Educational Television

Intention, Invention, and Intervention

S. H. OMAR

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2001

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AN EXPLORATION OF THE USE OF THE *LEARNING CHANNEL* BIOLOGY PROGRAMMES BY GRADE 12 EDUCATORS AND LEARNERS IN PUBLIC SCHOOLS IN AN URBAN AREA OF KwaZULU- NATAL.

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i. ABSTRACT

This research explores the use of the *Learning Channel* biology programmes by Grade 12 biology educators and learners. These television programmes are broadcast by the South African Broadcasting Corporation (SABC) and are aimed at supporting Grade 12 learners.

Support for Grade 12 learners, especially in public schools with limited resources, is an important factor in determining learners' success. The producers of the *Learning Channel* claim that their programmes are used extensively and with great success. To test the extent of the use and effectiveness of the programmes, an urban area in Durban was chosen as the focus area for this research. This area was chosen because it has several public secondary schools, all with access to television, and all with learners from the previously disadvantaged race groups.

Data collection was devised in three phases. Questionnaires were the main instruments used to collect data. In the first phase, questionnaires were directed to all the schools in the focus area. The findings at this phase indicated that the *Learning Channel* programmes were not being used in any of the schools. This was due to the very low level of awareness of the programmes among educators and learners.

In the second phase, data was elicited to provide information that may enhance the use of Educational Television programmes. The findings at this phase indicated that Grade12 learners watch television daily yet they do not watch the *Learning Channel* programmes. It was also found that the role of the educator is the most important factor in determining whether Grade12 learners watch the programmes or not. The findings with regard to educators were that they were not averse to using the programmes. Although educators felt distanced from the programmes, they would consider using the programmes if the programmes were shorter and if educator support material was more readily available.

In the third phase, the Grade 12 biology educators and learners watched the same programme of the *Learning Channel*. They then commented on its effectiveness. The teaching method employed in the programme was liked the most by learners. This methodology incorporated strategies such as the pace of the lesson, use of repetition, etc to make the programmes understandable. The lack of learner involvement and the constant talking by the presenter was liked the least by learners.

The producers of the *Learning Channel* programmes, therefore need to drastically increase the level of awareness of the programme, provide opportunities for educators to become involved with the programme, and provide greater, sustained educator and learner support strategies.

ii. DEDICATION

To my Grandmother,
whose strength and spirit
inspires me.

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Finally I would like to thank my wife Zenobia, my mother and my children - Yusuf and Zahra for their motivation and unfailing support during this study.

iv. DECLARATION

I, Shabier Hoosen Omar, declare that this dissertation is my own work, and has not been submitted previously for any degree in any university.

.....

Researcher: S H Omar

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CHAPTER 1

INTRODUCTION

1. 1. Introduction

In this chapter, the rationale for this study is explained, followed by an explanation of the scope and context of the study. In this way the parameters of the study are determined. Central to any study are its critical questions. These are explained and finally an outline of the entire study is given.

1.2. Rationale for the study

The rationale for this study is based on three understandings:

i. The establishment of a new democracy in South Africa in 1996 heralded many changes. One of the major changes concerned education policy. In the quest for equitable education for all learners, previously advantaged public schools were obliged to accommodate previously disadvantaged learners. In addition, state funding to these schools was curtailed. This resulted in previously advantaged public schools having large numbers of learners in each class and having to cope with diminishing resources. In addition the phased-in implementation of outcomes based education (OBE) in schools challenged the traditional role of the educator. Understandably, this led to educator frustration in many of these schools. Any mechanism that has the potential of reducing this frustration must be explored. It is in this context that the potential of the *Learning Channel* programmes is investigated.

ii. Most previously advantaged schools have television sets and video recorders. Therefore television has the potential to reach those learners with access to

television in schools. Observations and discussions with Grade 12 learners indicate that most of them watch television daily after school. Grade 12 learners are very pressurized to achieve good results. These results are determined mainly by the writing of formal examinations at the end of the year. Therefore the link between television viewing habits of learners and their Grade 12 results needs to be investigated.

iii. In South Africa, the national public broadcaster is the South African Broadcasting Corporation (SABC). This broadcaster is legislated to broadcast educational television programmes. Many such programmes are currently being broadcast by the SABC. The *Learning Channel* programmes are sponsored by *Liberty Life* and these are the only programmes that are intended to support secondary school curricula. To what extent these programmes achieve their objective of supporting school curricula needs to be investigated.

Based on the above understandings, the role that Educational Television programmes can play in assisting learners and educators in the South African context needs to be explored.

1.3. Scope and context of the Study

To investigate the roles that all Educational Television programmes should have in assisting all learners and educators is a mammoth one. Therefore this study is delimited in its scope. Delimitations were made with respect to choice of Educational Television programmes and to the focus area of the study. Therefore this research explores the use of the *Learning Channel* biology programmes by Grade 12 educators and learners in public schools in an urban area of KwaZulu-Natal.

1.3.1. Choice of Educational Television programme

The *Learning Channel* programmes were selected for study as these were the only programmes that supported secondary school curricula. In particular, these programmes were targeted at the Grade 12 learners. Only the biology programmes of the *Learning Channel* were selected for study. This is due to the researcher's familiarity with the biology subject matter.

Since the *Learning Channel* biology programmes were selected for study, it is important to review the characteristics of these programmes. Its aim is to assist Grade 12 learners achieve learning outcomes that are prescribed by the national biology syllabus in schools. The biology programmes are broadcast only on Wednesday mornings on SABC "3" television between 10:00 and 11:30. During the school term, schools have the option of "booking" a programme with the producers. This means that a "booked" school will be supplied with free telephonic communication (via Telkom sponsored lines) with the presenter of the programme. On such occasions, a specific topic is discussed on the programme. The learners (callers) questions are used to direct the way in which the content of the lesson is explained. During the school holidays, callers from any school may call the presenter. In these broadcasts, any topic related to the biology syllabus is explained.

1.3.2. Choice of focus area

The focus area was chosen with the following considerations.
All the schools had to have:

- access to television
- learners in Grade 12
- Grade12 learners studying biology as an examination subject
- learners from the different race groups in Grade 12
- male and female Grade 12 learners studying biology

Although many areas could be suitable based on the above considerations, the problem of the researcher gaining access to all the schools in a focus area proved to be another important consideration. Based on all these considerations, the focus area selected is an urban area demarcated by the Department of Education as the Umgeni South Circuit: City of Durban: North Durban Region (Dept. of Education. 2000b). There are seven public, secondary schools in this area. The principals of all these schools agreed to participate in this study. The only consideration not met in this focus area is the presence of white learners. All of these schools had learners of the Indian, Coloured and African race groups. Therefore the findings of this study are not necessarily applicable to white learners.

1.4. Critical Questions:

The critical questions of this study are asked in three phases as follows:

In the first phase:

Critical Question 1

How are *the Learning Channel* biology programmes being used by Grade 12 biology Educators and Learners?

In the second phase:

Four further questions are asked in response to the findings of the first part.

Critical Question 2

Do Grade 12 biology Educators use Television (TV) / Video as a teaching aid?

Critical Question 3

What are the Television viewing patterns of Grade 12 biology Learners?

Critical Question 4

How aware are Grade 12 Biology Educators and Learners of the *Learning Channel* biology programmes?

Critical Question 5

What are the different ways (if any) in which Grade 12 biology Educators interact with the *Learning Channel* biology programmes ?

In the third phase:

All participants viewed the same programme and were asked questions about the programme.

Critical Question 6

What is the reported effectiveness of the *Learning Channel* biology programmes by Grade 12 Educators and Learners?

1.5. Outline of the study

Chapter 2 presents a review of the literature relevant to this study. This review has four parts. In the first part, the international developments of Educational Television are highlighted. In the second part, the concept of television is explained in the light of shifting and confusing terminologies. The role of television as a mass medium of instruction is investigated and some evaluation studies are reviewed. Thirdly, the success of Educational Television in different countries is analyzed with the view to determine what makes them successful. Lastly, the South African Television context is examined with particular emphasis on the changes that the recent democracy brought about.

In Chapter 3, the theoretical framework for this study is defined. Due to convergence of technologies, it was problematic to use earlier theories as a framework for the study. However since the theories of Eraut (in Baggaley, Duby, Lewy 1987) and Israeli (1987) have relevance to this study, they were used as one of three guiding principles to develop the theoretical framework. The second guiding principle was the changing concept of television in South Africa. The third guiding principle was the Education Context in South Africa. These three guiding principles were used to propose a new model for determining the theoretical framework of this and other studies.

The next Chapter (4) focuses on the methodology of the study. Identification of the focus area, determination of representative samples and data elicitation techniques are

explained. Five different sets of questionnaires were used. The need for this is also explained. The quantitative data was analyzed using computer software called the Statistical Programme for the Social Sciences (SPSS). Since calculations based on these analysis can be confusing, this chapter provides detailed explanations (and examples) to inform the reader as to how these calculations were made.

The analysis of the data resulted in various findings with respect to the critical questions. Chapter 5 presents a comprehensive report on all the findings. The findings from the quantitative data are also correlated with the findings from the quantitative data. Graphs and supporting frequency tables are used to illustrate the findings.

In Chapter 6, the conclusions of the study are presented. This is done by summarizing the main findings of the study against which several recommendations regarding the *Learning Channel* programmes are made. The findings of this study have several implications for future research. This report concludes by making reference to such research.

1.6. Conclusion

This chapter delimits the study in terms of scope and context. The critical questions are then determined within this context. These critical questions are used to direct the data collection plan. However, before this can be done, a review of the literature relevant to the critical questions must be undertaken. This follows in Chapter 2.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

Since this study focuses on the *Learning Channel* television programmes in South African secondary schools, this literature review focuses on:

- the developments influencing Educational Television
- international success stories of Educational television
- the present understanding of the concept "television" and
- the South African Educational Television context..

Educational Television has a history of over 40 years internationally, but only started in South Africa in 1984 (Baggaley et al 1987: 2). Therefore the development of Educational Television is reviewed by first looking at international developments. These developments are presented chronologically. In these developments, different theoretical understandings have underpinned the practice of Educational Television. This chapter seeks to classify the theoretical assumptions into broad categories based on its similar epistemologies.

However, this classification can only be used up to the 1980's, when rapid developments of newer and related technologies led to a convergence of technologies. This saw a shift from the development of theories specific to television to the development of theories relating to multi-media. This meant that there were new conceptual understandings about television. Television in the light of this understanding is then explained.

This review of the developments of Educational Television would be incomplete without reference to countries with successful Educational Television programmes. Therefore a comparative analysis of some distinguishing characteristics of these success stories is presented.

The development of Educational Television in the South African Context is reported on next. As a new democracy, South Africa is still burdened by the inequalities left by the legacy of apartheid and political ideology is linked to the functioning of the public broadcaster, namely the South African Broadcasting Corporation (SABC). The SABC is responsible for the broadcast of Educational Television programmes. Therefore the South African Educational Television context is reviewed under three distinct eras, namely Pre-democracy era, Democracy era, and Post-democracy era.

2.2. Educational Television:

2.2.1. International Developments (up to 1980)

Presumably, John Eaird would be highly surprised if he could see the widespread use of television today. His early experimental beginnings of television in 1924 (Singh and Sudarshan 1996:103) heralded a reluctant start to a new era of communication. It was in the late 1940's that television began to make an impact. The 1960's saw television booming. It did not take much longer for television to be used to achieve educational aims and "Educational Television" was born.

This section reviews dominant instructional theories and the influence that they had on Educational Television. Drawing from the array of instructional theories (Deshler and Gay 1986 , Bell 1985 and others), this researcher classified instructional theories into four major categories on the basis of similar epistemologies. This is represented in Table 1. While Table 1 is not representative of all instructional theories it is illustrative of some of the influences that theories have had on Educational Television.

A major problem encountered in representing such a classification (Table 1) chronologically, is that the development of a theory is not confined to a particular period of history. For example, behaviorist theories had their beginnings in the Pavlovian traditions of 1927, were influenced by Watson and Thorndike in the 1930's, were expanded on by Skinner in the 1950's and were re-emphasized by Gilbert in the 1960s Deshler and Gay1986: 13-14). However for the purpose of simplicity, the theories are limited to the era (decade) in which they had the most impact.

In Table 1, For each category of theory, three things are identified. Firstly, the dominant theorist is identified, then the perspective on which the theory focuses is identified and lastly an indicator of good educational television that can be deduced from the theory is identified. For example, in the social communicative category, Freire is identified as the main theorist (in the 1970's), his theory focuses on the conscientisation perspective, and an indicator of good educational television that can be deduced from his theory is cultural comparison. (Table 1).

The rest of the table is sufficient to indicate the influence of educational theory on educational television through the decades and no further elaborations are necessary for this study.

Table 1: refer to next page.

Table 1. Instructional theories and its possible application to Educational Television Adapted from Deshler and Gay (1986) and from Bell(1985).

Category	1960's	1970's	1980's
Dominant theories with similar epistemologies	Theorists 1. Perspectives 2. Indicator of good ETV	Theorists 1. Perspectives 2. Indicator of good ETV	Theorists 1. Perspectives 2. Indicator of good ETV
Behaviorism, Instrumental, Objectivism, Empiricism, Positivism, Technocratism	Gilbert 1.Chaining 2.Practice	Gagne 1.Processes 2.Simulation	
Cognitive development, Gestalt, Constructivism, Interpretative, Hermeneutic,	Piaget 1.Stages 2.Records of change Ausubel 1.Exposition 2.Result, observation Bruner 1.Discovery 2.Objects,events,data	Landa 1.Algorithms 2.Application of rules	Wittrock 1.Processing 2.Meaning construction
Social communicative Socio-political, Humanistic, Philosophical		Freire 1.Conscienti-zation 2.Cultural comparison Habermas 1.Critical reflectivity 2.Ethical,artistic, aesthetic appreciation	Pask 1.Conversation 2.Problem solving
Post modern, Radical, Situated cognition, Co-operative learning, Learner-centred, Self-directed learning, Collaborative, Lifelong learning, Emancipatory, Self reflective	Rogers 1.Self-understanding 2.Emotional recognition		Mezirow 1.Transforma-tion 2.Values, symbolic participation

2.2.2. Convergence of Technologies: The 1990's

This was an era of unprecedented technological development. Computer development became the focus of research and this over-shadowed the use and research of traditional technologies like television. Recent research (Molenda and Sullivan 2000:9) supports this statement. However computer and electronic developments also created opportunities to converge different types of technologies like television, telephone, computer, video etc. This was possible because the common denominator is information in a digital format. Naidoo (1998:112) confirms this and names this era as the era of multimedia.

This convergence meant that old understandings of Educational Television had to be revisited to accommodate new knowledge in the light of convergence. For example, many Educational Television programmes now encourage viewers to interact with the programmes by phone, fax or computer. This means that newer conceptual understandings of television must now accommodate a multimedia understanding of television. This means that the concept of Educational Television also has to be understood within the context of convergence technology.

2.3. Concept Television

The present understanding of the concept television is determined by other related concepts and influences. Examples of these are media, distance education, education, evaluation, instructional / educational / information technology, educational / instructional / broadcast media, instructional development, and mass media concepts. Each of these concepts have many elements, not all of which are relevant to this study. Therefore, only those elements relating specifically to television are included in this study. An example of this is the concept of media which embraces many different types of media. However, only the role of television as a medium is relevant to this study and not the role of all media. Another example of this is the concept of distance education.

This study will not focus on all the components of distance education but will focus only on the role of television in distance education.

An analysis of the critical questions implies that the following concepts and influences are relevant in this study. They are represented in Table 2.

Table 2. Educational Television: Relevant Concepts and Influences identified in this study.

CONCEPT TELEVISION	Relevant Concepts
	-Technology: educational /instructional -Media: selection mass medium distance education medium
CONCEPT TELEVISION	Influences
	-Evaluation -Success: International success stories -South African context

The discussion that follows, reviews the literature relevant to the above concepts and influences as part of the conceptual understanding of Educational Television as it relates to this study.

2.3.1. Technology- Shifting terminology

The rapid advances in technology and the race for technological supremacy has resulted in a myriad of technological terms. The existence and insistence of different terms referring to the same phenomena suggests that the power relations of the different technologically advanced countries have contributed to the proliferation of new terms. For example, the Americans prefer the term Instructional Technology while the British

and Canadians prefer the term Educational Technology to refer to similar constructs (Seels and Richey 1996:4). This means that terminology and concepts must be localised and explained fully to determine its particular understanding in different contexts.

Television is an undisputed part of technology but its place in the domain of new technologies is contested. Even the much- mooted idea of convergence has its deterrents. For example, Butcher (2000:10) cites the European Commission Information Society's Green Paper which points out that it is "unclear exactly what the term convergence represents". Given this uncertainty, it is obvious that the role of television has many differing interpretations.

Eraut (1996) pointed out that the difficulty in defining terms in this field was alluded to as early as 1967 by the National Council for Educational Technology (UK) when they first met. Later research (Percival and Ellington 1984:12-14) started to distinguish between technology in education (hardware and software) and technology of education (learning theories). Using this distinction, television is regarded as technology in education.

In current literature, the terms "educational", "information" and "instructional" technology are often used interchangeably (Seels and Richey 1996:5). However they can also be used to have different meanings and are not interchangeable in all contexts.
The Association for Educational Communications and Technology (AECT) uses the term Instructional Technology in preference to Educational Technology to refer to the same field. This field is described by them as "the theory and practice of design, development, utilization, management, and evaluation of processes and resources for learning" (Ely1995). This definition clearly includes television as instructional technology. Other definitions of instructional technology are vague in its applicability to television. An example of this is Eraut 's (1996: 2-15) definition of instructional technology as "applied learning theory".

Recent research has not cleared the confusion over terminology but has contributed to more structured definitions of the terms. Ely (1995:1) differentiates between Educational and Instructional Technology as follows:

> *Educational technology properly refers to a particular approach to achieving the ends of education. Instructional technology refers to the use of such technological processes specifically for teaching and learning.*

In the context of this research, Ely's definition means that television can be both educational technology (in its approach) and instructional technology (in its use).

2.3.2. Media

Is media the same as technology and is technology the same as television? Branch (1995) makes the point that media is not synonymous with technology. This inaccuracy was often the case in previous educational studies which concentrated mainly on comparing different types of media. Branch reports that the results of these comparative media studies showed that the choice of the medium itself did not make a significant difference. Therefore it should not be the media itself but rather the "situated learning and the cultivation of cognitive processing" that must receive attention in any media study. This view is also supported by Resnick and Collins (1996:49) and by Silbergleid (1992). The identification of the cognitive process as pivotal to the acquisition of knowledge was also supported by research by Salomon and Clark (in Eraut 1996:10). The conclusion of these researchers is that it is not the medium that affects learning but instead it is the particular qualities of media which may affect particular cognitions that are relevant for learning. For this reason media selection must be based on "assumptions of knowledge and learning most appropriate for the learning task at hand" Criticos (1996:185). If television is desired as a medium to support Grade12 learners, an analysis of the learners must first be made. The Assure model (Heinich, Molenda & Russell 1982: 34-36) of planning and delivering instruction that incorporates media, also has the analysis of learners as its first step.

The above discussion implies that this study must not focus on the reasons for choosing television as the medium over other media, but instead it should focus on cognitive learning and on the particular qualities of television that are most appropriate to achieve educational objectives with Grade 12 biology learners. This is further substantiated by Lodziak's (1989:31) view that attention should be focussed on how the audience uses television rather than what the television does for the audience.

Television as a medium also has other understandings. Media studies locate television under its Mass Medium banner. Advances in mass media communication technology - of which television is a component, has resulted in television being widely accessed in South Africa. Access to products however does not guarantee access to learning (Eraut 1996:13). In this study, it infers that access to television (and the *Learning Channel*) does not necessary mean access to learning. In like vein, Criticos (1998:2) makes the point that a common misconception has been that 'good resources equal good learning".

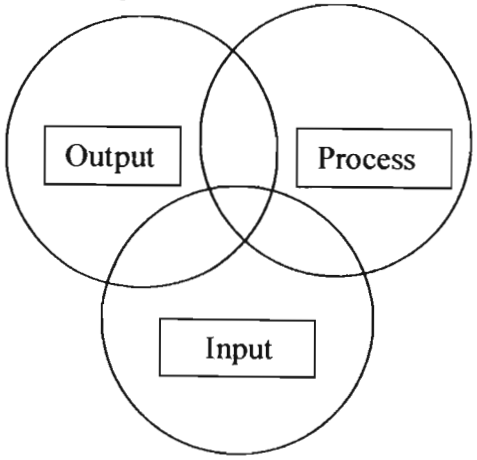
Percival and Ellington (1984:22) also caution against the use of mass media (in this case television) simply as a mechanism to reach masses. The name "mass media" understandably focuses on the masses, yet it is individuals (although admittedly a large number of individuals) who receive the "media" in their individual capacities. Therefore it is the individual interaction with mass media technology such as television that is the focus in this study.

Television also has a role in distance education. Television is one of many types of media that is used in distance education to achieve educational outcomes. In this study, the role of Educational Television (*Learning Channel*) in assisting learners who are separated by great physical distances is considered.

2.3.3. Evaluation

Educational Television programmes differ in their content and in their target audience. An example is the *Learning Channel* programmes on SABC television which has the express aim of supporting school curricula. Many studies (especially in countries with a long history of Educational Television) have been conducted on the evaluation of educational programmes. However, these studies differ widely (in design, content, criteria, analysis and applicability) since they are based on widely differing theories of what "good" educational programmes are. Salomon and Campo (1981: 8-11) rightly conclude that there is no pre-packaged, standardised evaluation checklist that will serve all the different roles of Educational Television. It follows then that any proposed model for evaluating Educational Television programmes cannot be rigid and prescriptive. Instead, these models must be open and flexible to allow for its use in different contexts. A good example of such a model is the input- output- process model of Salomon and Campo (1981:9). This model, in its simplest form, can be represented as shown in Figure 1. An example of OUTPUT is "what is learned? An example of PROCESS is "how do the educators use the programmes? An example of INPUT is "what is the quality of the programmes".

Figure 1. Simplified Representation of Salomon and Campo's (1981:9) model of evaluation.



While the above model may be used in this study, it will not answer all the critical questions. Therefore, other evaluation models need to be explored. This is done in Chapter 3 which considers evaluation against the theoretical framework developed for this study.

