different concepts, the etymological-semantic meanings, their implications for the research as well as their application in this study.

Table 1.1 The concepts and their application, etymological-semantic meaning and implication for the research

1.4.1 The concept *guidance*

Application in this study	Etymological semantic meaning	Implication for the research
The category "guidance" features prominently in chapter five in a proposed model for the in-service training of guidance teachers. The interactive television and telephone equipment were engaged to transmit guidance information from the broadcast site to the receiver and vice versa. The emphasis is on the availability, accessibility and affordability of the technology in providing the guidance service.	The shorter Oxford English Dictionary (1973: 991) defines guidance as "the action of guiding, directing, agency, leadership or direction". Guidance is a professional function in education, carried out by qualified guidance counsellors as their full time duties. Guidance teachers serve as facilitators in the guidance process. Etymologically the concept "guidance" is derived from the word "guide" which originates from: ▪ German: *weisen* meaning "to show" ▪ Old French: *guider* meaning to "lend", "direct", "conduct" or to "guide" ▪ Danish: *vise* meaning "to point out" or "to show" (Skeat 1911: 225, Klein 1967:686, Weekly 1921: 674 and Barnhart 1988: 455).	The concept in this study implies that guidance teachers are via the interactive television guided to: ▪ act as guide to learners ▪ go with or before the learners for the purpose of leading the way ▪ direct the course of technology enhanced learning ▪ lead or command the opportunities for interactivity Teaching at a distance via interactive television enhances: ▪ Educational guidance where the focus is on providing assistance and advice in school instruction, testing and counselling ▪ vocational guidance, where the student is assisted to find the proper or suitable vocation ▪ personal guidance where the student is assisted to solve personal problems. According to the Human Sciences Research Council (1981: 6) essential features of guidance include that guidance ▪ constitutes an independent subject area in its own right ▪ rests on a particular value system ▪ involves education towards and preparation for adulthood ▪ emerges in the light of a construction of reality which may rest on religious or other principles subscribed to by particular cultural groups

1.4.2 The concept *guidance teachers*

Application in this study	Etymological semantic meaning	Implication for the research
The category "guidance teacher" is the central issue for the in-service training process in chapter three. The Department of Education: National Commission on special needs in education (NCSNET) and National Committee on Education support services (28 November 1997:35): reported that "the capability of existing in-service education courses to equip guidance teachers with skills and knowledge they need to accommodate diversity in their classes is very weak".	The word "guidance" devotes a practice, a process of bringing the student into contact with the world of reality in such a way that he or she acquires life-skills. The word "teacher" refers to a professionally qualified person who instructs and helps students to interact meaningfully with themselves and the world of work. Semantically the noun "guidance teacher" is a hybrid word coined from "guidance" and "teacher". Etymologically the concept "guidance" comes from: ▪ Old French: *guider* meaning to "lead", "direct", "conduct" or "to guide" (Skeat 1911: 225), Klein 1967: 686, Weekly 1921: 674), Barnhart 1988: 455). Etymologically the concept "teacher" comes from: ▪ Middle English: *techen* meaning "to teach", "to show", "to point out", "indicator" or "index finger" (Klein 1967: 1578).	In the research, the implication of the concept "guidance teacher" is that he or she is a professional person of whom sound knowledge and insight regarding the theory and practice of guidance is expected. According to Richey and Seels (in Ely and Manor 1994:3) the theory and practice includes ▪ Designing the guidance instructional programme which involves instructional design, systems design, message design, instructional strategies and learner characteristics. ▪ Developing guidance mediating technologies such as print, audiovisual, computer-based and integrated technologies. ▪ Using the media to promote guidance policies, regulations, diffusion of innovations and implementation of the media. ▪ Managing guidance service involving projects, resources, delivery and information systems ▪ Evaluating the guidance process through problem analysis, criterion-referenced measurement, formative and summative evaluation. The HSRC (1981: 109) revealed that "guidance teachers were usually inadequately trained, had little experience in the subject, were persons without the necessary personal characteristics and were overburdened with other responsibilities". Practically guidance teachers are school teachers assigned the responsibilities of school counsellors. According to the HSRC (1998: 12) the role of the school teacher differs markedly from that of the counsellor. Herring (1997: 241-242) states that "the guidance counsellor has become the school counsellor over the years"

1.4.3 The concept *interactive television*

Application in this study	Etymological semantic meaning	Implication for the research
The concept *interactive television* is the focal point of this study. Its meaning is explained in chapter one. The phenomenon of interactive television (ITV) as a secondary mode for distance education is addressed in chapter two, the characteristics and use of ITV are discussed in chapters three, four, five and six in this study.	▪ Semantically (a study of the meaning of the word) the word: a) *interactive* is the adjective from the verb *interact* which means *to act on each other* (Barnhart, Steinmetz and Barnhart 1990:257); b) *television* means *seeing at a distance* (Weekly 1921:1482; Klein 1967:1582). ▪ Etymologically (the study of the origin and history of words and their meanings) the concept *interactive television* is formed from a) Latin: *antăr* meaning "between" or "inter" (Weekly 1921:766; Barnhart 1988:536). b) French: *agere* meaning "to do something" (Oxford Advanced Learners Dictionary 1991:12). c) Greek: *tele* meaning "far off" or "at a distance"; and d) Latin: *vísiõ* meaning "the act of seeing" (Klein 1967:1582, Weekly 1921:1482). Interactive television is therefore the mode where guidance teachers in the classroom and guidance presenter in the studio act on each other verbally, while teachers also see the presenter on the screen from a distance	The concept "interactive television" in this study refers to audiovisual communication in the classroom between the instructor from the ITV studio and the guidance teachers in the classroom at remote site(s) receiving the ITV broadcasts. The focus is placed on "viewing of distant objects or scene by means of an apparatus which electronically transmits and reproduces it " noted Barnhart (1988:1122). Hackbarth (1996:157) raised several questions concerning the eductional uses of ITV such as: ▪ do learners learn more effectively from ITV than from other support service modes? ▪ can ITV change learner attitudes to learning? The researcher is of the opinion that ITV can decrease the guidance teachers' isolation from institutions, tutors and colleagues. The aim of ITV support is therefore not to replace other forms of previous or contemporary learner support technologies but to complement them. Behera (1995:1) observed that "as a versatile dynamic and powerful medium, the educational use of TV not only encourages the students but demands a continuous appraisal of the ways in which it is or it may be utilized". Interactive television involves real time interaction, and delayed interactions. The researcher noted that many distance educators and distance learners see this as one of the most crucial functions in the counselling role which distance education institutions undertake. Lucas (1996:154) noted that interaction through "telephone communication, complementing ITV in the classroom improved teacher and presenter communication, enhanced learning and add current knowledge to many guidance curricula". Romiszowski (in Media and Technology for human resource development:1994:215) posits that "the utilization of telephone tutorials ... enable participants to be on line at the same time, although they may be separated by distance".

1.4.4 The concept *in-service education*

Application in this study	Etymological semantic meaning	Implication for the research
The application of the concept "in-service education" in this study is found in chapter three and chapter five. According to the Department of Education: Public discussion document (August 1997:29) "all pre- and in-service curricula for teacher education students should be organised around a curriculum that confronts issues of inclusive teaching, accommodation of diversity in the education and lifeskills education". This is supported in the study.	▪ Semantically the concept "in-service" education is the combination of the words "insert", and "service" and "education" referring to "the act of putting some services between the existing process of rendering services". Summers (1995:441) defines education as "**the process by which the mind develops through learning** at a school, college or university" ▪ Etymologically the concept comes from: a) Latin: *insertus* meaning "to put in". The concept "in-service" can be interpreted to mean "learning-while-earning" (Barnhart 1988:988; Weekly 1921:1319; and Weekly 1921:1321). b) Latin: *educare, educare* meaning "to lead out" (Weekly 1921:494) c) Latin: *éducétio* meaning "a bringing up" (Klein 1967: 501). According to Saide (1998:36) the ITV "insert", the "service" and "educate" the guidance teacher who experiences "professional isolation and the lack of communication and support networks between guidance teachers and other guidance experts".	The norms and standards for teacher pre-education and in-service education in South Africa are provided by the Committee for Teacher Education Policy (COTEP). According to the Department of Education (1997:14) "the new policy parameters set by Growth, Employment;Access and redistribution (GEAR), questions of rationalisation, quality, efficiency, effectiveness and educational performance become more pressing than ever". Guidance teachers who must facilitate learning are therefore, mainly those already in the employ of the government. The redress and equity programme initiated under the reconstruction and development programme challenges them to be exposed to an in-service education. In order to develop their minds the South African Schools Act (1996:6) suggests that "there must be better facilities, better teachers, better methods of teaching and better conditions". The researcher observed that despite the structural similarities between education received in all education departments (use of a core curriculum, subject syllabuses and central control of school leaving examinations), the nature of in-service education experiences at classroom level differs markedly from one department to another. Given the politicized nature of education in South Africa, those planning the implementation of in-service education also seriously consider employing interactive television to address the problems arising from the legacy of apartheid. Schools, colleges and universities are increasingly committed to the education programmes that focus on empowering guidance teachers en mass. The distance education materials developer's and/or representer's aim should be to produce the equivalent of a one-to-one tutorial.

1.4.5 The concept *in-service training*

Application in this study	Etymological semantic meaning	Implication for the research
The philosophy and principles of the concept "in-service training" are reflected in chapter three. The use of the ITV will redress what Evans (1991: 51) regarded "as the cafeteria type: short courses lasting from one afternoon up to three days, on very limited budgets".	▪ In-service training is the process of providing on-the-job skills and competence: The concept is a combination of the words "in-service" and "training". The New Webster's Dictionary (1984:1045) defines "training" as "the teaching, drill or discipline by which powers of mind or body are developed". According to the Concise Oxford Dictionary (1995:1479) "training" is **"the act or process of teaching or learning a skill"**. ▪ Etymologically the word a) "in-service" can be interpreted to mean "learning-on-the-job" (Barnhart 1988:988) b) "training" comes from Middle English: "traynen" which means "drawing out" and is formed from "draw along and -ing" (Skeat 1911:567, Weekly 1921:1530, Klein 1967:1639, and Barnhart 1988:1157). In-service training is **the process of being taught or teaching someone especially by exercising**.	The changing conditions such as the accelerated pace of life, striving for success, increasing access to equipment of science and technology, advancements in information and communication media demands continual re-orientation. Specific skills to use technology such as printed material, radio, television and tape are to be developed in the in-service training for guidance teachers. Koble (1998:7) noted that "access to in-service training refers to: a) the guidance teachers' ability to get in-service training and subject matter updates in alignment with resident training. b) getting the needed information to make a determination as to whether or not the in-service training will be beneficial in updating and enhancing current job competencies; and c) available training at no monetary cost to the parent organisation" The researcher is of the opinion that the current guidance teacher's in-service training should be revisited on a continual basis. Mathibedi (1991:132-133) avers that "the impact of in-service training guidance teachers have to be realized in: a) their reactions to the in-service training programmes and training processes b) their learning, that is, increased knowledge and acquired skills c) behaviour change, and d) improved results, that is, improvement in tangible individual or organizational outcomes such as turnover accidents or productivity. The researcher believes that in-service training is the focal point of this study.

1.4.6 The concept *In-Service Education and Training (INSET)*

Application in this study	Etymological semantic meaning	Implication for the research
The concept "in-service education and training" is discussed in chapters three and five. According to Klivans (1994:11) INSET involves "interactive communication in the class between the guidance instructor at the broadcast site and the guidance teachers at the remote site(s) receiving the ITV broadcasts" which is the focus of this study. Hartzenberg (1998:110) posits that "guidance teachers should be actively involved and not be passive recipients of many long lectures"	▪ Semantically the acronym INSET are the two concepts of education and training. Millar in Hartshorne 1992:257) argues that: a) one is educated to respond creatively and with judgement to situations and in ways that are unpredictable b) one is trained to carry out pre-defined tasks to pre-defined specifications ▪ Etymologically the concept "in-service education and training" is formed from the combination of the words a) "in-service" which has a sense of "learning while earning" or "learning-on-the-job" (Barnhart 1988:988). b) "Education" meaning "to lead out" (Weekly 1921:494) c) "Training" which means "drawing out". The semantic-etymological meaning emphasises the accessibility, availability and cost-effectiveness for the INSET. The ITV thus can play an important role.	The use of ITV advocate for the weakening of the previously strong boundaries between pre-service education and training and In-service Education and Training (NSET). According to the Department of Education Discussion document (1997:50) "a teacher development centre of the department of education on which provinces are represented, could play a crucial role in co-ordinating provincial (non-qualification) INSET programme and national (qualification) INSET programmes for school teachers. According to Hartshorne (1992:257) "INSET has to do with bringing about teachers' professional, academic and personal development through the provision of a whole series of study experiences and activities of which training should be rated as but one aspect"" Models such as distance education through interactive television as well as in-service education and training teacher centres such as Kwena Moloto in the Northern Province lend themselves for both quality and quantity education. Interactive television media could be enlisted as a supportive mode of transmitting information. The South African Institute for Distance Education (Saide 1998:36) maintains that INSET through the ITV will address "professional isolation, the lack of communication and support networks between guidance teachers and other stakeholders".

1.4.7 The concept *counselling skills*

Application in this study	Etymological semantic meaning	Implication for the research
The concept "counselling skills" is found in chapters one, three and five. Counselling functions in this study are divided into two: a) Assisting guidance teachers to manage their own learning effectively and b) counselling regarding more personal problems that interfere with a guidance teacher's learning. Hagger, Burn and McIntire (1995:10) believes that "guidance teachers need to develop new counselling skills using their own distinctive expertise" supported by the use of ITV.	▪ Semantically the concept "counselling skills" refers to the guidance teacher's ability to deal with a) oganizational issues such as study management, essay writing, answering multiple choice questions and the institutional system c) emotional issues such as motivation, self-esteem, anxiety, personal problems and stress management to mention but just a few ▪ Etymologically the concept "counselling skills" comprise the words: a) "counselling" which refer "to a helping process" (Nelson-Jones 1981:2) b) "Skills" which means "the ability to do something well". INSET through the use of ITV may equip the guidance teachers with listening, clarifying and reflection skills. According to Dubery, Du Pisani and Sedibe (1999:70) ITV develops the teaching skills of the guidance teachers themselves".	The ITV presenters, for example, Panda (in: Media and Technology for human development 1994:232) maintains that "research studies on ITV programmes focused on either the perception and the utilization of the programmes or on its effect on participants, learning and –behaviour". This study attempts to establish whether the ITV equipment and counselling skills are made available, accessible and affordable to the guidance teachers in the Northern Province. Guidance teachers need the ITV complementary support in acquiring basic counselling skills so that they in turn may create a "helping culture" in their respective schools. Guidance teachers encounter learners, during the ITV sessions, who are in need of counselling intervention to help them cope with masked or more serious problems that affect their studies. According to the Department of Education White Paper 4 (25 September 1998:41), the ITV "providers will need to give guidance teachers access to up-to-date labour market information, indicating skills shortages, career opportunities and trends in the job market". Guidance teachers could be in-service trained to handle ITV as a medium in which there is the possibility of immediate interaction and feedback. As lay counsellors they may also use ITV as a medium in which the feedback and interaction is not necessarily immediate. This means that access is at the other person's, for example the guidance presenter's convenience.

1.4.8 The concept *distance education*

Application in this study	Etymological semantic meaning	Implication for the research
The application of the concept "distance education" is found in chapters three, four and five. Slabbert and Brown (1994:82) aver that "Distance education is increasingly regarded as a panacea for contemporary needs with regard to the provision of education, especially in South Africa".	▪ Semantically the concept "distance education" is a combination of the words "distance" and "education" which means "education that takes place at a distance" ▪ Etymologically the concepts: a) "distance" comes from the Greek word *Telé* meaning "far off" or "at a distance" (Klein 1967:1581, Weekly 1921:347) b) "Education" meaning "to lead out" (Weekly 1921:494). The concept conveys a sense of reaching out to guidance teachers who are far off in remote and previously disadvantaged environments for purposes of leading them out. The HSRC (1998:11) maintains that distance education can take on a variety of forms, sometimes offered in combination with each other".	Shale (in Moore 1990:337) rightly pointed out that "when distance education emerged in the 1970s and 1980s, it was an extension of the principle of mass education". Distance education through the use of ITV will expose an increased number of guidance teachers to quality education at the reduced travelling costs. Distance education through ITV technologies is a development that takes international, national and local guidance and counselling trends in education innovation into account. According to *Die Tukkie* (August 1999:8), "distance education brings education and training to guidance teachers wherever they are through the establishment of flexible learning environment". Distance education allows greater flexibility from entrance to and exit from learning programmes. It also allows greater flexibility to modes in which teaching takes place, programme compilation and valuation as well as flexibility in time and place of study according to the pace at which learning occurs. ITV can be used to support learning based on the integration of contact tuition, paper based distance education and electronic education.

1.4.9 The concept *distance learners*

Application in this study	Etymological semantic meaning	Implication for the research
The application of the concept "distance learners" is found in chapter five. Distance education exists to serve distance learners, in this case, guidance teachers mainly from remote, rural and previously disadvantaged communities	▪ Semantically the concept "distance learners" refers to all learners, ranging from early childhood education through to adulthood who are remote or separated from their educators". In this study "distance learners" are all learners who are exposed to teaching through the medium of ITV, including "pupils", "students" and "educators" ▪ Etymologically the concept is a combination of the words a) "distance" which means "across an amount of space between two points or places" Oxford Advanced Learner's Dictionary (1991:349) b) "learners" refers to someone who concentrates on intellectual actualization, including in its scope - bodies of knowledge such as knowledge of values and norms - skills useful for communal existence" (Van Rensburg and Landman 1986:459)	According to Hillesheim (1998:31) barriers to success for distance learners through ITV may fall into three categories, namely, personal, situational and problems related to the technology online. The primary focus of the guidance course presenter in the studio is to assist distance learners in ways that will be close to face-to-face contact. The use of ITV is focused on the removal of distance learner isolation. Rural, remote and marginalilsed guidance teachers are characterised by low expectation for academic success, need for greater amounts of feedback, higher level of insecurity in their ability, a tendency to believe that their experience are illegitimate, a potential to procrastinate and lack of discipline. Distance learners' situational problems relate to incongruence between reality and career expectations, time available at school, family obligations and funding possibilities. Distance learners may also experience problems related to the technology involved in the interactive television classroom. Distance learner's concerns relate to learner needs which can be divided into support services and roles and functions.

1.4.10 The concept *support-giving environment*

Application in this study	Etymological semantic meaning	Implication for the research
The concept feature in chapters two, three and five. The researcher advocates for a paradigm shift from "a focus on either the perception and the utilization of the ITV programmes or on its effect on participants' learning and behaviour" (Panda 1994: 232) to the creation of a support-giving environment.	▪ Semantically a "support-giving environment" will empower guidance teachers to: - explore their possibilities and related opportunities - discover personal potential and opportunities for realisation - evaluate the level of self-realisation and - understand and accept their own limitations ▪ Etymologically the concept support means to "give help" or invest power to empower. a) Support may be provided by or through - education support personnel - members of the learning community and - assistive devices c) "giving" meaning "to cause somebody or something to have or receive". d) "environment" meaning "conditions" or "circumstances affecting people's lives. Oxford Advanced Learner's Dictionary (1991:403, 522, 1292).	According to the Department of Education Summary of Public Discussion Document (August 1997:14) "Support services should move away from only supporting individual learners to supporting teachers and the system" The use of the ITV will create a support-giving environment for the guidance teachers. They will also be empowered to recognise and respond appropriately to the needs of all learners and thereby promote effective learning. According to Malan (1999:12) "The guidance teacher's role is no longer one of selection and gatekeeping but of facilitation of personal responsibility and the development of skills to achieve fulfilment socially, academically and personally". Support required by guidance teachers include: teaching and learning support, general and career guidance and counselling, various forms of therapeutic support, in-service training and technology enhanced environment. The ITV is just but one supportive mode needed.

1.5 STATEMENT OF THE PROBLEM

1.5.1 Introduction

Jacobs, Haasbroek and Theron (1992:102) rightly pointed out that "The formulation of the problem demands exact wording of the essence of the matter as a prerequisite for effective hypothesis, selection of research procedures, research planning and the interpretation of research results". The problem therefore is that the working environment of the guidance teachers in the Northern Province are void of media and technologies and offers no opportunities for technology enhanced classroom interactivity. Refer to Annexure E: Map of Northern Province Department of Education, Arts, Culture and Sports.

1.5.2 Problem formulation

According to Behera (1995:47) "studies related to the impact of television on the classroom learning are directed to find out whether classroom learning can take place more efficiently by using this medium, in comparison to traditional teaching, what subjects and skills can best be learnt, and how effective is the classrooms learning". Shale (in Moore 1990: 337) noted that "when distance education emerged in the 1970s and 1980s, it was an extension of the principle of mass education". Accessibility, availability, affordability and urgency of quality information through interactive television technologies constitute a major concern for the in-service training of guidance teachers in the Northern Province in South Africa. Nelson (1997: 9) and Van Wyk (1991:10-11) believe that "media and technological illiteracy are posed as a major threat to the attempts for the acquisition of, utilization of and perceptions on the interactive television systems.

The National Education Policy Investigation (NEPI) Support Services (1992: 24) reported that "...guidance and counselling services continue to be almost non-existent in the African Schools". It further highlighted that "while whites, coloureds and Indians have had access to tertiary training leading to the attainment of specialized guidance and counselling,

degrees and diplomas, the African education departments have primarily been dependent on *ad hoc* in-service training programmes provided by non-governmental (NGO's), tertiary institutions and government departments" (NEPI 1992:26).

This study attempts to investigate the problem of guidance teachers in the Northern Province as an example of a rural area with severely disadvantaged communities. The researcher attempts to investigate the problem of using interactive television in the in-service education and training of guidance teachers to improve direct and indirect guidance teacher-student interactions in the traditional classroom.

1.5.2.1 **Problem refinement**

(i) **First problem formulation**

What is the phenomenon of teaching at a distance through interactive television (see chapter two)?

(ii) **Second problem formulation**

To what extent does current in-service education and training programmes integrate interactive television strategies (see chapter three)?

(iii) **Third problem formulation**

What are the components of an effective in-service guidance training environment (see chapter four)?

(iv) **Fourth problem formulation**

Are there any procedures for introducing, engaging and facilitating interactions and conversations in the interactive television guidance classrooms (see chapter five)?

(v) **Fifth problem formulation**

What recommendations can be made to ensure that guidance teachers receive effective in-service education and training through the use of interactive television (see chapter six)?

1.6 HYPOTHESIS FORMULATION

According to a literature study that was done, Mouton and Marais (1991:134), the Oxford Advanced Learner's Dictionary (1991:612), Babbie (1992:48,55) and Garbers (1996:289) postulate that "a hypothesis can be regarded as a suggested solution to a problem". In the light of the preceding problem formulation and problem refinement, the following overall hypothesis can be stated: Distance teaching with the support of interactive television empowers guidance teachers with knowledge, skills and values that enable them to create supportive environments and to offer opportunities for interaction in the traditional classroom. The research hypothesis formulated above necessarily leads to the following refined formulation:

1.6.1 First hypothesis formulation

Teaching at distance through interactive television is a strategy made up of a two-way communication network that permits guidance teacher interactivity with the instructor and among themselves simultaneously at geographically dispersed locations.

1.6.2 Second hypothesis formulation

Access to traditional guidance in-service training courses could be extended by using blocks of distance learning courses with one instructor to simultaneously reach out and teach geographically distant site locations.

1.6.3 Third hypothesis formulation

Guidance teacher in-service training programmes are developed according to the identified needs and adapted for the implementation of learning in the ITV classrooms to redress the perceived inequalities and inefficiencies inherited from the apartheid era.

1.6.4 Fourth hypothesis formulation

An in-service education and training model outlines guidelines for suggested procedures for introducing, engaging, and facilitating interactions and conversations in the ITV class-room.

1.6.5 Fifth hypothesis formulation

It is recommended that the administrators of ITV should pay adequate attention to the planning, production, utilization and evaluation of the ITV INSET medium and promote its meaningful utilization.

The above hypotheses could further be refined in the following tentative answers as noted by Behera (1995: 166):

- "The teachers exposed to ITV will have a better grasp of knowledge, understanding and applications in relevant context matters than the teachers not exposed to ITV.
- The teachers exposed to ITV will have a favourable attitude towards ITV programmes.
- The teachers exposed to ITV will be enabled to put more questions in the classroom to students than those not exposed to it.
- The teachers exposed to ITV will enable the pupils to initiate talk more than the teachers not exposed to it in classroom interaction.
- The teachers exposed to ITV have no problems with respect to the utilization of the ITV programmes."

1.7 AIMS AND OBJECTIVES FOR USING ITV IN THE INSET OF GUIDANCE TEACHERS

In the White Paper on science and technology (HSRC:1998:35) the development and promotion of a South African information society is envisaged. Such a society should seek to ensure that the advantages of the information revolution filter through to every level of society, achieving an optimal balance between individuals, social groups and communities. The aims of this study is to pursue some of these objectives. In table 1.2 the aims and objectives of using interactive television for in-service education and training of guidance teachers are discussed.

Table 1.2. The aims and objectives of using interactive television for the in-service education and training of guidance teachers

AIMS	OBJECTIVES
1. To start with the application of technology intensive media, such as television	1. To supply schools with television set, video machines, video cassettes, telephone gadgets and satellite dishes.
2. To introduce the two-way audio to the guidance teachers	2. To enable guidance teachers to hear sound and voices from the presenter who at the same time can hear the sound and voices from the guidance teachers.
3. To introduce the one-way video to the guidance teachers	3. To enable guidance teachers to watch the presenter on the television screen while the presenter is unable to see them.
4. To empower the guidance teachers in rural and disadvantaged areas	4. To provide teachers with relevant updated and advanced information which was inaccessible or was belated. To concentrate on changes in guidance standards and practices, to reinforce what guidance teachers knew, revive what was neglected and emphasis changes in procedures and rules during continual training.
5. To make the guidance and counselling services easily accessible, more affordable and readily available	5. To ensure that guidance and counselling experts are given chance to present lectures in the interactive television studio. Guidance services will increase both in quality and quantity as experts increase.

1.8 RESEARCH METHODOLOGICAL ACCOUNTABILITY

In order to fulfil the requirements of scientific practice, there are certain methods and ways by which the researcher must select. The researcher consider selecting a method which promote access to the phenomenon. According to Mouton and Marais (1991: vii) "the aim of research methodology is to develop and articulate strategies and methods by means of which the validity and credibility or research results in the social sciences may be maximized".

The concept "methodology" refers to the "science or study of methods". It comes from the word "method" which implies "orderly arrangement or habit".

Etymologically the adjective "methodological" comes from:

- Greek: *methodus* (meta + hodos) meaning "the way along which thinking occurs"
- English: method which refers to "a thorough manner of operation to obtain specific goal".

The concept "accountability" comes from the adjective "accountable" which means "required or expected to give an explanation for one's actions".

The concept "methodological accountability" semantically refers to "the scientific way along which the researcher is expected to give an explanation for his or her actions" (Oxford Advanced Learners' Dictionary 1991: 9,80).

The researcher in this study proposes to accept responsibility for the report by means of the following:

.