The remaining two influences on television, namely :

Success: International success stories, and

The South African context

were also identified as part of the broader literature review for this study (refer to the introduction of this chapter). Therefore they are discussed as part of the general review that informs this study.

2.4. Educational Television: International Success Stories

There are, at present, many Educational Television programmes internationally, all with varying degrees of success. There are also innovative and exciting strategies regarding the use of Educational Television. Examples of these are the Telesecundaria project in Mexico (Calderoni 1998: 1-10) and the Satellite Instructional Television Experiment (SITE) in India (Singh and Sudarshan 1996: 130-143, Aghi 1981: 49-53). South Africa as a latecomer to this field can learn from the important lessons of other countries. There are also challenges regarding the sustained success of Educational Television programmes in the light of emerging and converging technologies. Examples of these are the increasing use of the simultaneous use of television with computers, internet or satellite systems.

According to Butcher (in Saide1998:45-70) countries that have successful Educational Television programmes include the United States of America, United Kingdom, Japan, Germany, Ireland, Canada, Sweden, Australia and the Netherlands. This section draws from Butcher's comparative review of international programmes, expands on it and identifies distinguishing characteristics of successful Educational Television programmes. By doing this, this research identifies three components of successful Educational Television programmes, namely, the format, content and support components. A categorisation of the distinguishing characteristics is represented in Table 3. While this table may be an oversimplification, it is of value in that it will be used to influence the design of data elicitation instruments and will also be used to answer the critical question of this study relating to the effectiveness of the *Learning Channel* programmes.

Table 3. Distinguishing characteristics of some successful Educational Television programmes.

	Format	Content	Support
Characteristics	- Short programmes (15 minutes) - broader appeal than typical school broadcast - Promotional videos during the day with repeats during the nights	- Not aimed at direct curriculum intervention (intentional Education) - aim is to stimulate learner to learn and discover	- schedules - programme descriptions - identified target audiences - links to curriculum - pre and post viewing activities - Print support - Electronic / Digital support - Partnerships - Flexible copyright Laws

Learner support is essential for the success of these programmes. Different countries provide different support strategies in keeping with their capabilities. For example, in less developed countries like Sri Lanka and Papua New Guinea, support technologies are restricted to print and audio technologies. However, in the technologically more developed countries like the United States of America and the United Kingdom, support technologies span an array of print, teletext, CD-roms, web sites, information and communication technologies (ICT's) , video and audio cassettes, digital television, telephones and video discs.

Educational Television success did not happen overnight. It has a rich and varied history. Butcher (in Saide 1998:xi) aptly identifies three stages in the history of Educational Television. He named these stages as initial optimism, disillusionment and finally renewed optimism. In the first stage, Educational television was based on educational perspectives only. This approach was doomed to failure and television failed to fulfil its promise of a golden age. This led to the second stage of disillusionment and scepticism. Presently this is the third stage of renewed optimism. In countries that have successful Educational Television programmes, Educational Television is seen as an **Educational**

Resource. This view incorporates both pedagogic and broadcast perspectives and seeks to silence its critics by addressing issues of access, interactivity, support systems, accountability and involvement of stakeholders.

For this research, the South African Television context must first be understood before the lessons of international success stories can be applied. This follows next.

2.5. The South African Television Context

The development of television in South Africa (as in other countries) is linked inextricably with political developments. South Africa has undergone tremendous political changes from an apartheid-based ideology to a democratic one. These changes have far reaching effects, including the practice of Educational Television.

South Africa is a fledgling democracy, as such, its Educational Television status at present cannot be isolated from that of its past. This section reviews the development of Educational Television under three eras, namely Pre-democracy, Democracy and Post - democracy eras. Under these headings, the link between South African political (and policy) changes and South African Educational Television is explored.

2.5.1. Pre- Democracy Era (prior to 1996)

All ministries, including that of education, were controlled solely by the South African Government with the intention of perpetuating the apartheid ideology. The Broadcasting Act 73 of 1976 made provision for the SABC board to be handpicked by the State President (Markovitz 1991:38). This apartheid ideology isolated South Africa from the rest of the world and contributed to the late arrival of television. The fear that television would undermine the Afrikaner language and culture also contributed to the late arrival of television (Tomaselli, Tomaselli & Muller 1989:84). It was only in 1976, that

television became a reality in South Africa. It was almost a decade later (in 1984) that the first Educational Television programmes with the intention of supporting schools were broadcast.

The earlier Educational Television programmes "were not good television" programmes (Smith 1998:53) and in 1987, the government controlled SABC tried to change this. The SABC commissioned an edited book called "Evaluation of Educational Television" (Baggaley et al 1987). The purpose of the book, according to the Director-General of the SABC at the time (J A Eksteen) was to provide guidelines and to learn from the experience of other leading educational television centres. Despite these good intentions, the grand theoretical frameworks and guidelines extolled in the book were not translated into practice and Educational Television programmes continued to be no more than the broadcast of traditional teaching. The SABC justified the format of these programmes based on high viewership numbers. However, television was as a new technology and in the absence of competing technologies, the high viewership numbers were presumably due to the "novelty" factor.

2.5.2. Democracy Era "1996"

The major systemic changes also saw the legislation of new policy in respect of Education and Technology (of which television is a part). Aspects of these policies that are relevant to this research are highlighted next.

2.5.2.1. Educational Policy

Using Butcher's (in Saide1999:7-35) report on educational policy changes, the following summary is presented. The African National Congress's Policy Framework for Education and Training was redrafted after the elections. This also led to an Implementation Plan for Education and Training. These policy frameworks and implementation plans were the precursors to the two White papers on Education and Training developed by the Department of Education. The first white paper reaffirmed the Government's

commitment to Education and established a general approach to reconstruction and development. It has relevance in that it established the ground rules for education and any strategy to implement technologies such as television has to take this into consideration. The second White paper focussed on the principle of equity in the organisation, governance and funding of schools. This equity principle has important implications for the use of technologies such as television. In addition the South African Schools Act of 1996 was promulgated to legislate the process of transformation of schools. While these policy changes were not specific to the role of television (Technology), it provided the basis for which technological interventions must be used.

2.5.2.2. Technology

As with education, policies of technology had to change. The establishment of the TELI-Technology Enhanced Learning Investigation (Dept of Education 1996 b) in South Africa was pivotal in changing the direction that technology would take in South Africa. Of significance to this study, it addresses, among others, questions about access to technology, redressing imbalances of the past, learner centred education, outcomes based education, life-long education ,and integrated technologies. These issues are considered in the findings and recommendation chapters of this study.

Together with the TELI report, the Independent Broadcasting Authority (IBA) which was the regulating authority set up in 1993, set up its own task teams to tackle the issue of transformation. Of significance to this study is the recommendations of the IBA's Triple Enquiry Report of 1995. Some of these recommendations which has relevance to this study are:

- Daily educational programmes to be broadcast
- Programmes must support school curricula
- Structured partnerships with role players must be forged

The White Paper on Broadcasting highlights the convergence of technologies. An implication of this is the proposed amalgamation of the IBA and the South African

Telecommunications Regulatory Authority (SATRA) in the new millenium (Saide 1999b).

2.5.3. Post Democracy:

The present Status of Educational Television in South Africa.

The Department of Education and the South African Broadcasting Corporation (SABC) wasted no time in formulating a partnership under the Educational Broadcasting Plan in 1996. The specific intention was to assist in the South African Education and Training System. To this end the Educational Broadcasting Plan provided guidelines, among others, for the accessibility of educational opportunities, lifelong learning, relevant and meaningful learning. Based on this, the Educational Television programmes started to show changes. Some of these changes were the removal of racial stereotypes, introduction of programmes with inter-racial social mixing and the portrayal of Black role models.

However these changes are at present limited to the programmes catering for pre-school and primary school education, for example the local version of *Sesame Street.* The only television programme broadcast by the SABC, which is aimed at secondary school learners is the *Learning Channel.* This programme has changed very little from its inception in 1990 and forms the focus of this research.

2.6. Conclusion

This chapter reviewed the literature that can inform the use of the *Learning Channel* television programmes by Grade 12 learners and educators. Therefore, the review first spanned the development of television internationally, followed by international success

stories in the field of educational television, and closed with a review of South African television generally and of Educational Television specifically.

The literature review in this chapter is used to structure a theoretical understanding of the research. The theoretical understanding is explained in Chapter 3.

CHAPTER 3

THEORY

3.1. Introduction

This chapter draws on the literature review (of Chapter 2) and attempts to locate this research in a particular theoretical framework. The literature review suggested that the theoretical tenets pertaining to Educational Television competed with more recent conceptual understandings to structure a relevant theoretical framework. To accommodate the blurring of traditional theories with untested conceptual constructs, this research explores their commonalities and advocates the use of both theories and concepts as "Guiding Principles".

The discussion of theory serves as the first guiding principle. In this discussion, the definition of theory is given and the current debates about theoretical frameworks are elaborated upon. The context of the research is central to these debates. Therefore the context of this research is clearly defined so that relevant theories could be applied to them. The theories of Eraut and of Israeli were chosen and are explained with particular reference to their applicability to this research.

Given the limitations of theories in a rapidly changing and converging technological world, newer conceptual understandings have to be determined. Against this background, the concepts of South African Television and Education are explored with the express view of contextualising this research and structuring a particular theoretical framework relevant to it. These concepts serve as the second and third guiding principle respectively.

The theoretical precepts expounded and the conceptual understandings gained from the three "Guiding Principles" are used by this researcher to propose a new model called the " Framework and Practice model" of Educational Television. This model can be used for the dual purposes of:

i. formulating a theoretical framework for the study of Educational Television in a particular context.

ii. determining how Educational Television is practiced in a particular context, depending on how theoretical assumptions influence it.

3.2. Guiding Principle1 : Theory

3.2.1. Definition

"A theory is an idea or set of ideas based on facts and observations in order to explain a phenomenon, or opinions and suppositions about phenomena which has yet to be disproved" (Branch 1995). A theory or theories that are relevant to a particular area of research, are used to conceptualise a broad "theoretical framework" for that research.
Thus the various theories, be they competing (rival) theories or complementary theories, form the theoretical framework of a particular area of interest.

3.2.2. Debates about Theoretical Frameworks

For a literary work to have academic merit, it must satisfy certain requirements. The distinguishing requirement between "scholarship and journalism" is the presence of a well articulated and appropriate theoretical framework (Caliendo and Kyle1996:225). In their extensive experience as editors of the *Journal of Research in Science Teaching*, they found that the main reason for rejection of articles was the absence of a theoretical framework. They contend further that if a rationale for a theory and methodology is not offered "then the essence of scholarly work is undermined". In conclusion, they emphasize that the absence of a clearly defined theory restricts the opportunity for "substantive critical commentary"(Caliendo and Kyle 1996:227).
However this stance is not necessarily acceptable to all researchers. Wallace and Louden (1997: 319-322) differed in the need for a theoretical framework for all research. They felt that the rigid rule of providing a theoretical framework, which is a hallmark of most

quantitative research, is not necessarily required in all research, especially qualitative research.

Subsequently, in a rejoinder, Caliendo and Kyle (1997:323-325) explain that they do share the concerns raised by Wallace and Louden. However their reason for focusing on theoretical frameworks is not to legitimize its use but rather to clarify the theoretical position informing the study. They therefore conclude that "not articulating the theoretical frame is infinitely more threatening and hegemonic than doing so".

The reason for presenting this debate here is because this researcher adopts the position of Caliendo and Kyle regarding the theoretical framework but finds inherent problems with this position. These problems are oversimplified at best and overlooked at worst by the proponents of rigid theoretical frameworks. These problems are reported on next.

3.2.3. Problems associated with selecting a Theoretical Framework

Theoretical frameworks are underpinned by theoretical assumptions. Due to the widely differing applications of Educational Television programmes, no single theory, groups of similar theories or even competing theories seems to find widespread acceptance. Morley (1980:148-164) used different theoretical frameworks to different parts of the debates in a single study. Lewy (1987:66) identified four reasons why selecting a theoretical framework (at that time and even now) are problematic. These he identified as:

i. the variety and diversity of curricula, each with a different development pattern.
ii. no unanimous acceptance of a single learning theory.
iii. contextual differences in the way the programmes are used
iv. great differences in the learners themselves

One way of overcoming the above problem of diversity is to contextualise each study. For this study, the specific characteristics of the *Learning Channel* can be explored in the

light of the above problems to develop a particular theoretical framework. While this may not be applicable to other studies, it solves the problem of developing an acceptable theoretical framework for this study.

3.2.4. Applicability of Theories

Bearing the South African Educational Television context in mind, two complementary theories are adopted to locate this research. They are the theories of Eraut and of Israeli. Discussion of these theories and their particular relevance to this study follows next.

3.2.5. Eraut's Theory

Eraut received recognition for his " 4 dimensional classification scheme" of Educational Television in 1975 (in Baggaley et al 1987:66). The four dimensions of Eraut's theory are:

i. pattern of programme development
ii. learning theory adopted
iii. context in which programme is used
iv. characteristics of the user

Eraut's scheme received credibility because it is applicable to a host of different studies. This applicability is due to the flexibility of Eraut's theory. Flexibility is important because of the large number of differing applications of Educational Television. Due to the changing nature of the programme in this study (the *Learning Channel*), a flexible theory is also needed. For this reason, Eraut's classification scheme for evaluation was chosen to locate this research.

However, the application of Eraut's theory is limited because his "pattern of programme development" criterion cannot be determined effectively. This is due to the transitional

changes that the *Learning Channel* is itself undergoing. It is for this reason that the complementary theory of Israeli is also used to locate this research.

3.2.6. Israeli's theory

During the Eighties, Educational Television brought together the collaborative efforts of experts from many, varied fields (educationalists, producers, artists, media experts, etc.). Consequently, criteria for judging any educational television programme had to include inputs from the different fields. The multitude of inputs that resulted from all the diverse fields created challenges of selecting appropriate criteria.

Israeli (1987:24-48) addressed this challenge by identifying just three approaches by which criteria can be selected. These criteria can then be used to evaluate any Educational Television programme. He named these approaches as follows :

i. Educational evaluation approach
ii. Instructional approach
iii. Film industry approach

In addition, for each of the three approaches above, Israeli identified the same two variables namely Content and Production variables. These variables identify factors that can be evaluated in each of the three approaches.

In this way, Israeli's theory goes further than Eraut's theory. Therefore Israeli's theory is also used to develop the theoretical framework for this study and Israeli's three approaches are explained in greater detail.

3.2.6.1. Educational Evaluation Approach

This approach deals with the evaluation of Educational Television programmes from an educational point of view. World wide, as educational theories developed, so too did evaluation criteria. It was in the eighties that Nevo (in Baggaley et al 1987:26) summarised evaluation criteria into five main categories, namely

i. responding to identified needs
ii achieving goals
iii. meeting agreed standards
iv. outdoing alternative objects
v. achieving stated goals

These categories can be used to evaluate Education Television programmes using the educational evaluation approach. If Israeli's theory is applied, then this approach must now be determined by a further two variables, called Content variable and Production variable. In this study, examples of Content variables include "the extent to which programmes are syllabus orientated", "vocabulary control" etc. Examples of Production variables include " placing of visuals", "pause between review segments" etc.
This study uses Israeli's two variables of content and production and evaluates the *Learning Channel* programmes from the Educational Approach. The present educational approach in South Africa is the introduction of outcome based education.

3.2.6.2. Instructional Media approach

This approach deals with the evaluation of educational television programmes from a media point of view. The value of Israeli's approach lies in the fact that it recognises the debates surrounding media. Whether media and media attributes have any effect on the desired outcomes of Educational television programmes has always been debated. As early as 1976 Salomon (in Israeli1987: 28) argued that media attributes such as the "level of technology or transmission" have no effect on the learning process. Salomon made the

distinction that the only way media differ from one another is in the way the message received is translated into symbolic codes. These codes could take the form of digital, analogic and iconic codes. Television uses all three codes. In 1981, Bates (in Israeli 1987:28) agreed with Salomon that the messages were translated into codes. However he felt that not enough was known about which mental tasks are relevant to learning tasks especially those involved in learning through television.

Despite these debates, Israeli's theory makes it possible to evaluate media attributes by identifying the same two variables used in all his approaches, namely the content and production variables. In this study, the media attributes of the *Learning Channel* is evaluated using content and production variables.

3.2.6.3. Film Industry approach

This approach deals with the evaluation of educational television programmes from a film industry point of view. Israeli found that although there is a wealth of literature in the professional development and training of film production studies, there is a general feeling among television producers that this information is irrelevant. Instead producers rely on their "gut" feeling as to what makes a programme effective or not. While this approach has a limited applicability in this study, it has the potential to explore the "gut" feeling of the respondents in this study of effectiveness of the *Learning Channel.* To accommodate this approach, "open- ended" questions are asked in the questionnaire to elicit a "gut" feeling about what is liked and what is disliked about the *Learning Channel.*

3.2.7. Television and Education in the South African context: Expanding the Theoretical Framework

The convergence of new technologies (as explained in Chapter2) means that the earlier learning theories need to be incorporated into the existing and expanding realm of

converging technologies. However, this new field has yet to produce theories that have widespread acceptance. It is for this reason that this research can not depend solely on the early learning theories but needs to extend beyond its original theoretical framework to incorporate a conceptual framework relevant to this study.

Analysis of recent research undertaken in South Africa (Saide1998 and 1999, Case 1998 and others) shows a similar trend in the light of technological convergence. To this end, recent research does not rely only on traditional theoretical frameworks but also relies on conceptual frameworks. The main reason for the inclusion of conceptual frameworks is that it uses constructs that are the results of new understandings due to the rapid advancement of technology.

To expand the theoretical framework, the two concepts of Television and of Education as it relates to this study, are used in addition to the theories as guiding principles 2 and 3 respectively.

3.3. Guiding Principle 2: Concept- Television

Since the concept of television was discussed in detail in Chapter 2, this section makes reference only to those aspects that are important to develop the theoretical framework for this study.

3.3.1. Mandate

The SABC is governed by the Broadcasting Act - No 4 of 1999 (*Intekom* 2001:13-15) which compels it to provide educational programmes. The SABC has educational programmes aimed at early childhood development, primary and secondary school learners, youth, and adults. The *Learning Channel* is the only programme that provides support to secondary school learners.

3.3.2. Access to Television

The Department of Education's report (1996: 4) found that the broadcasting plan of the SABC in terms of education will only succeed to the extent at which the programmes are accessed and used effectively. Subsequently in the *Case* report (Kola, Jennings, Everatt.1997: 38) found that

> *" the key developmental audience targeted for education- Africans- are already using the media for education. The challenge is to match their needs with appropriate and accessible materials".*

Access to the different channels of the SABC also differs. The *Learning Channel* is broadcast on Channel 3 which has the lowest access (footprint). These issues are relevant in developing the theoretical framework.

3.4. Guiding Principle 3: Concept- Education

This principle looks at education in the South African context. This context is an important consideration in the development of theory relevant to the *Learning Channel* programmes.

3.4.1. South African Policy Frameworks

The literature review (in Chapter 2) outlined the development of South African policies with respect to Education. This section highlights the main principles of these policies that are relevant to the development to Educational Television programmes. These principles are represented in Table 4.

Table 4. Policy Principles relevant to the development of South African Educational Television programmes.

Policy Document	Principles
The First White paper on Education:	Reconstruction and Development of education
Second White paper on Education	Equity principle, massification programme
Teli Document	Value of technology depends on the level of integration into the learning process
Triple Enquiry Report (IBA)	Educational programmes in support of curriculum related activities

These principles help to locate this study within the South African context and this forms part of the theoretical understanding of this study.

3.4.2. South African Grade 12 Curriculum: Subject Biology

The education system is South Africa is in the process of transformation. One of the major changes is the shift from traditional content-based education to outcomes-based education (OBE). This research does not intend to debate the merits or challenge the assertions made by this shift. Instead, this research acknowledges that by the year 2005, OBE will be implemented for Grade 12 learners. However, for the present Grade 12 learners, the traditional educational system remains unchanged. While this may be so, an analysis of present Grade 12 biology examination papers demonstrates a distinct shift towards OBE principles. It is in this context of transition towards OBE principles that this research is located.

For the Grade 12 biology learners in the year 2000, the final examination component made up 75 % of the total assessment. The other 25% came from continuous assessments

throughout the year (Department of Education.2000a). Therefore, formal examinations are still very much a part of the biology assessments and Educational Television must support this. Formal biology examinations in Grade 12 are controlled provincially. To address the issue of differing standards in the Grade 12 provincial biology examinations, the government has proposed that one common Grade 12 biology paper be written nationally. This places the SABC, in its role as national broadcaster, in a favourable position to provide support to learners via its Educational Television programmes.

3.4.3. Target Audience and Learner -Centred Instruction.

The teaching methodology of the *Learning Channel* biology programmes is similar to that of the traditional educator. The aim of the programmes is to provide support to Grade 12 biology learners and educators. However only 23% of the entire South African population watch these programmes (Kola et al 1997: 34). Therefore the link between the methodology of the programme and its aim needs to be explored.

In alternate methodologies such as learner-centred instruction, there is a shift in paradigms from a positivist to interpretative (Eraut1996: 11) to democratic (Branch 1995:2). This is supported by Romiszowski and Criticos (1994: 169) who appeal for a move towards a developmental dissemination approach. Squire and Johnson (2000) express the need for a shift from "a didactic to a more learner-centred approach". In this study, these approaches inform the theoretical assumptions inherent in the methodology of the *Learning Channel* programmes.

The role of media in learner-centred instruction needs to be examined. Branch (1995) emphasizes that the role of media in learner-centred instruction must be derived from a conceptual paradigm that sees instructional media designs as "active, multi-functional, inspirational, situated approaches to learning". This approach is used to evaluate the *Learning Channel* programmes.