- the phenomenological, triadic and hermeneutic methods
- an effective literature study
- a critical text study

- structured and unstructured interviews
- data gathered from the questionnaires

Table 1.3 The etymological-semantic meaning of the methods and their implications for the research

The method	Etymological-semantic meaning	Implications for the research
8.1 The phenomenological approach	Phenomenology is the study of phenomena (Klein 1967: 1172). The phenomenological approach is derived from the concept "phenomenon". Etymologically the concept "phenomenon" comes from: ▪ Greek: *phainomeno* meaning ▪ what appears ▪ a visible manifestation or appearance ▪ Late Latin: *φav m* which means "to show, sense of extraordinary occurrence, portent" (Weekly 1921: 1082). According to Klein (1967: 1172) the Greek "Phäomenologie" was first used to refer to ▪ one who speaks in a certain manner" ▪ one who deals with a certain topic.	In the study, the procedure in the phenomenological approach is based on facts and it reveals the essence of the phenomenon "interactive television". The phenomenological approach implies to truly grasp, that is, to come to the real essence and meaning of something (Jacobs 1988: 266). The main object of the approach is to discover and disclose the usage of and the perceptions on interactive television. The employment of educational media in the instruction of guidance through distance teaching is explored from a phenomenological approach. The researcher is therefore bound to rid her/himself of all beliefs and all views in order to allow the phenomenon to speak for itself.
8.2 The triadic method	The term "triadic" is derived from "triad" which refers to a group of three. The origin of the noun is from: ▪ Greek: *pidc* for three ▪ Latin: *trias* meaning three (Klein 1967: 1647; Weekly 1921: 1539, Barnhart 1988: 1165).	The triadic approach enables the researcher to progress and arrive at a synthesis. Jacobs, Van Jaarsveld and Von Mollendorf (1991: 164) maintain that in a triadic approach, two possibilities which do not contradict may be synthesized realistically to form a third possibility".

The method	Etymological-semantic meaning	Implications for the research
8.3 Hermeneutic approach	The term "hermeneutic" is defined as "the theory and practice of interpretation and understanding (verstehen) in different kinds of human contents" (Dzimbo 1995: 7). According to Madigoe (1997:7) "the hermeneutic process involves data collection through observation, participation, documentation, interaction and negotiation". Etymologically the concept hermeneutic derives from: Greek: *herméne utikos* which means "of interpretation" (The Concise Oxford Dictionary 1987: 467).	The relevance of the hermeneutic approach in this study is that judgements are based on experience. According to Madigoe (1997: 8) "experience is interpreted by each individual in terms of his or her own enculturation". Guidance teachers must see themselves as individuals concerned with the actualisation of the individual, in totality including the personal and social relations of the individual. In this study interpretation or judgement is a continuous thing hence the hermeneutic process. The study also recognises that the novelty of interactive television and the perspective from which the guidance teachers perceive the viability of the educational media form part of their socio-historical context. In this study the hermeneutic approach elucidate and interpret the interaction between rurality and disadvantagement of the guidance teacher and his or her ITV-media use literacy. To interpret the situation the researcher employs the hermeneutic approach.

The method	Etymological-semantic meaning	Implications for the research
8.4 Effective literature study and critical text study	Semantically the origin of the noun" effective" means "actually usable". The noun "study" refers "to devotion of time and thought to acquiring information, especially from books". The term "critical" means "engaged in criticism or providing textual criticism". The noun "text" connotes "original words of the author or commentary on them". Etymologically the concept literature derives from: Latin: *litteratura* which refers to "printed matter" or "occupied with books and written composition" (The Concise Oxford Dictionary 1987: 308, 1058, 225, 1106, 588).	Effective literature study refers to the phenomenologically relevant literature study which is supported by critical text study. According to De Wet in Maake (1995:19) "thorough study of literature is indispensable to elevate the research to the level of the research fields already published". In this study the researcher made use of both the primary and the secondary sources concerning interactive television and the in-service education and training of guidance teachers. To ensure a more effective literature study the researcher also conducted critical text study and topic analysis. The literature survey comprised the study of monographs, journals, books, magazines, newspapers and seminar hand-outs. Literature study was facilitated by the use of the Erudite Information System at the University of Pretoria.
8.5 Structured and unstructured interviews	Semantically the verb "interview" means "meeting of persons face-to-face, especially for purpose of consultation" (The concise Oxford Dictionary 1987: 526). The word "interview" means "to talk" with or question a person so as to elicit statements or facts for publication. The etymological meaning of the word comes from: Latin: *inter* > between *videre* > to see French: *entrevoir* > to visit each other. The etymological meaning of the word "structure" comes from: Latin = *structura* > give structure to, organize. The noun structure refers to the manner in which something is organized or constructed.	In this study the researcher will initiate a two-person conversation for the specific purpose of obtaining, interactive television relevant information. The conversation will be focused on content specified in the research objective including the availability, accessibility and affordability of interactive television in rural areas. In this study the researcher constructed a questionnaire to conduct structured interviews with administrators and interactive television experts. Unstructured interviews were also conducted with guidance teachers in the course of ITV presentations. The interview sessions enabled the researcher to probe for more specific answers. During unstructured interviews the researcher could repeat a question whenever the response indicated a degree of ambiguity or uncertainty.

The method	Etymological-semantic meaning	Implications for the research
8.6 Questionnaires	The noun "questionnaire" refers to "formulated series of questions especially for statistical study". Etymologically it derives from: Old French: *questionner* referring to "use of interrogative pronoun of other means to elicit information. The word "question" means to seek information (The concise Oxford Dictionary 1987: 846).	Questionnaires were used to determine the availability, accessibility and the affordability of interactive television in rural areas for guidance teachers. The aim of using a questionnaire was to establish in a scientific and responsible way, the utilization of and the perceptions on the interactive television. Questions were used to seek information from the guidance teachers concerning the *status quo* with ITV.

1.9 PROGRAMME ANNOUNCEMENT

Chapter one serves as an introductory chapter to this study. It presents the orientational perspective, the premises, title, concepts clarifications and statement of the problem. It also postulates the hypothesis, discusses the methodological accountability, clarifies the aim and objectives of the study and finally announces the programme.

Chapter two presents a general overview of the phenomenon of interactive television. It also provides detailed perceptions and utilization of this media and the potential role in upgrading the guidance teachers' professionalism and classroom competently.

Chapter three provides broad perspectives on the use of interactive television. Challenges of in-service education and training guidance teachers through the use of interactive television are highlighted.

Chapter four presents the design of and the empirical investigation of the study. The target and the population groups were identified and described.

Chapter five presents an accountable model for the use of interactive television in the in-service education and training of guidance teachers. This involves leads from the research findings of the study.

Chapter six provides a summary, recommendations and conclusions regarding this topic.

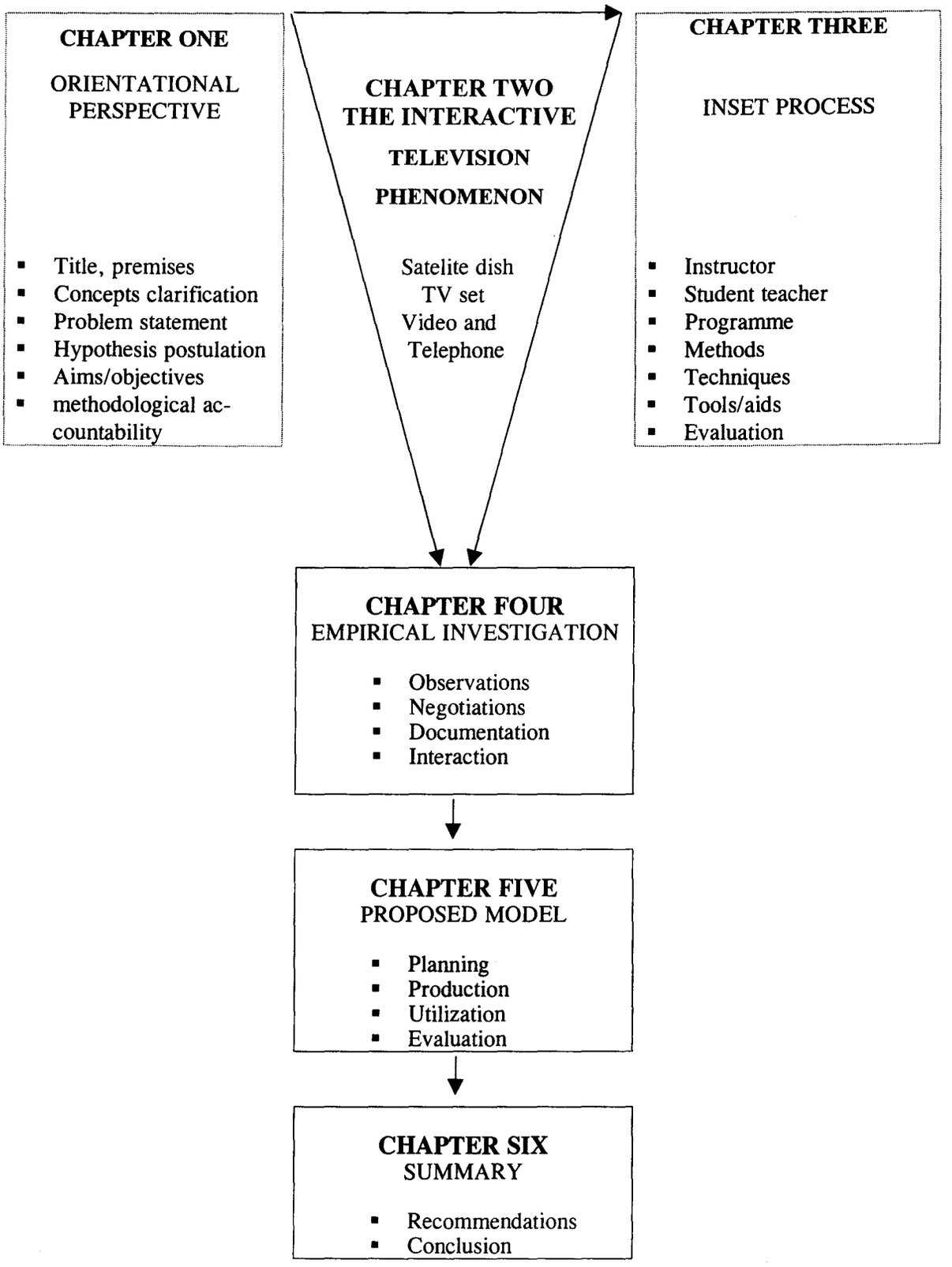


Figure 1.1 A flow-chart for programme announcement of in-service distance education and training through interactive television

CHAPTER TWO

THE PHENOMENON OF INTERACTIVE TELEVISION IN THE IN-SERVICE EDUCATION AND TRAINING OF GUIDANCE TEACHERS

2.1 INTRODUCTION

The Human Sciences Research Council (1998:iii) rightly pointed out that "distance education is an alternative to classroom education - it is an outstanding example of open learning because of the way it opens up learning opportunities to a wider range of people". The use of ITV in distance education is further commended by Behera (1995:29) who maintains that: "As a communication medium, interactive television is unique in its ability to bring many other aids into the classroom, such as motion pictures, film strips, slides, recordings, maps and countless other instructional devices".

The use of ITV in distance learning facilitates not only information exposure but also the probability of the in-service training of teacher who observe outstanding teachers in action and learns various aspects of teaching and teaching skills. The interactive television mode of distance teaching through television is one of the most exciting new technological developments in the in-service training of guidance teachers. According to Koble (1998:2) and Holmes and Wenrich (1997:143) "the network's two-way communication permits guidance teachers' interactivity with the instructor and among themselves simultaneously at geographically dispensed locations and around the globe".

2.2 THE CATEGORY "PHENOMENON"

The Concise Oxford Dictionary (1987:769) define the term "phenomenon" as the "thing that appears or is perceived".

Etymologically the noun *phenomenon* derives its meaning from

- Greek: *phaenomenon* which means
  - " remarkable appearance"
  - to show sense of extra-ordinary occurrence"
- Late Latin: phenomenon which means
  - "fact, circumstance or experience"
  - "a remarkable thing or person" (Skeat 1911: 388; Weekly 1921: 1082, Barnhart 1988: 786).

A semantic synthesis of the concept "phenomenon" in the study implies that the interactive television occurrence will have to be left to disclose itself to the researcher. This implies that the qualities and capabilities of the interactive television for influencing the in-service training process show a sense of extraordinary occurrence. It further implies that the interactive television reality that unfolds itself to the researcher involves how guidance teachers explain the use of the new device.

The study focuses on how guidance teachers utilizes behaviour incidents occurring in their respective classroom situations.

2.3 THE CONTEXT AND VISION OF USING INTERACTIVE TELEVISION IN THE IN-SERVICE EDUCATION AND TRAINING OF GUIDANCE TEACHERS

2.3.1 A paradigm shift in the perception and use of educational media support in guidance

The continuing technological revolution, especially the advent of interactive television brought a paradigm shift in the traditional perception and use of tool and techniques in guidance support-giving initiatives. According to the South African Broadcasting Corporation, the final report of the Task Team for the Transformation of Educational Broadcasting (1995:5). "The emergence and use of new technologies in education world-

wide, herald an age in which the production and delivery of educational media is set to become a competitive sphere of activity". Different educational media such as overhead projectors, slide projectors, epidiascopes, cameras, audio recorders, video recorders, radio and television have the capacity to solicit responses from learners. Interactive television combines the visual medium and the sound to solicit responses from the learners and also provide immediate feedback to the learners. Koble (1998: 2) asserts that "The network's two-way communication permits interactivity with the instructor and among the learners simultaneously at geographically dispersed locations and around the globe". Interactive broadcasting or in-service training of guidance teachers provides feed-back and encouragement as open learning initiatives and distance education programmes get underway. The interactive television positively influences the level of guidance programme interactivity in the classroom.

The mindshift on the perception and use of educational media support in the guidance classroom has the potential to change perceptions of what in-service education and training of guidance teachers entails. It also motivates the guidance teachers to participate in ongoing interactive guidance teaching and learning support services.

2.3.2 **Enhancing educational media support for the achievement of the vision of education**

The South African Broadcasting Corporation team for the Transformation of Educational Broadcasting (1995: 2) asserts that "South Africa's education and training system is being transformed in order to:

- support the drive for lifelong learning
- make educational opportunity available and accessible to all who need it
- improve the quality of education
- link education more closely to the life experiences of South Africans and to the socio-economic development of our country and
- develop South Africa's human resource.

To enhance media support interactive television employs the services of outstanding

guidance instructors and both old and new media and technologies to create and offer opportunities for high quality guidance support-giving programmes. Interactivity is encouraged for diverse learner audiences from rural and urban environments and also the challenge of matching their educational, guidance and counselling needs. Educational media are used in different and appropriate ways to enhance classroom experiences that are active, interesting and purposeful. Audio-visual media are to be seen as media within a planned system of instruction if they are to support the achievement of the vision of education. According to Gerlach and Ely (in Informedia, Volume 38:1, May 1991:14), the use of interactive television media possesses the potential to accomplish much more than a guidance teacher, because of the following properties of the medium:

- "The fixative property, where the guidance events are only recorded in order to be used at a later time
- The manipulative property, where the guidance events that are otherwise unobservable to the human eye are arranged so that they are seen and
- The distributive property where the guidance events are displayed to a large group or to individuals as often and in as many different locations as they are needed."

Also refer to chapter three regarding these mentioned aspects.

The above properties enhance the educational media support for the achievement of guidance support-giving and the vision of education. ITV add the element of urgency during the telecast and accessibility to large numbers of learners as well as a broader coverage of geographical distances and remoteness simultaneously. The ITV services are provided at lower costs, fulfil the educational needs of the disadvantaged section of the population and also advocate for optimal utilization of various media for didactic communication which bridge the gap between the broadcast studio for broadcast and the distant learners. The Department of Education (October 1997:3) and Pretorius and Lemmer (1998:2-3) posit that "The policy for the new education system represents a transformation from prescriptive school-centred education to an integrated, outcomes-based, open and accessible lifelong learning approach to education and training for all" in line with Curriculum 2005.

2.4 CHALLENGES FOR USING INTERACTIVE TELEVISION INSTRUCTION IN GUIDANCE CLASS ENVIRONMENTS

2.4.1 Integrating school guidance and the support service

The White Paper on education and training, Government Gazette [number 16312, 15 March 1995 (29)] states that "Guidance is an integral part of the Curriculum and that it must be given its full scope in that sphere and in teacher education". The implementation of Curriculum 2005 marks a paradigm shift from a content-based curriculum to an outcomes-based education which should be facilitated by the use of printed media, audio-visual media and computer mediated instruction. This requires resourceful teaching to ensure that the outcomes set in the formal curriculum are reinforced and enhanced by the values exerted by the guidance teacher's complete mode of operation.

Concerning the legacy of exclusion in providing auxiliary support services, "a paradigm shift should advocate for the use of interactive television in

- **The service model** organised around assessment, information gathering, counselling, placement and follow-up

- **The process model** emphasizing the clinical and therapeutic aspects of counselling, consulting and co-ordinating and

- **The duties model** involving performing the administrative and clerical duties" argued Hogan (1998:18).

The use of interactive television should promote what De Fossard (1994: 48) describes as "Lesson types used for interactive radio instruction including physical activities, application segments, dialogue, and discussion, drama, drill, game, quiz, song, story and interactive story". Interactive television has the capacity to articulate the various levels of interactions in the lesson types to increased numbers of distance learners simultaneously in a cost-effective way. The prime challenge facing interactive television is to reach large numbers of traditionally marginalized learner populations in the guidance service.

According to the NEPI Support Services (1992:15) "The most worrying aspect of the support services, particularly in the erstwhile African departments, is their almost exclusive concentration on the diagnosis of problems, with minimal, if any, follow-up services to address the difficulties diagnosed". The usage of interactive television should therefore serve to integrate school guidance and the support services.

2.4.2 **Promoting meaningful classroom discussion in distance teachers**

- Direct contact and telematic education are flexible models in guidance teaching and the learning environment. Romiszowski in Ely and Minor (1994: 160) maintains that "we are now entering the fourth phase of development of distance education based on the integrated use of new developments in telecommunication and computing". Various delivery modes in distance education that enhance guidance instruction currently not only include paper based education but interactive television and web based education. To promote meaningful classroom interaction among distance learners in the in-service education and training of the guidance teacher, precise description and use of terms such as synchronous and *asynchronous* should be emphasized. According to Saide (1998:5) the following is important:

- the phrase "synchronous use of broadcast" has been used to refer to the process where broadcast programmes are viewed or listened to as the service provider broadcasts them. Associated with this are the concepts of urgency and control which under these conditions, are in the hands of the broadcaster and not the teacher or learner. The action and reaction process between the guidance teacher and the learner takes place almost at the same time and can be controlled by the teacher.

- the phrase "asynchronous use of broadcasts" refers to the use of broadcast materials at a time which is different from that scheduled by the broadcaster. Associated with this is a shift in urgency and control from broadcaster to the teacher or learner. Although the broadcaster or producer of the broadcast material retains control over the programme format or language, the teacher or learner is able to determine and use more flexibly the broadcast materials. The technological equipment required for the asynchronous use of broadcasts most often includes a video cassette player and a

viewing mechanism provided by either a television and/or an audio cassette player, and a listening mechanism provided by a speaker or headphones. A guidance teacher uses broadcast materials asynchronously when he/she determines the duration, frequency and depth of listening to an audio-cassette recording using an audio-cassette player. In the following table 2.1 the synchronous communication technologies are explained. Synchronous communication implies real time interactions while asynchronous implies interactions with a time difference.

Table 2.1: The synchronous *versus* asynchronous communication technologies

	SYNCHRONOUS	ASYNCHRONOUS
ONE-ON-ONE	Telephone (videophone) multimedia audio-conference	facsimile electronic mail (voice-mail) computer conference
GROUP LEARNING	Audio-graphic system video conference virtual classroom	computer-supported environments collaborative work computer supported environment multi-media network

(Adapted from Ely and Minor 1994:160)

The challenges facing the synchronous use of broadcasts in the Northern Province are reflected in the following circumstances:

- 78,24% of the schools were without electricity
- 68,48% of the schools lacked telecommunication facilities
- 31% of the schools were without any fencing (HSRC 1998:15)
- 55,3% of learners in the sample were without electricity at home ("HSRC 1998:36).

The above circumstances lead to a situation which does not promote positive perception and effective implementation of the ITV in schools.

2.5 INTERACTIVE TELEVISION EDUCATION IN PERSPECTIVE

2.5.1 Interactive television as a component of telematic education

According to Jorrisen (1998), (see attached addendum) developments in telematic services could cover a broad spectrum including:

- interconnected university communications systems
- interinstitutional instructional networks which are being used for specific groups of people involved in further education
- educational television channels to deliver educational programmes into schools *via* satellite and cable systems.

Television's role can be augmented by the developments in other countries, where networks are being established. Advanced technologies integrate the efforts of universities, colleges, provincial institutes, school districts, government ministries and provincial agencies in the development and delivery of educational programmes. According to Sedibe (1998:2), the programme manager of interactive television at the University of Pretoria and Brown (undated handout) the following schematic representation illustrates the components for telematic education.

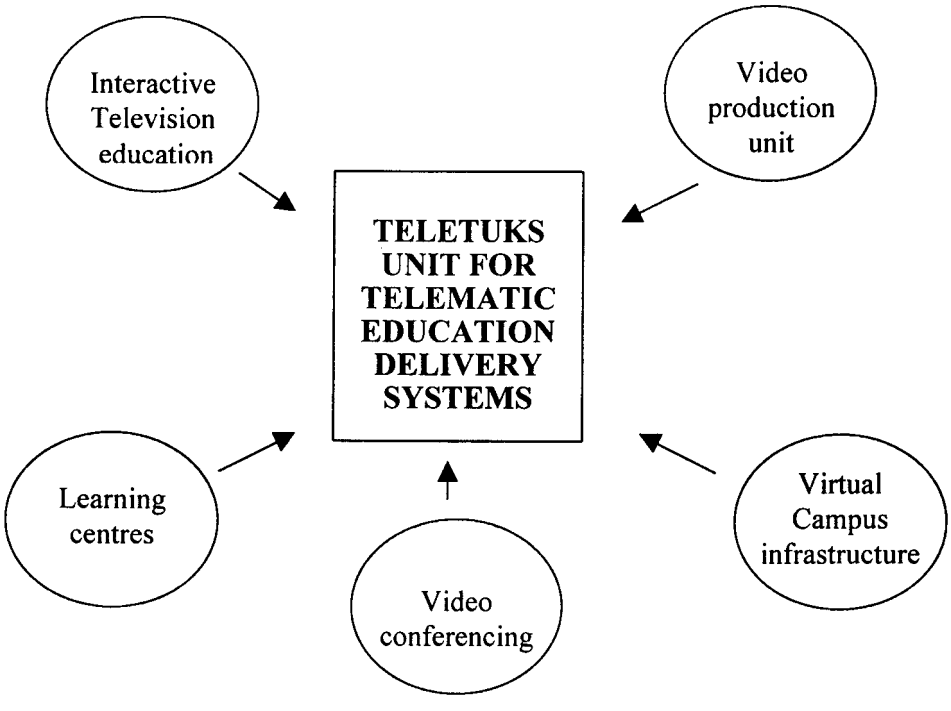


Figure 2.2 The components for telematic education

Du Plessis (undated leaflet), describes telematic education as "a strategy made up of flexible educational delivery systems". He further maintained that "these systems include the whole spectrum of educational modes - contact, paper-based and web-based distance learning and supporting modes such as interactive television and interactive multimedia. According to Malan (1998:1) "the University of Pretoria became the first South African institution of higher education to demonstrate practically the potential of live interactive television broadcasting in distance education".

Telematically delivered programmes that have the potential to support guidance personnel is useful to the innovative integration of the commitments to the learner. In Figure 2.3 the distance education environments are mentioned and structured.

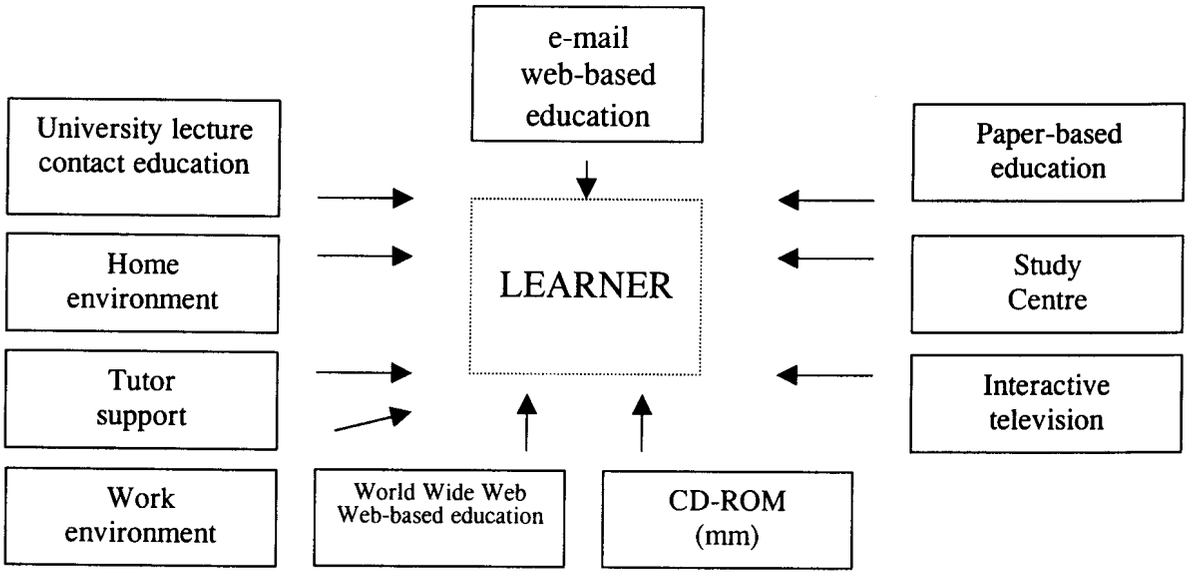


Figure 2.3 : Distance education environments

Williams (1991:151) distinguishes between audio-, audio graphic-, video and computer conferencing in the following way:

- Audio teleconferencing refers to interactive voice communication between groups of individuals using loudspeaking telephones. Links between guidance teachers are provided through the telephone service with links made possible by the use of an electronic bridge.

- Audio-graphic teleconferencing makes use of the telephone together with such equipment as the facsimile machine, electronic board and computers as two-way communication between individuals or groups.

- Video teleconferencing emphasises the use of the two-way video through the employment of TV, with the interaction between individuals or groups being provided by two-way telephone communication.

- Computer conferencing can best be described as an elaboration of electronic mail. The computer can be used to provide two-way interactions in real time. Graphics and tests can be created in a variety of locations.

The use of interactive television enables guidance teachers to acquire guidance knowledge and skills. In a discussion document: The Technology Enhanced Learning Investigation in South Africa, a discussion document report (31 July 1996: 17), it is reported that "In South Africa, old and new technologies have the potential to help address critical questions of access, redress, flexibility and relevance". Baker in Ely and Minor (1994: 82) cautioned that "Educational technology is a catalyst for major changes in teaching and learning, but it is expensive and adopting it can be complex". Hackbarth (1996: 46) concluded that "the essence of educational technology is revealed in its advocacy of systematic, knowledge-based approach to the improvement of programmes whether they be presented by text or teacher, television or computer".