3.5. Proposal of a " Framework and Practice model" of Educational Television

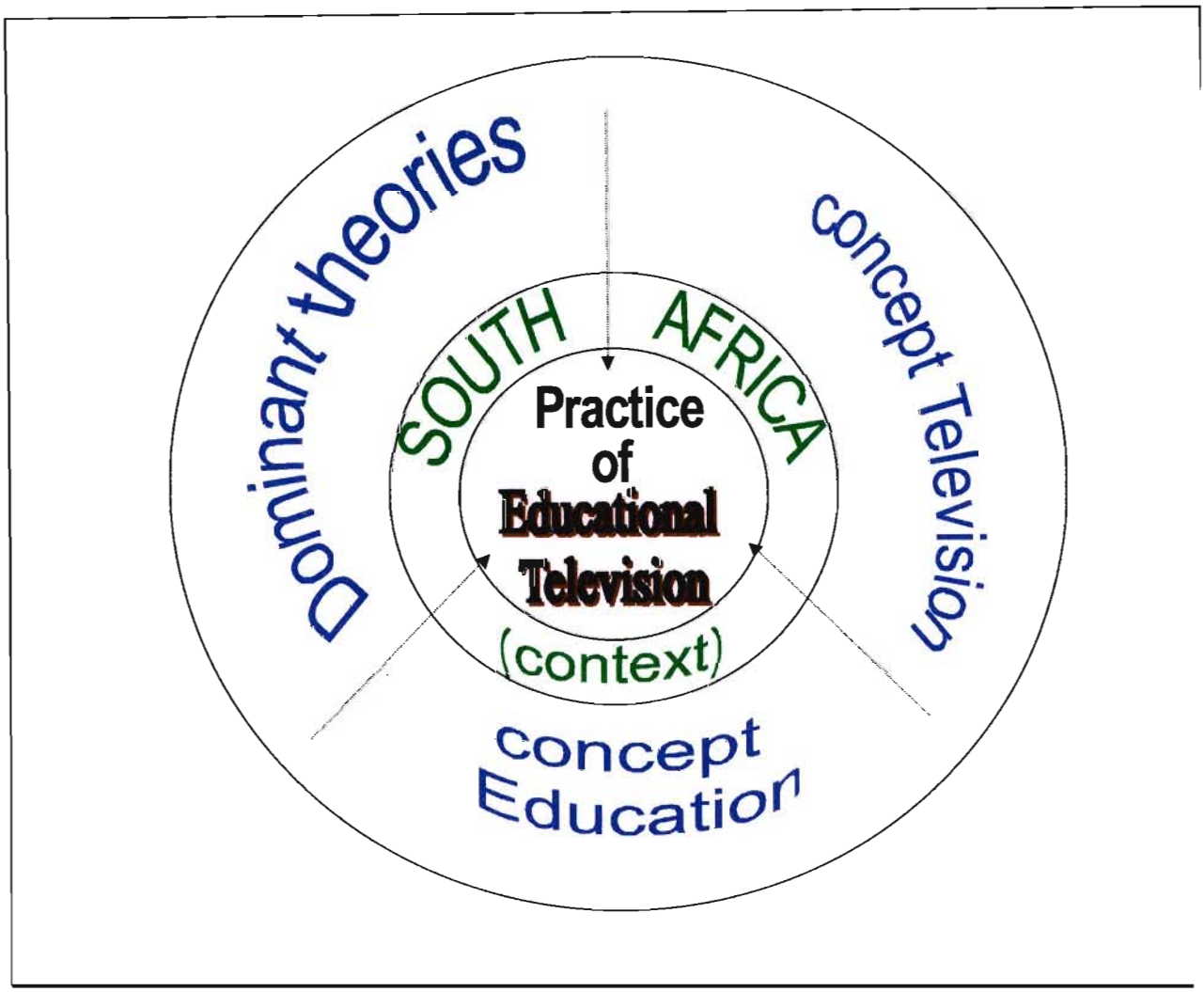
For this study, the development of a theoretical framework applicable to Educational Television proved to be difficult. Part of the difficulty arose from converging technologies which led to new conceptual understandings of Educational Television. These new understandings or concepts had to be accommodated within traditional theories which are still applicable to Educational Television Programmes. A further difficulty was that the theories and concepts exerted different degrees of influence on the theoretical framework. These influences were determined by the context of the research.

In the light of the above difficulties, this researcher proposes the use of three guiding principles (theory, television and education) to formulate a new model to determine the theoretical framework for the study of Educational Television. This model is called the " Framework and Practice model" of Educational Television (Figure 2).

The reason for choosing this name for the model is because the model can be used to:

a. formulate a theoretical FRAMEWORK by using relevant theories and concepts as guiding principles for the study of Educational Television.
b. determine how the PRACTICE of Educational Television is determined in a particular context, based on how the theoretical framework influences it.

Figure 2. A Framework and Practice model of Educational Television.



This model was used to formulate the theoretical framework for this study of Educational Television relating to the *Learning Channel* programmes.

Notes on the Interpretation of the Model.

i. The three guiding principles, namely, dominant theory, conceptual understanding of television and conceptual understanding of education, do not necessarily exert the same amount of influence in formulating the theoretical framework. For example, the dominant political theory of South Africa's past exerted more influence on the theoretical framework compared to the concepts of television and education as practiced in other countries. In other countries, dominant theories may be derived from life-view, religion, commerce etc. and these may dictate the extent to which concepts of education and television could exert their influence. Therefore, the first step in formulating a theoretical framework, must be to determine the extent to which each of the theories and concepts of Educational Television exert their influence.

ii. The influence that each guiding principle has depends on its context. In South Africa at present, the governmental policies on education and television determine the influence of these principles on the theoretical framework and practice of Educational Television. For example, television policies legislate the public broadcaster to play an increasing role in the Government's massification programme. In addition, education policies influence the pedagogical shift towards an outcomes based education. Therefore local Educational Television programmes such as "School TV" are now broadcast during school hours and are also based on outcomes based education.

iii. Factors influencing the practice of Educational Television in a particular context must be recognized. In South Africa, for example, the lack of electricity in certain rural parts compromises the role of the SABC as the national, public broadcaster of Educational Television.

iv. Alternately, this model can be used to identify (instead of formulate) the theoretical framework that is inherent in a particular context. This

identification can be done by analyzing the present practice of Educational Television so that the theoretical assumptions that underpin this practice can be identified.

3.6. Conclusion

This chapter followed the guidelines of the proposed model to explain how the present practice of Educational Television evolved. It also outlined the theoretical assumptions made and expanded this knowledge with related conceptual understandings. These theoretical and conceptual understandings provided a detailed theoretical framework for this study.

Based on the theoretical framework, an appropriate methodology for this study has to be determined. This methodology is explained in Chapter 4.

CHAPTER 4

METHODOLOGY

4.1. Introduction

This research seeks to explore the use of the *Learning Channel* biology programmes by Grade 12 Learners and Educators. To do this effectively, an appropriate methodology has to be developed to determine representative samples of the population, to design appropriate data elicitation mechanisms and to analyse the data. This research employs many methods (surveys, questionnaires, interviews- telephonic and face-to-face etc) to elicit data in different stages of the methodological plan. This chapter provides an explanation for the choice of methods used and further provides a description of the methods used. The advantages and the problems encountered in the collection of data are also elaborated upon. This chapter closes with an explanation of how the data will be analysed.

For an overview of the methodology relating to this study, refer to Appendix 1.

4.2. Choice of focus area

To determine the broad parameters of this study, a suitable focus area had to be determined. One factor determining the choice of focus area was the very real problem of gaining access to the schools. Compounding this problem was the reluctance of schools to allow their Grade 12 learners to participate in research activities. The focus area also had to fulfill the requirements as set out in Chapter 1.

The focus area chosen for this study is an urban area, demarcated by the Education Department as the Umgeni South circuit of the District of Durban (Dept. of Education.2000b). The initial reason for choosing this area was that it contained seven public, secondary schools. The need to have these public, secondary schools in the focus area was based on two considerations. Firstly, the majority of secondary schools in South

Africa are public schools. Secondly, the Educational Television programmes under study are aimed specifically at secondary school learners.

Permission to undertake research in this focus area was granted by the Senior Education Manager (SEM) of the region - Mr. N Timothy. A telephonic survey of the schools in the area proved the most efficient of obtaining preliminary information relating to this study. This information confirmed that all seven schools offered biology at Grade 12 level. Since comparative information was needed from all seven in the area, a questionnaire was used for this purpose (Questionnaire A - Appendix 2).

The findings of Questionnaire A revealed that all seven schools were similar in that they:

i were moderately well resourced. All were from ex-House of Delegates(HOD) and ex-House of Representatives(HOR) education departments.
Education Departments and all had television sets and video recorders).

ii had learners of the Indian, Coloured and African race groups in varying proportions.

iii offered biology as a Grade 12 subject with both higher and standard grades.

iv had male and female learners.

v had not purchased any of the *Learning Channel* programmes due to financial constraints

vi had Grade 12 biology educators with a minimum of five years teaching experience.

These similarities confirmed that the schools in the focus area were an appropriate research choice to answer the critical questions posed in this study.

4.3. Grade 12 Biology Educators and Learners use of the *Learning Channel* programmes

Before proceeding with the research, it was important to identify those schools (educators / learners) in the focus area that were watching the *Learning Channel* biology programmes. Questionnaire A was used to elicit this information from the schools. The

distinguishing characteristics of the schools. Therefore this served as an initial criteria to select schools in the sample. Another factor was the 1999 pass rate of the Grade 12 learners. This criterion was chosen because it inferred that schools could be distinguished on the basis of differing teaching methods and/or on differing academic potential of its learners. Based on these two characteristics, three of the seven schools were selected as the sample. The four remaining schools had characteristics that were similar to the schools chosen as the sample and were therefore excluded from the sample. Therefore the sample schools was adequately representative of the schools in the focus area. The three sample schools, called Schools A, B and C are represented in the Table below.

Table 5. Selection of sample schools based on race and Grade 12 pass rate.

	Majority race group of learners	Grade 12 Pass rate
School A	Indian	Excellent (above80%)
School B	African	Poor (below 50%)
School C	Coloured	Good (above 70%)

4.6. Access to Schools

Access to the three schools identified as the sample had to be successfully negotiated. Using the findings of the earlier telephonic conversations with school principals, access was gained to the sample schools based on the following conditions.

i. The researcher will take full responsibility (venue, equipment etc) for hosting a viewing session of a pre-recorded videotape of the *Learning Channel* biology programmes.
ii. The viewing session will be held at each schools convenience.
iii. The programme to be viewed will be a part of the current Grade 12 biology syllabus.
iv. The school will receive a copy of the videotape to add to their teaching resources.
v. Learners will receive support material (revision exercises with expected answers) based on the programme that they will watch.
vi. Anonymity will be guaranteed to the schools, educators and learners that participate in the study.

4.7. Selection of Learner sample

Books on research methodology, such as that by Cohen and Manion (1995) suggest that a sample size consisting of a third (30%) of the population is sufficiently reliable and valid for research purposes. This is especially appropriate in the case of homogenous populations. In this study, the learner population of the sample schools showed many variables such as race, gender, academic ability. Therefore the sample size was increased to 40 % of the biology learners at each school to improve the reliability of the results.

As one of the distinguishing characteristics of the schools was its racial diversity, the Grade 12 learner sample were also chosen to represent this diversity. Purposive sampling

was used to ensure that the Grade 12 learners sample, represented the dominant racial composition of the Grade 12 learners at each school. For example, although school C had a majority of African learners in total, the majority of learners in Grade 12 were Coloured. Therefore the sample of Grade 12 biology learners at school C consisted of the majority of "Coloured" learners. In addition, criteria for choosing learner samples correlated with criteria for choosing school samples.

The Table below (Table 6) illustrates how the sample size was determined at each school and how the racial composition of the learners in each sample was derived.

Table 6. Grade 12 learner sample: Sample size and race classification.

School	Total learner: Race classification. (%)	Total No. of Grade 12 Biology learners.	No. in sample (40 % sample)	Sample : race Classification : No. of Learners
A	African: 7% Coloured: 2% Indian: 91%	67	26	African: 0 Coloured: 0 Indian: 26
B	African: 70% Coloured: 2% Indian: 27%	80	32	African: 22 Coloured: 0 Indian: 10
C	African: 63% Coloured: 36% Indian: 1%	57	23	African: 0 Coloured: 23 Indian: 0

Once the size and race classification of the samples were determined, the help of the biology educators at the three sample schools was enlisted. Their main task was to identify the learners at their schools according to the criteria set out above. In addition, gender and academic representivity had to be taken into account.

4.8. Data collection from Grade 12 Biology Educators and Learners

Data collection had to be quick, informative and least disruptive to the schools. For these reasons, questionnaires were chosen as the data collection instruments. Most of the questions were also provided with a set of suggested responses which could be ticked. This would be least time consuming for the learners and educators. However, the questionnaires also included open- ended questions which could be answered in the respondent's own words.

The theoretical perspectives of Eraut (explained in Chapter3) had the following implications for the questionnaires:

- The learning theory must be explored
- The context in which the programme is used must be identified
- The influence of the learners characteristics on learning had to be determined

In addition, Israeli's theory (explained in Chapter 3) also influenced the structure of the questionnaires. This meant that the questionnaires adopted both an Educational and an Instructional approach in its evaluation. Examples of this are the questions relating to the use of the programme with reference to achieving the educational aims of the Grade 12 biology syllabus. Other examples include questions based on the comparative use of the television programme and traditional teaching methods (Question 10 in LQ2- appendix 6). The questionnaires had to be provide more than just quantitative data. For this reason the questionnaires included opportunities for the respondents to reply in their own words. An example of this is the open-ended question :

" *What did you like best about the Learning Channel Biology Programmes?".*

Grade 12 educators and learners had different end uses for the *Learning Channel* programmes, namely their use of the programmes as a teaching or learning aid. Therefore, different questionnaires had to be designed for educators and for learners.

Since the initial findings (from questionnaire A) indicated that the *Learning Channel* programmes were not used in schools, possible reasons for this had to be investigated. This entailed the designing of further questionnaires as follows

i. Educator Questionnaire 1 (EQ1) to determine the following about educators:

: use of technology

: awareness of the *Learning Channel* programmes

: prior interaction with the *Learning Channel* programmes

(appendix 3)

ii. Learner Questionnaire 1 (LQ1): to determine the following about learners:

: Television viewing habits

: awareness of the *Learning Channel* programmes

: prior interaction with the *Learning Channel* programmes

(appendix 5)

The next step was to pilot and administer both questionnaires.

The *Learning Channel* programmes were not watched by Grade 12 Biology educators and learners and they could not comment on its effectiveness. Therefore it was important to select an appropriate programme and to ensure that all respondents watched the same programme before they could be asked to comment on the effectiveness of the programme. After confirming that the biology educators in each of the sample schools had taught the section on the "eye", the *Learning Channel* programme on the "eye" that was broadcast by SABC 3 on 2nd of August 2000 was selected. This approach ensured that all the learners at the different schools were at the same reasonable level of familiarity with the subject matter and that they would be reporting on the same programme.

In addition, the section on the "eye" is a short one and the educational outcomes in terms of the school curriculum can be achieved in the time allocated to the *Learning Channel* programme. The programme on the "eye" was then recorded on videotape.

To determine the effectiveness of the programme, further questionnaires had to be designed as follows:

i. Educator Questionnaire 2 (EQ2) to determine educators reported effectiveness of the *Learning Channel* Biology Programmes (appendix 4).

ii. Learner Questionnaire 2 (LQ2) to determine learners reported effectiveness of the *Learning Channel* Biology Programmes (appendix 6).

The questionnaires then had to be piloted and administered.

Piloting of all the questionnaires were done at a public, secondary school outside the focus area. A random sample of fifteen Grade 12 biology learners was used. The learners were from the Indian, African and Coloured race groups. The biology educator at that school also agreed to pilot the educator questionnaires. From the results of the pilot study, a few modifications became necessary. These related mainly to providing additional responses to some of the questions.

As the sample schools had expressed concern about the amount of time the research would take, the data collection plan was modified to administer both questionnaires of the Educators (EQ1 and EQ2) and of the Learners (LQ1 and LQ2) at the same time.

School B offered to host the viewing session of the *Learning Channel* biology television programme and School C agreed to view the programme at School B. School A insisted on the research being undertaken at their own school. To set up the viewing rooms, a television , a video recorder and adequate seating was arranged at Schools A and B. Every effort was made to ensure that the variables in the two viewing rooms were similar to enhance the reliability of the data. Educator Questionnaire 1 (EQ1) and Learner Questionnaire 1(LQ1) were administered to the participants. The participants then watched the pre-recorded videotape of the *Learning Channel* biology programme on the eye. Thereafter, Educator Questionnaire 2 (EQ2) and Learner Questionnaire 2 (LQ2) were administered to the participants.

4.9. Difficulties experienced in data collection

At School A, the day of the data collection coincided with the external moderation of the Speech and Drama Examination at the school. As a result, three of the learners that were identified as part of the original sample, could not participate in the study. In their place, three other learners with similar qualifying criteria had to be identified and were included in the sample at that school.

In addition , the Biology Educator at that school had emphasized that the learners participation was totally voluntary. This resulted in some resistance on the part of a few learners who initially preferred to be at the sporting activities that were being offered at the school at the time of the research.

4.10. Analysis of data

As the data collection plan involved a large number of respondents (over 80), the questionnaires were designed to use computer software called the Statistical Programme for the Social Sciences (SPSS) for the analysis of data. This programme is used mainly to quantify data. Its main advantage over other programmes is that it produces frequency tables. These tables relate to the number of times a particular response is chosen in the questionnaires. From these tables a multitude of statistical interpretations can be made and these can be represented in any number of forms, including tables and graphs.

After completion of the questionnaires by the learners, the responses were coded according to the requirements of the SPSS programme. In addition, the qualitative responses were aggregated into groups of similar answers. This was done so that they could be quantified, coded and used to generate frequency tables with the SPSS programme. The questionnaires for the educators were also analyzed using the SPSS programme.

Various calculations can be made from the frequency tables produced by the SPSS. The example below shows how the table was used to determine the final frequency table for each of the variables.

EXAMPLE. When is television watched by Grade 12 biology learners?

The SPSS produced the following frequency table (Table 7) in response to the above question:

Table 7. When is television watched by Grade 12 biology learners?

	Frequency	Percent	Cumulative Percent
1-before school	1	1.2	1.2
2-after school - in the afternoons	8	9.9	11.1
3-evenings / nights	*15	18.5	29.6
4-weekend	7	8.6	38.3
5-do not watch TV	5	6.2	44.4
1+2	1	1.2	45.7
1+3	* 1	1.2	46.9
2+3	* 4	4.9	51.9
2+4	6	7.4	59.3
3+4	* 12	14.8	74.1
2+3+4	* 12	14.8	88.9
1+2+3+4	* 8	9.9	98.8
1+3+4	* 1	1.2	100.0
Total	81	100.0	

The number of learners that watch television in the evenings / nights was calculated as follows. In the first column, all the rows with the number 3 were identified. Their corresponding rows in the second column were marked with an asterisk (*). These figures represent the frequencies of responses and were added together as follows:

$$15 + 1 + 4 + 12 + 12 + 8 + 1 = 53.$$

Therefore 53 of the 81 learners, that is 65% of the learners watch television in the evenings /nights. The same method is used to calculate the percentage of learners that watch television at other times.

All calculations in Chapter 5 use the method explained in the above example. Therefore, only the final frequencies are used for the corresponding graphs.

The analysis of all the data was correlated with the critical questions posed in this study. Details of this analysis are reported on in the next chapter.

4.11. Conclusion

The methodology for this research consists of many steps. As the research progressed, each step was refined and modified where necessary. The following summary outlines the final methodological steps taken in this study.

Step 1. Choose a Focus area for the research

Step 2. Determine which schools / learners are watching / using the SABC's *Learning Channel* Biology programmes.

Findings: No school was using the *Learning Channel* programmes.

Step 3. Devise strategies to make schools amenable to participating in further research.

Step 4. Select a representative sample of the schools

Step 5. Gain access to the schools

Step 6. Select a representative sample of the learners at each of the sample schools.

Step 7. Design a questionnaire (EQ1) to determine Educators:

- use of technology
- awareness of the *Learning Channel* programmes
- interaction (if, why, how, when) with the *Learning Channel* programmes.

Step 8. Design a questionnaire (LQ1) to determine Learners:

- television viewing habits
- awareness of the *Learning Channel* programmes
- interaction (if, why, how, when) with the *Learning Ch*annel programmes.

Step 9. Choose and record a suitable *Learning Channel* Biology programme.

Step 10. Design a questionnaire (EQ2) to determine the Educators reported effectiveness of the programme

Step 11. Design a questionnaire to (LQ2) determine the Learners reported effectiveness of the programme

Step 12. Pilot all the questionnaires

Step 13. Host a viewing session for all the participants.

Step 14. Administer the first set of questionnaires (EQ1 and LQ1)

Step 15. Enable all participants to view the selected programme.

Step 16. Administer the second set of questionnaires (EQ2 and LQ2)

CHAPTER 5

DATA ANALYSIS: FINDINGS AND INTERPRETATIONS

5.1. Introduction

This chapter presents the findings and analysis of the data generated by the responses to the questionnaires as outlined in Chapter 4. Data from Questionnaire A answers the first critical question which deals with the present use of the *Learning Channel* biology programmes.

Educator Questionnaire 1 (EQ1) and Learner Questionnaire 1(LQ1) provided data which answers the next four critical questions relating to the educators' use of television as a teaching aid, learners television viewing habits. awareness of the *Learning Channel* programmes, and prior interaction with the programmes.

Educator Questionnaire 2 (EQ2) and Learner Questionnaire 2 (EQ2) provided data which answers the last critical question relating to the reported effectiveness of the biology programme of the *Learning Channel* that all educators and learners watched.

Finally a summary of the conclusions regarding the use of the *Learning Channel* biology programmes by Grade 12 educators and learners is presented.

5.2. Critical Question 1. How are the *Learning Channel* Biology programmes being used by Grade 12 Biology Educators and Learners

Findings from Questionnaire A.

The executive producer of this programme claims that 2 200 schools are using the programmes (Smith 1998: 54). However, the most revealing finding of this survey was that the *Learning Channel* biology programmes is not used in any of the seven schools in

the focus area as a teaching or learning aid. Although some educators and learners had watched the programmes (during school holidays or, in previous years when it was broadcast after school), these programmes were not being used in any of the schools at present. The biology educators at all seven schools agreed that the two main reasons for this was that:

i. the time and duration of the programmes were very difficult to accommodate in the existing school time table and period allocation.
ii. they were not sufficiently aware of the programmes (content, topic, time of broadcast etc).