2.5.2 **Interactivity in the media and technology employed in the INSET for guidance teachers through interactive television**

In differentiating between the media and technologies employed in the INSET of guidance teachers a grid developed by Tony Bates acts as a useful device to highlight their differences, relationships and their educational applications (Saide 1998: 5-7).

Table 2.2: A grid illustrating the media and technologies employed in guidance distance education.

Medium	Technologies for delivery	Educational applications
Face-to-face contact	▪ Overhead projector (manual or electronic) ▪ special technologies ▪ all of the below	▪ Seminar, tutorials, classes, workshops and lectures ▪ Learner study groups or self-help groups ▪ Conferences ▪ One-to-one interactions either between educator and learner, learner and learner, learner and mentor (especially at work/place) ▪ Drama in education or theatre-in-education sessions ▪ Practical demonstrations and activities.
Text (including graphics)	▪ Print	▪ Books, booklets, and pamphlets (either already published or written specifically for a course) ▪ Study guides, written either as stand alone material or as "wrap around" guides to already published material ▪ Workbooks intended for use in conjunction with other media material (for example, audio or video casettes or computer-based learning) ▪ Newspapers, journals, periodicals, newsletters, and magazines ▪ Printed learner support materials for example, self-tests, project guides, notes on accreditation requirements or other aspects of courses, bibliographies and handwritten/typed materials or comments passing between learners and educators) ▪ Maps, charts, photographs, and posters ▪ Written/printed correspondence (including post, facsimile, courier and electronic mail.
	▪ Computers	▪ electronic database ▪ electronic publishing (for example world wide web, hypertext documents. FTP or ASCI documents) ▪ CD-ROM interactive books
Audio	▪ Audiocassette ▪ Radio (including both radio broadcasting and ▪ satellite radio)	▪ Audio programmes ▪ Educational programmes (including talk-back radio)
	▪ Telephone	▪ Telephone tutoring ▪ Telephone conferences
	▪ Computing	▪ Multimedia sound ▪ Voice communication

Medium	Technologies for delivery	Educational applications
Video	▪ Television broadcasting ▪ cable television ▪ satellite television (including narrowcast educational television)	▪ programme ▪ lectures
	▪ Videocassettes	▪ instructional material ▪ lectures ▪ language teaching
	▪ Video discs	▪ Instructional material (for example art pictures or biological photographs)
	▪ Video conferencing	▪ Video conferences ▪ point-to-multi-point classes with interactive video and audio
	▪ computer internet	▪ Video graphics ▪ see-you-see-me-conferences
	▪ stand-alone ▪ computer-based ▪ Workstation ▪ CD-Rom/DVD CDI	▪ presentation of information/knowledge ▪ simulations ▪ interactive exercises and assessment
	▪ Networked ▪ linking computer-based workstation ▪ CD-ROM/DVD or set-top boxes to public (internet) of private (Intranet LAN.WAN) network	▪ Presentation of information/knowledge ▪ simulations ▪ interactive exercises and assessment ▪ Assignment submission ▪ assessment and feedback ▪ conferencing date, audio, video

(Adapted from Bates, A. (1995:30)

The main delivery systems employed by guidance teachers also reflected in the grid are face-to-face, and the use of text including graphics. Audio and video as well as the integrated multimedia. It became clear that the media used in the various technologies possess the potential to contribute to the guidance environment in a cost-effective way. Various approaches are used at appropriate situations.

2.5.3 Characteristics of interactive television in the classroom

2.5.3.1 General characteristics of interactive television for INSET purposes

During the in-service education and training of guidance teachers from all racial groups and different financial backgrounds they should be exposed to educational opportunities. The interactive television (ITV) in its ongoing commitment to the massification of learning, is helping to achieve the nation's educational goals redressing the imbalances of the past. The interactive television programmes provide the opportunity to add skills and value to ITV users including educators and guidance specialists. This allows guidance trainees to learn in a variety of settings and different modes such as individual, small or large groups and live *versus* delayed programming.

Schools involved in interactive television obtain the opportunity to act as agents of change with regard to the world of work. Guidance teachers are upgraded in terms of their knowledge, guidance understanding and its application to various content areas and their classroom interaction with students.

2.5.3.2 Distinctive features of interactive television for guidance purposes

The introduction of interactive television responds to the guidance teachers' perceptions, attitudes, needs and concerns relating to the merits of educational media and technology. Koumi (1996:208) posits that "the use of ITV provides realistic or virtual or vicarious experiences".

Experiential objectives and vicarious experiences are uniquely achieved by the guidance teachers using interactive television. During the INSET, the use of interactive television makes the following objectives more accessible for guidance purposes:

- knowing places, for example factories, underseas and underseas locations
- understanding viewpoints, for example aerial views and microscopy
- comprehending complex or large scale technical processes or equipment, with synchronous sound

- understanding three dimensional objects by moving the object exploring the space
- observing slow/fast motion, for example, slow motion of animal actions, fast motion of cloud movement
- observing people and animal interacting in real-life or drama, for example, interviewer's body language and tone of voice
- understanding real-world events including the use or creation of archive film/audio
- understanding dynamic change or movement and
- chronological sequence and duration important in, for example sequence and pacing of body language and pauses for interviewing skills, progress of chemical reactions, and fluid dynamics"

Interactive television provides distinctive ways of empowering the guidance teacher. According to Koumi (1996: 206) "ITV has diagrammatic and real-life moving pictures accompanied by sound effects and words, composite picture techniques, visual metaphors, modelling, simulating, illustrating condensing time, demonstration and narrative power". It follows that the use of interactive television also enables guidance teachers to obtain a much broader and more accurate perception of the world, themselves and the guidance support-giving environments.

2.5.3.3 **Guidance media user literacy in the classroom**

Throughout history, teachers have provided interactive learning environments to individualize and personalize the learning experiences of their students. An exemplary model of "interactivity" involved intense, small group and question and answer engagements. The question is, how might educational media measure up? In this study an attempt is made to look at the role of interactivity in distance learning, in which the guidance teacher and the students are separated by distances large enough to require some form of mediating technologies such as printed materials, telephone, radio, television or computers.

Klivans (1994: 5) rightly pointed out that "the ITV system offers many opportunities to incorporate "technology" into the (remote) classrooms". He, however, cautioned that "having the technology and using it are two separate issues" (Klivans 1994:5). The

guidance teachers in the modern guidance classroom, especially those in the rural area are faced with the problem of accessing technological equipment and developing the skills of using them to maximize interactivity in the classroom. According to Moulton (1994:11) "the gap has grown much wider between media used in developing countries mainly radio and printed materials, and media used in industrial countries using advanced computer networks". Hackbarth (1996:229) posits that "interactivity in the classroom implies that teachers and students collaborate in the learning process". The guidance media user should develop skills to fully employ mediating technologies to facilitate interactivity in the classroom. Teacher and students should be engaged in discussions and come to agreements about goals, aspirations, abilities, interests, activities and evaluation. All distance learning technologies simulate true interaction.

Media user illiteracy is identified as a major handicap in the effective use of various teaching and learning aids. Nelson (1997:9) believes that some of the problems are the following:

- "classes are too big for effective media-integration
- periods are too short
- there is no media teacher to handle the guidelines
- there are problems with the apparatus
- the learner groups are too heterogeneous in terms of background knowledge and language proficiency
- some media are not available for specific times when they are needed" (Free translation)

Learners should be orally and visually media literate to identify the line of appeal used in their chosen teleteaching media. According to Van Wyk (1991: 10) "to be functionally visually literate is to know that one is being manipulated, but to be fully visually literate means:

- to be able to detect the underlying structure of visual work, whether it be TV, film, artwork or advertisement

- to recognize the means of persuasion evident in the specific visual image under scrutiny and
- to identify strategies being used"

The guidance teacher should develop a discerning ear and eye to be able to explore the ways in which learner perceptions of the world are created, challenged or re-affirmed by the educational media. As a learner he or she should be encouraged through the use of interactive television to narrow his or her focus at the outset and to select a specific theme or stylistic quality on which to build his or her arguments.

2.5.3.4 **Interactivity in the interactive television guidance classroom**

When learners are looking at ITV images in the guidance classroom they are connecting with a much larger social, educational and vocational environment. According to Van Wyk (1997:11) "television is a landscape of cultural knowledge such as knowledge about society, people in that society, ways of living and behaving in that group". The degree of sophistication with which a technology such as television simulates true interaction depends on the following according to Moulton (1994:11):

- "how well it simulates the nature of the tasks to be learned
- how thoroughly and accurately it structures and sequences the tasks entailed in acquiring the knowledge it is presenting, and
- how readily it adapts to the student's approach to and progress in the learning (corrects errors, selects a path based on how much the student knows and the procedures the student uses in acquiring the skills and knowledge"

Blignaut (1997:10) rightly pointed out that "Guidance teachers need to experience the technological equipment and their subjects as learners before they are ready to facilitate such learning among their students". The interactive instruction that takes place between the teacher and the students in the classroom is in the form of either lecture, small group discussions, individual instruction or recitation. The interactive television media usage may effectively make up for lack of facilities in providing information and know-how of

translating information into the practice faced by guidance teachers and learners in the remotest areas.

Interactive instruction in the guidance interactive TV classroom takes place between the teacher and the student when

- the teacher provides a structure, formulate the topic or issue
- the teacher solicits a response or asks a question of students
- a student responds to the question and
- the teacher reacts to the student's answer (Moulton 1994:13).

ITV guidance programmes also use songs, games and role playing. A sound instructional design included activities that helped students learn, remember and think. Joubert (1996:9)) lamented that "proven education principles are not heeded or even considered in rural areas, when planning to enhance, uplift or strengthen education through the use of visual media". A paradigm shift could be adopted if in-service training could emphasise the importance of high-quality, practical and focused courses.

2.6 GUIDELINES FOR INTERACTIVE TELEVISION PROGRAMMES

2.6.1 Introducing a supplementary guidance programme

Guidance teachers with an organizational and management focus as well as machine or technical orientation may be encouraged to get involved with ITV programme courses. The University of Pretoria is already offering undergraduate and post-graduate courses as well as diploma courses through the use of interactive television. According to Sedibe (1998:3), see addendum and Brown (undated).

(i) One of the following primary modes of education can be supported by ITV:

- paper-based distance education
- web-based distance education and
- contact education

(ii) an interactive school programme is:

- a supplementary programme
- a community-based project
- a free service offered to secondary schools on a voluntary basis
- aimed at supplementing and complementing what the teachers do at schools and
- is giving extra tuition in subjects including mathematics, physical science, biology, english, geography, accounting and career guidance

According to Dubery, Du Pisani and Sedibe (1999:63) "The aim of the schools' programme using ITV is not to replace the teacher, but to assist schools in quality education in problem areas of the subjects. The programme involved outstanding teachers and lecturers who are specialists in their subjects". The ITV guidance programme aimed to help learners to:

- cope effectively with life situations
- adjust to major life changes and
- handle necessary life transitions with ease, for example moving from secondary school to tertiary institutions.

2.6.2 **Guidelines for using ITV programmes in schools**

Participating schools in the Northern Province, Gauteng Province, North West Province and Kwa-Zulu Natal Province received copies of the following guidelines from the ITV Programme Manager of the University of Pretoria.

- Interested schools should approach the University for assistance
- Schools should purchase the necessary equipment, that is, a TV set, satellite dish, video machine (optional) and have the equipment installed
- Schools should have the following in the TV room:
  - Automatic telephone line
  - Strong security to avoid equipment being stolen

- The functions of the facilitators are to:
  - See to it that the ITV equipment is functioning well
  - Monitor the learners' questions to the studio
  - Send feedback to the ITV staff on a regular basis
  - Report any problem experienced by learners with a particular lesson

- Monthly reports and comments to be sent to ITV-staff concerning the quality of lessons
- ITV staff should be informed if there are any changes in the school time-tables for example, like sports activities and examinations.
  - This must be done a week in advance
- Schools must inform ITV staff if there is a need of vacation schools programmes
  - This must be done a month in advance
- Schools should always inform parents about the value of ITV programmes and
- The University of Pretoria regularly evaluates the programmes and its effect on the education of grade 11 and grade 12 learners" (Sedibe 1998:1-4).

2.7 THE INFLUENCE OF THE GUIDANCE TEACHER ON THE LEVELS OF INTERACTIVITY IN THE GUIDANCE CLASSROOM

Schwier and Misanchuk (1993:19) rightly pointed out that guidance "instructional environments are influenced by external forces such as the instructor preferences and learner characteristics, and they impose structure on instructional decisions, either by definition or convention".

Romiszowski (1986) in Schweir and Misanchuk (1993:19-30) identified three characteristic positions that impacts on the interactivity in the classroom, namely, prescriptive, environment, democratic environment and Cybernetic environment.

- **Prescriptive environment**

It prescribes what the learner is to learn. Instruction is planned and delivered to the learner, the instructional system is used as a primary delivery medium. The implications

being that the ITV programme will not realize its guidance goal if the guidance teacher is not prepared well in advance to realize the potential of the technologies, using drill and practice, tutorials, games and simulations.

Learners are to be given a chance to respond appropriately.

- **Democratic environments**

Here the control of instruction is shifted to the user, thereby offering a very different environment from prescriptive instruction. Democratic environments permit the learner to influence what is learned, or how it is learned, or at least the order in which it is learned. Structured learning strategies are not imposed on the learner.

- **Cybernetic environments**

Currently the computer adopts the functions of flexible thought, including mental activities such as comparison, inference, deduction, analysis and insight. Guidance teachers should look into the potential of "intelligent" interactive multimedia and use a computer to provide the intelligence. From the perspective of rule-based inference, the microcomputer could be used to deal effectively with a collection of ITV statements and relationships drawn from a user.

2.8 CONCLUSION

Sahoo and Goel (1994:282) aver that "educational television viewers found it cumbersome since there was no chance of interaction with the resource person". This is exacerbated by the fact that TV is impersonal and communicate in a one-way fashion.

In the guidance teachers' in-service training situation the use of television has limitations. Television as a teaching medium presents declarative knowledge that promotes rote learning. Interactive television employ advanced technology to transmit a television signal to viewers within a specific geographical area and to relay voice from the viewers back to the presenter. The advent of interactive television enable guidance teachers to conduct individual guidance and group guidance through distance virtual communication

on the television screen and the use of a telephone bridge. Guidance teachers including those in remote rural areas where satellite instruments are installed, are able to attract the attention of the guidance presenter by showing a hand and asking a question.

The guidance teacher should however recognise that the levels of interactivity defined in the literature by [Iuppa (1984), Katz (1992), Katz and Keet (1990), Schwartz (1987) and Schweir 1987 in] Schweir and Misanchuk (1993:6) are largely medium-specific. Teachers should recognize that the instructional potential of any medium - print telephone, radio, videodisc, TV or computer - is only realized in a highly interactive mode. Shweir and Misanchuk (1993:6) maintains that

- Level 1 programmes exhibit the most meager amount of interactivity
- Level II treatment permits a much higher degree of interactivity than possible with level I
- Level III interactivity includes an external device which interfaced with a videodisc player, at this point the teacher has a multimedia system.
- Level IV includes any future innovations for development in the hyper cybernetic environments.

In-service education and training of guidance teachers can be facilitated by the use of interactive television. Raijmakers and Sholtz (1997:21) concluded that "there is a need for training in technological and work-skills, as well as for stable individuals who have acquired the needed life-skills". Effective in-service education and training of guidance teachers "has to be linked to practice in the classrooms and be centred at school" as was also noted by Ariza and Gômez (1992:540). Guidance teachers need to use interactive television to lay emphasis upon the social self, the social construction of meaning and the importance of the support-giving environment as an influence upon action. According to Mayes, McAndrew, Gunn, Smith and Coventry (1994:93) "Every teacher, learner, instructional designer or course developer holds an implicit model of learning ... probably through knowledge reception, discovery and learning by doing".

CHAPTER THREE

THE IN-SERVICE EDUCATION AND TRAINING OF GUIDANCE TEACHERS THROUGH INTERACTIVE TELEVISION MEDIA

3.1 INTRODUCTION

Hartshorne (1992:268) noted that: "There is a place for modern educational technology in helping the teacher to fill gaps in knowledge and to create confidence in the handling of subject matter in the classroom". Teaching at a distance through interactive television is a strategy made up of a two-way communication network that permits guidance teachers (as learners) interactivity with the instructors and among themselves simultaneously at geographically dispersed locations.

According to Boon (*Die Tukkie* 1999:20) "The section telematic education is geared to assist the lecturers in presenting their programmes technologically. They give class instruction from the studio which are simultaneously broadcasted to different centres. The lecturers may also conduct a discourse with the students" (free translation).

The advent of ITV commensurate with the need for a mechanism to address the equity, redress and development of the guidance teacher's dilemma. Hackbarth (1996:12) posits that "systematically designed programmes transmitted by television enrich instruction and make it more individualized, valid, accessible and economical". In-service training through ITV has the potential to address the increased guidance teachers/learner participation, heightened programme responsiveness and cooperation between various stakeholders.

3.2 DEFINITION OF CONCEPTS

3.2.1 Guidance teachers

The term "guidance teachers" is a hybrid concept coined from "guidance" and "teachers" which refer to professionally qualified persons who instruct and help learners to interact meaningfully with themselves and the world of work.

3.2.2 Interactive television

The term "interactive television" is a combination of the word "interactive" and "television" which refers to audiovisual communication in the classroom between the ITV instructor from the ITV studio and the guidance teachers as learners in the classroom at remote site(s) receiving the ITV broadcasts. Alternatively the term "interactive television" can be regarded as the mode where guidance presenters in the studio and the guidance teacher in the ITV classroom act on each other verbally, while teachers also see the presenter on the screen from a distance.

3.2.3 In-service education and training

The term "in-service education and training" refers to the process of bringing about guidance teachers' professional, academic and personal development through a whole series of learning experiences and activities while they are on the job earning.

3.3 PERSPECTIVES FOR USING INTERACTIVE TELEVISION IN THE IN-SERVICE EDUCATION AND TRAINING OF GUIDANCE TEACHERS

3.3.1 The Pre-1994 perspective of guidance teacher in-service training

The Education Coordination Service Monograph (1994:2) reported that "Historically, educational support services were provided by education departments to render services to schools which guidance teachers were not always sufficiently equipped to handle". The National Education Policy Investigation: Support Services (1992:26) avers that "while whites, coloureds and indian guidance teachers have had access to tertiary training leading to the attainment of specialized guidance and counselling degrees and diplomas, the African education departments have primarily been dependent on *ad hoc* in-service training programmes provided by non-governmental organisations (NGO's), tertiary institutions and government departments.

During the apartheid era disparities in the provision, supportive services, ineractive programmes, human resources and technological facilities in the school guidance environments were along the apartheid policies. The National Commission on Special Needs in Education and Training (NCSNET) and the National Committee on Education Support Services (NCESS), 28 November 1997 stated that "Historically special needs and education support in South Africa:

- have tended to focus on the delivery of highly specialised interventions directed at a limited number of individuals in predominantly urban areas (NCSNET/NCESS 1997:3);
- reflected massive deprivation and lack of provision for the majority of people (NCSNET/NCESS 1997:21). Traditionally, once an African teacher had qualified no further in-service training was formally required.

3.3.2 The post 1994 perspective of guidance teacher in-service training

The focus of the study is on the condition of the guidance teachers who have been marginalized. In the spirit of the reconstruction and development, the African National Congress (ANC 1994:67) argued that: "Teachers, educators and trainers who are inadequately educated ... cannot be expected to understand and respond flexibly to the challenges of the new approaches to curriculum, method, delivery and certification which an integrated system of education and training demands". The first task faced by the guidance authorities is to raise the educational levels of the existing corps of guidance teachers by providing them with some form of in-service education and training.

The South African education system currently experience a sharp drop in the demand for newly trained teachers fresh from colleges of education, technikons and universities. It is therefore essential to sustain and maintain a stable guidance teaching force. Teacher rationalization and redeployment has far reaching implications in this regard. The main problem to be solved by the development of ITV is one of training sufficiently large numbers of guidance teachers and in-service training them sufficiently so that they may become effective guidance teachers. Pertinent to the problem is how to ensure that all of the existing guidance teachers in remote, rural and previously disadvantaged sectors receive equal standards to their counterparts from urban and affluent communities. In order to achieve the above objective the ANC (1995:54) proposed that "the educational design and systems of provision of INSET must be flexible and cost-effective, incorporating the most appropriate experience in multimedia distance education". Williams (1991:224) agree that "the ultimate goal of INSET is the improvement of pupils' learning through improvement of teacher performance". The National Commission on Higher Education Report (1996:3) highlighted that "The production, dissemination, acquisition and application of knowledge is shaping the structures and dynamics of daily life to an unprecedented degree". Massification, globalisation and increased partnership will create unprecedented needs for skilled career counselling and academic guidance.

The availability and accessibility of ITV was made public by the International Educational Broadcasting (1998:54) which reported that "In 1993, the Liberty Life Learning channel went interactive for the first time, with pupils and teachers phoning in questions and receiving immediate answers over the air. The response to interactive television was immediate and overwhelmingly positive". Sebolai (1995:42) maintains that "Distance education has the potential to raise the standard of education in rural areas so that it matches the standard of education in towns". The observation was augmented by a Discussion Document on Distance Education, media and technology services (1996:20) which argued that "only open learning centres can cope with large numbers" and "is increasingly being seen as vital to the transformation (1996:vi).

The post 1994 in-service education and training system should be guided and informed by the principles of equity, democratisation, quality, development, academic freedom and institutional autonomy as well as effectiveness and efficiency. Basu (in Media and Technology for Human Resources Development 6(3), April-June 1994:264) maintains that "Broadcasts through television adds more knowledge by fine-tuning what the guidance teachers already learned".

3.4 SPECIAL RURAL EDUCATION CONTEXT: THE NORTHERN PROVINCE

According to *Sowetan*, Education Supplement, Friday, September 1996, and *Sowetan*, Wednesday, January 1999:6: "The Northern Province was declared an education disaster area as it registered the lowest pass rate of any of the provinces". The situation could be ascribed to the apartheid legacy. Refer to Appendix E: Map of the Northern Province Department of Education, Arts, Culture and Sports regional demarcations.

Madigoe (1997:14-15) maintained that the following facts tend to be relevant to the Northern Province guidance crisis:

- The province consists of a rural black population which depends solely on subsistence economy

- The province is the most affected area in terms of damage caused by the apartheid system
- It is characterized by appalling living conditions not conducive to studying and prone to endemic health problems, such as malnutrition and kwasiorkor because of lack of health facilities
- Its students are faced with the problem of transportation to and from school
- It is characterized by poor working conditions for teachers and abnormal pupil: teacher ratio's
- It lacks teacher appraisal procedures and transparent involvement of teachers and pupils in school matters
- Illiteracy is an acute problem.

The results of a survey conducted by the Human Sciences Research Council painted a poor context for the successful implementation of guidance and counselling in the Northern Province. According to the survey "the psychologists with college/school (cs) qualification at the time of the survey made up 0,01% of the staff complement, specialist educators 0,29% while 80 staff members were trained to deal with special educational needs. This gave a ratio of 23,879 learners to one specialist educator, by far the highest ratio in the country" (HSRC 1998:9).

The survey (HSRC 1998:11) reported that: "The other resources investigated were in extremely poor supply with 95% of the schools in the Northern Province lacking media equipment, 91% lacking media collections, 81% lacking unspecified equipment, and 73% lacking materials. It further stated that "of the schools that reported having these resources only 2% had adequate media equipment, 2% had adequate media collections, 4% had adequate unspecified equipment, and 6% had adequate materials. The aforementioned statistics is presented in the following figure 3.1.

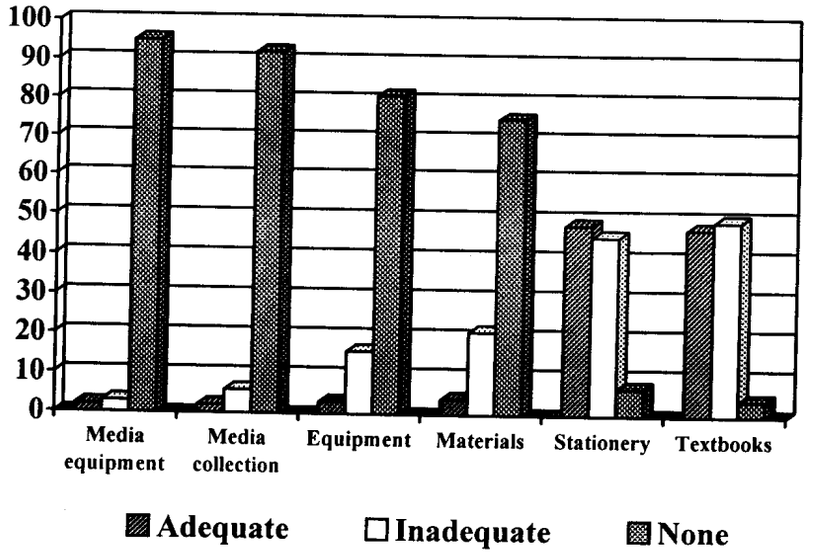


Figure 3.1: Provision of resources in the Northern Province

The provision of various facilities at schools in the Northern Province with reference to shelters, home economics rooms, libraries, laboratories, administrative rooms and other unspecified facilities were considered highly unsuitable for effective learning (HSRC 1998:15). The availability of fencing, telecommunication, electricity and security systems were targeted at schools for the installation of interactive television equipment. According to the HSRC survey (1998:15): "In the Northern Province 78,24% or 3,150 of the schools were without electricity, 68,48% (2,757) of the schools lacked telecommunication facilities and 31% of the schools were without any fencing". The provision of the infrastructure have a crucial role to play in meeting the challenges of greater access to ITV programmes and enhanced quality in a context of resource constraints and a diverse guidance teacher corps.

The South African Institute for Distance Education (SAIDE:1998:319) conducted research regarding the provision and maintenance of hardware in schools. The research has put into context the realities of the schooling system in South Africa, particularly previously

disadvantaged schools, which are still under-resourced despite the new dispensation. This reality is reflected in figure 3.2 where it is clear that the most basic provision is lacking.

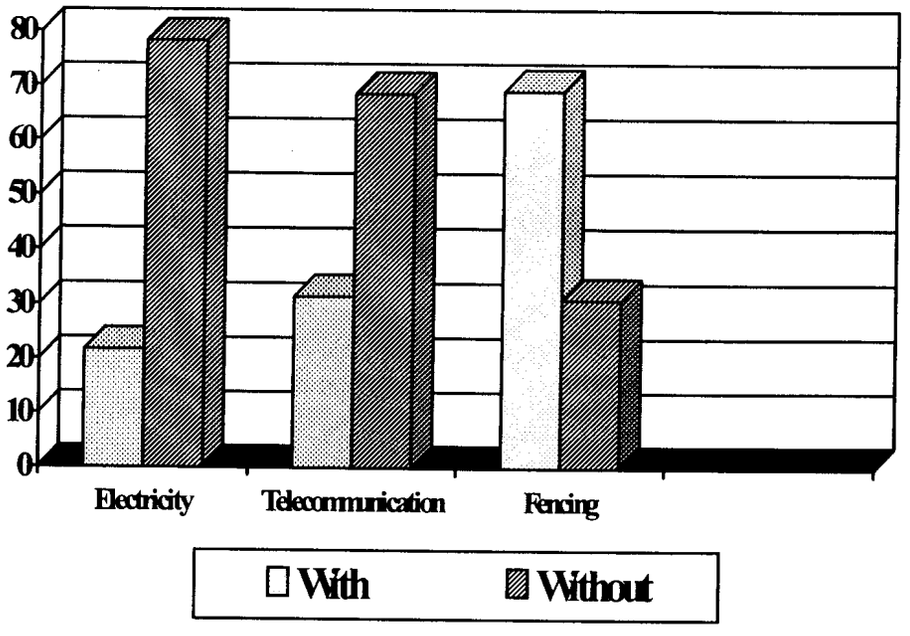


Figure 3.2: Underresourced electricity, telecommunication and fencing in the Northern Province

In the light of the above educational context, *Northern Province Times* (August 1996:1) stated that "the Ministry of Education in the Northern Province has developed strategies to redress the situation". These include:

- The introduction of technology as a subject in schools from 1996
- The provision of learning and teaching apparatus for Mathematics, Science and Biology
- The introduction of computer literacy in all Finishing centres, as well as bridging courses in all remaining and outgoing Colleges of Education
- The establishment of a Education Resource Centre at Kwena-Moloto College of Education to serve as an in-service centre for serving educators (ITV not yet installed)

- The introduction of three youths colleges in 1997, to team up with Reconstruction and Development Programme (RDP) projects, to help define the role of the youth.
- The introduction of bridging courses for Mathematics, Science and Biology.

During 1996, the then member of executive council for education, namely Dr Aaron Motsoaledi approached the University of Pretoria to probe into the feasibility of using interactive television to improve the culture of learning and teaching services. This gesture culminated in a breakthrough for using interactive television in the Northern Province schools. The project involved twenty one (21) schools of which only twelve (12) schools were involved in this study. The end result of the endeavours are to enable students to spend time by themselves gleaning information and facts or carrying out drill and practice from interactive television and other media provided to encourage and support learning.

3.5 IN-SERVICE EDUCATION AND TRAINING AS AN EMPOWERMENT PROCESS

3.5.1 Domains for guidance teacher empowerment

The recent White Paper on Education (1995:22) states that "the principle of democratic governance should be increasingly reflective in every level of the system".

In the South African school guidance and counselling system a comprehensive policy is needed to ensure that guidance teachers are exposed to an organized continuous in-service education and training. Klivians (1994:48-49) propagate that these teachers' quality of their "real time interactions, asynchronous interactions and support interactions" in the coming decade will depend to a considerable extent on how they are empowered now to cope with the accelerating growth of technology. The view is supported by Steyn and Squelch (1997:9) who asserts that "empowerment means that traditional and non-traditional decision-making authority is given to people or groups who in the past did not have authority to make decisions".

Guidance teachers should be empowered through the use of interactive television to integrate the guidance theory and practice of design, development, utilization, management and evaluation of processes and resources of learning. In the following figure 3.3 the domains for guidance teachers technological empowerment are listed.

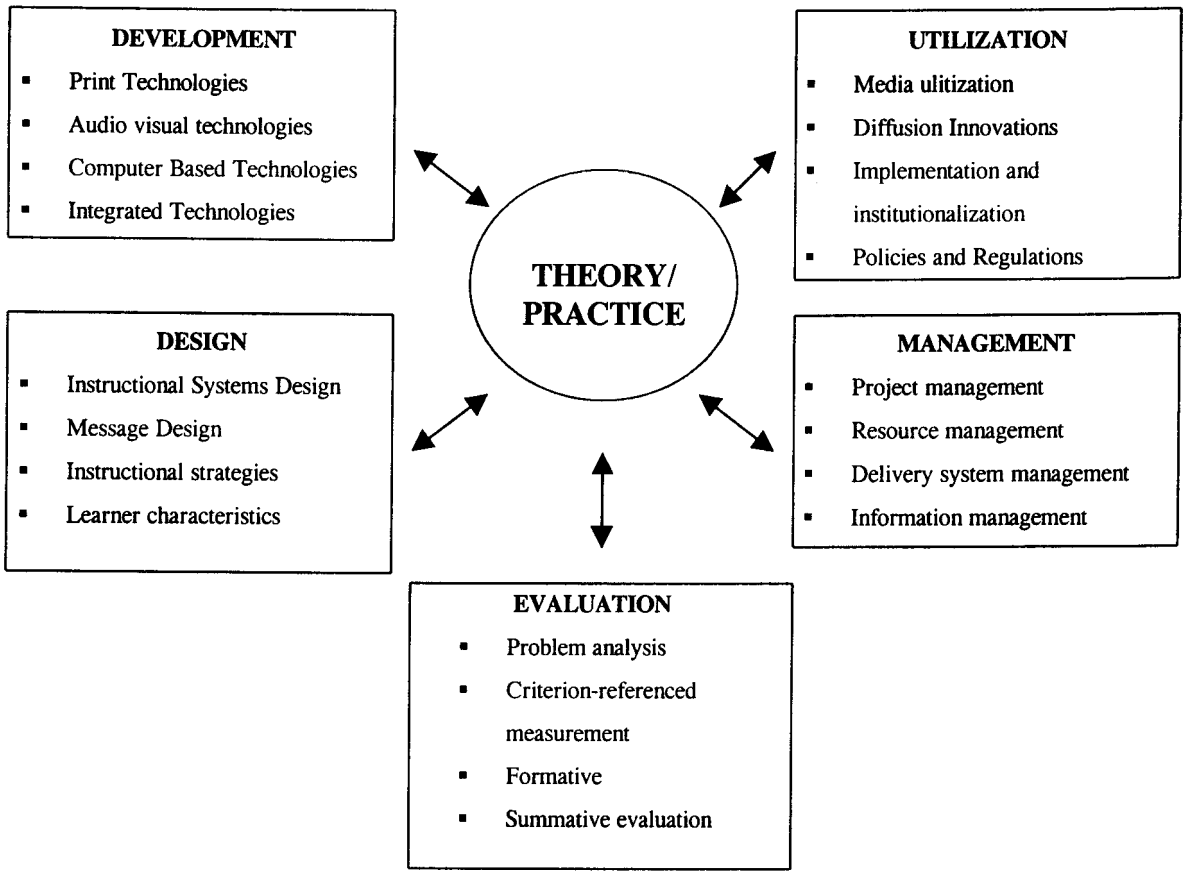
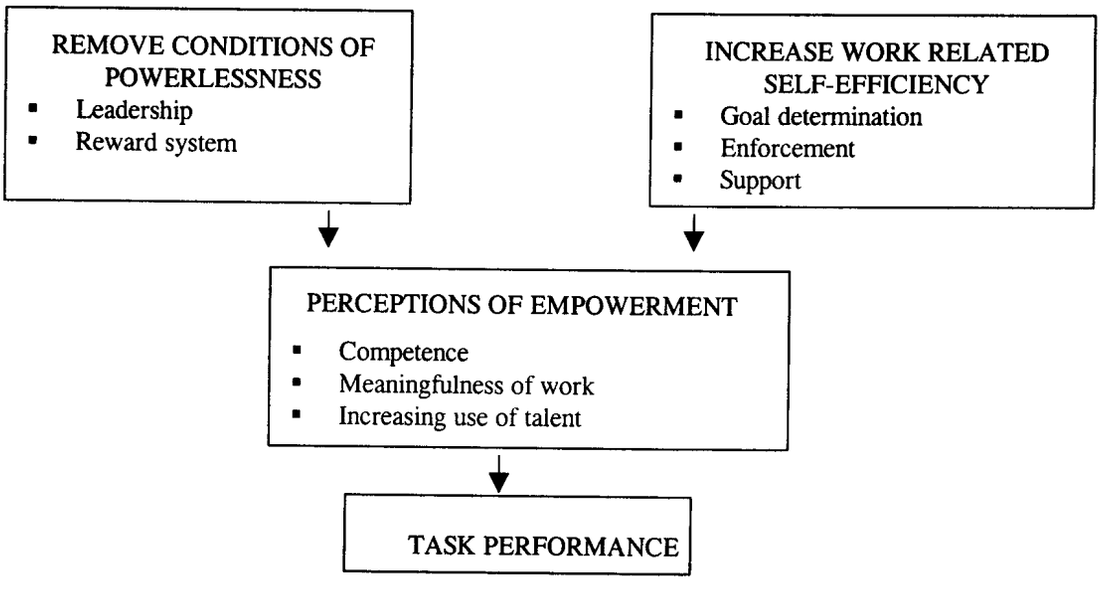


Figure 3.3: The domains for guidance teacher's technological empowerment (Ely and Minor 1994:3)

3.5.2 Supporting the development of learning potential

Guidance teachers should also be empowered so that they can be in the position to determine strategies on how students' problems may be overcome. Guidance teachers maintain different perspectives as to whether **children's performance** reflect the **quality of teaching received** and **educational opportunities** rather than **learning potential**.

Solity and Brickler (1994:7) points out that: "research emerging from the United States suggests that when high-quality teaching was provided, children considered educationally disadvantaged made excellent progress". Herman and Herman (1993:263) both agree and regard teacher empowerment as "the process by which teachers are allowed to make decisions regarding assigned tasks; teacher's involvement in the creation of ways to maintain a productive and satisfied work environment and their involvement in daily problem-solving and decision-making". In the following figure 3.4, the technological empowerment process is discussed.



Adapted from Steyn and Squelch, South African Journal of Education 1997:17(1) p3

Figure 3.4: The technological empowerment process

3.5.3 Enhancing the commitment of guidance teachers in relation to the use of media in the classroom situation

Interactive television possess the potential to play an important role in helping guidance teachers to deal with different media in the classroom situation. The ITV presenters from the studio engages in various ways of utilizing different media to solicit learner responses.

Three situations alternates in the ITV guidance instruction classroom, namely, the Presenter-talking, the guidance teacher-talking or pupils-talking. The use of media enhance guidance classes to become more relevant to all aspects of life including the social, political and economic spheres within the context of reconstruction and development. Observant guidance teachers are then motivated to enlist more and more media in the classroom situation.

ITV presenters who considers enhancing the commitment of guidance teachers in the use of media in the classroom believed and recommended that illustrations during the presentations should be large, simple and clear. Secondly, the presenters cautioned that audio-visual material should never be used as an aim in itself, but emphasis should be on correct, responsible and planned media use.

According to Malan (1999:148) certain criteria may be used to determine if the media used are effective, namely

Didactic criteria

- Do they help to realize the support-giving objective
- Do they correspond with the level of readiness, age, experience and ability of the participants?
- Are they suitable for the specific session design?
- Does the integration of the media interrupt the flow of the session?
- Does the aid distract the young person's attention or divide his or her own attention?

Practical criteria

- Does its use justify the time spent on preparing it?
- Can the aid be used again for another support-giving session?

Criteria for integrating media aids in group support-giving

- Is the aid introduced at the right time?
- Is the educator familiar with the content of the aid, for instance the content of a motion picture before it is shown to the group?

Murgatroyd and Morgan (1993:65) maintains that: "It is a fallacy to argue that if teachers work harder the teaching and learning process will be more successful". They further argued that "spending more time and money will not improve the quality of the teaching and learning process". The researcher propose that all teachers must become in a sense guidance teachers and be professionally committed to the continuous improvement of the learner's interests, attitude and motivation to achieve in life. Commitment is pivotal to the culture of learning and teaching services. Quality tools and techniques are important means to identifying, mediating, explaining, demonstrating and creatively solving problems for committed guidance teachers. The use of ITV possess the potential of enhancing guidance teacher support in using media, "to suit the needs of learners to study anywhere, any place and at their own pace" (Malan 1999:61).

3.6 THE FACILITATORS AND PROVIDERS OF INTERACTIVITY IN THE IN-SERVICE EDUCATION AND TRAINING

3.6.1 The facilitators of in-service education and training

The facilitators facilitates a recognition of the functional interdependence between multiple actors and interests with a stake in guidance and counselling. In this study facilitators are teacher trainers deployed by the University of Pretoria to present guidance lessons from a central studio. Table 3.1 shows the role of the guidance teacher trainer in the four different phases of the in-service training process.

According to Evans (1991:22) "the role of the facilitator is rather one of consultants than of trainers". Trainers should not restrict themselves to offering reflections, giving summaries and structuring the facts. The facilitator fundamentally act as the consultants who tries to understand what is going on and who then encourages the guidance teachers to clarify their own situation and to decide what actions they might take in the interactive classroom environment where pupils are also actively involved.

The ITV take the guidance teacher through four phases, namely direct experience, reflecting on experience, generalisation about experience and application of the gained experience in supporting pupils. The facilitator assists guidance teachers and the pupils with the realisation of the objective, engagement in activities and provision of direction. The success of the realisation of the role of the facilitators partly lies with the learning styles of the guidance teachers and the pupils. Table 3.2 illustrates the learning styles that facilitate guidance teachers' in-service training. The facilitator during the ITV presentations emphasises the use of technology to enhance the teaching and learning environment, mostly over a distance. Pupils and guidance teachers are in a remote site while the facilitator is in the ITV studio.

Table 3.1: The role of the guidance teachers trainer in the four different phases of the in-service training process

(CEDPA, October 1995:29-32)

PHASE		OBJECTIVE	ACTIVITIES TO USE	TRAINERS ROLE
1	Direct experience	To uncover new information that requires a response	▪ Group problem solving ▪ Case study ▪ Role plays ▪ Field visits ▪ Skills practice ▪ Games ▪ Group tasks	▪ Structurer ▪ Present the objective of the activity ▪ Clarify norms, rules and time limits ▪ Present information in a meaningful and stimulating fashion ▪ Write discussion questions on flipcharts or a hand out ▪ Assign group members' roles of secretary, discussion leader, time keeper and reporter
2	Reflecting on experience	To sort out/analyse information developed in phase 1	▪ Small group discussion ▪ Participant presentation ▪ Large group discussion ▪ Reporting from small groups	▪ Help guidance teachers to reflect on what happened during phase 1 ▪ Help them analyse what the experience phase 1 meant ▪ Ask questions about what happened and how they reacted ▪ Facilitate the sharing of ideas and reactions with each other
3	Generalization about experience	To interpret what was discussed in phase 2. This will enable them to determine what it means, what lessons can be learned and to draw conclusions	▪ Synthesis discussion in large groups ▪ Lectures ▪ Demonstration ▪ Reading assignments	▪ Guide the learner ▪ Need to be knowledgeable about the subject matter and serve as a credible information source ▪ Provide summary for the learner ▪ Ask probing questions that enable learners to reach own conclusions (as in consensus-seeking discussions)
4	Application	To relate new learning to own life situation	▪ Action planning ▪ Field visits ▪ Practice new skills ▪ Discussion	▪ Coach the learner ▪ Provide advice and encourage the learner to improve his or her skills

Table 3.2: Learning styles that facilitate guidance teachers' in-service training (CEDPA 1995:20)

	GUIDANCE TEACHERS ROLE	GUIDANCE TEACHERS NEEDS/INDICATORS	TRAINERS' BEHAVIOUR
A	**DEPENDANT** Occurs in introductory cruises, new situations, new language, courses, where learner has little or no information upon entering the course	▪ structure ▪ direction ▪ external reinforcement ▪ encouragement ▪ esteem from authority	▪ lecturing ▪ demonstrating ▪ assigning ▪ checking ▪ testing ▪ reinforcing ▪ transmitting content ▪ grading ▪ designing materials
B	**COLLABORATIVE** May occur when learner has some knowledge, information, ideas and would like to share them or try them out	▪ introspection ▪ interaction ▪ practice ▪ observation ▪ participation ▪ peer challenge ▪ peer esteem ▪ experimentation	▪ collaborating ▪ questioning ▪ modelling ▪ providing feedback ▪ co-ordinating ▪ evaluating ▪ managing
C	**INDEPENDENT** May occur when learner is knowledgeable and wants to continue to learn on his/her own, or has had successful experience working alone in a new situation, may feel trainer cannot offer much expertise	▪ internal awareness ▪ experimentation ▪ non-judgmental support	▪ allowing ▪ providing requested feedback ▪ providing resources ▪ consulting ▪ listening, negotiating ▪ evaluating ▪ delegating ▪ encouraging ▪ environment setting

3.6.2 **Providers of in-service education and training (INSET)**

Three groups of providers can be distinguished, namely providing authorities, providing institutions and providing agencies.

3.6.2.1 **Providing authorities**

In South Africa the National Government decentralised the educational administration and supervision of schools and delegated the responsibility for in-service education and training to the nine provinces. According to a Policy Framework for Education and Training (ANC 1995:56) "INSET will need to be provided in a carefully targeted way for underqualified and inappropriately qualified teachers and teacher educators".

3.6.2.2 **Providing institutions**

Providing institutions include universities, colleges of education, agricultural colleges, nursing colleges, technikons and teachers' centres. These educational bodies have a clearly discernable corporate identity in terms of possession of academic and non-academic staff and control of premises, equipment and materials and which are responsible for teaching as the prime function.

According to Jorissen, (June 1998:1) (see addendum) "the courses offered in telematic education may include part-time, certificate and diploma courses and degree level courses". ITV is employed judiciously by some university lecturers as a supportive mode in certain degrees and diplomas for primary modes such as paper-based education, contact education and web-based education.

Employing technology-enhanced delivery modes has become imperative for providing education in South Africa. These modes are world-wide starting to change the traditional educational paradigm. Developing teacher centres could consider providing various short courses and in-service guidance teachers using ITV. Figure 3.7 illustrate the typical teacher centre activities that could be supported through the use of ITV.

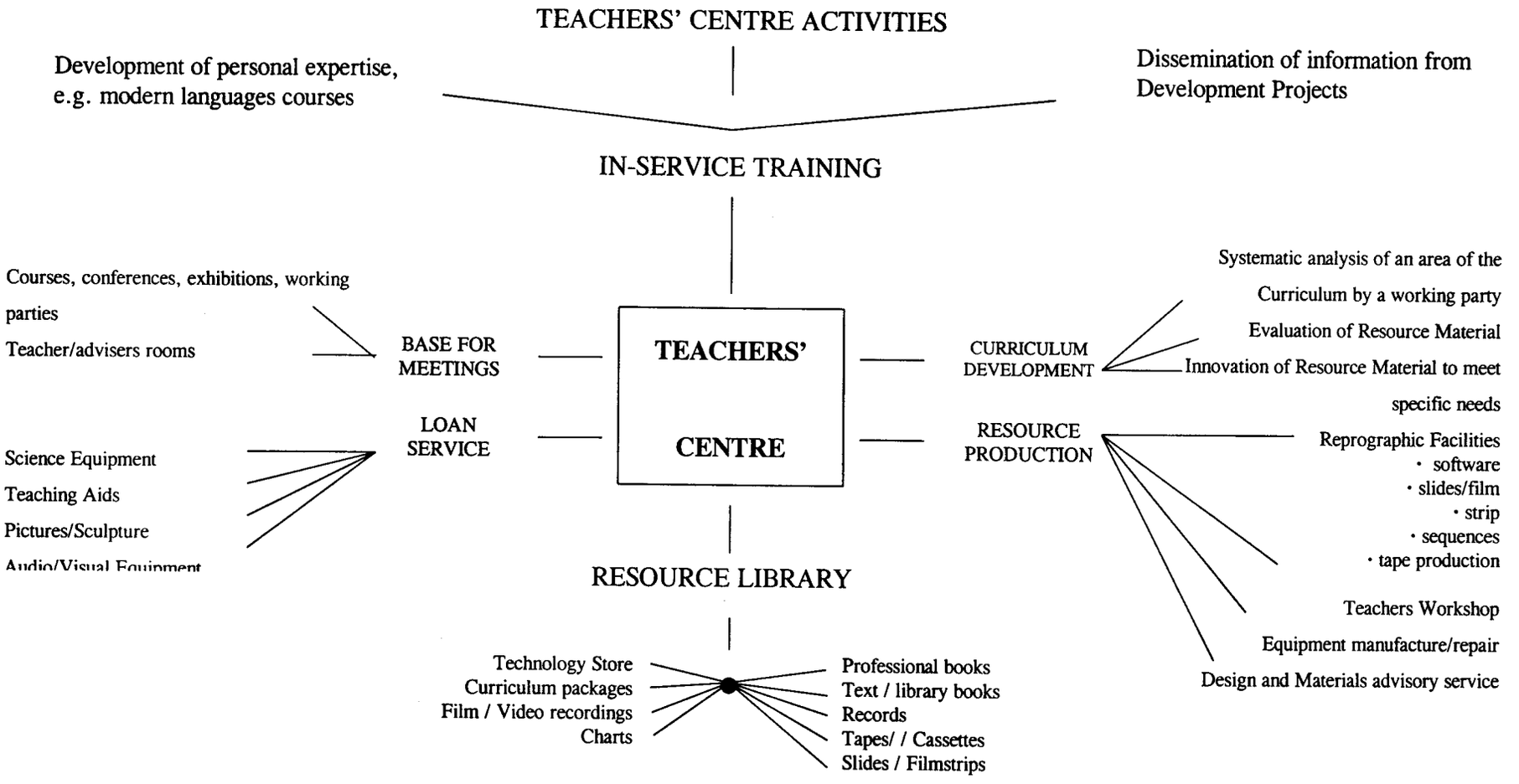


Figure 3.5: Teachers' centre activities (adapted from Bagwandeen 1991:97)

3.6.2.3 Providing agencies

These will generally represent the whole complex web of society such as the universities, colleges, the private sector, the teacher's unions and professional associations as well as the state departments of education which support INSET programmes in developing countries. Examples of these are the United States AID programme and UNESCO (Morant cited in: Bagwandeen 1991:178). Agencies and providers of INSET using interactive television are not only dealing with scores of students at scores of different locations, but these are located under the auspices of different campuses, each with their own administrations, registrations, academic calendars and accompanying policies, observed Klivans (1994:31).

3.7 CATEGORIES FOR IN-SERVICE TRAINING GUIDANCE TEACHERS

An ITV presenter may consider the following INSET categories as identified by Evans (1993:16); Hillard and Wissink (1999:17)

3.7.1 Career development of teachers

This is in-service training taken in order to improve the teacher's career development and mobility within the school organisation or to improve his or her career chances in another school or a different role in the education service.

3.7.2 Professional development

This kind of in-service training may be aiming at either general teaching ability, for example mixed ability teaching or writing study materials or more specific competencies, for example remedial teaching or counselling.

3.7.3 **Externally oriented training**

This kind of in-service training serves the purpose of enabling schools to co-operate effectively with other institutions in the context of the school, for example INSET projects to improve the link between primary and secondary education.

3.7.4 **School development**

This category may include elements of other categories. Its main purpose is to improve the school organisation, the teaching, the curriculum, in order to improve the quality of learning. The ideal that must be striven for is that each guidance teacher, as a professional person, shall grow in knowledge and support-giving skills. Dube (1994:43) believes that "Technology brought about a shift in society from occupations which are few and general to occupations which are many and highly specialised" an ideal which must be striven for in school development in-service training.

3.7.5 **Specialization**

This category involves in-service education and training courses which are taken in order to give teachers the opportunity to update their knowledge or specialize in a particular subject or curriculum area for instance career orientation or remedial education or life orientation.

3.8 IMPLEMENTATION OF TECHNOLOGIES IN THE PROVISION OF GUIDANCE AND COUNSELLING

There are numerous technologies traditionally used in the South African guidance system including television, videocassettes, videodiscs, audio cassettes, computer-assisted instruction, radio, telephone and overhead projectors. Most of these were not available, accessible and affordable to guidance teachers in rural areas.

The growing electrification of schools in the Northern Province rural areas opens up opportunities for extending the use of more technologies. Most guidance teachers are increasingly exposed to new and upgraded laboratories and other facilities, an event that calls for a need to in-service train them.

Kwakwa (1996:23) asserts that "rapidly changing technology implies that new methods of teaching are constantly introduced and that teachers should keep abreast of these changes". In-service training for thousands of guidance teachers will need improved technologies that may reach out to many people with increased cost-effectiveness. ITV is potentially appropriate to meet the challenges and in-service guidance teachers to keep up with the speed of change in the world and correct the existing gaps to satisfy the needs of their learners.

3.9 THE IMPACT OF INTERACTIVE TELEVISION FOR GUIDANCE STAFF DEVELOPMENT

3.9.1 The relevance of ITV

According to Bagwandeen (1991:238), "the UNESCO Report of 1970 epitomizes the impact of ITV for INSET: Television will inevitably play an increasingly effective part in teacher training and further training, for it has the advantage of illustrating what, in writing or an academic presentation, is addressed to the mind only. It shows in a vivid and lively way what many minds can take in only imperfectly through the written or spoken word".

3.9.2 The advantages of ITV for INSET

Broadcasting television portrays distributional advantages especially in developed countries where practically everyone can view broadcast transmissions. It gives the teacher a view of activities that are too expensive for direct experience. It provides insight into wide ranging social and personal interactions (Bagwandeen 1991:238; Moore 1990:16).

ITV also exhibits the advantage of facilitating the illustration of principles involving dynamic change or movement; illustration of principles involving two or three or n-dimensional space, the presentation of geographic features and other facets of our existence (Bagwandeen 1991:238).

ITV as a strategy for INSET and distance education provides the educator-learner the opportunity to practice high level skills analysis. The educator-learner is afforded the condition of applying abstract principles to real world situations of evaluation and generalizations from the comfort of his or her armchair.

3.9.3 **Disadvantages of television broadcasts for INSET**

Some limitations concerning television broadcasts worth nothing include the following:

- Transmission times convenient for guidance teachers are not easily available
- Programmes may be ephemeral as they cannot be reviewed or interrupted
- Programmes elicit passive response and are sometimes too open-ended and loosely structured for rigorous study.

ITV can overcome these limitations of a television. ITV can be interrupted, reviewed and it is also interactive in real time and in time different from real time.

3.9.4 **Provision of INSET for professional career's needs**

Ideally, guidance teachers pass through the phases of the early career period, middle career period and later career period in their own professional development. Morant cited in Bagwandeen (1991:153-154) postulated four main types of the teacher's professional career needs that corresponds to their career stages, namely

Table 3.3: The teachers career phases and career needs

	CAREER PHASES	CAREER NEEDS
1	Period of probation at start of career	Induction needs
2	Adjustment period immediately following appointment to a new post	
3	Early career period, serving as subject or class teacher	Extension needs
4	Middle career period, serving as head of department	
5	Later career period, serving as deputy head or head	
6	Period towards end of gap in career	Refreshment needs
7	Period prior to having to teach a subject or grade not taught for a long time for an example since teaching practice	
8	Period of excessively repetitive professional experience, for an example same post, same school, similar type of learners	
9	Period prior to internal redeployment	Conversation needs
10	Period prior to external redeployment	
11	Period of anticipated promotion	
12	Period of ante-retirement	

(Source: Morant 1981:7 in Bagwandeen 1991:154)

Programmes can be designed and presented through ITV to address the various career needs as illustrated above.

The beginning teacher upon his or her appointment enters an area of competing pressures where he/she needs to adopt or create appropriate guidance strategies to enable him or her to cope with his/her new situation. ITV can provide INSET for the induction needs in this case.