During informal conversations with the biology educators, reasons for their non-use of the programmes were further probed. The educators elaborated on their reasons as follows:

i. not knowing about the topic of the programmes prior to them being broadcast
ii. programmes being too long (one and a half hours) to accommodate in the normal school time table(when lesson duration varies between 35 to 55 minutes)
iii. pressure of completing the syllabus did not allow enough time to "experiment" with a non-traditional medium(television) and unfamiliar programme (*Learning Channel*)

In addition, reluctance to use the programmes came from the common perceptions held by many school principals that the use of TV / video in the teaching of a traditional subject such as biology was inferior to the educators' usual type of lesson. Educators who wanted to use the television were viewed with suspicion. One school principal stated that he would not allow the television to do the educators' work and that learners could videotape and watch the programmes on their own if they so desired.

The surprising non -use of the *Learning Channel* Television programmes raised other questions. Examples of these questions are :

- is television / video used by educators as a teaching aid?

- do learners watch television? If so, when and why do they watch television?
- are educators and learners aware of the *Learning Channel* programmes?
- if any educator or learner watched the *Learning Channel* programmes, how did they interact with the programmes and what did they think of the programmes?

These questions formed the basis of the next set of questionnaires for educators (EQ1) and learners (LQ1). The findings of both these questionnaires are reported below.

5.3. Critical Question 2. Do Grade 12 Biology Educators use Television / Video as a teaching aid?

Findings from Educator Questionnaire 1 (EQ1): Section A. (Appendix 3)

The three educator respondents indicated that they had previously used television programmes as a teaching aid. These television programmes were recorded on videotapes and then shown to learners. None of the educators had used "live" television broadcasts as a teaching aid. In addition, two of the educators had also used commercially produced educational videos in their teaching. Therefore it would seem that although educators were familiar with the use of television / video technology as a teaching aid, none of them had made use of the *Learning Channel* biology programmes. The findings of the *Case* report (Barker, Giyose, Mopp, Mulaudzi, Ntsime, Pule, Smith, Tshule 1998:ix) also found that South African educators only used programmes that were produced abroad. This finding of the educator questionnaire (EQ1) is consistent with that of Questionnaire A regarding the non-use of the *Learning Channel* programmes by educators.

Could the educators television viewing habits influence their choice of using television as a teaching aid? All the three educators claimed to watch television for less than 5 hours per week. Only one educator had watched the *Learning Channel* programmes (on language, literacy, numeracy) broadcast on Saturday mornings. The educators lack of interest in watching television is a contributing factor for them not using television programmes as teaching aids.

Another factor for the programmes not being used by educators was given as the non-availability of the programmes. None of the schools had bought the *Learning Channel* biology programmes. All the schools cited financial constraints as the main reason for this.

In addition to the educators not watching the *Learning Channel* programmes, only one of the educators knew of learners who watched the *Learning Channel* programmes. Furthermore, only three learners watched the *Learning Channel.*

5.4. Critical Question 3. What are the Television viewing patterns of Grade 12 Biology Learners?

Findings from Learner Questionnaire 1 (LQ1): Section A. (Appendix 5)

Since the *Learning Channel* programmes are not watched by the Grade 12 learners, it was important to determine what programmes, if any, are watched by the learners. This television viewing pattern of learners provides insights as to what appeals to learners and will have implications for the *Learning Channel* programmes.

Unlike educators, television is watched by most (90%) of the biology learners. This finding is supported by the findings of Kola et al (1997:40) which showed that younger people access television more than older people and that over half of the student population watch television daily. In this study, the amount of time spent watching television in a week (including the weekend) proved to be limited. Only 11% of the learners said that they spent over 15 hours a week watching television and the majority of learners (37%) watched television for less than 5 hours (Table 8).

Table 8. How much time is spent in a week watching television?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	do not watch tv	8	9.9	9.9	9.9
	less than 5 hours	30	37.0	37.0	46.9
	less than 10 hours	24	29.6	29.6	76.5
	less than 15 hours	10	12.3	12.3	88.9
	more than 15 hours	9	11.1	11.1	100.0
	Total	81	100.0	100.0	

The main reason (40%) given by those who do not regularly watch television was that there was no time to watch television. Only 14% of the learners said that they were not interested in television. (Table 9).

Table 9. Why is television not watched by learners?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2-not allowed to watch TV	1	1.2	2.2	2.2
	3-no time to watch TV	30	37.0	66.7	68.9
	4-not interested inTV	8	9.9	17.8	86.7
	5-other	3	3.7	6.7	93.3
	3+4	3	3.7	6.7	100.0
	Total	45	55.6	100.0	
Missing	System	36	44.4		
Total		81	100.0		

The learners' interest in television correlates with the fact that 26% of learners regularly watch "*Take 5* " which is an educational programme of another genre (Table 10). The main difference being that the *Learning Channel* programmes are curriculum specific. This would suggest that learners will watch television even in the limited time available to them, if the programme appealed to them. This finding needs to be explored in further studies to determine what appeals to learners.

Table 10. Do learners watch "*Take 5*" on television?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	21	25.9	25.9	25.9
	no	60	74.1	74.1	100.0
	Total	81	100.0	100.0	

To calculate when learners are watching television, the example given in the previous chapter (Table 7) is used. The results are as follows: of the learners that watch television, 65% watch in the evenings / nights, 56% watch in the weekends, 48% watch in the afternoons, and 15% watch before school. This implies that the broadcast of educational programmes should be sensitive to these times.

On Saturday mornings, the *Learning Channel* programmes are broadcast. A little under half (43%) of the learners watch television on Saturday mornings (Table 11).

Table 11. Which television programmes do learners watch on Saturday mornings?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-Learning Channel	3	3.7	3.7	3.7
	2-childrens programmes	17	21.0	21.0	24.7
	3-other	2	2.5	2.5	27.2
	no programmes	46	56.8	56.8	84.0
	1+2	11	13.6	13.6	97.5
	2+3	2	2.5	2.5	100.0
	Total	81	100.0	100.0	

However, although the *Learning Channel* Programmes (numeracy, literacy, language) are also broadcast at this time, only 17% of learners watch these programmes. The majority of Grade 12 learners (37%) preferred to watch programmes aimed at primary school children (animations, cartoons etc). This corresponds with the studies done by Kola et al (1997:36) which shows that learners preferred to watch other programmes such as *Soul City* and *Kideo* in preference to the *Learning Channel* programmes. This would suggest that further research needs to be undertaken to establish why Grade 12 learners watch

"children's" programmes in preference to the *Learning Channel* programmes which is broadcast at the same time.

5.5. Critical Question 4. How aware are Grade 12 Biology Educators and Learners of the *Learning Channel* Biology Programmes ?

Findings from : Learner Questionnaire 1- Section B (Appendix 5)

: Educator Questionnaire 1 - Section B (Appendix 3)

All three educators and most (93%) of the learners stated correctly that the *Learning Channel* Programmes were broadcast on SABC 3 (Table 12).

Table 12. On which television channel is the *Learning Channel* broadcast?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	SABC1	2	2.5	2.5	2.5
	SABC2	3	3.7	3.8	6.3
	SABC3	75	92.6	93.8	100.0
	Total	80	98.8	100.0	
Missing	System	1	1.2		
Total		81	100.0		

However this high percentage of correct responses could be attributed to the briefing session when respondents were informed about the programme, rather than to the respondents awareness of the programmes. This is borne out by the fact that both educators and learners had very little knowledge of the *Learning Channel* programmes. This is apparent from the responses received in Section B of the questionnaires. These responses are explained next.

When asked about the time at which the *Learning Channel* biology programmes are broadcast, the educators and the learners differed in their responses. None of the educators knew the correct time of the broadcasts. However, at least half (51%) of the learners knew that the biology programmes were broadcast during school hours (Table 13).

Table 13. When are the Biology programmes of the *Learning Channel* broadcast?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	during school	41	50.6	58.6	58.6
	afternoons	11	13.6	15.7	74.3
	weekends	18	22.2	25.7	100.0
	Total	70	86.4	100.0	
Missing	System	11	13.6		
Total		81	100.0		

44% of the learners also knew that the correct time of broadcast was between10:00 - 11:30 (Table14).

Table 14. At what time is the *Learning Channel* Biology programmes broadcast?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	8-9 am	3	3.7	4.2	4.2
	9-11 am	25	30.9	34.7	38.9
	10-11,30 am	36	44.4	50.0	88.9
	2-4 pm	8	9.9	11.1	100.0
	Total	72	88.9	100.0	
Missing	System	9	11.1		
Total		81	100.0		

All the educators and a very high percentage (84%) of learners did not have any knowledge (eg. topic) of the biology programmes prior to them being broadcast on television (Table15).

Table15. Was the topic of any *Learning Channel* programme known before it was broadcast?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no	68	84.0	86.1	86.1
	yes	11	13.6	13.9	100.0
	Total	79	97.5	100.0	
Missing	System	2	2.5		
Total		81	100.0		

Of the 16% of learners that claimed to have known of the topic prior to it being broadcast, 54% obtained this information from television and 24% from newspapers (Table16).

Table 16. Which source provided information about the programmes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	newspaper	3	3.7	23.1	23.1
	TV	7	8.6	53.8	76.9
	other	3	3.7	23.1	100.0
	Total	13	16.0	100.0	
Missing	System	68	84.0		
Total		81	100.0		

However, this response is unreliable as the information about the programmes is only broadcast during Saturday mornings when most learners indicated that they do not watch the programmes. 42 % of the learners and only one of the three educators identified the *Sowetan* as the newspaper that published broadcast details and support material of the *Learning Channel* programmes (Table17).

Table 17. Which newspaper publishes support material for the programmes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	daily news	26	32.1	32.9	32.9
	mercury	2	2.5	2.5	35.4
	sowetan	34	42.0	43.0	78.5
	do not know	17	21.0	21.5	100.0
	Total	79	97.5	100.0	
Missing	System	2	2.5		
Total		81	100.0		

Most learners (68%) and all the educators did not know that the format of the programme changes during the school holidays (Table18).

Table 18. What changes are made to the format of the programmes during the school holidays?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	time of broadcast	9	11.1	11.8	11.8
	any learner can phone in	26	32.1	34.2	46.1
	learners from one school only	6	7.4	7.9	53.9
	dont know	35	43.2	46.1	100.0
	Total	76	93.8	100.0	
Missing	System	5	6.2		
Total		81	100.0		

43% of learners and none of the educators knew that schools can book a topic with the producers of the *Learning Channel* (Table 19). This suggests that the present system of promoting awareness (through television and print media) of the programme is ineffective.

Table 19. Are learners aware that schools can book a topic with the producers of the programmes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes	35	43.2	43.2	43.2
	no	46	56.8	56.8	100.0
	Total	81	100.0	100.0	

In conclusion, Grade 12 educators and learners in general, are not aware of the *Learning Channel* biology programmes. This is a major contributing factor for these programmes not being used by the educators and learners.

5.6. Critical Question 5. What are the different ways (if any) in which Grade 12 Biology Educators and Learners interact with the *Learning Channel* Biology programmes.

Findings from : Learner Questionnaire 1 (LQ1) - Section C (Appendix 5)

: Educator Questionnaire 1(EQ1)- Section C (Appendix 3)

Interaction with the programmes is dependent on the programmes being watched. 77% of the learners had not watched any of the *Learning Channel* biology programmes (Table 20).

Table 20. Why is the *Learning Channel* not watched?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2-did not know about the programmes	8	9.9	12.9	12.9
	3-did not know the time	6	7.4	9.7	22.6
	4-time of broadcast was not suitable	19	23.5	30.6	53.2
	5-could not have it taped	1	1.2	1.6	54.8
	other	2	2.5	3.2	58.1
	2+3	7	8.6	11.3	69.4
	3+4	3	3.7	4.8	74.2
	3+5	1	1.2	1.6	75.8
	3+6	1	1.2	1.6	77.4
	4+5	8	9.9	12.9	90.3
	2+3+4	4	4.9	6.5	96.8
	2+3+6	2	2.5	3.2	100.0
	Total	62	76.5	100.0	
Missing	System	19	23.5		
Total		81	100.0		

The three main reasons given were :

i. the time at which the programmes were broadcast was not suitable (42%)

ii. they did not know what time the programmes were broadcast (30%)

iii. they did not know about the programmes (26%)

This again, would imply that the learners lack of knowledge of the programmes and the inappropriate time of broadcast are instrumental in the majority of learners not watching the programmes.

Only 23% of learners had watched at least one biology programme of the *Learning Channel.* The main reason (65%) for learners to watch it was to improve their biology results (Table 21).

Table 21. Why is the *Learning Channel* watched by learners?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	interesting	5	6.2	10.9	10.9
	to improve biology results	30	37.0	65.2	76.1
	just happen to be there	7	8.6	15.2	91.3
	felt that it should be watched	4	4.9	8.7	100.0
	Total	46	56.8	100.0	
Missing	System	35	43.2		
Total		81	100.0		

Only 11% of learners who watched the programmes found it interesting. All three educators had watched some of the programmes with the main reason being that they felt that they should be watching it.

44% of the learners and all three educators watched less than 5 programmes (out of 25) programmes that were broadcast at the time of this research (Table 22).

Table 22. How many of the 25 *Learning Channel* programmes were watched?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	more than 18	1	1.2	2.2	2.2
	about 10	9	11.1	19.6	21.7
	less than 5	36	44.4	78.3	100.0
	Total	46	56.8	100.0	
Missing	System	35	43.2		
Total		81	100.0		

Of the learners that watched the programmes, the majority of learners (57 %) watched it live (possibly during holidays) while 23% watched it as videotapes (Table 23).

Table 23. In which way are the programmes watched?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	live	21	25.9	47.7	47.7
	as videos	6	7.4	13.6	61.4
	live and videos	4	4.9	9.1	70.5
	watched only when broadcast after school	13	16.0	29.5	100.0
	Total	44	54.3	100.0	
Missing	System	37	45.7		
Total		81	100.0		

The educators had only watched the programmes in previous years when it was broadcast after school hours.

Since very few learners and educators watch the *Learning Channel* biology programmes regularly, there were very few responses to the questions asked about the interaction with the programmes. Tables 24, 25 and 26 illustrate this low number of responses regarding interaction with the programmes.

Table 24. What was done before watching the programmes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	find out when	2	2.5	16.7	16.7
	find out what	3	3.7	25.0	41.7
	both when and what	7	8.6	58.3	100.0
	Total	12	14.8	100.0	
Missing	System	69	85.2		
Total		81	100.0		

Table 25. What was done while watching the programmes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-use aids	1	1.2	3.0	3.0
	2-tape it	3	3.7	9.1	12.1
	3-take notes	7	8.6	21.2	33.3
	4-phone the presenter	2	2.5	6.1	39.4
	1+2	1	1.2	3.0	42.4
	1+3	13	16.0	39.4	81.8
	2+3	2	2.5	6.1	87.9
	1+2+3	3	3.7	9.1	97.0
	1+3+4	1	1.2	3.0	100.0
	Total	33	40.7	100.0	
Missing	System	48	59.3		
Total		81	100.0		

Table 26. What was done after watching the programmes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-discuss- other educators	4	4.9	12.9	12.9
	2-discuss- learners	5	6.2	16.1	29.0
	3-make notes	10	12.3	32.3	61.3
	4-other	1	1.2	3.2	64.5
	1+2	1	1.2	3.2	67.7
	1+3	5	6.2	16.1	83.9
	2+3	5	6.2	16.1	100.0
	Total	31	38.3	100.0	
Missing	System	50	61.7		
Total		81	100.0		

The number of responses were as follows: before watching(12% responses), during watching (33%responses) and after watching (1% responses). Therefore no findings were made from these responses as they would not apply to most of the respondents in the study.

5.7. Critical Question 6. What is the reported effectiveness of one of the *Learning Channel* Biology Programmes by Grade 12 Biology Educators and Learners ? (after they had all viewed the same programme)

Findings from: Learner Questionnaire 2 (LQ2) - (Appendix 6)
: Educator Questionnaire 2 (EQ2) - (Appendix 4)

5.7.1. Introduction

Since the learners and educators do not usually watch the *Learning Channel* biology programmes, they could not comment on its effectiveness. Therefore a common viewing session was arranged so that all participants watched the same biology programme of the *Learning Channel*. The methodology is explained in detail in Chapter 4. This section deals with the Grade 12 biology educators and learners reported effectiveness of the *Learning Channel* programme that they had watched. To do this, Educator Questionnaire 2 and Learner Questionnaire 2 are analyzed. In the first part, analysis of the "quantitative" data (obtained by ticking suggested responses to each question) is reported on. The second part comments on the "qualitative" data (open ended questions). Finally the two types of data are correlated in order to increase the validity of the findings.

5.7.2. Analysis of "Quantitative" data

5.7.2.1. Method and Language

The teaching method of the programme was rated by all the learners and the three educators as good or excellent (Table 27).

Table 27. How was the teaching method of the programme rated by the learners?

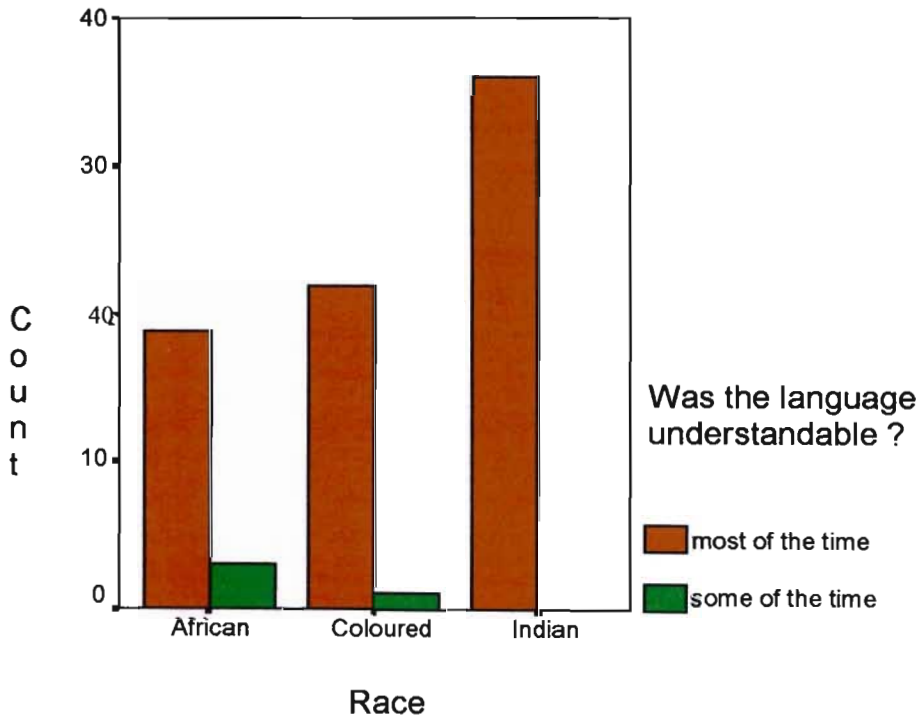
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	excellent	47	58.0	58.0	58.0
	good	34	42.0	42.0	100.0
	Total	81	100.0	100.0	

Most of the learners (95%) felt that the language used in the programme was understandable most of the time (Table 28). This finding is represented in graph 1.

Table 28. How much of the language was understandable?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	most of the time	77	95.1	95.1	95.1
	some of the time	4	4.9	4.9	100.0
	Total	81	100.0	100.0	

Graph 1 . Understandability of the language used in the programme.



The favourable rating of the language used in the programme includes the responses of second language English learners who made up 27% of the learner sample. A possible reason for this could be that these learners are taught in schools through the medium of English. Presumably, by the time they progress to Grade 12 in these schools, the learners would be fairly proficient in English. However two of the three educators felt that the language used would present problems to their learners. This would suggest that the educators' perception of language differed from that of learners.

5.7.2.2. Understandability, length and interaction with the programmes.

The majority of learners (78%) and educators (67%) felt that they understood most of the content of the lesson (Table 29).

Table 29. How much of the lesson was understood?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	most of it	63	77.8	77.8	77.8
	some of it	16	19.8	19.8	97.5
	very little of it	2	2.5	2.5	100.0
	Total	81	100.0	100.0	

While the majority of learners (62%) felt that the duration (one and a half hours) of the programme was satisfactory, two of the three educators felt that it was too long (Table 30).

Table 30. What are learners perceptions regarding the length of the programme?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	too long	29	35.8	35.8	35.8
	ok	50	61.7	61.7	97.5
	too short	2	2.5	2.5	100.0
	Total	81	100.0	100.0	

The educators' view was substantiated by the researcher's observation of the learners who requested for frequent breaks during the broadcast time. 28% of the learners took notes while watching the programme and a fifth (20%) of them lost interest in the programme (Table 31).

Table 31. What did learners do while watching the programmes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-use aids	1	1.2	3.0	3.0
	2-tape it	3	3.7	9.1	12.1
	3-take notes	7	8.6	21.2	33.3
	4-phone the presenter	2	2.5	6.1	39.4
	1+2	1	1.2	3.0	42.4
	1+3	13	16.0	39.4	81.8
	2+3	2	2.5	6.1	87.9
	1+2+3	3	3.7	9.1	97.0
	1+3+4	1	1.2	3.0	100.0
	Total	33	40.7	100.0	
Missing	System	48	59.3		
Total		81	100.0		

Of the educators, none took down notes and two of the three lost interest. Although no reasons were given, this could be due to familiarity with the subject, professional intolerance and lack of motivation to participate in the study.

5.7.2.3. Usefulness of callers questions on the programme.

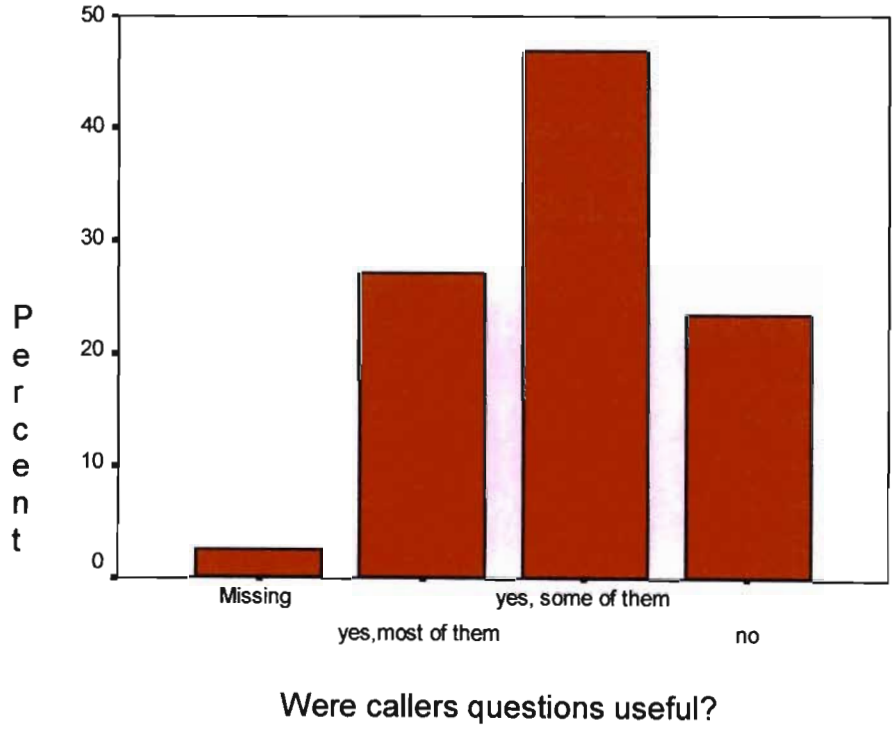
Half of the learners (47%) and two of the three educators felt that some of the callers questions on the programme were useful to them (Table 32).

Table 32. Were the callers questions of use to the learners?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	yes,most of them	22	27.2	27.8	27.8
	yes, some of them	38	46.9	48.1	75.9
	no	19	23.5	24.1	100.0
	Total	79	97.5	100.0	
Missing	System	2	2.5		
Total		81	100.0		

A quarter (27%) of the learners felt that most of the callers questions were of great use to them. A similar percentage (24%) of learners felt that the callers questions were of no use to them. Refer to graph 2 below.

Graph 2. Usefulness of callers questions to the Grade 12 learners



5.7.2.4. Learner support material

In terms of learner support material, 74% of learners felt that examination type questions should also be provided with each programme and all the educators agreed with this (Table 33).

Table 33. What kind of learner support material should be provided with the programmes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-notes	10	12.3	12.5	12.5
	2-exam questions	28	34.6	35.0	47.5
	3-tel no (after hours)	6	7.4	7.5	55.0
	1+2	14	17.3	17.5	72.5
	1+3	5	6.2	6.3	78.8
	2+3	11	13.6	13.8	92.5
	1+2+3	5	6.2	6.3	98.8
	1+2+3+4	1	1.2	1.3	100.0
	Total	80	98.8	100.0	
Missing	System	1	1.2		
Total		81	100.0		

44% of learners would also like notes to be provided and two of the three educators felt the same. A smaller number (35%) of learners wanted an after hours telephone number and two of the three educators agreed that this should be provided.

5.7.2.5. Comparison of the television programme with the classroom lesson

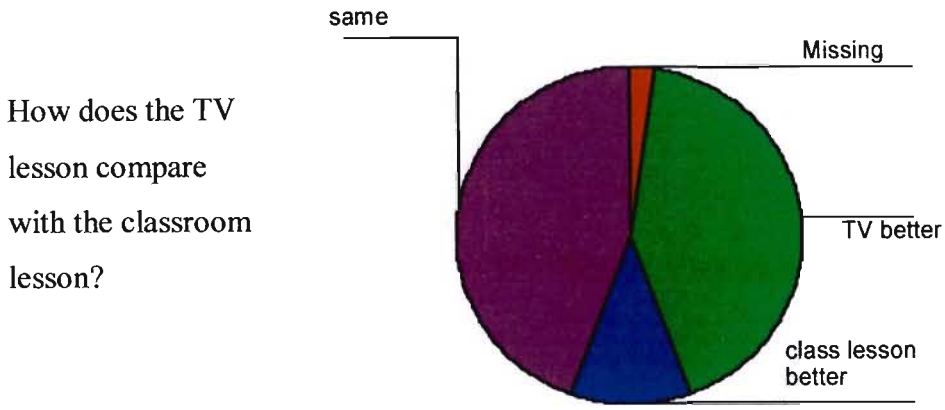
Almost equal numbers of learners felt that the television lesson was better than the classroom lesson (42%) and that the television lesson was the same as the classroom lesson (44%)- Table 34).

Table 34. How did the television lesson compare with the classroom lesson?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	tv better	34	42.0	43.0	43.0
	class better	9	11.1	11.4	54.4
	same	36	44.4	45.6	100.0
	Total	79	97.5	100.0	
Missing	System	2	2.5		
Total		81	100.0		

However 67% of the educators felt that the lesson on television was the same as the classroom lesson. Only 11% of the learners and one of the three educators felt that the classroom lesson was better than the television lesson. This is represented in Figure 3 (pie chart) below.

Fig. 3. Comparison of Television lesson with classroom lesson.



5.7.2.6. Uses of the programme

The best use for the programme was cited as examination preparation by the learners (41%) while two of the three educators cited the best use as revision. This view of the educators was supported by 26 % of the learners. A slightly larger percentage of learners (31%) felt that the best use of the programmes would be to add to the educators lesson. Only 2% of the learners felt that the television programme should replace the educators lesson (Table 35).

Table 35. What is the best use of the programmes?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	revision	15	18.5	25.9	25.9
	exam prep	24	29.6	41.4	67.2
	add to teachers lesson	18	22.2	31.0	98.3
	replace teachers lesson	1	1.2	1.7	100.0
	Total	58	71.6	100.0	
Missing	System	23	28.4		
Total		81	100.0		

5.7.2.7. Consideration for future use of the programmes by educators

All three educators said that they will consider using the programmes in the future provided that the:

i. programmes are sent to school free of charge and
ii. school time table is adjusted to accommodate these programmes.

This suggests that if the above considerations are met, then these programmes will be used in schools.

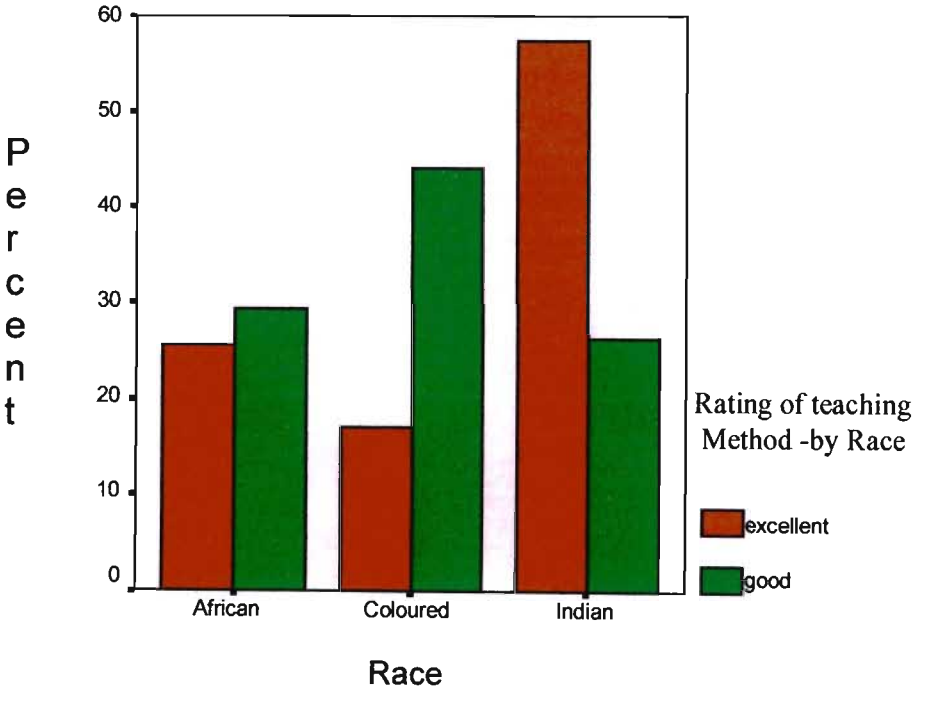
5.7.2.8. Racial inferences with regard to the findings of the data

The three groups represented in the learner samples belong to the "African", "Coloured" and "Indian" race groups. There were some differences in the responses given by Grade 12 learners of the different race groups. Although an analysis based on race is not critical to this study, such an analysis is important because the sampling was done with race as a criterion. The implications of findings based on race could also be an important indicator of future studies in this regard.

In this section, the responses of African learners are reported on first. This is followed by the report on Coloured learners and finally on Indian learners.

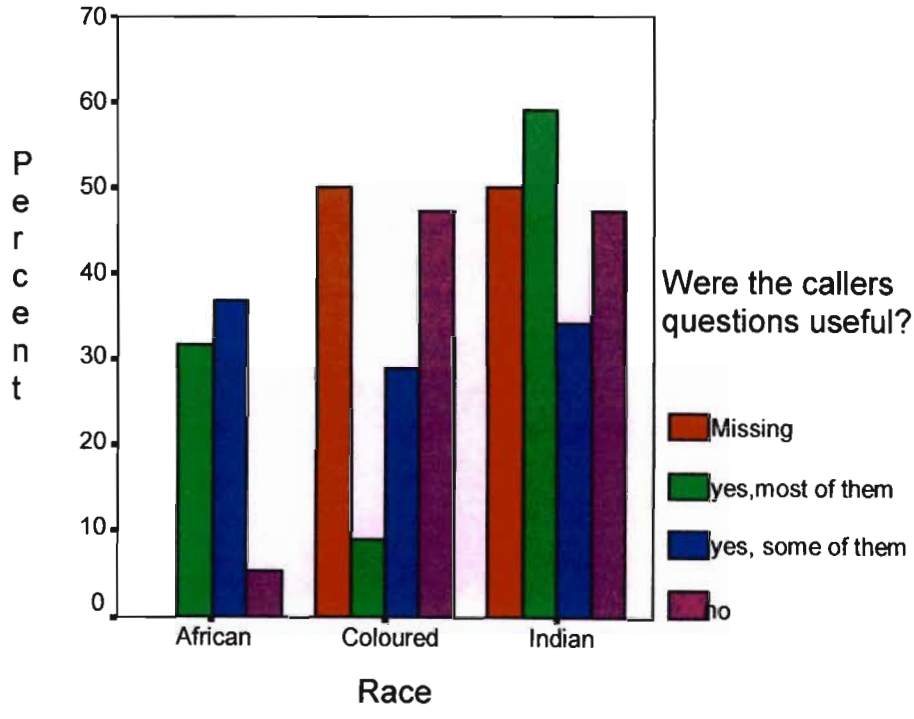
Regarding the method of the programme, African learners found it to be either good or excellent (refer to graph 3).

Graph 3. Rating of the teaching method of the programme by Grade 12 learners - by race.



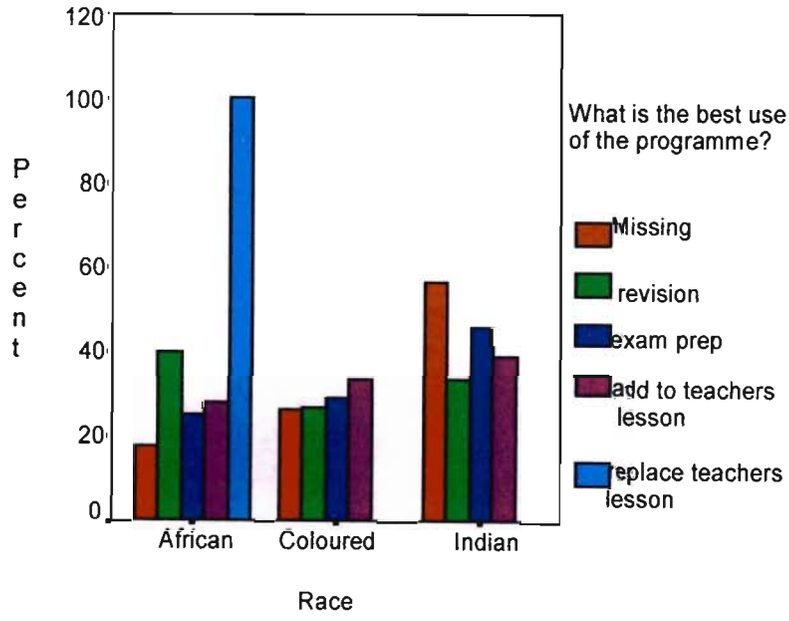
With regard to the callers' questions, most of the African learners found the callers questions useful to them. Perhaps the African learners identified with the callers , all of whom were African. This is represented by graph 4.

Graph 4. Usefulness of callers questions to Grade 12 learners - by race



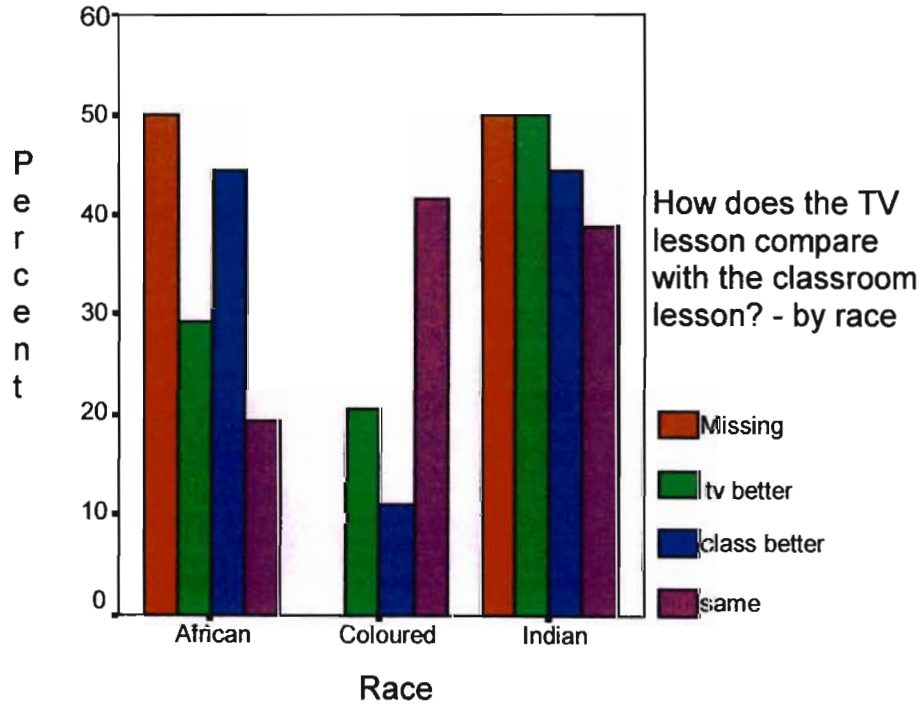
When uses of the programme were investigated, the African learners were the only group who felt that the best use of the programme was to replace the educator's lesson. Graph 5 represents this.

Graph 5. Uses of the programmes to Grade 12 learners - by race.



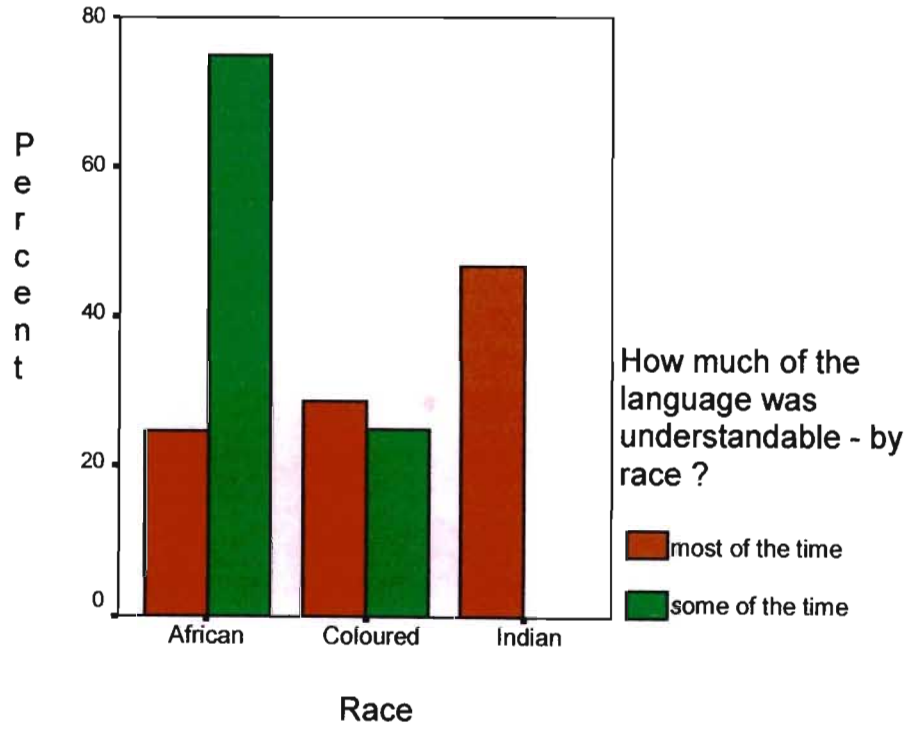
Despite the favourable comments about the programme, the African learners preferred the educator's lesson to the television programme. These responses are represented in graph 6.

Graph 6. Comparison of television lesson with educators lesson- by race.



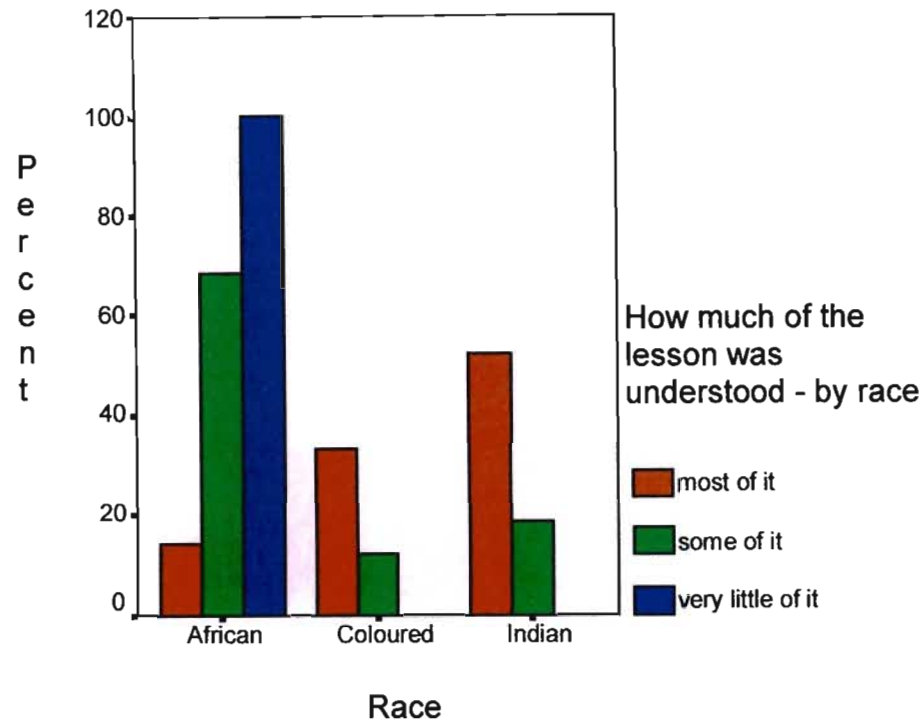
Most African learners also felt that the language used in the programme was understandable for only some of the time. Refer to graph 7.

Graph 7. Understandability of the languages used on the programme - by race.



Consequently, the African learners were the only group that felt they understood very little of the programme. Refer to graph 8.

Graph 8. Understandability of the contents of the programme - by race.



Graphs 3 to 8 also represent findings with regard to learners of the other race groups. Compared to the other race groups, not as many Coloured learners rated the method as excellent. More Coloured learners felt that the callers' questions were of no use to them. Coloured learners did not have strong positive or negative feelings about the programmes. They felt that the programme was comparable to the educator's lesson. The language was understandable and most of the lesson was understood by the Coloured learners.

For the Indian learners, most of them rated the method as excellent. They felt that the television programme was better than the educator's lesson. All Indian learners found the

language to be understandable for most of the time. Consequently, the Indian learners felt that they understood most of the lesson.

These findings in respect to race groups is consistent with findings from other studies. For example, Kola et al (1997:38) found that Indians have the highest daily viewership, followed by Coloureds, then Whites then Africans.

5.7.2.9. Gender inferences with regard to the findings of the data

There were no significant differences with regard to gender. Almost equal numbers of males (39) and females (42) were represented in the learner samples. As gender issues are not critical to this study, no further analysis with regard to gender was made.

5.7.3. Analysis of "Qualitative" Data

In this section, open-ended questions are analyzed. Responses to the open-ended questions were analyzed and separated into different categories which could then be quantified for analysis using SPSS.

5.7.3.1. What was liked the most about the programme?

For this question, five broad categories were identified as follows:

- method (understandable, repetition, enough time etc.)
- appeal (good diagram, use of aids, examples, visual medium appeal etc.)
- information (extra facts, more detailed than educator, informative etc.)
- presenter (personality, gender, appeal, humour etc.)
- other

The learners' responses in each of the above categories is listed in Table 36.

Table 36. What was liked the most by learners?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-good method,understandable, repitition,enough time	19	23.5	23.8	23.8
	2-good diagram, aids,examples,visual medium	4	4.9	5.0	28.8
	3-extra facts, more than teacher,informative	3	3.7	3.8	32.5
	4-presenter personality, female, appeal,humour	1	1.2	1.3	33.8
	1+2	20	24.7	25.0	58.8
	1+3	13	16.0	16.3	75.0
	1+4	7	8.6	8.8	83.8
	1+5	1	1.2	1.3	85.0
	2+4	2	2.5	2.5	87.5
	1+2+3	4	4.9	5.0	92.5
	1+3+4	1	1.2	1.3	93.8
	2+3+4	1	1.2	1.3	95.0
	1+2+4	4	4.9	5.0	100.0
	Total	80	98.8	100.0	
Missing	System	1	1.2		
Total		81	100.0		

From this data, the responses in each of the five categories were added together to form the composite results expressed in Table 37.

Table 37. What was liked the most by learners: Composite results.