If the teacher is in an early stage of his/her career his/her needs might be the reinforcement of academic knowledge and subject didactics should he/she be in the middle of his/her career his/her INSET propensity might be towards a better grasp of curriculum theory. Again ITV can facilitate the provision of extension needs.

Generally speaking teachers' refreshment needs are widely varied. According to Bagwandeen (1991:158)

- There are some teachers who may be returning to the classroom after a period of absence from teaching. These educators will need updating in terms of methodology and subject matter.
- A teacher may be forced to teach at a phase of the school or some subject possibly to avoid redundancy or redeployment. Such teachers too need to be updated in terms of the new demands being placed on them.
- Teachers may have occupied the same post for a considerable length of time. This raises the issue of motivation and the need to reinvigorate, reanimate or restore the teacher in terms of his or her professional and academic renewal.

In this case ITV can be used to meet the refreshment needs by anyone who considers a refresher course to be designed to retrain in subject areas previously covered by the individual or group.

Teachers due to transfer entirely to different jobs in schools may experience conversion needs if they have received no previous preparation for the new work. According to Bagwandeen (1991:159) such adjustment may involve:

- External redeployment with the education service, for instance, when a teacher initially educated for primary work is moved into a secondary school
- Internal redeployment, for example, when a history teacher is requested to teach a scarce subject as mathematics or physical science in the same secondary school.

Morant (Bagwandeen 1991:159) describes these cases as "lateral conversion needs". These teachers will require considerable retraining enabling them to move sideways from one post to another, albeit their status remaining unchanged.

Teachers who are promoted to positions of heads of departments, deputy principals and principals, assume more weighty responsibilities and duties which are different in kind from the work that they have been doing previously. Morant (Bagwandeen 1991:160) describes these needs as "vertical conversion needs".

ITV can be employed to introduce, show and inculcate the methodology for presenting the content required.

3.10 CONCLUSION

Interactive television as a supportive mode of distance education has the potential to present in-service training that facilitate the redistribution of resources and learning in the support-giving environment. The Final Report of the Task Team for the Transformation of Educational Broadcasting (1995:2) rightly pointed out that "distance education institutions should develop quality educational programmes as a matter of urgency in order to build capacity by "in-service" training educators to use educational programmes, educational practitioners for production and learners to use the system of educational broadcasting". ITV have the potential to a create support-giving environment for instructors, teachers, programme designers and developers. It may also offer the opportunities to transform support-giving methods, techniques, tools and aids as well as evaluation systems. In this study the greatest shortcoming warranting the use of ITV revolves around the whole issue of upgrading the guidance teacher's professional qualifications. The issue concerns how to effectively make a quality guidance support-giving environment available, accessible, affordable and timeously to large numbers of guidance teachers from traditionally marginalized communities in remote and low-technology environments.

CHAPTER FOUR

THE USE OF INTERACTIVE TELEVISION TECHNOLOGY IN THE SCHOOL GUIDANCE SUPPORT ENVIRONMENT: A SURVEY STUDY

4.1 INTRODUCTION

The survey was carried out in the Northern Province Department of Education Secondary Schools and colleges of education. It was prompted by the fact that the Department of Education in the Northern province installed interactive television equipment in those institutions. This initiative created a new teaching and learning environment which called for an adapted support environment in the guidance and referral systems which could offer learners and teachers an opportunity to interact to promote outcome based education.

The paramount concern raised by the researcher was not on the subject matter for guidance and the referral system, nor the teaching methods but on the availability, accessibility and affordability of the electronic media, namely, interactive television to the rural and previously marginalised guidance teachers. The researcher engaged in a survey study to gather the opinions and the perceptions of educators and administrators concerning the extent to which the interactive television reaches the teachers in an effort to create a supportive environment for both teachers and learners.

This chapter presents an outline of the procedures by which the data was collected and handled. The following aspects are discussed as components of the research method: the research design, methods of sampling, the target population, the study sample, the sampling procedures and the methods of data collection, data processing as well as data interpretation.

The researcher espoused the qualitative research methods that reduce data to themes and categories in presenting the results. According to Rudestam and Newton (1992:113) "these include, but are not limited to interview transcripts and field notes, a wide variety of records, documents and unobstructive measures". Comments, findings and implications of the findings concerning the opinions of teachers regarding the status of the ITV technologies were discussed.

4.2 DEFINITION OF CONCEPTS

4.2.1 The concept "survey"

According to the Oxford Advanced Learner's Dictionary (1991:1296) the verb "survey" means "to look carefully at all of ... especially from a distance". The noun "survey" means to investigate the behavior, opinions of a group of people usually by questioning them".

4.2.2 The concept "study"

The term "study" implies an investigation of a subject. The verb "study" means "give one's time and attention to learn about something". Oxford Advanced Learner's Dictionary of Current English (1991:1277-1278). Reader's Digest Oxford (1993:1547) pointed out that the noun "study" means "devotion of time and thought to acquiring information".

4.2.3 Definition of other concepts

The reader is referred to chapter one, two and three above.

4.3 THE RESEARCH METHOD

The researcher's approach is focused on the implementation of the methods that could enhance meaningful research results. The question here is whether or not the interactive television phenomenon actually exists and is utilized in the Northern Province rural high schools' guidance system, and if so, what the opinion of the educators is regarding the degree or intensity of its occurrence?

4.3.1 A survey study approach

A survey study approach was espoused in view of the following major characteristics, which according to Fraenkel and Wallen (in Maake 1995:85-86) all surveys possess:

- "information is collected from a group of people in order to describe some aspects of characteristics such as abilities, opinions, beliefs and/or knowledge of the population of which that group is part
- the main way in which the information is collected is through asking questions (the answers to these questions by the members of the group constitute the data of the study) and
- information is collected from a sample rather than from every member of the population".

In this survey approach the researcher supports Smith (1995:6) who argues that "the research method involves research design, target population and sample, method(s) of data collection, method(s) of data systematisation and analysis, planning of deadlines and estimation of costs".

The researcher devoted his time and thought to acquiring information concerning the availability and utilization of interactive television in schools.

4.3.2 The research design

In the quest to research the utilization of the ITV phenomenon the researcher organised and controlled the survey environment and the strategy of the research. The aim of the design is to regulate the possibility of research bias and sampling errors that would affect the reliability and validity of the results. The focus of the research strategy is to explore the availability, accessibility and affordability of the ITV technique among the guidance teachers in the rural areas. The researcher acknowledged the non-compartmentalisation of exploratory, descriptive, explanatory and predictive research strategies. The idea is corroborated by Babbie (1992:6) who maintained that "the best study design is one that uses more than one research method, taking advantage of their different strengths". In this study the use of research instruments such as questionnaires and interviews are justified.

The arrangements enabled the researcher to explore the opinions of guidance teachers located in remote, rural an disadvantaged communities.

4.3.3 The method of sampling

Steyn, Smith, Du Toit and Strasheim (1994:16) rightly pointed out that "A suitable sampling method can only be selected once the researcher has acquired a complete description of the population from which the sample is to be drawn".

4.3.3.1 The Target population

A population is the total collection of individuals potentially available for observation who exhibits the features to which the research hypothesis refers. "The target population must always be defined in terms of content, extent and time" argues Smith (1995:16). The accessible population for the researcher included all guidance teachers in the Northern Province's rural high schools already employed by the state that enjoyed the interactive television services over the period from January 1997 up to December 1998.

Table 4.1 illustrates a list of primary schools, high schools and colleges of education where interactive television devices were installed in the Northern Province at the time of research, from 12 March 1999 up to 30 April 1999.

Table 4.1(a): List of interactive television schools and colleges of education in the Northern Province in 1998

Region	ITV colleges	ITV primary/high schools
Western	Mokopane	Bakenberg, E D Rampola
Central	-	Bokamoso; Matladi; Mmatsela, Phala
Northern	Venda; Tshisimane	-
North Eastern	Mapulaneng; Giyani	Nkateko
Eastern	Naphumo, Modjdaji	-
Southern	Mamokgalake-chuene, Sekhukhune	Baropodi; Moroka lebole; Nape-a-Ngoato, Leolo

4.3.3.2 The study sample

Naturally it is impractical to involve all members in a large target population such as the ideal population of all guidance teachers in all interactive television centres in the world. A limited number of ITV centres were chosen considering the minimum possible number of guidance teachers at the institution and the neighbouring non-interactive television (NITV)) high schools that also participated in the interactive tele-teaching project. The selected institutions are therefore considered in the study sample that represented the target population. (Refer to Annexure C)

4.3.3.3 The sampling procedures

The principles underlying simple random sampling, stratified random sampling, systematic sampling and cluster sampling as probability procedures were considered by the

researcher. Steyn, Smith, Du Toit and Strasheim (1994:28) commented that "A small number of observations will suffice for representing a homogeneous stratum, while a large number of observations is required from stratum that is heterogeneous with respect to the characteristics being studied". In this study the researcher divided the population into natural regional subgroups where the ITV centres were geographically close to each other as illustrated in table 4.1 above.

The researcher decided to select three clusters at random. He used random numbers that identified clusters for the central, Southern and Western regions. He also employed systematic sampling to decide on the twelve ITV centres where he circulated the questionnaires on the 12 March 1999 after obtaining permission *via* departmental protocol.

4.3.4 **Methods of data collection**

Operational decisions concerning the practical methods of investigations that are going to be implemented.

4.3.4.1 **Administrative procedures**

According to Smith (1995:17) "The process of data collection is preceded by a number of administrative measures, namely:

- Arranging venues where the data will be collected
- Deciding on the way in which "respondents" will be approached and involved
- Choosing the apparatus/aids necessary for data collection and
- Cost accounting with regard to time and financial aspects"

4.3.4.2 **Using questionnaires as self-report devices**

The researcher worked consciously to improve the quality of the questionnaire, for the conclusions to be drawn are based on the information obtained using this instrument.

Aspects that received special attention included the advantages and the disadvantages of the questionnaires, reliability and validity of the questionnaires, the nature of questions in a questionnaire and the sampling procedures employed.

Two questionnaires with structured questions were compiled. The length of the questionnaire was influenced by the kind of information the researcher wanted to acquire. See Annexures A and B. A pilot study was conducted to check ambiguous and vague statements in the questionnaires. This was done by letting certain individuals from the population complete some of the questionnaires. This enabled the researcher to revise them according to the results of the test. Annexure A is an example of the questionnaire distributed to respondents.

4.3.5 **Data analysis**

The first step in the data analysis phase was the coding of the questionnaires. This was done manually according to pre-determined codes. After coding, the codes were captured on computer. SPSS software was used to perform a frequency distribution.

4.4 **RESEARCH FINDINGS**

The aim of the questionnaires was to establish the professional position of the guidance teachers and to determine the circumstances surrounding the accessibility of the ITV. Different answers and opinions were stated by respondents.

4.4.1 **Please provide your highest academic qualifications (v3)**

The frequency table 4.1 compares the distribution of teachers in the interactive television and the non-interactive television institutions according to their academic qualifications.

Table 4.1: Highest academic qualifications of teachers attached to the ITV and non-ITV institutions

	1	2	3	4	5	6	TOTAL
ITV	0 (0,0)	11(21.2)	9(17.3)	14(26,9)	17(32,7)	1(1,9)	52(100,00)
NON-ITV	1(1,1)	26(283)	22(23,9)	26(28,3)	15(16,3)	2(2,2)	92(100,0)
	1(0,7)	37(25,7)	31(21,5)	40(27,8)	32(22,2)	3(2,1)	144(100,0)

Key:

1 = less than standard 10
2 = standard 10
3 = diploma
4 = first degree
5 = honours degree
6 = masters degree

Comments

All 144 teachers identified for the research returned the completed questionnaires.

Findings

Table 4.1 indicated that 52 (36,1%) and 92 (63,9%) of the teachers were attached to the ITV and non-ITV institutions respectively.

Only one (1) teacher was found to be teaching at a secondary school while he/she himself/herself was not in possession of a standard ten qualification. Additional 37 teachers had a standard ten qualification as their highest qualifications 38 (26,4%) underqualified teachers could therefore be identified for school-based upgrading programmes using interactive television facilities. Eleven (11) teachers out of the 38 are already attached to ITV institutions. The remaining 27 are serving non-ITV schools within the radius of ten kilometers.

Implications

The under-qualification of teachers, especially among geographically dispersed and disadvantaged communities, could be addressed through using distance education methods (such as correspondence study) supported by ITV broadcasts.

4.4.2 Please provide your highest professional qualifications (v4)

The following list gives a reflection of the professional qualifications as mentioned by all teachers from both the ITV and non-ITV institutions who participated in the study.

Table 4.2: A list of teacher professional qualifications

	Qualification	Teachers	Percentage		Qualification	Teachers	Percentage
1	P T C	6	4,2	9	H E D	17	11,9
2	H P T C	2	1,4	10	F D E	6	4,2
3	P T D	13	9,1	11	DIPL. PAED	1	0,7
4	S P T D	3	2,1	12	U ED	4	2.8
5	J S T C	15	10,5	13	BA (Paed)	4	2.8
6	S T D	49	34,3	14	B A E D	6	4.2
7	S E C	2	1,4	15	BEd	5	3.5
8	S E D	7	4,9	16	BSc (ED)	3	2.1

Key

1	PTC	= Primary Teachers Certificate
2	HPTC	= Higher Primary Teachers Certificate
3	PTD	= Primary Teachers Diploma
4	SPTD	= Senior Primary Teacher's Diploma
5	JSTC	= Junior Secondary Teacher's Certificate
6	STD	= Secondary Teachers Diploma
7	SEC	= Secondary Education Certificate
8	SEC	= Secondary Education Diploma
9	HED	= Higher Education Diploma
10	FDE	= Further Diploma in Education
11	DIPL	= Diploma in post Advance Education
12	UED	= Undergraduate Education Diploma
13	BA (Paed)	= Bachelor of Arts in Post Advance Education
14	BA Ed	= Bachelor of Arts in Education
15	BEd	= Bachelor of Education
16	BSc (Ed)	= Bachelor of Science in Education

Comments

The use of technologies at any one given time varies from school to school depending on the availability of resources, the qualities of the teachers and their highest level of their professional qualifications.

Findings

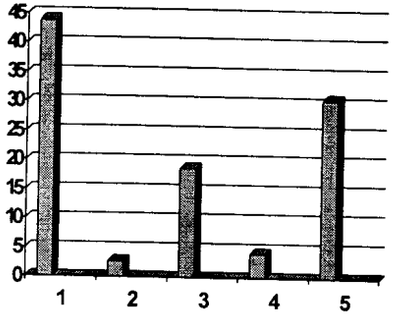
Table 4.2 indicate that all 144 teachers attended pre-service teacher education and training. 97 (67,4%) teachers college related professional qualifications, namely PTC (6), HPTC (2), PTD (13), SPTD (3), JSTC (15), STD (49), SEC (2) and SED (7). The table also indicated that 17 (12)%) teachers were in possession of a higher education diploma.

Implications

Teachers who were trained in the historically disadvantaged communities that lacked access to new technologies are currently exposed to new information communication technologies. This will impact on the teachers' qualities and professional qualifications level. According to Dubery, Du Pisani and Sedibe (1999:65) "teachers commended the ITT programme and found the transmissions a valuable resource for their own teaching". The implications are that teachers' professional qualifications will also be upgraded.

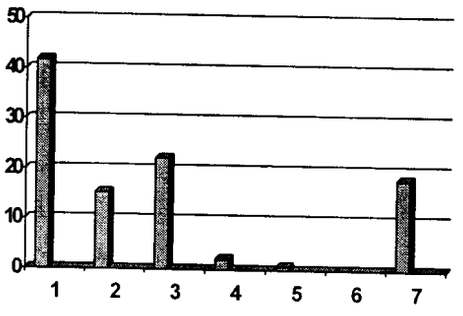
4.3.3 Where did you receive your highest formal training level in school guidance and counselling? (v5)

Table 4.3: Nature of institutions where teachers received their highest formal training in school guidance and counselling

Category	Teachers	Bar graph	Comments, findings and implications
1 A residential college 2 A correspondence college 3 A residential university 4 A correspondence university 5 No formal training	63 4 27 6 44	 1 = 43,8% 2 = 2,8% 3 = 18,7% 4 = 4,2% 5 = 30,6%	▪ All respondents answered this question ▪ The table reveal that 44 (30,6%) teachers received no formal training in school guidance and counselling. ▪ The vast majority – 67 (46,5%) of teachers received college diplomas as their highest formal training in school guidance and counselling ▪ The implication is that the vast majority (77,1%) of teachers are inadequately equipped to handle school guidance and counselling in a professional manner

4.4.4 What is your highest qualification level received at college/university in a guidance course? (v6)

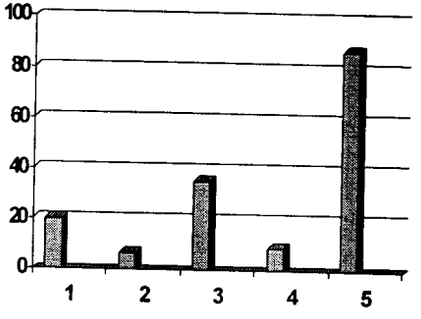
Table 4.4: Teachers' highest academic qualifications in school guidance

Degree/College level	Teachers	Bar graph	Comments, findings and implications
1 First year	60		▪ There was no differentiation for college and university first, second and third year level
2 Second year	22		▪ Table 4.4 reveal that the vast majority (41,7%) possessed only first year academic qualifications. It also revealed that 26 (18,1%) of teachers received no college/university academic qualifications
3 Third year	32		▪ The implications are that most teachers lack the necessary theoretical background in the subject guidance
4 Honours level	3		
5 Masters level	1		
6 Doctorate	0		
7 Not applicable	26		

1=41,7% 2=15,3%
3=22,2% 4=2,1%
5=0,7% 6 =0%
7 =18,1%

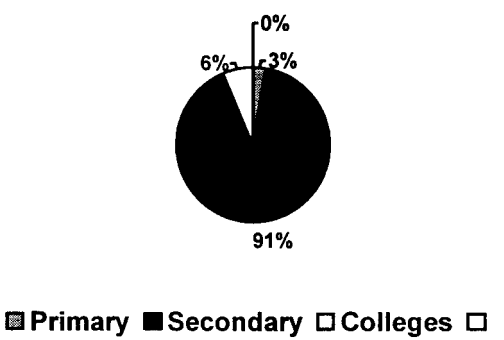
4.4.5 What is your position at the institution? (v7-11)

Table 4.5: The distribution of teachers according to their positions at their institutions

Category	No	Bar graph	Comments, findings and implications
1 Manager (Rector/Principal) vice rector/deputy/principal) 2 Lecturer 3 Guidance Teachers 4 ITV Co-ordinator 5 Subject teacher	29 10 50 13 123	 1= 20,4% 2 = 7,1% 3 = 35,2% 4 = 9,2 % 5 = 86,6%	▪ In the following categories 1,2,3,4 and 5 the following frequencies were missing 2,4,2,3 and 2 respectively ▪ Table 4.5 revealed that 123 (86,6%) of teachers are subject teachers and that only 13 (9,2%) served as ITV co-ordinators ▪ The implications are that only 13 (9.2%) received in-service training in the handling of ITV equipment

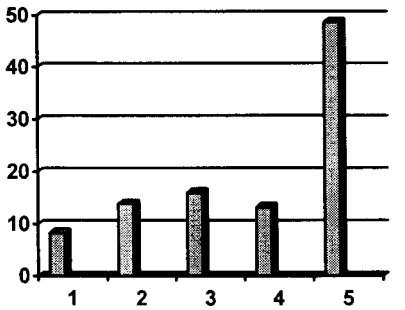
4.4.6 How do you grade or classify our present institution? (v12)

Table 4.6: Distribution of teachers according to type of school

Category	No	Pie	Comments, findings and implications
1 Primary school 2 Secondary schools 3 Colleges of Education	4 (2,8%) 131(91%) 9 (6,3%)		Table 4.6 revealed that 4 (2,8%, 131 (91%) and 9 (6,3%) of teachers participated in the ITV programme from different types of institutions. The implications are that the availability of the ITV equipment was primarily focused on the secondary schools

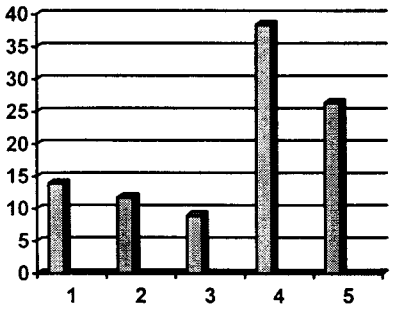
4.4.7 For how many years have you been attached to this institution? (v13)

Table 4.7: Distribution of teachers according to their experience at a particular institution

Category	No	Bar graph	Comments, findings and implications
1 Less than 3 years 2 Three to five years 3 Six to seven years 4 Eight to nine years 5 More than ten years	12 20 23 19 70	 1 = 8,3% 2 = 13,9% 3 = 16,0% 4 = 13,2% 5 = 48,6%	▪ The results showed that 70 (48,6%) which is the vast majority served at their current institutions for more than ten years ▪ The implications are that they are deeply acquainted with societal deprivations of their institutions

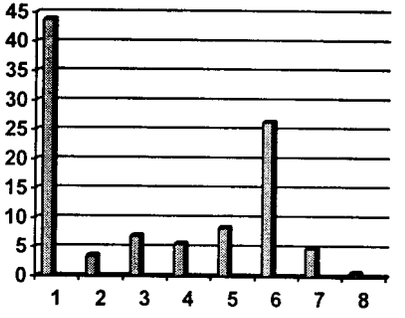
4.4.8 For how many years have you been providing personality, educational, social and career guidance to learners? (v14)

Table 4.8: Distribution of teachers according to their long service in the teaching of school guidance

Category	No	Bar graph	Comments, findings and implications
1 Less than two years 2 Two to three years 3 Four to five years 4 More than ten years 5 Not applicable	20 17 13 56 38	 1 = 13,9% 2 = 11,8% 3 = 9,0% 4 = 38,4% 5 = 26,4%	▪ Some teachers – 38 (26,4%) were never involved in the teaching of school guidance ▪ The table revealed that 56 (38,4%) teachers have been teaching school guidance for more than 5 years ▪ The implications are that the vast majority (61,6%) were never involved in the affective aspects of the learners

4.4.9 Mention the highest class in which you teach guidance? (v15)

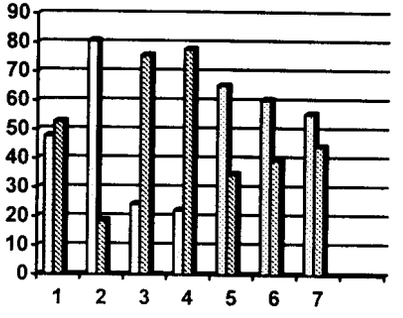
Table 4.9: Distribution of teachers according to the highest levels in which they offer guidance

Category	No	Histogram	Comments, findings and implications
1 Not applicable	63		▪ The vast majority – 63 (43,8%) of teachers offer no guidance classes, followed by 38 (26,4%) of teachers who are offering guidance classes to grade 12 learners
2 Std 6 (grade 8)	5		▪ The implications are that the remaining number of teachers are not exposed to situations where they could interact with school learners. It is worth noting that each teacher should be a guidance teacher equipped with basic knowledge, and skills for rendering support to learners
3 Std 7 (grade 9)	10		
4 Std 8 (grade 10)	8		
5 Std 9 (grade 11)	12		
6 Std 10 (grade 12)	38		
7 Other	7		
8 No response	1		

1 = 43,8% 2 = 3,5%
3 = 6,9% 4 = 5,6%
5 = 8,3% 6 = 26,4%
7 = 4,9% 8 = 0,7%

4.4.10 The status of school guidance as a non-examination subject left many teachers with different perceptions (v16-22)

Table 4.10: Perceptions of teachers on the status of school guidance as a non-examination subject

Category (different perceptions)	Yes	Bar graph	Comments, findings and implications
1 Teach irrespective of guidance qualification	68		▪ One respondent refrained from responding to the idea as to whether guidance is afforded the status it deserves ▪ Table 4.10 revealed that the vast majority – 116 (80,6%) of teachers believed that guidance is not afforded the treatment it deserved ▪ It also revealed that 112 (77,8%) of teachers maintained that it should not be handled **only** after hours by the guidance teachers ▪ The implications are that when ITV programmes are introduced in schools, school guidance will likely not be allotted a slot until all other subjects are considered ▪ It also implies that guidance slots or periods will continue being used to close gaps on the general time tables
2 Not afforded the treatment it deserves	116		
3 Responsibility of school principal	35		
4 Handled after hours	32		
5 Non-supply of syllabi	94		
6 Used for closing gaps	87		
7 Teacher lack motivation to offer it	80		

Agree	Disagree
1 = 47,8%	1 = 52,8%
2 = 80,6%	2 = 18,7%
3 = 24,3%	3 = 75,7%
4 = 22,2%	4 = 77,8%
5 = 65,3%	5 = 34,7%
6 = 60,4%	6 = 39,6%
7 = 55,6%	7 = 44,4%

4.4.11 In which ONE of the following areas is your institution situated? (v23)

Table 4.11: Location of ITV and non-ITV institutions

	Rural	Township	Total
ITV	41 (28,5%)	11 (7,6%)	52 (36,1%)
Non-ITV	77 (53,5%	15 (10,4%)	92 (63,9%)
Total	118 (81,9%)	26 (18,1%)	144 (100,0%)

Observations

Frequency table 4.11 compares the distribution of ITV institutions with the non-ITV institutions in the rural areas and townships.

Findings

The frequency table 4.11 indicates that 118 (81,9%) teachers as compared to 26 (18,1%) teachers from a sample of 144 teachers are attached to institutions in the rural communities. It also revealed that 77 (65,25%) teachers are from the non-ITV schools.

Implications

The results has the implications that 77 (53,5%) and 15 (10,4%) teachers from rural and township institutions respectively, who are attached to the non-ITV institutions must arrange transport to commute some 10 kilometers. This must occur daily from Monday to Thursday per week to view the ITV telecasts with their counterparts, that is 41 (28,5%) and 11 (7,6%) from rural and township areas respectively where the facilities are installed. Given the features of rural, remote and disadvantaged communities, the likelihood is that on arrival the infrastructures are at odd.

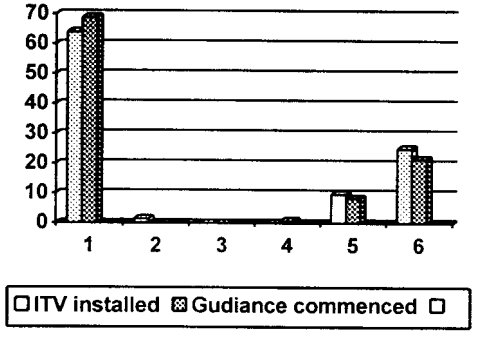
Section B is aimed at establishing the extent of the availability and accessibility of the ITV services to both teachers and learners. According to Dubery, Du Pisani and Sedibe (1999:64) "The ITV system is totally interactive. The studio broadcasting is used in teaching many students at the same time. The students can ask questions at any stage during the broadcast and the presenter in the studio can respond to the questions. This is done *via* standard telephone lines. Students who are unable to participate in a live broadcast can record the programme and communicate with the lecturer at a later stage *via* electronic mail, fax or telephone".