Category	% liked by learners
1-METHOD good method, understandable, repetition, enough time	87
2-APPEAL good diagram, aids, examples, visual medium	44
3-INFORMATION extra facts, more than teacher, informative	28
4-PRESENTER personality, female, appeal, humour	20
5-OTHER	0

The category most liked (87%) by the learners was the teaching method of the programme. This response by learners validates their earlier response (in the quantitative section of this questionnaire) in which they also rated the teaching method very favourably. For most of the learners, this was the first time that they were using television as a learning aid. As such, their curiosity could have been aroused and this novelty factor could have contributed to their favourable rating of the teaching method. This view is supported by the fact that only one of the three educators chose the "method" as the category most liked.

The second category most liked was the appeal of the medium. 44% of the learners and one of the educators chose this category. This category included statements like "good , clear diagrams", "good use of aids", "everyday examples", and "good to see the things on television, so we don't have to imagine it". The diagram of the eye helped to illustrate the lesson.

The third category most liked was the information provided by the programme. 28% of the learners and one of the educators liked the fact that the programme provided extra facts, was very informative and provided more information than the educator.

The fourth category most liked was the presenter. However only 20% of the learners chose this category. Perhaps this was due to the fact that none of the respondents were of the same race group as the presenter (who was white). The learners that liked the presenter found aspects of her personality, gender and sense of humour appealing.

5.7.3.2. What was liked the least about the programmes?

For this question, five broad categories were identified as follows:

- method (poor method, diagrams labels, too much repetition, too much talking, no involvement of the learner etc.)
- medium (boring, lost concentration etc.)

- length (too long, not enough breaks etc.)
- presenter (attitude, insulting etc.)
- other (background , technical, sound quality, etc.)

The learners' responses in each of the above categories is listed in Table 38.

Table 38. What was liked the least by learners.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1poor method, diags labelled,repitition,too much talk,no inv	20	24.7	31.3	31.3
	2-boring, lost concentration	1	1.2	1.6	32.8
	3-too long, not enough breaks	10	12.3	15.6	48.4
	4-presenter's attitude, sense of humour, insulting	2	2.5	3.1	51.6
	5-background, other	9	11.1	14.1	65.6
	1+2	1	1.2	1.6	67.2
	1+3	5	6.2	7.8	75.0
	1+4	1	1.2	1.6	76.6
	1+5	1	1.2	1.6	78.1
	2+3	7	8.6	10.9	89.1
	2+4	1	1.2	1.6	90.6
	3+5	3	3.7	4.7	95.3
	1+2+3	2	2.5	3.1	98.4
	1+3=4	1	1.2	1.6	100.0
	Total	64	79.0	100.0	
Missing	System	17	21.0		
Total		81	100.0		

From this data, the responses in each of the five categories were added together to form the composite results expressed in Table 39.

Table 39. What was liked the least by learners: Composite results.

Category	% least liked by Learners
1-METHOD poor method, diagrams labelled, repetition, too much talk, no involvement	49
2-MEDIUM boring, lost concentration	15
3-LENGTH too long, not enough breaks	44
4-PRESENTER attitude, sense of humour, tone	8
5-OTHER background, etc	20

Of these categories, the "method" was also chosen by most of the learners (49%) as the category least liked. Some of the statements included in this category relate to poor method, poor diagrams, diagrams labelled prior to broadcast, too much talk, lack of involvement on the part of callers and learners. The reason for the perceived anomaly of the "method" being most liked and being least liked is due to the category "method" consisting of many different components. This means that while most learners were unhappy about certain components (eg. repetition, lack of learner involvement etc), they were also happy about other its other components (eg. enough time, understandable etc)

The second category least liked was the "length" of the programme. 44% of the learners felt that the programme was too long and that they were not enough breaks in between.

The third category least liked was called "other". 20% of the learners felt that other technical factors, such as the poor telephonic connections, unclear sound and boring backgrounds were aspects that they liked the least.

The fourth category least liked was the "medium" and its appeal. 15% of the learners and two of the three educators felt that the programme was boring. This resulted in them losing concentration.

The last category least liked was the "presenter". While the earlier finding was that only 20% of the learners liked the presenter, this finding was that only 8% of the learners disliked the presenter. The learners expressed a dislike for the presenters attitude, her sense of humour, and found her sexist and insulting. This implies that while small numbers of learners either liked or disliked the presenter, the majority of the learners were indifferent towards the presenter.

5.8. Conclusion

This analysis attempted to answer the critical questions posed in Chapter 1. The main findings with respect to the critical questions are summarised here.

In the focus area, none of the seven schools had used or are using the *Learning Channel* biology programmes. In addition none of the schools purchased the programmes.

Awareness of the *Learning Channel* biology programmes is very low among Grade 12 educators and learners. Specifically, the time of broadcast, topic of broadcast and information about support material was not known. As a result of this low level of awareness, most of the learners and educators do not watch the programmes.

Although educators do not watch much television, they have some experience in using television / video as a teaching aid. Given this experience, none of the educators in the focus area chose the *Learning Channel* programmes to use as teaching aids.

Most of the Grade 12 learners watch television. When learners watch television, they prefer to watch "children's" programmes rather than the *Learning Channel* programmes.

Although learners do watch other educational television programmes, most do not watch the *Learning Channel* programmes. Since very few *Learning Channel* programmes were watched by the participants, no reliable statistics could be determined for the participants interaction with the programme.

After all the Grade 12 educators and learners had watched the same biology programme of the *Learning Channel*, they reported on its effectiveness. The teaching method of the programme had aspects that were both most liked and least liked. Aspects that were most liked referred to the sufficient time given to understand the lesson and to repetition. Aspects that were least liked referred to the lack of involvement of the learners, too much repetition and to poor use of diagrams.

All these findings and interpretations have implications for the recommendations regarding the future use of the *Learning Channel* biology programmes. This is explained in the next chapter.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1. Introduction

The initial finding of this study indicated that the *Learning Channel* biology programmes are not used by Grade 12 biology learners and educators in all of the seven public, secondary schools in the focus area. This finding necessitated obtaining subsequent data to investigate reasons for the non-use of the programmes. Analysis of this data then provided the background for recommendations to be made to increase the use of the *Learning Channel* biology programmes.

The recommendations are made in the following broad categories: awareness of the programmes, the educators' and learners' use of the programmes, design of the programme, and financial implications. Other South African research (*Saide* reports, *Case* surveys, SABC commissions etc) provided much of the support for the recommendations made.

This study is limited in its applicability to all South African learners and educators. Other limitations of this study are also acknowledged later on in this chapter. The findings of this study also implied the need for more related research to be undertaken.
The last section of this chapter reports on future studies that need to be undertaken.

6.2. Awareness of the programme

The findings of this research as explained in Chapter 5 indicate that the low level of awareness of the *Learning Channel* programmes is the main reason why the programmes are not used by educators and learners. Thomas (1999: 4) points out that awareness of the

programme is the first requirement for its success. He calls it "Principle Number One" and explains it as follows:

> *"You have to market your programme to let people know that it is showing, at what time, on what channel, and on what day. You have to tell them why your programme is 'not to be missed' ".*

To increase the awareness of the *Learning Channel* programmes, the following recommendations are made:

- Media must be used more efficiently to publicize information about the programmes.
  Although the *Sowetan* newspaper carries details of the programmes weekly, details of the structure of the programmes, the topic / content, how to book a programme etc. are published only at the beginning of the year. This information is a pre-requisite for educators and learners to consider using the programme and therefore should be published more than once a year. Although the *Sowetan* has the largest daily circulation in South Africa, it is read mainly by Africans. It is recommended that advertisements be placed in other regional newspapers (which targets the other race groups) at least once in every school term. Besides the print media, other media can be used to raise the awareness of the programme. For example, details of the programme can be included in the web page of the SABC (SABC Education) and in radio advertisements. At present, *the Learning Channel* is not included anywhere on the SABC education web page, not even under the heading of the existing "school TV" on the web page.

- Information about the programmes must be broadcast at the times when learners are watching television.
  At present, details of future programmes are announced on the programme itself but this has little effect because the learners and educators do not watch the programmes. It is recommended that advertisements regarding the programmes be aired on television during the afternoons and evenings when most learners are watching television

- There must be greater communication between the producers of the programme and the educators and learners.

  Effective strategies to do this could include providing a telephone contact number on the television programme and in the print media. The postal address or E-mail address of the producers is another simple way of maintaining contact with the producers.

- Information about the programmes should be made available to schools in advance.

  This information must include details of the topics, format of the programmes, the booking procedure etc. The information could be posted or be made available through the recognized school management structures, for example via Biology Subject Advisors, Technology Advisors, Senior Education Managers etc. The use of making information available via "*Schoolnet*" (internet information network for schools) could be explored. This information will help educators in their planning and will also help to inform school management structures regarding the use of these programmes as teaching aids.

6.3. The use of the *Learning Channel* programmes by educators.

The findings of this study indicate that educators and learners found no significant difference between the *Learning Channel* programme and the classroom lesson. Therefore, for educators to consider using the programmes, they have to be convinced that the programmes will be beneficial to them. In addition, the educator seems to play a pivotal role in determining whether learners watch the programmes or not. This is due to the programmes being broadcast on Wednesday mornings. At this time, learners are in school under educators' supervision. Learners are thus the recipients of the educators teaching strategy.

To increase the use of the programme by educators, the following recommendations are made:

- Schools (educators) must be provided with promotional videos of the programmes. This will increase awareness of the programmes. Easy and free availability of the programmes was a strong recommendation from the educators. Ertmer (1999) found that accessibility to technology was one of the main factors inhibiting the use of such technologies.

- Educator training regarding the use of television / video as teaching aids must be provided.
  Educators were not averse to using these aids but needed more experience in the use of such aids. The producers could make copies of the programme and manuals available on how to use the programmes. Case studies reflecting the successful use of the programmes in schools could also be used to demonstrate its effectiveness. This support to educators is essential to the successful use of the programmes (Norris, Davies & Beattie 1990 and Butcher1998).

- Educators must be convinced that using the programmes will benefit them.
  The producers can provide guidance on how television programmes can reduce the pressure of "completing the syllabus" and offer assistance to the educator who feels overwhelmed and over burdened by the demands of teaching biology. One advantage is that, through television, educators can provide opportunities to view experiments that are usually not possible in schools. Another advantage is the considerable saving in time that "time lapse" experiments on television provide. The advantages of using television in poorly resourced schools also needs to be emphasized. By investing only in a television set, it may assist in solving some of the problems of these schools. For example, television can provide visuals of laboratory experiments in the absence of books and other equipment. Another advantage of television in schools where there is a lack of suitably qualified educators, is the availability of instruction by experienced, professional educators.

- The negative perceptions of school management structures regarding the use of television / videos must be addressed.

  Research findings regarding the use of television as a teaching aid and the success of the *Learning Channel* programmes must be made available to the schools. In particular, the notion that using television as a teaching aid takes the responsibility away from the teacher must be addressed. The fact that the use of television may increase the educators responsibility in terms of pre and post viewing activities needs to be emphasized.

- The educators' fear that television programmes will make educators redundant must be allayed.

  Only 2% of learners thought that the best use of the television programme was to replace the educator. This overwhelming support for the educator by the learners should encourage the educators to use the programmes with confidence.

- The educators' confidence in the potential value of the programmes must be increased.

  One possible way of doing this is to obtain the biology subject advisors (Department of Education officials who provide guidance to educators) endorsement of the programmes. The subject advisors can be invited to make inputs to the programmes. This involvement in the programme by the subject advisors may be the strongest recommendation to educators.

- The educator must be aware of the details of the programme.

  In addition to details regarding the general nature of the programmes, the learning objectives (outcomes) of the each programme must be made available to educators prior to the programmes being broadcast. This is important because it will assist the educators to incorporate the programmes in their teaching programmes.

- The educators must become involved in the programmes.

  Butcher (2000: 4) states that information and communication technologies (eg.

television programmes) in themselves have no capacity for action. Therefore educators must become involved in the programmes. Involvement implies ownership and this is an important factor that will motivate educators to use the programmes. Some ways in which this can be achieved are by:

- inviting guest educators to present the programmes.
- running competitions that identify suitable educators to present their own programmes.
-setting up a communication forum whereby educators are given a chance to make inputs regarding their needs and to make recommendations. Educators should also be encouraged to evaluate the programmes and provide this feedback to the producers. Public acknowledgement of the use of individual educators inputs will help to motivate educators to use the programme.
-using the "areas of concern" as published in the yearly reports on the Grade 12 biology examination results as the focus to involve educators. Educators can be invited to make inputs (or a competition could be arranged) as to how best to address these areas of concern.

6.4. The use of the *Learning Channel* programmes by learners

Over 90% of learners watch television yet very few learners watch the *Learning Channel* programmes. It is recommended that :

- the programmes be advertised in the afternoons and evenings when most learners watch television.
- learners be taught how to interact with the programmes.
- learner interaction with the programmes be increased. At present, only one caller at a time can call the presenter. This caller is kept on the line for a long time so that only a few learners are accommodated on any one programme. Since these programmes are broadcast nationally, it means that a large number of viewers (learners) are only watching the programme and not interacting with the programme at the same level as

the caller on the programme. Greater interaction by the learners could be achieved by the use of structured and guided activities throughout the programme. These activities could include note taking, review of the lesson, labeling of diagrams, answering questions, filling in worksheets etc.

- contact between the producers and learners be established. This could be done by the use of an after hours contact number (telephone and fax), web page and Email interactivity, and postal address for learner communication. This type of contact is an essential part of *Biology 100* (a currently successful Biology course delivered via television at Ball State University (Rogers1997: 420-423).
- learners be informed of the relevance of the *Learning Channel* programmes. Bates(1983) found that one of the main reasons for not watching educational broadcasts is their perceived lack of relevance.
- learner support strategies be increased. This could take the form of the availability of notes, revision exercises, workbooks relevant to the programmes etc. Mays (2000:12-17) also reiterates the importance of this type of support to learners.

6.5. Recommendations regarding the *Learning Channel* Biology programmes

This section uses the findings of the study as explained in Chapter 5 to make recommendations. Therefore the main findings of the study are summarised first and this is followed by the recommendations.

6.5.1. Teaching Method of the programme

All the participants rated the method by which the *Learning Channel* biology programme was presented as either good or excellent. However the analysis from the qualitative data suggests that the following recommendations can be made regarding certain aspects of the method.

- Repetition is valued but its use must be reduced. Although learners preferred the use of repetition in the programme, many found that this made the programme too long.
- Programmes must be shorter. Shorter and more frequent programmes of one hour are easier to incorporate into most school time tables.
- Diagrams must be used for maximum effect. Only diagrams that are clear should be used. Diagrams showing all the parts already labeled should be avoided.
- The visual appeal of the medium of television must be exploited. At present, the camera focus only on the presenter and on the writing screen. This is commonly known as a "talking head" programme and is equivalent to the broadcast of a traditional classroom lesson. Learners' interest can be increased with more visual stimuli. Different camera angles, zooms and cuts should be used to enhance the visual appeal. However care must be exercised not to let the visual appeal distract the learner. A good programme falls in between the two extremes of "talking heads" and of "too much artistry" (Netto and Angelina 1981:47). The use of more aids (other than the writing screen) will also enhance the visual appeal of the programmes.
- The use of television has advantages which can be used in the teaching of biology. Some of these are the use of motion (eg. illustrating the phenomenon of peristalsis), risk free observation (eg. watching a volcano erupting), and establishing commonality (eg. a disparate group of learners can build up a common base of experience by watching the same programmes). These advantages were adapted from the work of Heinich, Molenda, Russell & Smaldino 1999: 184).

6.5.2. Information provided by the programme

The information provided in the programmes was perceived as being very good. However, for learners to retain this information, it is recommended that :

- learner support material be provided. This can be made available by the producers of the programme or by the educators.

6.5.3. Technical variables of the programme

Learners found that the poor technical audio quality (especially the poor telephonic connections with callers) of the programme disturbing. It is recommended that

- the audio quality be improved.

6.5.4. Background visuals of the programme

A large aerial photograph of Knysna is used as the background in the programmes. This background was chosen presumably due to the executive producers substantial business interest in Knysna. This background has no relevance to the programme and learners found this background boring. It is recommended that:

- no background picture be used or
- the background be used more effectively by displaying information that is relevant to the learners. This information could include the logo / name of the school that has booked the topic with the producers, details of the topic, diagrams relevant to the present topic etc.

6.5.5. Presenter of the programme

Most learners did not comment on the presenter. From the findings of those who did comment, the following recommendations are made:

- The presenter should continue with her friendly disposition and sense of humour. Learners found that the "light" hearted approach was less restricting than the traditional classroom lessons. Learners also preferred the presenter to be female.
- The presenter should caution against her tone of voice, which some learners perceived to be insulting. The presenters constant reference to sexist comments and her mock stereotyping of gender roles should be avoided.

6.5.6. Language of instruction used in the programme

Although the educators felt that the language (English) used in the programmes would be difficult for learners, most learners preferred to keep English as the language of instruction. This is similar to the findings of Mpofu (1998:152). This could be due to the fact that English is the "language of aspiration" (Kola et al 1997: 68) and is considered necessary for success. However, since the programmes are broadcast nationally, it is recommended that:

- English remains as the language of instruction for most of the programmes as English is the preferred language by half the population of South Africa (Kola et al 1997:68).
- the programmes are broadcast in other official languages as well. As reported by Kola et al (1997:68), the Western and Northern Cape have the lowest viewership of educational programmes. This was due to their language preference of Afrikaans not being met by these programmes. Of the eleven official languages, the preference for English is followed by a preference for Afrikaans (15%) and isiZulu (12%). The other languages had minimum preference(Kola et al 1997:68).Therefore efforts must be made to include Afrikaans and isiZulu in the programmes. This call for dubbing of the programmes into various languages is also made by Butcher, Roberts and Jackson (1998: 13).

6.5.7. Callers questions on the programme

By learners telephoning the presenter, the principle of interactivity is increased for these learners. However the questions that are asked by the few callers are used to direct the way the topic is discussed for the entire programme. It is recommended that :

- callers be encouraged to call the presenter "on air" and the callers specific questions be answered. However the prolonged interaction with a few learners should not be the focus of the entire programme. Learning objectives for each of the programmes must be identified before the programmes is aired and interaction (time spent) with a

specific caller must be such that it correlates with the attainment of the learning objectives.

- callers who have questions relating to a specific topic be asked to phone the presenter before the programme is broadcast. These questions can then be used to analyze the needs of a much greater percentage of learners and can then direct the way in which the topic is discussed on the programme.

6.6. Financial considerations regarding recommendations

The executive producer, William Smith, claims that the present system of the *Learning Channel* programmes is very cost effective. He estimates that it could reach every South African child at a cost of less than R20 per child per year (1998: 55). While this is not disputed, the cost should not be the only consideration for the programmes. What is less costly now may prove to be more costly in the long run if the programmes do not achieve its desired objectives. This viewpoint is supported by Newman (1996:284) in her study of the *Learning Channel* programmes. Further motivation to find money for these types of programmes comes from the Telecommunications Act No.103 of 1996 which acknowledges that the telecommunications sector is the key to the success of the Rationalisation and Development Programme of the Government (Thorne 1998).

6.7. Limitations of the study

The findings of this study is applicable only to the seven schools in the focus area. The focus area is an urban area in KwaZulu-Natal. In order to increase the reliability of these findings, the study needs to be replicated in other urban areas with similar characteristics. Secondary data (learner enrolment figures, racial composition etc) in the form of statistical documents provided by the schools was used for some of the findings. The

reliability of these statistics is reasonably high as these statistics appear on official, authentic school administration documents. However, the accuracy of these statistics cannot be guaranteed.

6.8. Implications for future research

The findings of this study have implications for further research. These are:

- This study needs to be replicated in all provinces of South Africa so that the findings could be applicable to all Grade 12 biology learners and educators. This is important because the *Learning Channel* programmes are broadcast by the public broadcaster (SABC Television) to all provinces in South Africa.
- Similar studies investigating the effects of other variables on the use of the *Learning Channel* need to be undertaken. These variables include race (especially whites), private schools, model C schools, rural areas, socio-economic factors, access to media and attitudes to education.
- Research into the factors that influence learners choice of watching television programmes must be undertaken. These findings will have important implications for the development of Educational Television programmes.
- The evaluation of the present learner support material (printed in the *Sowetan* newspaper) must be undertaken. This will determine the effectiveness of these support materials.
- This study only focused on the biology programmes of the *Learning Channel*. Correlation studies must be undertaken with the other programmes of the *Learning Channel*, for example, the literacy and numeracy programmes.
- The transition from the attainment of traditional learning objectives to outcomes based education has implications for the way in which the programmes are presented. Studies which investigate the extent to which the *Learning Channel* programmes have incorporated these changes are needed.

6.9. Conclusion

This chapter makes several recommendations for increasing and improving the use of the *Learning Channel* biology programmes. The recommendations are based on the findings of this study and relate specifically to raising awareness of the programmes, increasing educator and learner use of the programmes and improving various aspects of the programme design. It is hoped that future Educational Television programmes will take these recommendations into account.

Educational Television is a powerful medium which is rapidly regaining favour as an effective educational resource of global, multimedia technology. As such, Educational Television has the potential to be used in South Africa to address some of the immense challenges facing education. South Africa will do well to exploit the potential of television and lead the resurgence of Educational Television to its deserved status in the future.

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ix. Appendices

Appendix 1.

Methodology (Data collection plan)

Methodology (Data Collection Plan)

Focus area: Umgeni South Circuit of the District :City of Durban : North Durban Region
: KwaZulu-Natal.

Number of Public Schools: 7

Profile of the schools:-
- All are moderately well resourced (Ex-HOD and Ex-HOA) schools.
- All have learners of the Indian, Coloured and African races in varying proportions.
- All offer Biology as a Matric subject with both Higher and Standard grades..
- All have male and female Learners.

Step 1 : Determine which schools / learners are using SABC's Learning Channel Biology programmes?

Method: Survey (using questionnaire) of all 7 schools . This will be a baseline study.

Findings: No school was using the Learning Channel Biology Programmes.

Step 2 : Select a sample of 3 schools representing the 7 Public schools (Matric Biology Educators and Learners)

Method: - purposive sampling

Selection of Sample Schools: 3 schools (each school has one of the Race groups in the majority)

Selection of sample learners. One third of the learners in each school were selected to represent the racial profile of that school, the different ability levels and the gender representivity of the Learners.