In this study the researcher explored the conditions and the status under which the ITV equipment were made available, accessible and affordable to both the ITV institutions and the non-ITV institutions. In the research findings the following categories were discussed.

4.4.12 Comparing the years of ITV equipment and ITV guidance programmes commencement (v24 and v25)

Table 4.12: ITV equipment installation *versus* ITV guidance programme commencement

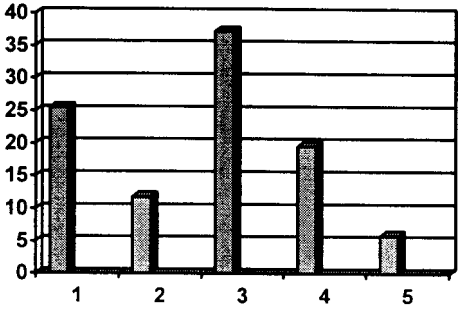
CATEGORY		C1	C2	Bar graph	Comments, findings, implications
Year ITV devices installed (C1)	Year Guidance program . commenced (C2)	Frequencies	Frequencies		
1 Not installed	Not commenced	92	99		▪ The equipment is installed at different institutions at different times
2 Before 1995	Before '95	2	1		▪ Table 4.12 illustrate that 92 (63,9%) teachers reported that ITV equipment was not installed at their schools.
3 In 1995	In 1995	0	0		▪ It also indicated that 99 (68,8%) teachers reported that the ITV guidance programme did not start at their institutions.
4 In 1996	In 1996	0	1		▪ 36 (25%) and 14 (9,7%) teachers indicated that it was installed in 1998 and 1997 respectively
5 In 1997	In 1997	14	12		▪ 12 (8,3%) and 31 (21,5%) reported that the guidance programme commenced in 1997 and 1998 respectively
6 In 1998	In 1998	36	31		▪ The implications are that guidance programmes more often receive related attention



ITV installed	Guidance commenced
1 = 63,9%	1 = 68,8%
2 = 1,4%	2 = 0,7%
3 = 0%	3 = 0%
4 = 0%	4 = 0,7%
5 = 9,7%	5 = 8,3%
6 = 25,0%	6 = 21,5%

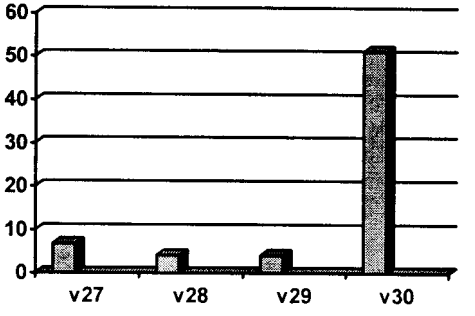
4.4.13 Where are the ITV equipment currently located?

Table 4.13: Places within the ITV schools where the ITV equipment is located (v26)

Category	Teachers	Bar graph	Comments, findings and implications
1 The media centre 2 Library 3 Laboratory 4 Classroom 5 Not installed	13(25,5%) 6(11,8%) 19 (37,2%) 10 (19,6%) 3(5,9%)	 1=25,5% 2=11,8% 3=37,2% 4=19,6% 5=5,9%	▪ It was noted that three teachers indicated that their ITV equipment was located in other places rather than the mentioned above ▪ Table 4.13 indicated that the vast majority - 19 (37,2%) teachers placed their equipment in the laboratories, 13(25,5%) in the media centre, while 10 (19,6%) were in the ordinary classrooms. ▪ The implications are that teachers still confused the concept library and the media centres, because the latter is still relatively unknown to rural settings

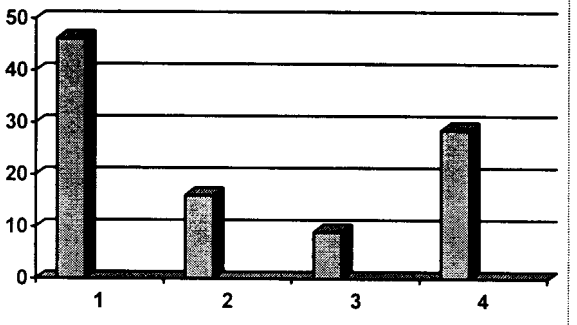
4.4.14 Which telephone services are rendered during the ITV broadcast at your institutions? (v27-v30)

Table 4.14: Telephone services rendered during the ITV broadcasts

Category	Variable	Bar graph	Comments, findings and implications
1 One telephone receiver for all 2 One facsimile 3 Cell phone 4 No extensions	v27 v28 v29 v30	 v27 = 6,9 v28 = 4,2 v29 = 4,2 v30 = 51,2	▪ Only positive findings are reflected on the histogram ▪ The table revealed that 134 (93,1%); 138 (95,8%); 138 (95,8%) and 74 (55,1%) wanted the telephone receivers, the facsimiles, cell phones and telephone extensions respectively ▪ The implications are that no interactivity will take place without such facilities to turn the ITV broadcasts really interactive TV broadcasts

4.4.15 Which one of the following features differentiates the ITV services from the conventional educational programmes? (v31))

Table 4.15: Features of ITV services that differentiate it from the conventional educational programmes

Category	Teachers	Bar graph	Comments, findings and implications
1 Viewers telephone interaction 2 Rural teleteaching 3 Variety of programmes 4 Supplementary	66 23 13 41	 1 = 46,2% 2 = 16,1% 3 = 9,1% 4 = 28,7%	▪ One frequency missing ▪ Table 4.15 revealed that ITV allows interactions from viewers *via* telephone communication. 23(16,91%) teachers maintained that ITV can implement distance learning in rural areas, 13 (9,1%) says it can broadcast a variety of programmes for learners ▪ The implications are that ITV can play a valuable role in improving and supplementing learners' subject knowledge

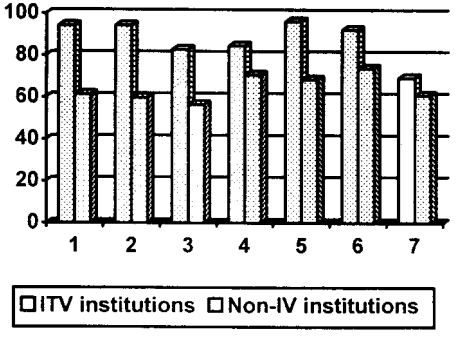
4.4.16 What is your opinion concerning the quality of the telecast? (v32-38)

Table 4.16: Opinions of teachers concerning the quality of the ITV telecasts sessions

Category	ITV vs non-ITV teachers	
1 Quality of pictures (v32)	49	56
2 Quality of sound (v33)	49	55
3 Transforming the culture of teaching services (v34)	43	52
4 Scope of interactivity with the community (v35)	44	65
5 Contribution to outreach and bridging programmes (v36)	50	63
6 In-service training of guidance teachers (v37)	48	68
7 Difference between in-service and learners' programmes (v38)	36	56

Implications are that teachers are generally positive concerning the potential role of the ITV equipment and the quality of the services to be provided through the use of ITV equipment. The overwhelming majority of respondents – 92 (63,9%) comprising, 36 (69,4%) ITV and 56 (60,9%) non-ITV teachers were convinced that guidance in-service education and training programmes should differ from learner programmes

Bar graph



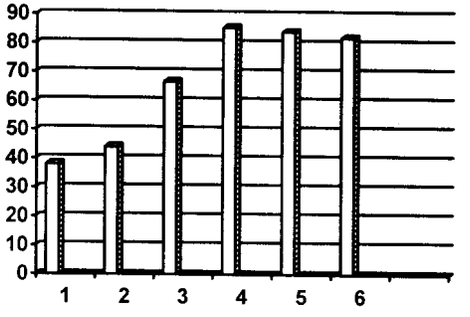
	ITV institutions	Non-ITV institutions
1 =	94,92%	61.5%
2 =	94.2%	59.8%
3 =	82.7%	56.5%
4 =	84.6%	70.7%
5 =	96.2%	68.5%
6 =	92.3%	73.9%
7 =	69.4%	60.9%

Comments, findings and implications

- Only teachers who maintained a level of positive perceptions towards a category are mentioned
- Table 4.16 indicated that 49 (94.2%) ITV and 56 (61.5%) non-ITV teachers maintained that the pictures on the TV screen during the presentations were very clean and clear. It also indicated that 49 (94.2%) ITV and 55 (59.8%) non-ITV teachers believed that the sound during the telecast was audible enough. 43 (82,7%) ITV and 52 (56.5%) non-ITV teachers believed that the presentations had the potential to transform the culture of teaching and learning services. 44(84,6%) ITV and 65 (70,7%) non-ITV teachers believed that the telecast can broaden the scope of interaction with the community. 50 (96.2%) ITV and non-ITV teachers linked this to the outreach and bridging programme while 48 (92.3%) ITV and 68 ((73,9%) non-ITV believed that the telecast will provide the in-service training of guidance teachers

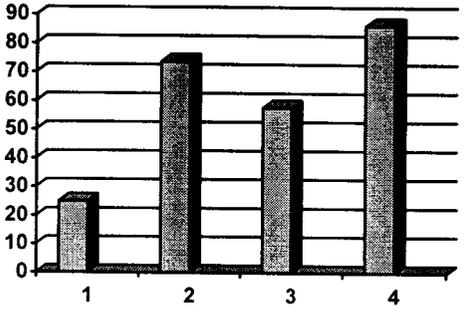
4.4.17 Who should prepare learners for participation in the ITT broadcast in order to derive maximum benefit? (v39-v44)

Table 4.17: Preferred educators for preparation of learners prior to participation in the ITT broadcasts

Category	Teachers who agree	Bar graph	Comments
v39 Programme designers at the University of Pretoria	55 (38,1%)		▪ 144 teachers from ITV and non-ITV institutions responded to variables 39,41, 42, 43 and 44 while 144 responded to variable 40. The minimum for the standard deviation is 1.00 and the maximum is 5.00 ▪ Table 4.17 indicate that the vast majority, 123 (85,4%) of teachers maintained that learners should be prepared by their respective subject teachers as facilitators. The standard deviation between the opinions from ITV and non-ITV institution teachers was 0,9440187, the mean was 1,5625. This was followed by 121 (84%) for project co-ordinators and guidance teachers, the mean being 1,7847 and the standard deviation being 0,9546588. The next was 118 (82%) teachers who maintained that subject teachers and guidance teachers should prepare learners. The standard deviation between ITV and non-ITV institutions was 1,0358521, the mean was 1,7708. ▪ The implications are that subject teachers must prepare their learners
v40 ITT programme presenters	63 (44,1%)		
v41 ITT co-ordinators	96 (66,7%)		
v42 Subject teachers	123 (85,4%		
v43 ITT co-ordinators and guidance teachers	121 (84%)		
v44 Subject teachers and guidance teachers	118 (82%)		

4.4.18 How should participants in the ITT maximise the provision of ITT services? (v45-48)

Table 4.18 Ways of treating the provision of ITT services

Category	Teachers who agree	Bar graph	Comments
1 Replacing guidance time slots on the timetable	36 (25%)		▪ All participants responded to this variable ▪ Table 4.18 indicate that 124 (86,2%) of both ITV and non-ITV teachers suggested that facilitators from all ITV and non-ITV institutions should meet on regular basis to strategise on how to maximise the quality of the services. The mean between opinions from ITV and non-ITV institutions was 1,5347 and the standard deviation 0,9601369. 106 (73,6%) recommended that guidance programmes be telecasted on fixed days. The mean was 2,0208, the standard deviation was 1,3246915. ▪ The implications are that replacing guidance time slots on the timetable with other subjects is unacceptable to all teachers. Secondly it is apparent that a small percentage of 42,4% (61) teachers misunderstood the implications of keeping on changing guidance teachers. The mean was 2,3819 and the standard deviation was 1,2900725
2 Broadcasting guidance programmes on fixed days	106 (73,6%)		
3 Sustaining the continuity by not alternating	83 (57,6%)		
4 Facilitators' regular meetings	124 (86,2%)		

1=25%

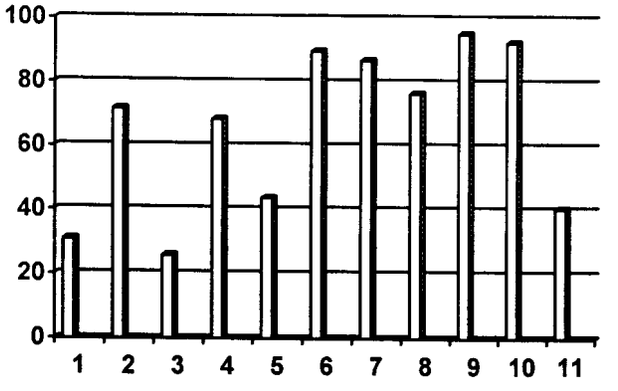
2=73,6%

3=57,6%

4=86,2%

4.4.19 **What is your opinion regarding guidance teacher qualifications, upgrading and in-service training (v49-v59)**

Table 4.19: Opinions of teachers regarding guidance teacher qualifications, upgrading and in-service training

Category		Teachers who agree	Bar graph
1	Honours degree in psychology and a teaching diploma	44 (30,8%)	
2	School guidance as major	103 (71,6%)	
3	Registration with the South African Medical and Dental Council	37 (25,7%)	
4	Class /subject teachers to handle general guidance	84 (68,3%)	
5	Teachers' certificate and junior degree in Psychology	63 (43,7%)	
6	Undergone an in-service training	129 (89,6%)	
7	ITT as a vehicle for in-service training	124 (86,7%)	
8	Weekly ITT in-service courses	110 (76,4%)	
9	Subsidise INSET	137 (95,1%)	
10	School-based INSET	133 (92,4%)	
11	Paying 50%	58 (40,3%)	

Comments, Findings and Implications

- One frequency was found to be missing for v49 and v55
- Table 4.19 revealed that:

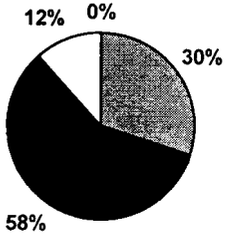
- 99 (48,9%) teachers are of the opinion that a guidance teacher need not necessarily be in possession of an honours degree in Psychology and a teaching diploma. The standard deviation was 1,3634361, the mean was 3,1678.
- 103 (71,5%) maintained that all guidance teachers should have school guidance as major subjects from tertiary institutions. The standard deviation between the opinions of the ITV and non-ITV teachers was 1,27528, the mean was 2,1250.
- 37 (25,7%) teachers believed that guidance teachers should register with the South African Medical and Dental Council. 57 (39,6%) teachers were undecided as to whether all guidance teachers should be registered. The standard deviation between ITV and non-ITV institutions was 1,3465978 and the mean was 3,1806.
- 84 (58,3%) teachers believed that general guidance aspects should be the responsibility of class/subject teachers. Standard deviations for ITV and non-ITV teachers opinions was 1,38415567, the mean was 2,4861
- 38 (26,4%) teachers were undecided, 63 (43,8%) teachers believed that a guidance teacher should have at least an undergraduate degree in psychology and a teacher's certificate. 43 (29,9%) were against the suggestion. The standard deviation was 1,2359349, the mean was 2,7292.

- 129 (89,6%) agree that a guidance teacher should have at least undergone an in-service training within a guidance and counselling programme. The standard deviation between ITV and non-ITV institutions was 0,9885711, the mean was 1,62250.
- 124 (86,1%) teachers agreed that in-service training programmes can be designed and presented through the ITT to enable guidance teachers attain the desired standards. The standard deviation was 0,8335287, the mean was 1,5874.
- 110 (76,4%) teachers maintained that the ITV in-service education and training guidance courses should be presented on a weekly basis for an agreed period. The standard deviation was 0,9803578, the mean was 1,8958
- 137 (95,1%) teachers maintain that the state should subsidise the in-service education and training for guidance teachers in the rural areas. The standard deviation between ITV institutions teachers and non-ITV institution teachers was 0,7739632, the mean was 1,3264.
- 133 (92,4%) teachers agree that the state should encourage the school-based guidance in-service courses. The standard deviation between ITV institutions teachers and non-=ITV institutions teachers was 0,8845563, the mean was 1,4722.
- 31 (21,5%) teachers were neutral. 58 (40,3%) teachers indicated that they would be prepared to pay 50% at least for their in-service training where the state is not in position to subsidise. The standard deviation between the ITV and the non-ITV institutions was 1,4152948 and the mean was 1,9375.

The implications are that the interactive tele-teaching equipment could be used effectively to influence the guidance teacher qualifications and upgrading. The findings basically implies that the state should consciously establish teacher support systems, erect teacher resource and upgrading centres and sustain such structures to serve teachers. School-based in-service training should be encouraged by both the state and the educators themselves.

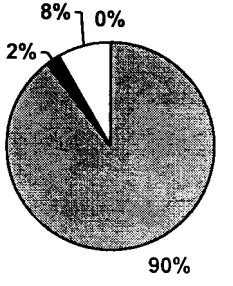
4.4.20 **To what extent could class/subject teachers effectively carry out functions now assigned to guidance personnel, assuming they are given adequate time to handle those guidance functions (v60)**

Table 4.20: Class/subject teachers handling of guidance teachers functions

Category	Frequency	Pie diagram	Comments, findings and implications
1 Very poorly if at all 2 Uncertain 3 Much better than guidance teachers	43 (29,9%) 84 (58,3%) 17 (11,8%)		▪ All teachers (144) responded to this question. ▪ The results revealed that 84 (58,3% teachers were undecided, 43 (29,9%) teachers believed that the class/subject teachers could execute the functions much better than the guidance teachers. ▪ The implications are that the role of guidance teachers as specialists in their field is challenged, hence the need for in-service training

4.4.21 A new guidance in-service training model necessary to introduce a paradigm shift (v61)

Table 4.21: Perceptions on the need for a new guidance in-service training model

Category	Frequency	Pie diagram	Comments, findings and implications
1 Strongly recommended 2 Disagree 3 A traditional model	129 (89,9%) 3 (2,3%) 12 (8,3%)		▪ The results indicated that 129 (89.9%) strongly recommended the introduction of a new guidance in-service training model. 12 (8,3%) teachers still recommended a traditional model. ▪ The implications are that transformation in the culture of teaching and learning services could only be brought about by the model that introduce a paradigm shift

4.5 SUMMARY

Kistan (1994:48) posited that "open accessibility to resources and facilities are among the areas that policy makers, media specialists and education bodies are presently debating". This chapter attempted to explore empirically local conditions and circumstances surrounding the availability and use of audiovisual units in third world countries, in particular the Northern Province in South Africa. Howells (1994:64) noted that "audio visual units in institutions of higher education are an integral part of the academic support structure and play an important role in the teaching and research processes". Accessibility of resources is made possible by collaborative members who should constitute persons from desperate institutions with different standards, operating procedures, goals, cultures and media background.

This chapter presented a brief outline of the procedures by which the data relating to the availability and use of interactive television media in institutions was collected and handled. The research data were aimed at complementing the ethnographic studies and the triangulated qualitative research methods as employed by the researcher.

The accessible population was identified and the study sample was limited to the functioning interactive television centres and their respective neighbouring non-ITV institutions that benefited from the ITV services. The accessible population for the researcher included all guidance teachers, all interactive television co-ordinators and their respective headmasters in the Northern Province rural and urban institutions already employed by the state where interactive television facilities were installed prior to December 1998. Twelve ITV centres were selected, namely, Baropodi Primary school, Mokopane and Sekhukhune Colleges of Education as well as the following high schools: Bakenberg, E.D. Rampola, Bokomoso, Matladi, Mmatsela, Phala, Morokalebole, Nape-a-Ngoato and Leolo. Structured questionnaires were mailed to these institutions and their respective nearest neighbouring high schools. The latter included Matsebong, Lengama, Ebenezer, D.G. Tsebe, Hans Komane, Ngwanamala, Dennis Matlhaba II, Mawele, Gojela, Ntata, Masedibo, Mohlakaneng, Chita-Kekana, Kgakala, Mabea, Nakedi, Kgoloutwana, Bataung,

Frank Mashile, Madithame, Hututu, Kotole, Moukangwe and Mmiditsi. The institutions had to complete the questionnaires and return them within seven days after receipt thereof.

The data analysis began immediately within the receipt of the first returned batch. The first phase was the coding of the questionnaire which was done manually. The second phase was the processing of data which was captured by means of a computer. The research findings were arranged according to categories and/or themes for teacher qualifications (table 4.3), duration in the teaching of school guidance (table 4.8), perceptions on the status of school guidance (table 4.10), geographical locations of ITV and non-ITV institutions (table 4.11), places within the institutions where the ITV equipment are located (table 4.13), accessibility of telephone services (table 4.14 and table 4.15), opinions and attitudes of teacher concerning the quality of the telecasts (table 4.16) prior preparations for learners (table 4.17) and ways for treating the provision of ITV services (table 4.18). The results were also presented through the bar graphs and pie graphs to illustrate the depths and quality of the variations. Implications of the none availability, accessibility and affordability of audiovisual units, in particular the use of interactive televisions on the vicious circle of teacher under qualifications were made a focal point. The fact that the vast majority, 129 (89,9%) of serving teachers recommended the introduction of a new guidance model to introduce a paradigm shift implies that an effective model, school-based in-service education and training, should be adopted.

CHAPTER FIVE

A PROPOSED MODEL FOR USING INTERACTIVE TELEVISION IN THE IN-SERVICE EDUCATION AND TRAINING OF GUIDANCE TEACHERS

5.1 INTRODUCTION

In-service education and training in South Africa has been inaccessible for a large group of marginalised people. The current socio-political changes, technological changes, the resource constraints and the manpower shortfalls created pressures for continuing improvement and innovation in education. The present in-service training structure has insufficient instructor and course development resources to meet the projected guidance teachers' requirements. Behera (1995:5) posited that "many countries around the world are relying more and more on educational television to train their people quickly and efficiently". It was noted that interactive video technology has the potential to provide a more efficient and cost-effective means for delivering instruction and could save on the cost of training by reducing travelling costs. According to Koble (1998:2) "access to traditional resident training courses could be extended by using blocks of distance learning courses with one instructor to simultaneously reach out and teach geographically distant site locations". Victor (1996:79) believes that "Satellite delivered education is particularly suited for South Africa, due to the geographical area, disadvantaged rural communities and the limited resources for education". This study proposes a model that will actively pursue in-service training that would empower guidance teachers with skills to create learner support-giving environments.

Study centres and community learning centres can play an important role in providing access to a variety of guidance INSET for distant guidance teachers by incorporating ITV. This study revealed that the participants preferred a new model to introduce a paradigm

shift in the INSET of guidance teachers. All participants agreed that interactive television classroom training is an excellent vehicle for refresher training.

Koble (1998:7) maintains that "access to training refers to:

a) the student's ability to get training and subject matter updates that augment resident training
b) getting the needed information to determine whether or not the training will be beneficial in updating and enhancing current competencies and
c) available training at no monetary cost to the parent organisation".

In this study the availability and accessibility of the interactive television model was investigated. A developmental model will be developed, the reason being that guidance is seen to be a relatively continuous process for all learners rather than an event which occurs only when there are problems.

5.2 DEFINITION OF THE CONCEPT "MODEL"

According to Reader's Digest Oxford (1993:983) the concept "model" refers to a "person or thing proposed for imitation. It also refers to "design or style of structure". The latter is a simplified description of a system to assist calculations and predictions.

5.3 A MODEL OF GUIDANCE TEACHER IN-SERVICE SUPPORT-SYSTEM

5.3.1 The rational for the interactive television model

According to Schmidt (1993:37) "guidance teachers should assist learners in becoming able learners, ... and help teachers provide effective instruction and create healthy interactive classroom climates for all learners". The rationale for the interactive television model involves the following:

- enabling guidance teachers to prepare learners for careers that are suitable for their interests and their abilities
- preparing guidance teachers to assist learners to seek, acquire and maintain employment and contribute to wealth creation
- equipping guidance teachers with consultation strategies to deal with subject teachers, parents and other stakeholders
- providing guidance teachers with skills necessary to assist learners to make appropriate decisions and
- developing trainees with skills necessary to design and implement programmes that will promote learners' self-development and career awareness.

A model of a guidance teacher in-service support system should therefore provide for direct experience as well as exposure to the support giving networks. Hannah (1998:7) rightly pointed out that "this is a kind of mass education model for the future"

5.3.2 **A comprehensive model of a learner support system**

Figure 5.1 is a comprehensive model of a learner support system that could be used for marginalised distance guidance teachers to ensure support to learners for the successful completion of tasks in their initial career developmental stages. A discussion of the dynamics of a model for a learner support system for marginalised geographically dispersed guidance teachers is presented. The implication is to enable the reader to capture how the power of using interactive television could be harnessed for in-service education and training guidance teachers in disadvantaged communities. Holmes and Wenreich (1997:143-144) argue that "In this approach, visual contact need not be established between the instructor and the learner other than visual contact required for learners to see the instructor and any other media the instructor wishes to use". The ITV can present the synchronous and asynchronous demonstration of the comprehensive model.

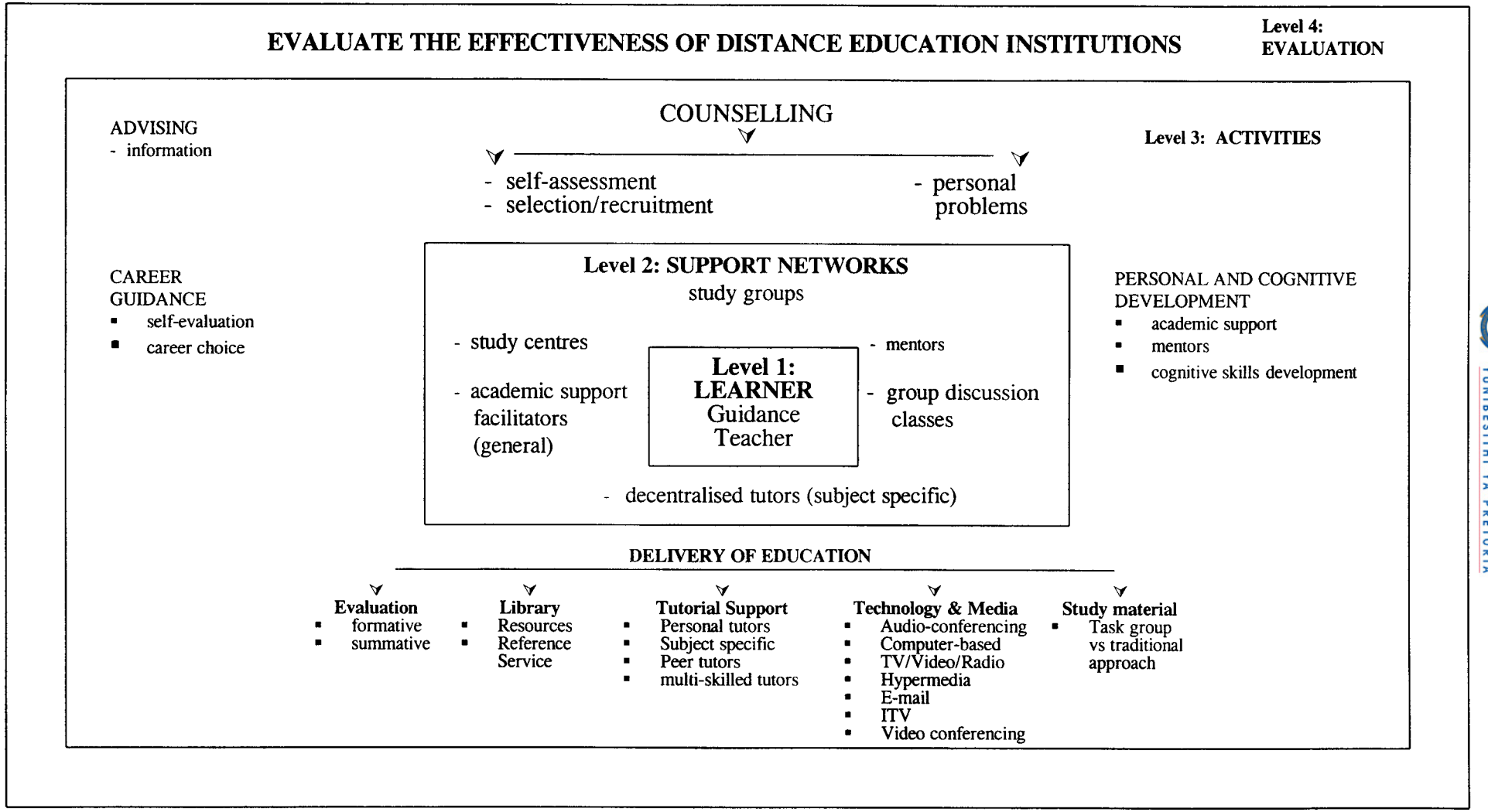


Figure 5.1 A model for learner support system for marginalised distant guidance teachers (adapted from Victor 1996:116)

The dynamics of a learner support system model

The learner is at the centre of the model and all institutional decisions are measured against the influence it would have on the progress of the learner (level 1). The learner who is the guidance teacher, although studying through distance education, is surrounded by individual and group support networks (level 2). Through ITV it is demonstrated how study centres, regional offices or meeting-places are provided where guidance teachers meet with each other or with supportive individuals or groups. Study groups can be formed and discussion-classes can take place. Support is offered by ITV guidance presenters, subject specialists, general academic support facilitators, mentors and/or peers.