Step 3: Use a questionnaire to determine the following about the Educators:
- use of TV technology
- awareness of the Learning Channel programmes
- Interaction (if, why, how) with the Learning Channel programmes

Step 4: Use a questionnaire to determine the following about the Learners:
- TV viewing habits
- Awareness of the Learning Channel programmes
- interaction (if, why, how) with the Learning Channel programmes

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Step 5: Record a Biology Programme of the Learning Channel.

Step 6: allow the sample of Matric Biology Educators and Learners to view the recorded programme.

Step 7: Use a Questionnaire to elicit Matric Biology Educators and Learners reported effectiveness.

Appendix 2.

Questionnaire A

For official use

Questionnaire A : Educational Television

Introduction

This survey is aimed at the 7 Public Secondary Schools in the Umgeni South circuit of the District of Durban (North Durban Region). Its purpose is to collect information on School Resources, Learner Statistics and the Biology Educator/s.

This information will be used to determine future studies on the Liberty Life, Learning Channel Biology Programmes which are broadcast on Wednesday mornings on SABC. The findings of this research is aimed at informing the broadcast of Educational Television.

I would be grateful if you could fill in this questionnaire.

Your name, school, and learners will not be identifiable from this survey.

Please put a tick in the appropriate box and write on the dotted lines where required.

School Resources:

1. Does your school have a Television set? ❒Yes ❒ No
2. Does your school have a video machine? ❒Yes ❒ No
3. Has your school bought "William Smith's" Liberty Life Learning Channel BIOLOGY programmes? ❒Yes ❒ No

   3.1. Give a reason for the above answer.....

School Learner Statistics.

4. What is your TOTAL learner enrolment at your school. .....
5. How many learners belong to each of the following ethnic groupings?

   Indians .....
   Coloureds .....
   Africans .....
   Other .....

MATRIC Biology Learner information

6. How many Matric Biology Learners will be writing the exam on the :

   Higher Grade .....
   Standard Grade .....

Biology Educator Information:

7. How many years have you taught Biology ? .....
8. Have you used the Learning Channel Biology Programmes in your teaching? ❒Yes ❒No

   8.1. If yes , in which way/s did you use the above programmes?

   ❒ while it was being broadcast- ie on Wednesdays between 10h00 and 11h30?
   ❒ after it was taped onto a video cassette?

9. Are you aware of any of your Learners that are using the Learning Channel Biology Programmes? ❒Yes ❒No

   9.1. If Yes, how many learners? .....

Thank you for your Time and valuable assistance.

Appendix 3.

Educator Questionnaire 1 (EQ1)

For official use	

Educator Questionnaire 1(EQ1): Educational Television

Introduction

The purpose of this survey is to collect information that will help to understand Educators perceptions of the Liberty Life Learning Channel Biology Programmes broadcast on SABC. This is part of a broader survey which will also involve Learners. The findings of this research is aimed at informing the broadcast of Educational Television.

I would be grateful if you could fill in this questionnaire.
Your name, school, and learners will not be identifiable from this survey.

After the research, a copy of the findings will be sent to you.
A video of one of the Biology Programmes of the Liberty Life Learning Channel will also be sent to you.

Questionnaire 1 is structured as follows

- Section A asks about your **biographical data** and the **use of TV** .
- Section B asks about **your awareness** of the Liberty life Learning Channel Biology Programmes.
- Section C which asks **if, why and how you watch** the Liberty Life Learning Channel Biology Programmes.

Please put **one tick** [.] for each question, in the appropriate ❒ box in the questionnaire (except when directed otherwise).
You may also write on the dotted lines where applicable.

In this questionnaire, the words **LC-Bio Progs** will be used as the abbreviation for the **Liberty Life Learning Channel Biology Programmes.**

Thank You, for your valuable assistance.

Section A This section asks about your biographical data and the use of TV	
1.Are you male or female?	1❒ Male 2❒ Female
2.Which race do you belong to?	1❒ African 2❒ Coloured 3❒ Indian
3.How many years have you taught Biology?	1❒ less than 5 years 2❒ less than 10 years 3❒ more than 10 years
4.Have you used any of the following in your teaching? * LiveTV broadcasts *TV programmes after they have been taped *Educational VIDEOS	 1❒Yes 2❒ No 1❒Yes 2❒ No 1❒ Yes 2❒ No
5.Do you watch the **other** programmes (numeracy, literature, mathematics) of the Liberty Life Learning Channel broadcast on Saturday mornings?	1❒ Yes 2❒ No
6.Has your school bought the **LC-Bio Progs** (as videotapes) from the Learning Channel?	1❒ Yes,why..... 2❒ No,why.....
7.IF you do **NOT** usually watch TV, give a reason or reasons.	1❒ No TV at home 2❒ No time to watch TV 3❒ Not interested in TV 4❒ Other (specify).....
8.Do you know of any of your learners who watch the **LC-Bio Progs**?	1❒ Yes, how many ..... 2❒ No
9. How much time in a normal school WEEK (7 days) do you usually spend watching TV?	1❒ Less than 5 hours 2❒ Less than 10 hours 3❒ Less than 15 hours 4❒ More than 15 hours

Section B This Section asks about your awareness of the **Liberty Life Learning Channel Biology Programmes** . (the words **LC-Bio Progs** will be used as the short form)	
10. On which TV channel is the **LC-Bio Progs** broadcast?	1❒ SABC 1 2❒ SABC 2 3❒ SABC 3 4❒ E-TV
11.When are the **LC-Bio Progs** broadcast?	1❒ only before school hours 2❒ only during school hours 3❒ only after school hours (on Weekdays) 4❒ only on weekends
12.At what time are the **LC-Bio Progs** broadcast?	1❒ 8 - 9 am 2❒ 9 - 11 am 3❒ 10 - 11.30 am 4❒ 2 - 4 pm
13.Did you know the topic of any of the **LC-Bio Progs** BEFORE it was broadcast?	1❒ No 2❒ Yes,which topic..... .....
14.If your answer to question 13 is Yes, from where did you get the information (about the topic)?	1❒Newspaper, which one..... 2❒Magazine, which one..... 3❒TV 4❒Other , state who/ where .....
15.What change is made to the **LC-Bio Progs** during the school holidays?	1❒ the time of broadcast is changed 2❒ only practical work is discussed 3❒ learners from any school can phone in 4❒ only learners from a particular school can phone in. 5❒ do not know
16.Are you aware that individual schools can book a topic with the **LC-Bio Progs** so that only learners from that school are allowed to phone in with their questions?	1❒ Yes 2❒ No
17.Which newspaper publishes questions based on the **LC-Bio Progs** every Friday?	1❒ Daily News 2❒ Mercury 3❒ Sowetan 4❒ Sunday Times 5❒ Sunday Tribune 6❒ do not know

Section C This section asks if, why and how you watch the **LC-Bio Progs,**	
18.If you have not watched any of the **LC-Bio Progs** then give a reason/s You can tick more than one box Do NOT answer the rest of Questionnaire 1	1❒ Of no use to me 2 ❒ Did not know about the programmes 3 ❒Did not know the time of broadcast 4 ❒ Time of broadcast was not suitable 5 ❒ Could not have it taped (on video) 6 ❒ Boring 7 ❒ Other, explain.....
19.What is the main reason for you to watch the **LC-Bio Progs**?	1❒ you find it interesting 2❒ to improve your knowledge of Biology 3❒ to improve your teaching 4❒ you feel that you should watch it 5❒other,explain.....
20.There were about 25 **LC-Bio progs** on SABC 3 this year (up till the end of July 2000). How many of these did you watch?	1❒ More than 18 programmes 2❒ About 10 programmes 3❒ Less than 5 programmes
21.In which way, do you watch the **LC-Bio Progs** ?	1❒ As **live** TV broadcast 2❒ As videos (after it was recorded from TV) 3❒ As both – live broadcast and videotape 4❒ Only watched it when it was broadcast after school hours
22.Do you do any of the following **before** watching the **LC-Bio Progs** : *Find out when the biology programmes will be shown *Find out what the programme is going to be about	 1❒ Yes 2❒ No 1❒ yes 2❒ No
23.Do you do any of the following **while** watching **the LC-Bio Progs?** *Use aids (eg pens, paper, school books/notes, other books etc) *Tape it for later use *Take down points /diagrams etc *Phone the presenter *Other	 1❒ Yes 2❒ No 1❒ Yes 2❒ No 1❒ Yes 2❒ No 1❒ Yes 2 ❒ No 3 ❒ explain.....

24.Do you do any of the following **after** watching **LC-Bio Progs?** *Discuss it with other teachers	$_1$❒ Yes $_2$❒ No
* Discuss it with learners	$_1$❒ Yes $_2$❒ No
*Make notes /points etc	$_1$❒ Yes $_2$❒ No
*Other?	$_3$❒explain.....

Appendix 4.

Educator Questionnaire 2 (EQ2)

For official use

Educator Questionnaire 2 (EQ2): Educational Television

Step 1: Please view the Biology Programme of the Liberty Life Learning Channel.
Step2: Please fill in this questionnaire.(based on the LC-Bio Prog)

1. What did you like **best** about the **LC-Bio Progs?**
.....
.....

2. What did you like the **least** about the **LC-Bio Progs?**
.....
.....

3. How would you rate the Teaching method (the way the presenter taught the lesson) of the **LC-Bio Progs** ?	1 ☐ Excellent 2 ☐ Good 3 ☐ Bad 4 ☐ Very bad
4. Do you think that the **English** spoken by the presenter is appropriate for your Learners to understand?	1 ☐ Most of the time 2 ☐ Some of to understand? 3 ☐ Very little of the time
5. Was the content of the lesson relevant to the Grade 12 Biology syllabus?	1 ☐ Most of it 2 ☐ Some of it 3 ☐ Very little of it
6. What do you think about the length of the **LC-Bio Prog**?	1 ☐ It was too long 2 ☐ It was OK 3 ☐ It was too short
7. Did you do any of the following while watching the **LC-Bio Prog**? *make notes while watching *Lose interest	1 ☐ Yes 2 ☐ No 1 ☐ Yes 2 ☐ No
8. Do you think that the callers' questions on the **LC-Bio Progs** would be useful to your learners?	1 ☐ Yes, most of them 2 ☐ Yes, some of them 3 ☐ No
9. What do you think the LC-Bio Prog should also provide?	1 ☐ Biology notes 2 ☐ past exam questions based on the topic 3 ☐ after hours telephone number 4 ☐ other.....
10. Lessons on TV are different from lessons in the classroom. Would you consider the **LC-Bio Progs** to be …	1 ☐ more effective than classroom lesson 2 ☐ less effective than classroom lesson 3 ☐ equally effective

11.What do you think is the **best** use of the **LC-Bio Progs**.?	1☐ For revision purposes 2☐ For exam preparation 3☐ To add to what the teacher taught 4☐ To replace the teachers lessons 5☐ Other, explain.....
12.If you have not used the **LC-BioProgs** as a teaching aid, will you consider using it in the future?	1☐ Yes 2☐ No
13.If your answer is yes,would you consider using these programmes if ....? You can tick more than one box	1☐ It is broadcast after school hours 2☐ The videos of the LC-Bio progs are sent to schools free of charge 3☐ The school time table was adjusted to accommodate the LC-Bio Progs as it is being broadcast 4☐ The school had better equipment (Television, video machine, screening room) 5☐Other, explain .....

THANK YOU for your Time and your valuable assistance.

Appendix 5.

Learner Questionnaire 1 (LQ1)

For official use	

Learner Questionnaire 1 (LQ1) : Educational Television

The purpose of this survey is to collect information about your views of the Liberty Life Learning Channel Biology Programmes broadcast on SABC Television.

I would be grateful if you could fill in this questionnaire. This is not a test.

All information is strictly confidential. You do not have to write your name.

- Section A asks about **yourself** and **what you watch** on TV (if any).
- Section B asks **what you know** about the Liberty life Learning Channel Biology Programmes.
- Section C which asks **if, why and how you watch** the Liberty Life Learning Channel Biology Programmes.

Please put **one tick** [ ] for each question, in the appropriate ❒ box in the questionnaire (except when you are told to tick more than one box).
You may also write on the dotted lines where applicable.

Thank You, for your valuable assistance.

Section A This section asks about you and what you watch on TV	
1.Are you male or female?	1❒ Male 2❒ Female
2.Which race do you belong to?	1❒ African 2❒ Coloured 3❒ Indian
3.What is your age? (on your birthday this year)	1❒ 17 years 2❒ 18 years 3❒ 19 years 4❒ 20 years 5❒ over 20 years
4.Which Biology grade are you studying this year?	1❒ Higher grade 2❒ Standard grade
5.When do you watch TV you can tick more than one box	1❒ before school 2❒ after school -in the afternoons 3 ❒ evenings / night 4❒ weekends 5❒ do not watch TV
6.How much time in a normal school week (7days) do you spend watching TV?	1❒ do not watch TV 2❒ less than 5 hours 3❒ less than 10 hours 4❒ less than 15 hours 5❒ more than 15 hours
7.Do you watch "Take 5",boadcast on SABC 1 (Monday to Thursday) at 4.30 pm?	1❒ yes 2❒ no
8.Which TV programme do you watch on **Saturday mornings?** You can tick more than one box	1❒ Learning Channel 2❒ Children's programmes(cartoons etc) 3❒other, which one ..... 4❒ do not watch TV on a Saturday morning.
9.IF you do **NOT** usually watch TV, give a reason or reasons. (you can tick more than one box.)	1❒ No TV at home (home means the place where you live) 2❒ Not allowed to watch TV 3❒ No time to watch TV 4❒ Not interested in TV 5❒ Other (specify).....

Section B This Section asks about your awareness of the **Liberty Life Learning Channel Biology Programmes .** (the words **LC-Bio Progs** will be used as the short form)	
10. On which TV channel is the **LC-Bio Progs** broadcast?	1❒ SABC 1 2❒ SABC 2 3❒ SABC 3 4❒ E-TV
11. When are the **LC-Bio Progs** broadcast?	1❒ only before school hours 2❒ only during school hours 3❒ only after school hours (on Weekdays) 4❒ only on weekends
12. At what time are the **LC-Bio Progs** broadcast?	1❒ 8 - 9 am 2❒ 9 - 11 am 3❒ 10 - 11.30 am 4❒ 2 - 4 pm
13. Did you know the topic of any of the **LC-Bio Progs** BEFORE it was broadcast?	1❒ No 2❒ Yes,which topic..... .....
14. If your answer to question 13 is Yes, from where did you get the information (about the topic)?	1❒Newspaper, which one..... 2❒Magazine, which one..... 3❒TV 4❒Other , state who/ where .....
15. What change is made to the **LC-Bio Progs** during the school holidays?	1❒ the time of broadcast is changed 2❒ only practical work is discussed 3❒ learners from any school can phone in 4❒ only learners from a particular school can phone in. 5❒ do not know
16. Are you aware that individual schools can book a topic with the **LC-Bio Progs** so that only learners from that school are allowed to phone in with their questions?	1❒ Yes 2❒ No
17. Which newspaper publishes questions based on the **LC-Bio Progs** every Friday?	1❒ Daily News 2❒ Mercury 3❒ Sowetan 4❒ Sunday Times 5❒ Sunday Tribune 6❒ do not know

Section C This section asks if , why and how you watch the **LC-Bio Progs,**	
18.IF you have not watched any of the **LC-Bio Progs** then give a reason/s You can tick more than one box Do NOT answer the rest of Questionnaire 1	1❒ Of no use to me 2 ❒ Did not know about the programmes 3 ❒Did not know the time of broadcast 4 ❒ Time of broadcast was not suitable 5 ❒ Could not have it taped (on video) 6 ❒ Boring 7 ❒ Other, explain.....
19.What is the main reason for you to watch the **LC-Bio Progs**?	1❒ you find it interesting 2❒ to improve your Biology results 3❒ you just happen to be there 4❒ you feel that you should watch it 5❒other,explain.....
20.There were about 25 **LC-Bio progs** on SABC 3 this year (up till the end of July 2000). How many of these did you watch?	1❒ More than 18 programmes 2❒ About 10 programmes 3❒ Less than 5 programmes
21.In which way, do you watch the **LC-Bio Progs** ?	1❒ As **live** TV broadcast 2❒ As videos (after it was recorded from TV) 3❒ As both – live broadcast and videotape 4❒ Only watched it when it was broadcast after school hours
22.Do you do any of the following **before** watching the **LC-Bio Progs** : *Find out when the biology programmes will be shown *Find out what the programme is going to be about	 1❒ Yes 2❒ No 1❒ yes 2❒ No
23.Do you do any of the following **while** watching **the LC-Bio Progs?** *Use aids (eg pens, paper, school books/notes, other books etc) *Tape it for later use *Take down points /diagrams etc *Phone the presenter *Other	 1❒ Yes 2❒ No 1❒ Yes 2❒ No 1❒ Yes 2❒ No 1❒ Yes 2 ❒ No 3 ❒ explain.....

Appendix 6.

Learner Questionnaire 2 (LQ2)

Learner Questionnaire 2 (LQ2) : Educational Television Step 1: Please view the Biology Programme of the Liberty Life Learning Channel. Step2: Please fill in this questionnaire.(based on the LC-Bio Prog)	
1.What did you like **best** about the **LC-Bio Progs?**	
2.What did you like the **least** about the **LC-Bio Progs?**	
3.How would you rate the Teaching method (the way the presenter taught the lesson) of the **LC-Bio Progs** ?	1❒Excellent 2 ❒Good 3 ❒ Bad 4 ❒ Very bad
4.Was the **English** spoken by the presenter in the **LC-Bio Progs** easy to understand?	1❒ Most of the time 2❒ Some of the time 3❒ Very little of the time
5.How much of the Biology lesson did you understand?	1❒ Most of it 2❒ Some of it 3❒ Very little of it
6.What do you think about the length of the **LC-Bio Prog**?	1❒ It was too long 2❒ It was OK 3❒ It was too short
7.Did you do any of the following while watching the **LC-Bio Prog**? *make notes while watching *Lose interest	 1❒Yes 2❒ No 1❒ Yes 2❒ No
8.Were the callers' questions on the **LC-Bio Progs** useful to you?	1❒ Yes, most of them 2❒ Yes, some of them 3❒ No
9.What do you think the LC-Bio Prog should also provide?	1❒ Biology notes 2❒ past exam questions based on the topic 3❒ after hours telephone number 4❒ other.....
10.Lessons on TV are different from lessons in the classroom. Would you consider the **LC-Bio Progs** to be ...	1❒ more effective than classroom lesson 2❒ less effective than classroom lesson 3❒ equally effective

11. What do you think is the **best** use of the **LC-Bio Progs**.?	1❒ For revision purposes 2❒ For exam preparation 3❒ To add to what the teacher taught 4❒ To replace the teachers lessons 5❒ Other, explain.....

THANK YOU for your Time and your valuable assistance

Appendix 7.

Composite data:
Learner Questionnaires 1 and 2:
Individual learners responses to the questionnaires.
(generated by SPSS)

	gender	race	age	biograde	whentv
1	Female	Indian	17 years	Higher grade	3-evenings / nights
2	Female	Indian	17 years	Higher grade	2+3+4
3	Female	Indian	18 years	Higher grade	2+3+4
4	Female	Indian	17 years	Higher grade	3-evenings / nights
5	Female	Indian	18 years	Higher grade	3-evenings / nights
6	Female	Indian	18 years	Higher grade	1-before school
7	Male	Indian	17 years	Higher grade	2+3+4
8	Female	Indian	18 years	Higher grade	3+4
9	Male	Indian	18 years	Higher grade	3-evenings / nights
10	Male	Indian	17 years	Higher grade	15.00
11	Female	Indian	17 years	Higher grade	3-evenings / nights
12	Female	Indian	18 years	Higher grade	5-do not watch TV
13	Female	Indian	17 years	Higher grade	2-after school - in the afternoons
14	Female	Indian	18 years	Higher grade	2+4
15	Male	Indian	18 years	Higher grade	2+3
16	Female	Indian	18 years	Higher grade	2+4
17	Male	Indian	17 years	Higher grade	4-weekend
18	Female	Indian	17 years	Higher grade	3+4
19	Male	Indian	17 years	Higher grade	1+3
20	Female	Indian	17 years	Higher grade	4-weekend
21	Female	Indian	17 years	Higher grade	5-do not watch TV
22	Male	Indian	17 years	Higher grade	15.00
23	Female	Indian	17 years	Higher grade	2+3+4
24	Female	Indian	17 years	Higher grade	2-after school - in the afternoons
25	Male	Indian	18 years	Higher grade	2-after school - in the afternoons
26	Male	Indian	19 years	Higher grade	2+3+4
27	Male	Indian	18 years	Higher grade	3-evenings / nights
28	Male	Indian	18 years	Higher grade	3+4
29	Male	Indian	17 years	Higher grade	2+3
30	Female	Indian	17 years	Higher grade	2+3+4
31	Male	Indian	17 years	Higher grade	4-weekend

	tvhours	take5	tvsatday	whynotv	channel
1	less than 5 hours	no	2-childrens programme	.	SABC2
2	less than 10 hours	no	no programmes	.	SABC3
3	less than 5 hours	no	no programmes	.	SABC3
4	less than 5 hours	no	no programmes	3-no time to watch TV	SABC1
5	less than 10 hours	yes	1+2	3-no time to watch TV	SABC3
6	less than 5 hours	yes	no programmes	4-not interested inTV	SABC3
7	less than 10 hours	no	no programmes	.	SABC3
8	less than 10 hours	no	1+2	.	SABC3
9	less than 10 hours	no	2-childrens programme	.	SABC3
10	more than 15 hour	no	2-childrens programme	.	SABC3
11	less than 10 hours	no	2-childrens programme	.	SABC3
12	do not watch tv	no	no programmes	3+4	SABC3
13	less than 10 hours	no	no programmes	.	SABC3
14	less than 10 hours	no	no programmes	3-no time to watch TV	SABC3
15	less than 10 hours	no	1-Learning Channel	3-no time to watch TV	SABC3
16	less than 15 hours	no	no programmes	.	SABC3
17	less than 10 hours	no	no programmes	3-no time to watch TV	SABC3
18	less than 10 hours	no	2-childrens programme	.	SABC3
19	less than 10 hours	yes	1+2	.	SABC2
20	less than 5 hours	no	no programmes	4-not interested inTV	SABC3
21	do not watch tv	no	no programmes	3+4	SABC3
22	more than 15 hour	yes	2-childrens programme	.	SABC3
23	more than 15 hour	no	no programmes	5-other	SABC3
24	less than 15 hours	no	2-childrens programme	3-no time to watch TV	SABC1
25	less than 5 hours	yes	no programmes	.	SABC3
26	less than 15 hours	no	no programmes	3-no time to watch TV	SABC3
27	less than 5 hours	no	1+2	.	SABC3
28	less than 15 hours	no	no programmes	.	SABC3
29	less than 15 hours	no	2-childrens programme	.	SABC3
30	less than 5 hours	no	no programmes	3+4	SABC3
31	less than 5 hours	no	no programmes	3-no time to watch TV	SABC3