At level 3 the guidance teachers is exposed to a variety of services which may be applicable to a lesser or greater extent, depending on the particular circumstances and stage of studies of the individual. The career guidance stage is characterised by self-evaluation, which leads to an appropriate completion of the career development tasks, namely, making an initial career choice, pursuing education that will enable entry into the chosen career, applying for positions, and accepting a position. A learner may be in need of further advise, counselling and self-assessment. Guidance teachers may need academic support, mentors and cognitive skills development for personal development. The in-service education and training of guidance teachers through a distance education delivery model consists of five elements, namely, the use of study materials, ITV, tutorial support, library resources as well as evaluation. Finally the progress of the guidance teacher should be continually evaluated.

At level 4, evaluation of all activities in level 3, the effectiveness of service offered at level 2, and the progress of the learner at level one are to be assessed. The result or feedback of this evaluation can be used to initiate new services, to terminate inappropriate learner support activities and to improve inefficient support services.

The researcher is convinced that the teaching, the organisation and delivery of the lesson content, the instructional strategies that ensure interaction and participation in the learning process, should also be assessed..

5.4 APPLICATION OF THE INTERACTIVE TELEVISION SUPPORTED IN-SERVICE EDUCATION AND TRAINING MODEL IN THE NORTHERN PROVINCE

5.4.1 Essential components to be present for distance education

An interactive television supported in-service training model is a form of distance education which is characterised by the following components:

- separation of learner and teacher
- provision of two-way communication
- possibility of occasional seminars
- use of technological media, for example ITV
- influence of an educational organisation, especially in the planning and preparation of materials
- participation in the most industrialised form of education

The participants in this study revealed that the in-service training model in the Northern Province displaying the above characteristics was introduced in 1997 while guidance instruction through the ITV medium started in 1998.

5.4.2 The interactive television model in the in-service training of guidance teachers in the Northern Province

The Department of Education in the Northern Province in collaboration with the University of Pretoria installed equipment for an ITV Project in several high schools and colleges of education (see Annexure C). This ITV project attempts to get involved in community

education by employing advanced technology. Television signals are broadcasted via satellite to viewers at ITV equipped schools. Viewers communicate with the presenter in the broadcasting studio *via* telephone communication.

The University of Pretoria's ITV system makes use of normal DSTV (Digital satellite Television) technology. This means that anyone (school, company, private home, learning centre) who has DSTV equipment, can receive the University of Pretoria's broadcasts. Apart from the mentioned ITV Project, the University broadcasts ITV lectures for a range of University programmes.

Protocol guidance was not established to enable the distance learning staff to practice the procedures and prompts during individual sessions using the technologies available in the ITV classroom. There was no effort made to develop student guides and handouts to support the distance learning instructional delivery. However, during the late 1998 and early 1999 school ITV co-ordinators were increasingly involved in the efforts to develop student guides and handouts. Koble (1998:3) noted that "in addition to the interactive communications during the telelecture, students were given information on additional communication opportunities to make contact with the instructor by telephone and fax". Table 5.1 discusses the strengths, weaknesses, opportunities and threats (SWOT) associated with the use of the ITV model in this province.

Table 5.1: A SWOT analysis for the interactive television in-service education and training model in the Northern Province

STRENGTHS	WEAKNESSES
▪ Its novelty attract many learners ▪ Expose learners to questions/answers ▪ An increased interactivity ▪ Promote creativity ▪ Facilitate co-operation and collaboration between neighbouring schools ▪ Reduce the distances between schools, colleges of education, technikons and universities ▪ Forge improved links between the world of work and the Department of Education ▪ Enlist services of experts in subjects	▪ Lack of direct personal contact like in face-to-face training ▪ Lack of the human element ▪ Questioning time by learners limited ▪ Only a limited number of learners can be able to ask questions ▪ Some centres don't even get a chance to ask questions ▪ Presenters just assume that pupils are listening, he/she doesn't see the students but they see him/her ▪ Presenters may discover late that a certain centre is cut off ▪ In certain areas reception may not be clear, that the sound and visual aspects are poor

OPPORTUNITIES	THREATS
▪ With experience this can improve the quality of in-service training guidance teachers ▪ There is a possibility of linking the ITV to the Internet and computer networks to improve interactivity ▪ The potential to reach vast numbers of previously disadvantaged learners ▪ Potential to conduct schoolbased in-service training courses, workshops and conferences	▪ Schools cannot afford the device ▪ With the increasing numbers in classes, there will be no individual attention ▪ The levels/standards presented to the clients in rural areas are too high ▪ Learners and in certain areas, teachers cannot cope with the presentations ▪ Teachers are embarrassed in front of learners, as such fail to attend ▪ Telephone bills and TV license drain the school funds

5.5 THE PROPOSED MODEL FOR USING INTERACTIVE TELEVISION IN THE IN-SERVICE EDUCATION AND TRAINING OF GUIDANCE TEACHERS IN THE NORTHERN PROVINCE

5.5.1 Quality indicators for an in-service training model in the interactive television classroom

It is critically important that guidance teachers in the Northern Province be empowered to operate at a comparatively equal level and standards with other guidance teachers at the different locations in South Africa. The use of interactive television could compensate for the lack of guidance expert instructors and guidance information resources in the process of in-service training of guidance teachers. The interactive television network's two-way communication permits guidance teacher interactivity with the instructor and among themselves simultaneously at geographically dispersed locations. In this situation, the one expert instructor has the capability to interact concurrently with groups of classes and trainees at different locations. Whittington (1987:54) reports that "the primary complaint of the critics is that very little research has been done to identify the unique qualities of television and to determine how to exploit them to improve instruction". ITV is a communication medium that can be exploited to enhance planning, production, utilization and evaluation of a new interactive television supported in-service training model. The suc-

cess of the ITV facility classroom could be enhanced by a consideration of the factors and support strategies that serve, as quality indicators. Table 5.2 shows the factors and support strategies that contribute to the implementation of distance learning instruction in the two-way audio and one-way video ITV classroom.

Table 5.2: Factors and support strategies that contribute to the successful interactive television classroom. Adapted from Koble (1998:5-12)

Factors promoting inter-activity		**Strategies important to the implementation**
1	The instructor	▪ Using the ITV classroom technologies to deliver the telelecture ▪ Establishing protocol and working with the distant site facilitator ▪ Questioning strategies to promote interaction ▪ Designing ITV content ▪ Professionalism, mannerisms, and gestures in the ITV classroom ▪ Effective adult learning strategies, that is, engaging adults into the learning process
2	Site facilitator	▪ Working with the site instructor ▪ Troubleshooting the equipment ▪ Setting up and co-ordinating protocol procedures ▪ Administration of the ITV classroom
3	Electronic classroom staff development and training	▪ Teaching in the ITV classroom ▪ Development of interactive ITV skills ▪ Designing and developing content for ITV classroom delivery ▪ Contingency planning ▪ Strengths of the ITV classroom instructor ▪ The importance and role of the facilitator
4	Interaction	▪ Questioning ▪ Discussion of war stories and scenarios ▪ Student guide, planned activities and supplemental exercises ▪ Case studies ▪ Reading assignments with probing questions
5	Correct operation of technology	▪ Operating procedures for electronic classroom technologies ▪ Troubleshooting the equipment prior to telecast, that is: connecting with the studio and testing the master podium controls ▪ Contingency planning for technology failure
6	Importance of graphics	▪ Designing ITV graphics for the electronic classroom ▪ Using drawings and illustrations effectively ▪ Supporting learning objectives with graphics ▪ Including graphics in the student guide
7	Student guidebook	▪ Outline of content, topics or subjects ▪ Designing illustrations and drawings to support learning objectives ▪ Summarising important concepts ▪ Supplemental activities/exercises ▪ Contingency planning

Factors promoting inter-activity		Strategies important to the implementation
8	Need for adequate planning for the instructor	▪ Preparing to teach in the ITV classroom ▪ Developing a ITV lecture plan ▪ Practice session, using ITV technology ▪ Co-ordinating with the site facilitator ▪ Preparing the student guide/materials
9	Access to training	▪ Effectiveness of staff development and training ▪ Instructor effectiveness and ITV classroom competence ▪ Facilitator effectiveness and ITV classroom competence ▪ ITV classroom technologies ▪ ITV classroom design
10	A comprehensive evaluation plan	▪ Evaluation of technology/hardware ▪ Evaluation of instructor strategies, that is, use of protocol/procedures, questioning procedures, technology applications and use, co-ordinations with facilitators, and telelecture content ▪ Evaluation of facilitator, that is use of troubleshooting technology, administration and logistics, and co-ordinations with instructor ▪ Student guide books land materials and ▪ Design of ITV classroom, technology and hardware upgrades

Comments: The dynamics of factors promoting interactivity and strategies important to the implementation of the guidance in-service training programme are directly linked to "learning resource development functions: design, production, evaluation, dissemination, consultation/training and research" as noted by Hugo (1994:34).

5.5.2 An interactive television model for in-service training of guidance teachers in the Northern Province

A proposed model for using interactive television support media in the in-service education and training of guidance teachers in the Northern Province should encapsulate essential factors and support strategies important for the implementation of distance learning instruction in the two-way audio/video electronic classroom. Figure 5.2 is a triadic representation for the interactive television model capable of promoting interactions in an interactive distance learning network.

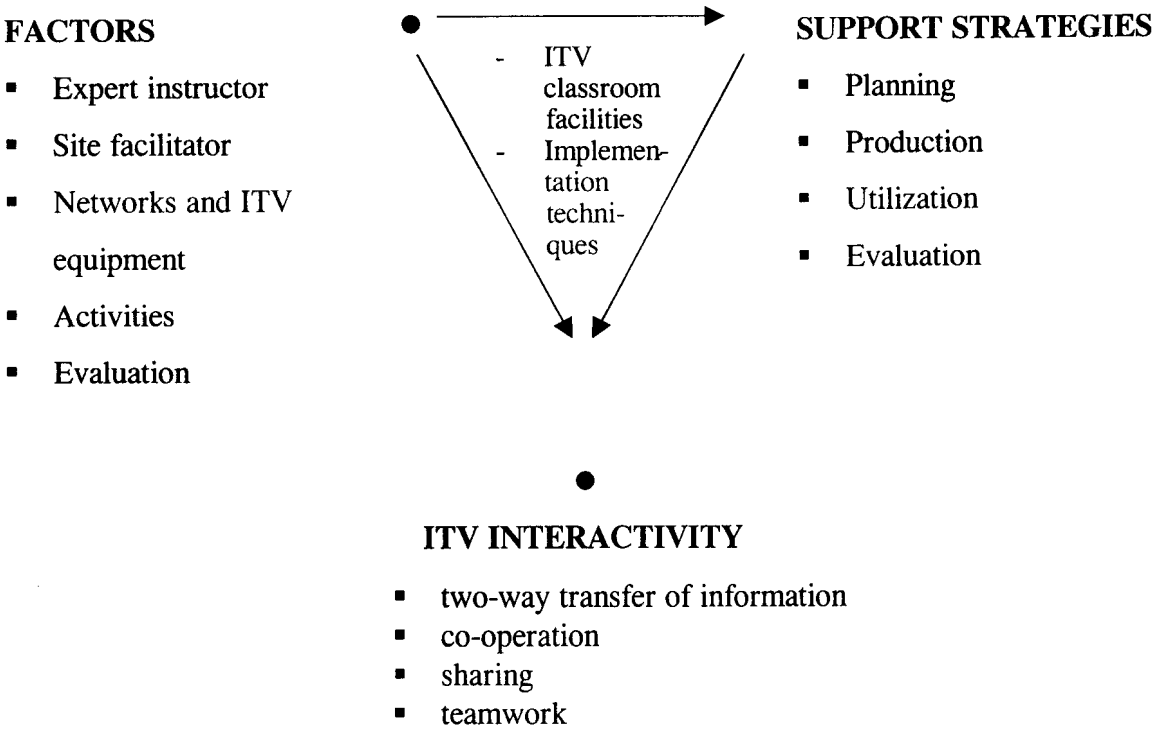


Figure 5.2: The triadic interactive television model for enhancing interactivity in the in-service training

The dynamics of factors and strategies contributing to the successful interactive television classroom

The above factors and support strategies provide a core baseline of knowledge about the implementation and quality operations in the electronic classroom. The expert instructor is the key to quality and successful instruction in the ITV classroom. His/her personal characteristics and mannerisms can impact the interactions in the classroom. He/she need to develop interactive television skills to learn how to promote a continuous two-way transfer of information communication. The site facilitator not only manages the administrative operations in the ITV classroom, but also acts as an "assistant instructor" to facilitate discussions. His/her administrative operations include opening the classroom and setting the equipment, adjusting the audio and video for clarity and maintaining, copying and distributing student materials. He/she is also dependent on troubleshooting of the equipment to ensure operability and to make sure the telelecture starts on time. The support networks to be considered include study centres, academic support facilitators (general

and specific subjects), mentors and discussion groups. Guidance teachers as site facilitators are usually involved and participate in sharing their ideas through advising, counselling as well as engaging in other activities such as personal and cognitive development and delivery of education. The model also emphasizes the fact that the instructors and the site facilitators should be evaluated on using the ITV classroom technology applications and on administrative co-ordination relative to student guides, references and handouts needed to support the tele-lecture. Thorough planning results in genuine productions and efficient utilization that lend itself to regular evaluation for purposes of improvement.

5.6 SUMMARY

The ITV model supports in-service training through examples of real applications, a combination of theoretical presentations, empirical applications and suggestions on existing literature on the subject. Satellite delivered in-service education and training is particularly suited for the Northern Province, due to the geographical area, disadvantaged rural communities and the inadequate expert instructors and technological resources. The proposed interactive television in-service training model will actively pursue interactions mediated through educational media to empower learners *via* the guidance teachers. The model is introduced to provide a more efficient and cost effective means for delivering guidance instruction.

A model for a learner support system for marginalised distance guidance teachers, the current Northern Province interactive television model and the proposed interactive television model for in-service training guidance teachers in the Northern Province were discussed. The SWOT analysis highlights the areas for improvement while the quality indicators highlight the factors and support strategies contributing to ensure quality distance learning operations.

CHAPTER SIX

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

6.1 INTRODUCTION

The Saide (1998:392) cautioned that "any new intervention to address education and training in South Africa must ensure that issues such as equality, access and redress enter the discourse". It further proposed that "considerable thought needs to be given to the options of live broadcasting into schools, broadcasting for recording and an audio cassette distribution service" (Saide 1998:95). Due to resource constraints and manpower shortages, the Department of Education in the Northern Province considered in-service training for teachers by means of interactive television media. The creation of support-giving environments and the development and distribution of support material became key components of school services, while media utilisation constituted the greatest challenge in this regard. The selected schools are to a large extent under-resourced and overcrowded. Interactive TV is particularly beneficial in schools with poorly trained teachers, few additional resources and located in rural, remote and marginalized communities.

The ITV shows promise of dramatically affecting the delivery of school guidance and counselling services by involving a few expert instructors to address large numbers of site facilitators simultaneously at different locations. ITV programmes have used two strategies to train teachers. One strategy was employed primarily as a means to meet the instructional goals for student's activities. ITV could take it further by modeling good questioning techniques for teachers. Guides could be developed for teachers, also see table 5.2. The other strategy is to use interactive TV lessons for the primary purpose of training teachers. A series of teacher training programmes are used to improve the skills

of under-qualified teachers. The instructor used printed materials and monthly block sessions in which trainees met with experienced teachers.

6.2 REVIEW OF CHAPTERS

The research attempted to establish whether the educational television media are made accessible, available and affordable to the process of in-service education and training of guidance teachers in the Northern Province. This study comprises of six chapters as briefly summarised in the following paragraphs.

Chapter one serves as an introductory chapter to this study. It presents the orientational perspective, the premises, title, concepts clarifications and statement of the problem. it also postulates the hypothesis, discusses the methodological accountability, clarifies the aims and objectives of the study and finally announces the programme of action. According to Behera (1995:47) previous "studies established the impact of television on classroom learning, were directed to finding out whether classroom learning can take place more effectively by using television media in comparison to traditional teaching and they also determined what subjects and skills can best be learnt, and how effective is the classroom learning".

Chapter two presents a general overview of the phenomenon interactive television. It also provided detailed perceptions and utilization of this media. It was noted that interactive television has the capacity to combine the visual medium and the sound in a two-way fashion to solicit responses from geographically separated learners and also to provide immediate feedback to the learners. ITV add the element of urgency during the broadcast and accessibility to large numbers of the learners as well as a broader coverage of geographical distances and remoteness simultaneously. It also advocates for optimal utilization of various media, synchronously and/or asynchronously for didactic communication which bridge the gap between the studio for broadcasting and the distant learners. Chapter two discusses the interactive phenomenon and its ensuring challenges

for guidance teachers such as media literacy. The potential role of ITV in upgrading the guidance teachers' professionalism and classroom competency is highlighted.

Chapter three provides broad perspectives on the use of interactive television for in-service education and training purposes. Guidance teachers are ideal subject specialists who underwent either traditional face-to-face contact training or modern industrialised distance training to qualify as guidance teachers. According to NEPI (1992:26) "... the African education departments have primarily been dependent on an *ad hoc* in-service training programme provided by non-Governmental organisations, tertiary institutions and government departments". The working environment of guidance teachers as depicted by chapter three are void of media and technologies and offers no opportunities for successful in-service training and classroom interactivity. The Northern province Department of Education in collaboration with the University of Pretoria embarked on an ambitious programme where interactive television equipment was installed in pilot project schools. According to Boon (*Die Tukkie* January 1999:20) " the ITT is geared to assist the lecturers in presenting their programmes technologically". The lecturers from the University's telematic studio present class instruction which are simultaneously broadcasted to different centres including the twelve identified ITV institutions in the Northern Province. The establishment of an Education Resource Centre at Kwena Moloto College of Education serves as a potential teach activity centre for this project. Teacher learning support materials are increasingly being developed to assist them to cope with the advancing technological development.

Chapter four presented briefly the procedures by which both the quantitative and the qualitative data were collected and handled. The following aspects, amongst others, were discussed: components of the research method, the research design, methods of data collection, data processing as well as data interpretations. The first step in the data analysis phase was the manual coding of the questionnaires, then followed the computerisation processes. A survey approach was used to investigate the opinions of ITV administrators, institution managers, guidance teachers and ITV co-ordinators. Comments, findings and implications of data concerning various categories and themes on teacher interactivity with

the ITV equipment were discussed. The frequency table 4.11 revealed that 118 (82%) out of a sample of 144 teachers were attached to institutions in remote and disadvantaged communities. The implications were that they had to arrange transport to commute daily for four days per week, distances of up to 10 kilometers to go and watch ITV programmes at their respective nearest ITV institution. Due to the lack of telephone infrastructures as revealed by table 4.14 the chances are that on arrival ITV equipment cannot be used. The other findings revealed in this table is that these current presentations involve a one-way visual communication where the learners can watch the presenter while the latter can only listen on the telephone void of the visual aspect. Concerning teacher qualifications which should be addressed through the use of ITV, table 4.1 revealed standard ten (Grade 12) as the highest academic level for most teachers: 69 (48%); table 4.4 revealed that 26 (18%) received no guidance training while 60 (42%) received guidance training at first year level only. Chapter four revealed that the opinions of the research group 36 (25%) table 4.18 was that guidance slots on the school timetable should be replaced by other important subjects: 103 (72%); table 4.19 shows that "all guidance teachers should have school guidance as major subject from tertiary institutions: 129 (90%); table 4.19, believed that "a guidance teacher should have at least undergone an in-service training in guidance and counselling programme": 124 (87%); table 4.19 reflected that "an in-service training programme can be designed and be presented through the ITV to enable guidance teachers to attain the desired standards". Chapter four also revealed that 137 (95%) of teachers, (table 4.19) recommended that "the state should subsidise the in-service training for guidance teachers in rural areas": 133 (92%); table 4.19, suggested that "the state should encourage school-based guidance in-service training courses", and 129 (90%) of teachers strongly recommended that "a new guidance in-service training model should be introduced".

Chapter five outlines a proposed model for integrating an interactive television medium in the in-service training for guidance teachers. Figure 5.1 is a comprehensive model of a learner support system that should be integrated in the proposed interactive television model for in-service training of guidance teachers in the Northern Province (figure 5.2). The use of the model has the potential to empower marginalised distance guidance teachers by

ensuring immediate, regular and enriched support-giving to learners enlisting the expertise from higher education institutions support networks and audiovisual units. Chapter five also highlighted the strengths, weaknesses, potential and the threats from the current interactive television model as an input to further refining the new proposed guidance in-service education and training model. The researcher concurs with Saide (1998:97) which states that "educational broadcasting has the opportunity to

- encourage reflection, reasoning, critical thinking and action
- introduce more learner centred teaching approaches
- move away from more passive to more active learning
- upgrade teachers' skills and their professional identity
- provide ongoing additional learner centred teaching resources and to
- help transform our educational system".

Chapter six provided a summary, a review of chapters, general and specific recommendations for possible research and the conclusions. The researcher subscribes to Chetty's (1996:11) belief that "instructional quality will make a dramatic upturn if tutors and trainers in their various subject disciplines make use themselves of the vast array of media".

6.3 RECOMMENDATIONS

6.3.1 General recommendations

Parker (1997:28) observed that "Apartheid victims were conditioned to see themselves as alone and powerless, as not having the freedom or the capacity to change their circumstances". It is therefore strongly recommended that the in-service programme should launch a campaign for consciously empowering the guidance teachers from marginalised communities. The following aspects should be emphasised in the ITV facilitated programme:

- Education no longer entails the learning of content (syllabi) only but to learn where and how information can be retrieved and used
- Media usage can effectively make up for the lack of facilities faced by learners in the remotest areas
- The ability to use media will enhance the personal, academic and vocational development of the modern pupil and the development of his work capacity
- Media usage prepares learners for society where development is rapid and information technology sophisticated, and where utilization of information technology has become a much needed skill

Malapile (1996:10) maintains that "with so much technological developments taking place, learners may find the traditional talk-and-chalk way of teaching profoundly boring".

6.3.2 **Specific recommendations**

It is important to note that even if schools do have ITV equipment, the picture is bleak in terms of access to technology as generally schools have one television set and one video cassette recorder, so the ratio of pupils to technology is unfavourable. It is therefore recommended that the number of ITV facilities be increased per institution to cater not only for increased numbers per school but even for neighbouring non-ITV schools who are invited for participation. The cost-effectiveness of the ITV equipment recommended includes that only one satellite dish, already installed can be utilized for more than ten ITV classrooms; the satellite signal can be relayed to for example two TV sets in different classrooms, thus only the cabling and additional TV set is required.

In the Northern Province, no school fund had been used to buy televisions and other facilities for the ITV schools. It is recommended that guidelines should be given on how involved institutions share the financial burdens for installing, maintaining and storing the facilities.

Given the reality of many South African schools which do not have laboratories, television is seen as a useful audio visual aid. The TV sets are used for more purposes than just the TV broadcasts. It livens the lessons and provides for demonstrations in the absence of laboratories, which is preferable in the context of scarce resources. It supplements, complements information with the teacher and the text book, bridges the gap between unqualified and qualified teachers, and it is able to reach many people at one given time. It is therefore recommended that teachers use the video cassette recorders to show pre-recorded material, especially for programmes which were recorded outside school times. Teachers are responsible for the connection and supervision of pupils during usage of equipment. The success or failure of the initiative depends to a large extent on the skills and commitment of the teachers. Addressing the question of professional development of teachers is crucial. There is a need for initial orientation and training but professional development and support at both technical and pedagogical level must be ongoing.

Further research is required to establish the nature of the appropriate audience for ITV, research should be done in schools constantly, for example, by phoning them and obtaining feedback. The other research could use a larger sample to determine if the findings of this research can be generalised.

6.4 CONCLUSIONS

Decades of unequal provision of resources have left most schools seriously under-resourced. It is therefore critical to consider the equitable distribution of technological and other resources. Guidance teachers in rural, remote and disadvantaged communities serve schools which not only do not have available technology but the physical infrastructures are also not conducive to the use of technologies. The situation is such that if hardware, e.g. television sets, are donated to schools, it is clear that schools cannot take on the financial responsibility of maintenance, security and insurance. The potential for in-service training provided by ITV in the interactive classroom is eclipsed by the number

of educational practitioners who remain uninformed or are not interested in the use of the ITV medium to deliver instruction or in-service training.

Traditional in-service training should be extended by using blocks of distance learning courses with one instructor simultaneously reaching out and teaching learners at geographically separated multi-locations. The results of the study revealed that a new model is required to introduce a paradigm shift in the in-service training of guidance teachers in the Northern Province. The researcher proposed a model for integrating interactive television to support school based in-service education and training. This model succintly identified essential factors and support strategies that contribute to the successful in-service education and training using information technology. Chetty (1996:11) believed that "instructional quality will make a dramatic upturn if tutors and trainers in their various subject disciplines make use themselves of the vast array of media". Access to audio and video material is important. Using interactive television technologies in the in-service education and training of guidance teachers has the potential to motivate them to become aware of the libraries in the province and/or approach local video stores to hire out educational videos. Outstanding guidance teachers should be identified and these could be featured in a series of interactive television presentations to serve as models for empowering other guidance teachers.

School-based interactive television in-service education and training initiative has the potential to involve all institutions of higher education. Stumpf (1998:74) rightly pointed out that "Eerstens is daar die uitdaging wat te doen het met die onvermydelike soge-naamde massifikasie van ons hoër onderwysstelsel, oftewel die groter en wyer deelname daaraan; tweedens daardie wat te doen het met baie hoër vlakke van sensitiewe reagering - responsiveness - op sosiale en samelewingsveranderinge, en laastens daardie wat te doen het met die skuif wég van institusionele selfgenoegsaamheid na vennootskapsvorming" Guidance teachers will therefore no longer be compelled to leave their classrooms for prolonged periods to upgrade at institutions for higher qualifications, but may participate in a live broadcast, record the programme and communicate with the lecturer at a later stage *via* electronic mail, fax or telephone.

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ANNEXURE A

INTERACTIVE TELETEACHING SURVEY QUESTIONNAIRE

GENERAL INSTRUCTIONS

The questions contained on the following pages are intended to reflect the opinions of professional educators with respect **to interactive distance audio-visual lesson presentations in school guidance.**

Put a cross (x) in the square with/next to a number of the item that represents your choice. There are no right or wrong answers. Be fair and frank.

Respond to all questions. The answers will be treated with the strictest confidentiality it deserves.

FOR OFFICE USE

A **BIOGRAPHICAL INFORMATION**
(for office use only)

1 Respondent number ☐☐☐ v1 ☐☐☐ 1-3

2 Card number ☐☐ v2 0 1 4-5

3 Please provide your particulars with regard to your highest qualifications

3.1 Academic qualifications

Less than standard 10	1
Standard 10	2
Diploma	3
First degree	4
Honours degree	5
Masters degree	6
Doctorate	7

v3 ☐ 6

3.2 Professional qualifications (for example, PTD, J.S.T.C.) ☐ v4 ☐☐ 7-8

3.3 I received the highest level of formal training in school guidance and counselling with

a residential college	1
a correspondence college	2
a residential university	3
a correspondence university	4
not applicable	5

v5 ☐ 9

3.4 The highest qualification level I received at college/university in a guidance subject course is:

First year	1
Second year	2
Third year	3
Honours level	4
Masters level	5
Doctorate level	6
Not applicable	7

v6 ☐ 10

4 What is your position at the institution?

	Yes	No
Rector/vice rector/principal/deputy	1	2
Lecturer	1	2
Guidance teacher	1	2
ITV Co-ordinator	1	2
Subject teacher	1	2

v7 ☐ 11
v8 ☐ 12
v9 ☐ 13
v10 ☐ 14
v11 ☐ 15

5 How do you grade or classify your present institution?

Primary school	1
Combined Primary and Secondary School	2
Junior secondary school	3
Senior secondary school	4
Teachers College	5
Other (specify)	

v12 ☐☐ 16-17

6 For how many years have you been attached to this institution

Less than three years	Three to five years	Six to seven years	Eight to nine years	More than ten years
1	2	3	4	5

v13 ☐ 18

7 For how many years have you been providing (personality, educational, social and career) guidance to learners?

Not applicable	Less than two years	2-3 years	4-5 years	More than 5 years
1	2	3	4	5

v14 ☐ 19

8 In which classes are you teaching guidance? Mention the highest class only

Not applicable	Std 6	Std 7	Std 8	Std 9	Std 10	Other
0	1	2	3	4	5	6

v15 ☐ 20

9 The fact that guidance is a non-examination subject

	yes	no		
should be taught by any teacher irrespective of a qualification related to guidance subject	1	2	v16 ☐	21
is not afforded the treatment it deserves	1	2	v17 ☐	22
should be the responsibility of the school principal	1	2	v18 ☐	23
should be handled only after hours by the guidance teacher(s)	1	2	v19 ☐	24
the school received no guidance syllabuses	1	2	v20 ☐	25
guidance periods are used for closing gaps on the general time table	1	2	v21 ☐	26
no teacher is motivated to offer it	1	2	v22 ☐	27

10 In which ONE of the following areas is your institution situated?

Rural	Township	Town	City
1	2	3	4

v23 ☐ 28

B INTERACTIVE TELETEACHING SERVICES

The purpose of this section is to establish the extent of the availability and accessibility of the ITT services to learners.

11 The ITV tele-teaching receiver equipment was installed in which year?

Not installed	Before 1995	1995	1996	1997	1998
0	1	2	3	4	5

v24 ☐ 29

12 Lectures in school guidance to learners through the ITT services commenced in

Not applicable	Before 1995	1995	1996	1997	1998
0	1	2	3	4	5

v25 ☐ 30

13 The ITT equipments are currently located in the

Media centre	Library	Laboratory	Classroom	Not applicable
1	2	3	4	5

v26 ☐ 31

14 During the ITT broadcast the viewers enjoy the following services:

	yes	no	
one telephone receiver for all viewers	1	2	v27 ☐ 32
one facsimile service line	1	2	v28 ☐ 33
cell phones	1	2	v29 ☐ 34
no telephone extensions to viewer centres	1	2	v30 ☐ 35

15 Which **one** of the following features differentiates the ITT services from the conventional educational television programmes?

ITT allows interaction from viewers via telephone communication	1
The implementation of tele-teaching in rural areas	2
ITT can broadcast a variety of programmes for learners	3
ITT play a valuable role in improving and supplementing learner's subject knowledge	4

v31 ☐ 36

16 What is your opinion concerning the following statements?

	yes	no	
The pictures on the TV screen during the presentations are very clear and clean	1	2	v32 ☐ 37
The sound during the broadcast is audible to fill the hall	1	2	v33 ☐ 38
With ITT transmitter service at our institution there is a visible transformation in the culture of teaching and learning	1	2	v34 ☐ 39
The ITT broaden the guidance teacher's scope for interaction with the community	1	2	v35 ☐ 40
The ITT makes a valuable contribution with respect to outreach and bridging programmes in institutions	1	2	v36 ☐ 41
Guidance programmes should be developed and presented for the purpose of in-service training of guidance teachers	1	2	v37 ☐ 42
Guidance in-set programmes should differ from learner programmes	1	2	v38 ☐ 43

Put a cross (x) in the square with the number that best represent your choice.
Use the following scale for the next 4 questions

1 = agree very strongly
2 = agree
3 = neutral
4 = disagree
5 = disagree very strongly

17 To derive maximum benefit from the ITT broadcast, learners should be sufficiently prepared by:

The programme designers at the University of Pretoria	1	2	3	4	5	v39 ☐ 44
The ITT programme presenters	1	2	3	4	5	v40 ☐ 45
The ITT project co-ordinators at their respective institutions	1	2	3	4	5	v41 ☐ 46
The respective subject teachers as facilitators	1	2	3	4	5	v42 ☐ 47
The project co-ordinators and the guidance teachers	1	2	3	4	5	v43 ☐ 48
Both of their respective subject teachers and the guidance teachers	1	2	3	4	5	v44 ☐ 49

18 To what extent do you agree/disagree with the following statements?

The time slots on the ITT broadcasts for school guidance should be replaced by other subjects such as Mathematics and Physical Science	1	2	3	4	5	v45 ☐ 50
School guidance programmes should be scheduled to be broadcasted on fixed days, say on Wednesdays only, throughout the year	1	2	3	4	5	v46 ☐ 51
Programme presenters for a particular subject should not alternate for a protracted period in order to sustain the continuity of the presentation standard	1	2	3	4	5	v47 ☐ 52
Facilitators from various institutions involved with ITT services should meet on a regular basis to strategise on how to maximise the quality of the services	1	2	3	4	5	v48 ☐ 53

19 What is your opinion with regard to the following statements?

A guidance teacher should be in possession of at least an honours degree in Psychology and a teaching diploma	1	2	3	4	5	v49 ☐	54
All guidance teachers should have school guidance as major subject from tertiary institutions	1	2	3	4	5	v50 ☐	55
All guidance teachers should register with the South African Medical and Dental council	1	2	3	4	5	v51 ☐	56
General guidance aspects such as moral, economic, citizenship and family guidance should be the responsibility of class/subject teachers	1	2	3	4	5	v52 ☐	57
A guidance teacher should have at least an undergraduate degree in Psychology and a teacher's certificate	1	2	3	4	5	v53 ☐	58
A guidance teacher should have at least undergone an in-service training in guidance and counselling programme	1	2	3	4	5	v54 ☐	59
In-service training programmes can be designed and presented through the ITT to enable guidance teachers attain the desired standards	1	2	3	4	5	v55 ☐	60
The designed ITT in-set guidance courses should be weekly for an agreed period	1	2	3	4	5	v56 ☐	61

20 To what extent do you agree/disagree with the following statements?

The state should subsidise the in-service training for guidance teachers in rural areas	1	2	3	4	5	v57 ☐	62
The state should encourage the school-based guidance in-service training courses	1	2	3	4	5	v58 ☐	63
If the state is not in the position to subsidise, will you be prepared to pay 50% at least?	1	2	3	4	5	v59 ☐	64

21 To what extent could class/subject teachers effectively carry out functions now assigned to guidance personnel, assuming they are given adequate time to handle those guidance functions?

Very poorly if at all	1	v60 ☐	65
Uncertain	2		
Much better than guidance teachers	3		

22 A new guidance in-service training model is necessary to introduce a paradigm shift

Agree very strongly	1	v61 ☐	66
Disagree very strongly	2		
A traditional model can still do	3		

THANK YOU!!

ANNEXURE B

QUESTIONNAIRE FOR ADMINISTRATORS AND ITT EXPERTS

NAME: _____ TITLE: _____

DEPARTMENT : _____ POSITION : _____

INSTITUTION/ADDRESS: _____

_____

1. What is Telematic Education ? _____

_____

2. Is your institution involved with Satellite Television Education ?. Yes | No

If Yes : 2.1. Since which year ?. _____

2.2. What is your target group (s) ? _____

2.3. How extensive is the coverage ? _____

_____

2.4. What are the financial implications ? _____

_____

3. In what way does the Satellite technologies support the professional development of educators in your area ? _____

_____

4. Your comments concerning ITT qualities .

4.1. Strengths: _____

_____

4.2. Weaknesses: _____

_____

4.3. Opportunities: _____

_____

4.4. Threats: _____

_____

5. What are the perceptions of other stakeholders ? _____

_____

6. What are the ITT prospects in the next millenium ? _____

_____

ANNEXURE C

SELECTED SCHOOLS AND COLLEGES OF EDUCATION LINKED TO THE ITT PROGRAMMES AND THEIR SATELLITE NON-ITT GRADE TWELVE SCHOOLS

ITV INSTITUTIONS		NON-ITV INSTITUTIONS	
1	Bakenberg High School	1.1 1.2	Dennis Mathiba II High School Mawele Secondary School
2	Baropodi Primary School	2.1 2.2	Lengama Secondary School Matsebong high School
3	Bokamoso High School	3.1 3.2	Masedibo High School Mohlakaneng High School
4	E D Rampola High School	4.1 4.2	Gojela High School Ntata Secondary School
5	Leolo High School	5.1 5.2	Mmiditsi Secondary School Moukangwe Secondary School
6	Matladi High School	6.1 6.2	Chita-Kekana High School Kgakala Secondary School
7	Mmatsela High School	7.1 7.2	Mabea Secondary School Nakedi Secondary school
8	Mokopane College	8.1 8.2	D G Tsebe High School Ebenezer High School
9	Morokalebole High School	9.1 9.2	Frank Mashile High School Madithame High School
10	Nape-a-Ngwato High School	10.1 10.2	Hututu Secondary School Kotole Secondary School
11	Phala Senior Secondary	11.1 11.2	Bataung Secondary School Kgoloutwana High School
12	Sekhukhune College	12.1 12.2	Hans Komane High School Ngwanamala High School
	Total: 12 ITV		**24 Non-ITV**

ANNEXURE D

OUTCOMES OF THE INTERVIEWS WITH ITV ADMINISTRATORS/ EXPERTS

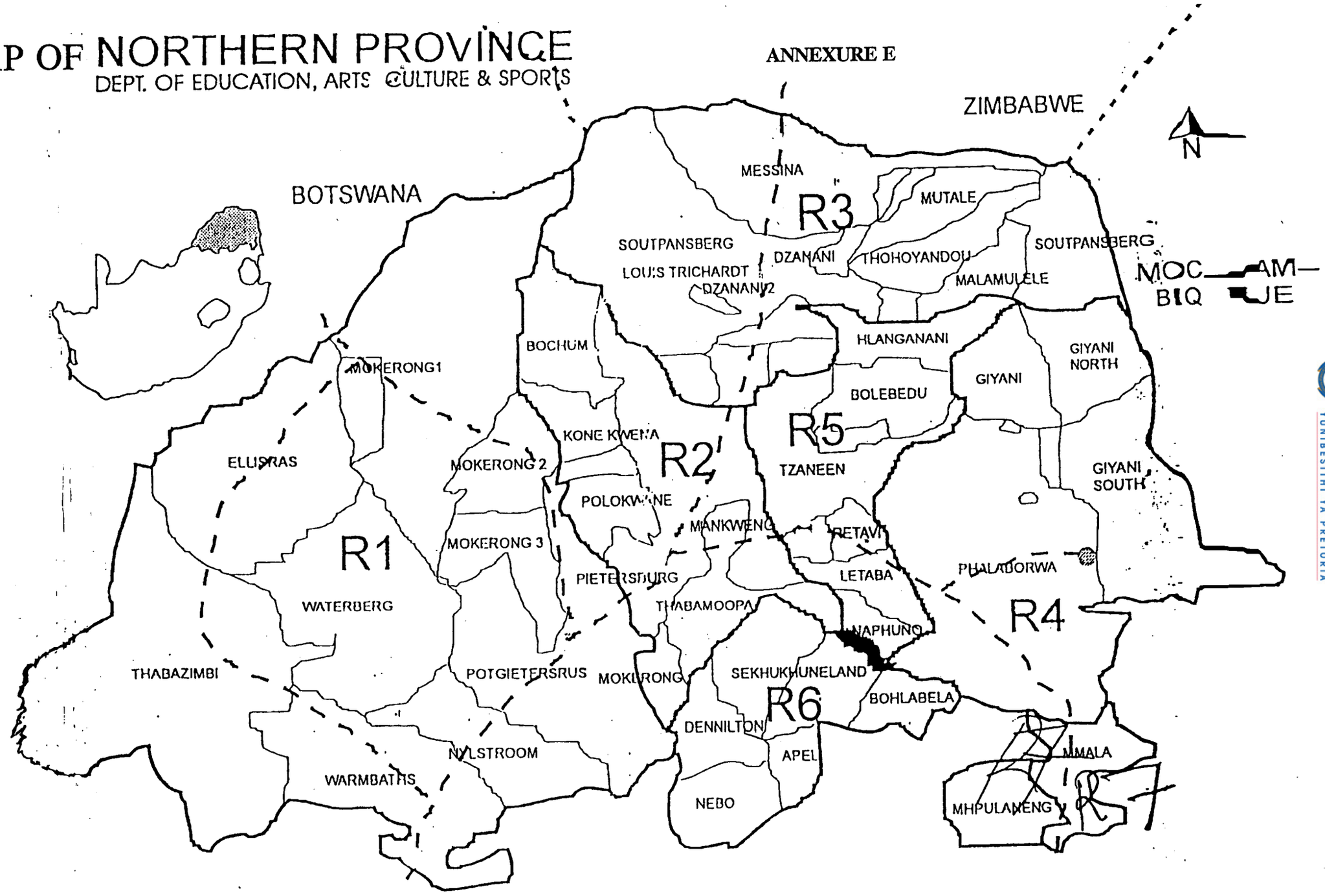
Person interviewed	Institution	Outcome of interview
❑ Jorrisen, J.W. ❑ 26.06-1998 ❑ Director: Telematic Education System	University of Pretoria	Telematic services are already in place in South Africa such as ❑ interconnected university communication systems ❑ inter-institutional networks which are being used for specific groups of people involved in further education ❑ educational television channels to deliver educational programmes into schools *via* satellite and cable systems ❑ full-time or part-time courses, that range from certificates and diplomas to degree level courses
❑ Sedibe, E.M. ❑ 24-06-1998 ❑ Managing Director: Interactive Television Education	University of Pretoria	❑ Interactive television is a component of the unit for telematic education system together with other components namely, video conferencing; learning centres, virtual campus network, research and development network ❑ ITV services are also provided for high schools in the Gauteng, North-west, Northern Province and Kwa-Zulu Natal ❑ Schools programmes using ITV are developed based on topics submitted by subject teachers from participating schools ❑ The interactive tele-teaching (ITT) schools programme is a community-based project which is in line with the University of Pretoria's mission statement. It is a free service to secondary schools, and it is aimed at supplementing the teacher's lessons in subjects such as mathematics, physical science, biology, English, geography, accounting and career guidance. ❑ The ITT schools programme is presented by specialists in these subjects who are also experts at teaching their subject contents. However, the programme is not intended to replace teachers, but to assist schools with raising the quality of education in problem areas of the subjects. ❑ Programmes are transmitted from a broadcast-quality studio in the education/Law building on the main campus of the University of Pretoria. Three remote-controlled cameras are used in the studio. Two computers and a variety of videotape formats (including Betacan SP) can be used to enhance the visual quality of a broadcast. ❑ In order to receive the programme at home, students need a domestic digital satellite television decoder and a television set. A smart card, which is available from the University enables the decoder to receive the University channel

Person interviewed	**Institution**	**Outcome of interview**
❑ Mahapa, S M ❑ 3-08-1998 ❑ Deputy Chief Education Specialist Curriculum Division	Department of Education: Northern Province	❑ The Regional Director recommends schools within his/her region where the new ITV equipment are to be installed. ❑ The school need a digital satellite television, disc, decoder, television set, a smart card, video machine and video cassettes in order to receive the University of Pretoria channel ❑ Preference was given to rural schools which could provide security for the equipment ❑ Problems initially encountered included theft of 2 videos, 2 decoders and 2 satellite dishes ❑ Problems for this technological devices involves ❑ lack of technologically trained teachers to use the facilities effectively ❑ a limited number of learners that can be given chance to ask questions during the broadcast session ❑ the presenter cannot see the learners, but the learners can watch him/her on the screen ❑ the presenter only assumes that the learners are listening since he/she cannot see them ❑ with the increasing numbers of interested neighbouring schools, learners, the spaces are fast becoming smaller and smaller ❑ parents remarked that money should be spent on upgrading the schools, upgrading teachers and the purchase of textbooks, not television sets.

MAP OF NORTHERN PROVINCE

DEPT. OF EDUCATION, ARTS CULTURE & SPORTS

ANNEXURE E



UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Ref no. : 9401515
Enquiries : MAAKE, MJ
Telephone : 0154-483-2313

University of Pretoria
Pretoria 0002 Republic of South Africa Tel (012) 4209111
Fax (012) 3422712 / 432185

Faculty of Education
Department of Educational
Guidance and Counselling

22 Februarie 1999

TO WHOM IT MAY CONCERN

RE: A SURVEY REGARDING THE USE OF INTERACTIVE TELEVISION IN THE IN-SERVICE EDUCATION AND TRAINING OF GUIDANCE TEACHERS

The aforementioned research is conducted by myself in co-operation with the Department of Educational Guidance and Counselling of the University of Pretoria.

The aim of the study is to establish the current status of the guidance teaching environment where in-service training at a distance could occur regarding interactive television.

I have compiled a questionnaire and I am hoping that your assistance will help in reaching out for the targeted professional educators from your institution. Enclosed please find ten (10) sets of questionnaires for completion:

(a) One (1) to be completed by the head of the Interactive TV centre.
(b) One (1) to be completed by the head of the Interactive Television custodian.
(b) Two (2) to be completed by guidance lecturers/teachers from ITV centres.
(b) One (1) to be completed by a guidance teacher from six (6) non-Interactive TV centres situated within the radius of 10 kms from the ITV centre.

Please have these completed and returned to me by return post at the above address within fourteen (14) days after receipt thereof. Feel free to contact me telephonically or by mail in the event of a query.

Thanking you in anticipation

RESEARCHER: Joshua M Maake

SUPERVISOR: Dr F Malan

SUMMARY

The study attempted to draw attention to two observable trends in the guidance and counselling system in the South African education system. First of all there is an increasing awareness by guidance teachers of the problems associated with the neglect of in-service training of guidance teachers from rural, remote and marginalised communities. The second trend relates to a growing concern for and support to the prevailing notion that interactive television (ITV) might be a more appropriate and important medium to reach out to the inappropriately qualified, unqualified and primarily underqualified guidance teachers.

The primary purpose of this study was to establish the extent to which technology enhanced communication media, in particular, interactive television; also in what way it is exploited to promote the planning, production, utilization and evaluation skills of underqualified marginalised, rural guidance teachers in the Northern Province of South Africa. Significant numbers of targeted guidance teachers could be exposed to the support-giving environments involving reduced travelling costs, expert instructors, agents and providers of interactivity in the in-service education and training. The ITV medium's two-way communication permits guidance teacher interactivity with the instructor and among themselves simultaneously at geographically separated places. In this situation the one expert has the capability to interact concurrently with groups of classes and trainees at different locations.

Major guidance and counselling services in which guidance teachers need appropriate strategies for in-service training include individual inventory services, information services, counselling services, placement services, evaluation and assessment as well as follow-up services. An ITV support environment empowers guidance teachers with knowledge of factors and supportive strategies that contribute to the successful implementation of interactive TV instruction in the two-way audio and one-way video ITV classroom. ITV media usage prepares guidance teachers for the society where career developments are changing rapidly, information technology is very sophisticated and entrepreneurship is a much needed skill.

A proposed interactive television model for in-service education and training guidance teachers in the Northern province has the potential to motivate them to become aware of the audio-video libraries in the province and/or to approach local video stores to hire out educational videos. This can only be made possible if the interactive television facilities are made available, accessible and affordable not only in urban areas but also in rural, remote and marginalised communities. The guidance teacher can use interactive television as a substitute for text books and/or for face-to-face contact interactions. It may also be used as a means for self-expression and self-discovery.

OPSOMMING

Hierdie studie wil die aandag vestig op twee waarneembare neigings in die voorligting- en raadgewende stelsel van die onderwyssektor van Suid-Afrika. Eerstens is daar 'n toenemende bewustheid by voorligtingonderwysers van die probleme wat geassosieer word met die verwaarlosing van indiensopleiding van voorligtingonderwysers van plattelandse afgeleë en gemarginaliseerde gemeenskappe. Die tweede neiging hou verband met die groeiende aandag aan en steun vir die heersende opvatting dat interaktiewe televisie 'n geskikter en belangriker medium kan wees om die inligtingstegnologies-gekwalifiseerde, die ongekwalifiseerde en veral die ondergekwalifiseerde voorligting-onderwysers te bereik.

Die primêre doel van die studie is om vas te stel tot watter mate tegnologie die kommunikasiemedium, in besonder interaktiewe televisie, gebruik om beplanning, produksie, benutting en evalueringsvaardighede te bevorder van ondergekwalifiseerde, gemarginaliseerde plattelandse voorligtingonderwysers in die Noordelike Provinsie van Suid-Afrika. 'n Betekenisvolle aantal voorligtingonderwysers van die steekproefgroep kon blootgestel word aan die steungewende omgewing wat die volgende behels het: Verminderde reiskoste, bekwame opleiers, agente en verskaffers van interaktiwiteitsfasiliteite in indiensonderrig en –opleiding.

Die tweerigtingkommunikasie van die interaktiewe televisie-medium bewerkstellig interaktiwiteit tussen voorligtingonderwyser en opleier en terselfdertyd ook onderling met mekaar, hoewel geografies van mekaar verwyderd.

In hierdie situasie het een kenner of kundige dus die geleentheid om tegelykertyd interaktief met klasgroepe en leerders op verskillende plekke te kommunikeer.

Groot voorligtings- en raadgewende dienste waar voorligtingonderwysers behoefte het aan toepaslike strategieë vir indiensopleiding, sluit die volgende in: individuele inventarisdienste, inligtingsdienste, raadgewende dienste, plasingsdienste, asook dienste vir evaluering, beoordeling en opvolging.

'n Interaktiewe televisie-ondersteunde omgewing bemagtig voorligtingsonderwysers met die nodige kennis van faktore en strategieë wat bydra tot die suksesvolle implementering van interaktiewe televisieonderrig in die tweerigting-oudio/video interaktiewe-televisieklaskamer.

ITV mediagebruik berei voorligtingonderwysers voor vir 'n omgewing waar loopbaanontwikkeling vinnig verander en waar inligtingstegnologie baie gesofistikeerd raak en waar goeie entrepreneurskap 'n vereiste is.

Die voorgestelde interaktiewe televisiemodel vir indiensonderrig en –opleiding vir voorligtingonderwysers in die Noordelike Provinsie skep die moontlikheid om die onderwysers te motiveer om kennis te neem van oudio-video-biblioteke in hul provinsie en ook om plaaslike videowinkels te besoek om opvoedkundige video's te huur. Dit kan slegs verwesenlik word as die interaktiewe televisiegeriewe beskikbaar, toeganklik en bekostigbaar gemaak word, nie net in stedelike gebiede nie, maar ook in landelike, afgeleë en gemarginaliseerde gemeenskappe.

Die voorligtingonderwyser kan interaktiewe televisie gebruik as 'n plaasvervanger vir literatuur en/of vir persoonlike kontaksituasies. Dit kan ook aangewend word as 'n hulpmiddel om uitdrukking te gee aan die self of vir ontdekking van die self.

ABSTRACT

This study is focused on how technology is employed as educational support media in distance education. The aim is to establish the availability and accessibility of interactive television for both guidance teachers and students in rural, remote and previously disadvantaged communities. Interactive television could be used to support the primary modes of education, namely, contact education on campus or at remote sites, paper-based distance education and Web-based distance education for in-service education and training of guidance teachers. The TELETUKS schools project is cursorily presented as an example of a technology-enhanced delivery system to facilitate interactive television learning. The ITV has the potential to be cost-effective, saving on travelling costs and reaching for increased numbers of upgrading guidance teachers per unit time. A comprehensive interactive television model for in-service training of the guidance teacher in the Northern Province is presented.

CURRICULUM VITAE

Matsobane Joshua Maake was born on the 19th June 1950 at Sekuruwe Village, thirty kilometers North West of Potgietersrus. In a family of ten children he was born as the sixth child and the second son of Kiletji Johannes and Molagare Sophia.

Matsobane attended schooling at Alfred Masibe LP Matlhaba H.P., Bakenberg Secondary and Setotolwane High School. He did his Junior Secondary Teachers Certificate at Setotolwane College of Education.

Matsobane obtained the BA and BEd degrees with UNISA in 1984 and 1990 respectively. He obtained an MEd degree with the University of Pretoria in 1995. He taught at Mmantutule Secondary School, became a school principal of Sephuti High School, served as an Acting Inspector of Schools in the Bochum district. Matsobane served the Erstwhile Lebowa Department of Education as school psychologist, senior school psychologist and chief school psychologist. He holds an A-test users certificate and a certificate in school guidance and counselling from York St John College (UK). Since 1995 he is serving the Northern Province Department of Education as the senior Deputy Chief Education specialist in charge of the psychological-educational services stationed at Lebowakgomo Regional offices.