	whenbc	timebc	topic	wherfrm	schhols	booktopc
1	during school	9-11 am	no	.	dont know	no
2	.	10-11,30 am	yes	newspaper	any learner can phone in	yes
3	during school	10-11,30 am	yes	TV	any learner can phone in	yes
4	afternoons	2-4 pm	no	.	dont know	no
5	weekends	8-9 am	no	.	any learner can phone in	no
6	during school	9-11 am	no	.	dont know	no
7	.	10-11,30 am	no	.	learners from one school	yes
8	weekends	10-11,30 am	yes	other	any learner can phone in	no
9	weekends	10-11,30 am	no	.	time of broadcast	no
10	weekends	9-11 am	no	.	dont know	yes
11	.	.	no	.	.	no
12	during school	10-11,30 am	no	.	dont know	no
13	.	8-9 am	no	.	dont know	no
14	.	10-11,30 am	yes	TV	any learner can phone in	yes
15	during school	9-11 am	no	.	any learner can phone in	no
16	.	10-11,30 am	no	.	any learner can phone in	yes
17	during school	10-11,30 am	yes	TV	dont know	yes
18	during school	10-11,30 am	no	.	dont know	yes
19	during school	9-11 am	no	.	dont know	yes
20	during school	10-11,30 am	no	.	dont know	no
21	during school	10-11,30 am	no	.	dont know	yes
22	during school	10-11,30 am	no	.	dont know	no
23	during school	10-11,30 am	no	.	learners from one school	yes
24	during school	9-11 am	no	.	dont know	no
25	during school	10-11,30 am	no	.	any learner can phone in	yes
26	.	10-11,30 am	no	.	dont know	yes
27	during school	10-11,30 am	yes	newspaper	dont know	yes
28	during school	10-11,30 am	no	.	dont know	no
29	.	.	no	.	dont know	no
30	weekends	9-11 am	no	.	any learner can phone in	yes
31	afternoons	2-4 pm	no	newspaper	dont know	yes

	nwspaper	whynolc	whylc	howmany
1	sowetan	.	to improve biology results	less than 5
2	sowetan	.	to improve biology results	more than 18
3	sowetan	.	to improve biology results	about 10
4	do not know	2-did not know about the programme	to improve biology results	.
5	sowetan	.	felt that it should be watched	less than 5
6	do not know	3-did not know the time	.	.
7	sowetan	4+5	to improve biology results	less than 5
8	sowetan	.	to improve biology results	about 10
9	mercury	4-time of broadcast was not suitable	.	.
10	sowetan	4+5	.	.
11	do not know	.	.	.
12	daily news	3-did not know the time	.	.
13	do not know	other	.	.
14	sowetan	.	to improve biology results	about 10
15	sowetan	4-time of broadcast was not suitable	to improve biology results	less than 5
16	sowetan	2+3+4	.	.
17	daily news	.	to improve biology results	about 10
18	sowetan	4+5	to improve biology results	less than 5
19	sowetan	.	just happen to be there	less than 5
20	do not know	2-did not know about the programme	to improve biology results	.
21	do not know	4-time of broadcast was not suitable	to improve biology results	.
22	do not know	.	.	less than 5
23	sowetan	4+5	interesting	less than 5
24	daily news	4+5	.	.
25	sowetan	4-time of broadcast was not suitable	.	.
26	sowetan	4+5	to improve biology results	less than 5
27	sowetan	4-time of broadcast was not suitable	.	about 10
28	do not know	4-time of broadcast was not suitable	.	.
29	.	2+3	.	.
30	daily news	.	interesting	less than 5
31	daily news	2+3	to improve biology results	less than 5

	whichway	before	while
1	live	.	1+3
2	live	.	1+3
3	as videos	both when and what	2-tape it
4	.	.	.
5	live	.	.
6	.	.	.
7	watched only when broadcast after school	.	1+3
8	live	.	1+3
9	.	.	.
10	.	.	.
11	.	.	.
12	.	.	.
13	.	.	.
14	live and videos	.	2-tape it
15	live	.	.
16	.	.	.
17	as videos	both when and what	1+2+3
18	live	find out when	.
19	live	.	.
20	.	.	.
21	.	.	.
22	live	.	.
23	live	.	3-take notes
24	.	.	.
25	watched only when broadcast after school	.	.
26	watched only when broadcast after school	.	1+2+3
27	live and videos	both when and what	1+3
28	.	.	.
29	.	.	.
30	live	.	3-take notes
31	as videos	both when and what	1+3+4

	after	tmethod	english	howmuch	length
1	3-make notes	excellent	most of the time	most of it	ok
2	.	excellent	most of the time	most of it	too long
3	.	excellent	most of the time	most of it	too long
4	.	excellent	most of the time	most of it	too long
5	.	excellent	most of the time	most of it	too long
6	.	excellent	most of the time	most of it	too long
7	3-make notes	excellent	most of the time	most of it	ok
8	4-other	excellent	most of the time	most of it	ok
9	.	excellent	most of the time	most of it	too long
10	.	good	most of the time	most of it	ok
11	.	excellent	most of the time	most of it	ok
12	.	good	most of the time	most of it	too long
13	.	excellent	most of the time	most of it	ok
14	3-make notes	excellent	most of the time	most of it	ok
15	.	good	most of the time	most of it	ok
16	.	excellent	most of the time	most of it	ok
17	3-make notes	excellent	most of the time	most of it	ok
18	.	excellent	most of the time	most of it	ok
19	.	good	most of the time	most of it	ok
20	.	excellent	most of the time	most of it	ok
21	.	good	most of the time	some of it	ok
22	.	good	most of the time	most of it	ok
23	3-make notes	excellent	most of the time	most of it	ok
24	.	good	most of the time	most of it	ok
25	.	excellent	most of the time	most of it	ok
26	3-make notes	good	most of the time	some of it	ok
27	2+3	excellent	most of the time	most of it	ok
28	.	excellent	most of the time	most of it	too long
29	.	excellent	most of the time	most of it	ok
30	3-make notes	excellent	most of the time	some of it	ok
31	1+3	excellent	most of the time	most of it	ok

	whilew	cquests	alsohave	compare	bestuse
1	took notes	yes,most of them	1-notes	tv better	add to teachers lesson
2	3.00	no	3-tel no (after hours)	tv better	add to teachers lesson
3	.	no	2-exam questions	tv better	exam prep
4	.	yes,most of them	2+3	same	.
5	3.00	yes,most of them	3-tel no (after hours)	tv better	exam prep
6	3.00	no	1+3	same	revision
7	3.00	yes, some of them	1+2+3+4	class better	.
8	took notes	yes, some of them	2-exam questions	class better	exam prep
9	3.00	yes,most of them	1-notes	tv better	revision
10	lost interest	no	1+2+3	class better	exam prep
11	.	no	2+3	tv better	.
12	.	yes, some of them	2-exam questions	same	add to teachers lesson
13	took notes	yes, some of them	2+3	same	add to teachers lesson
14	took notes	yes, some of them	1-notes	tv better	revision
15	took notes	no	1+2+3	same	.
16	took notes	yes,most of them	2-exam questions	tv better	exam prep
17	.	.	1-notes	tv better	add to teachers lesson
18	lost interest	yes, some of them	1+2+3	tv better	.
19	.	yes, some of them	1-notes	same	.
20	.	yes,most of them	.	.	.
21	took notes	yes, some of them	1-notes	tv better	exam prep
22	.	yes,most of them	2-exam questions	same	revision
23	took notes	no	1+3	tv better	exam prep
24	.	no	1-notes	class better	.
25	.	yes, some of them	1+3	same	.
26	lost interest	yes, some of them	2-exam questions	tv better	exam prep
27	.	yes,most of them	1+2	tv better	add to teachers lesson
28	lost interest	yes, some of them	2-exam questions	same	exam prep
29	.	no	2+3	tv better	exam prep
30	took notes	yes,most of them	1+2	tv better	.
31	took notes	yes,most of them	1+2	same	exam prep

	likebest
1	1+3
2	1+4
3	1+2
4	1+2
5	1+2
6	2+3+4
7	2+4
8	1+2
9	1+2+4
10	1+4
11	1+2
12	1+2
13	1+2+4
14	1+3
15	1+2
16	1-good method,understandable,repitition,enough time
17	1+2
18	1+3+4
19	1+2+3
20	1+2
21	1-good method,understandable,repitition,enough time
22	1+5
23	1+3
24	1+2+3
25	1+2+4
26	1+4
27	1+4
28	1-good method,understandable,repitition,enough time
29	1-good method,understandable,repitition,enough time
30	4-presenter personality, female, appeal,humour
31	1-good method,understandable,repitition,enough time

	notliked
1	3+5
2	2+3
3	1poor method, diags labelled,repitition,too much talk,no inv
4	3-too long, not enough breaks
5	3+5
6	5-background, other
7	1poor method, diags labelled,repitition,too much talk,no inv
8	.
9	5-background, other
10	5-background, other
11	5-background, other
12	3-too long, not enough breaks
13	5-background, other
14	1poor method, diags labelled,repitition,too much talk,no inv
15	5-background, other
16	5-background, other
17	.
18	5-background, other
19	.
20	.
21	.
22	.
23	1+2+3
24	2+4
25	.
26	3-too long, not enough breaks
27	1+5
28	2+3
29	1poor method, diags labelled,repitition,too much talk,no inv
30	1poor method, diags labelled,repitition,too much talk,no inv
31	1poor method, diags labelled,repitition,too much talk,no inv

	gender	race	age	biograde	whentv
32	Female	Indian	17 years	Higher grade	3-evenings / nights
33	Female	Indian	18 years	Higher grade	3+4
34	Male	Indian	18 years	Higher grade	2+4
35	Female	Indian	17 years	Higher grade	2+3+4
36	Female	Indian	17 years	Higher grade	2+3+4
37	Female	African	18 years	Higher grade	15.00
38	Male	African	18 years	Standard grade	2+4
39	Female	African	18 years	Higher grade	3+4
40	Male	African	18 years	Higher grade	2+3
41	Male	African	18 years	Higher grade	2+3
42	Female	African	17 years	Higher grade	3+4
43	Male	African	18 years	Standard grade	15.00
44	Male	African	18 years	Higher grade	2+3+4
45	Female	African	18 years	Higher grade	1+3+4
46	Female	African	18 years	Higher grade	3+4
47	Female	African	17 years	Higher grade	2-after school - in the afternoons
48	Female	African	18 years	Standard grade	2-after school - in the afternoons
49	Male	African	20 years	Standard grade	3+4
50	Male	African	20 years	Standard grade	4-weekend
51	Female	African	18 years	Standard grade	1+2
52	Male	African	over 20 year	Standard grade	4-weekend
53	Female	African	19 years	Standard grade	2-after school - in the afternoons
54	Male	African	17 years	Standard grade	3-evenings / nights
55	Female	African	19 years	Standard grade	3-evenings / nights
56	Male	African	19 years	Standard grade	5-do not watch TV
57	Male	African	20 years	Standard grade	2-after school - in the afternoons
58	Female	African	20 years	Standard grade	2+3+4
59	Male	Coloured	17 years	Standard grade	3-evenings / nights
60	Male	Coloured	17 years	Higher grade	3-evenings / nights
61	Male	Coloured	17 years	Standard grade	3+4
62	Male	Coloured	17 years	Higher grade	3+4

	tvhours	take5	tvsatday	whynotv	channel
32	less than 5 hours	no	no programmes	3-no time to watch TV	SABC3
33	less than 5 hours	no	no programmes	3-no time to watch TV	SABC3
34	less than 10 hours	yes	no programmes	.	SABC3
35	less than 15 hours	no	3-other	3-no time to watch TV	SABC3
36	less than 15 hours	yes	no programmes	3-no time to watch TV	SABC3
37	more than 15 hour	no	2+3	.	SABC3
38	less than 10 hours	no	2-childrens programme	.	SABC3
39	less than 5 hours	no	no programmes	3-no time to watch TV	SABC3
40	less than 5 hours	yes	1+2	3-no time to watch TV	SABC3
41	less than 10 hours	no	2-childrens programme	3-no time to watch TV	SABC3
42	less than 5 hours	no	no programmes	4-not interested inTV	SABC3
43	less than 15 hours	no	2-childrens programme	.	SABC3
44	less than 5 hours	no	2-childrens programme	.	SABC3
45	less than 5 hours	no	2-childrens programme	3-no time to watch TV	SABC3
46	less than 5 hours	no	2-childrens programme	3-no time to watch TV	SABC3
47	less than 10 hours	no	no programmes	.	SABC3
48	less than 5 hours	no	no programmes	.	SABC3
49	less than 5 hours	yes	no programmes	3-no time to watch TV	SABC3
50	do not watch tv	no	no programmes	3-no time to watch TV	SABC3
51	less than 15 hours	yes	1+2	.	SABC3
52	do not watch tv	no	no programmes	3-no time to watch TV	SABC3
53	less than 5 hours	no	no programmes	3-no time to watch TV	SABC3
54	less than 10 hours	no	2-childrens programme	4-not interested inTV	SABC3
55	do not watch tv	no	no programmes	.	SABC3
56	do not watch tv	no	no programmes	3-no time to watch TV	SABC3
57	more than 15 hour	no	no programmes	5-other	SABC3
58	more than 15 hour	yes	2-childrens programme	.	SABC3
59	less than 5 hours	no	no programmes	2-not allowed to watch T	SABC3
60	less than 10 hours	no	no programmes	3-no time to watch TV	SABC3
61	less than 10 hours	yes	3-other	.	SABC3
62	less than 10 hours	no	no programmes	4-not interested inTV	SABC3

	whenbc	timebc	topic	wherfrm	schhols	booktopc
32	during school	10-11,30 am	no	.	any learner can phone in	yes
33	during school	10-11,30 am	no	.	any learner can phone in	yes
34	during school	9-11 am	no	.	dont know	no
35	during school	10-11,30 am	no	.	dont know	no
36	during school	9-11 am	no	.	time of broadcast	no
37	during school	9-11 am	no	.	time of broadcast	no
38	during school	10-11,30 am	no	.	dont know	yes
39	during school	10-11,30 am	no	.	any learner can phone in	no
40	during school	10-11,30 am	no	.	any learner can phone in	yes
41	during school	10-11,30 am	no	.	any learner can phone in	yes
42	weekends	9-11 am	no	.	dont know	yes
43	afternoons	2-4 pm	no	.	dont know	yes
44	weekends	10-11,30 am	no	.	time of broadcast	no
45	during school	10-11,30 am	no	.	any learner can phone in	no
46	during school	10-11,30 am	yes	TV	dont know	no
47	during school	8-9 am	no	TV	dont know	no
48	weekends	9-11 am	no	.	.	yes
49	weekends	10-11,30 am	no	.	any learner can phone in	no
50	afternoons	2-4 pm	no	.	dont know	no
51	during school	9-11 am	no	.	learners from one school	yes
52	during school	.	no	.	dont know	no
53	during school	10-11,30 am	.	TV	any learner can phone in	yes
54	afternoons	2-4 pm	no	.	any learner can phone in	no
55	during school	9-11 am	no	.	any learner can phone in	no
56	during school	9-11 am	no	.	any learner can phone in	no
57	afternoons	2-4 pm	yes	other	dont know	no
58	during school	10-11,30 am	no	.	time of broadcast	yes
59	during school	9-11 am	no	.	dont know	yes
60	during school	10-11,30 am	no	.	dont know	yes
61	afternoons	9-11 am	no	.	any learner can phone in	no
62	weekends	9-11 am	no	.	time of broadcast	no

	nwspaper	whynolc	whylc	howmany
32	sowetan	4-time of broadcast was not suitable	.	.
33	sowetan	4-time of broadcast was not suitable	.	.
34	do not know	3+4	to improve biology results	less than 5
35	daily news	5-could not have it taped	.	.
36	sowetan	4+5	.	.
37	daily news	4-time of broadcast was not suitable	to improve biology results	less than 5
38	sowetan	2+3	felt that it should be watched	less than 5
39	do not know	4-time of broadcast was not suitable	.	.
40	daily news	2+3	to improve biology results	less than 5
41	sowetan	4+5	.	.
42	sowetan	3-did not know the time	to improve biology results	less than 5
43	daily news	2+3	to improve biology results	less than 5
44	sowetan	3+5	.	.
45	daily news	4-time of broadcast was not suitable	.	.
46	sowetan	4-time of broadcast was not suitable	to improve biology results	less than 5
47	mercury	2+3	.	.
48	do not know	2+3	.	.
49	do not know	3+4	.	.
50	daily news	2+3+4	to improve biology results	less than 5
51	daily news	.	.	less than 5
52	daily news	2-did not know about the programme	.	.
53	.	3-did not know the time	to improve biology results	less than 5
54	daily news	4-time of broadcast was not suitable	just happen to be there	less than 5
55	daily news	4-time of broadcast was not suitable	to improve biology results	about 10
56	daily news	3+4	.	less than 5
57	daily news	2+3+4	to improve biology results	less than 5
58	daily news	2+3+4	to improve biology results	less than 5
59	sowetan	2+3+6	felt that it should be watched	less than 5
60	sowetan	4-time of broadcast was not suitable	.	.
61	daily news	2-did not know about the programme	.	.
62	daily news	3-did not know the time	to improve biology results	less than 5

	whichway	before	while
32	.	.	.
33	.	.	.
34	watched only when broadcast after school	.	3-take notes
35	.	.	.
36	.	.	.
37	.	.	.
38	watched only when broadcast after school	.	.
39	.	.	.
40	live	.	1+3
41	.	.	.
42	.	.	.
43	watched only when broadcast after school	.	.
44	live	.	1+3
45	.	.	.
46	watched only when broadcast after school	.	1+3
47	.	.	.
48	.	.	.
49	.	.	.
50	watched only when broadcast after school	.	1+3
51	.	.	.
52	.	.	.
53	watched only when broadcast after school	both when and what	4-phone the presenter
54	live	.	.
55	live	find out what	1+3
56	as videos	.	2+3
57	live and videos	.	.
58	live	.	1+3
59	.	.	2-tape it
60	.	.	.
61	.	.	.
62	live	.	4-phone the presenter

	after	tmethod	english	howmuch	length
32	.	excellent	most of the time	most of it	ok
33	.	excellent	most of the time	most of it	ok
34	.	excellent	most of the time	most of it	ok
35	.	good	most of the time	most of it	too long
36	.	excellent	most of the time	most of it	ok
37	.	excellent	most of the time	most of it	ok
38	.	good	some of the tim	some of it	too long
39	.	excellent	most of the time	most of it	ok
40	1+3	excellent	most of the time	some of it	too short
41	.	good	most of the time	most of it	too long
42	.	good	most of the time	most of it	ok
43	.	good	most of the time	some of it	too short
44	2+3	excellent	most of the time	some of it	ok
45	.	good	most of the time	most of it	ok
46	1-discuss- other educators	excellent	most of the time	most of it	ok
47	.	excellent	most of the time	most of it	ok
48	.	excellent	most of the time	very little of	ok
49	.	excellent	most of the time	most of it	ok
50	3-make notes	good	some of the tim	some of it	ok
51	2-discuss- learners	excellent	most of the time	very little of	too long
52	.	excellent	most of the time	some of it	too long
53	2+3	good	some of the tim	some of it	too long
54	.	good	most of the time	some of it	ok
55	2-discuss- learners	good	most of the time	some of it	ok
56	1+3	excellent	most of the time	some of it	ok
57	.	good	most of the time	some of it	ok
58	2+3	excellent	most of the time	most of it	ok
59	.	good	most of the time	most of it	too long
60	.	good	most of the time	most of it	too long
61	.	good	most of the time	most of it	too long
62	2-discuss- learners	excellent	most of the time	most of it	too long

	whilew	cquests	alsohave	compare	bestuse
32	took notes	yes, some of them	2-exam questions	same	.
33	.	yes, some of them	2-exam questions	tv better	add to teachers lesson
34	took notes	yes,most of them	1+3	same	.
35	lost interest	yes,most of them	2-exam questions	same	.
36	.	yes,most of them	2-exam questions	same	revision
37	.	yes,most of them	2-exam questions	same	revision
38	lost interest	yes, some of them	2-exam questions	same	add to teachers lesson
39	.	yes, some of them	2-exam questions	same	.
40	took notes	yes, some of them	1+2	same	exam prep
41	lost interest	yes, some of them	2-exam questions	same	exam prep
42	.	yes,most of them	2+3	tv better	revision
43	.	yes, some of them	1+2	class better	exam prep
44	took notes	yes, some of them	2+3	tv better	.
45	.	yes, some of them	2-exam questions	same	.
46	took notes	yes,most of them	1+2	tv better	revision
47	.	yes,most of them	1+2	same	add to teachers lesson
48	.	yes, some of them	1-notes	tv better	add to teachers lesson
49	took notes	yes, some of them	1+2	tv better	revision
50	.	yes, some of them	2-exam questions	class better	exam prep
51	lost interest	yes,most of them	3-tel no (after hours)	class better	.
52	took notes	no	3-tel no (after hours)	tv better	replace teachers lesson
53	.	yes, some of them	2-exam questions	tv better	revision
54	3.00	yes,most of them	2-exam questions	class better	exam prep
55	took notes	yes, some of them	1+2	.	add to teachers lesson
56	lost interest	yes, some of them	2-exam questions	tv better	add to teachers lesson
57	.	yes,most of them	1-notes	tv better	revision
58	.	yes, some of them	3-tel no (after hours)	tv better	exam prep
59	lost interest	no	1+2+3	same	revision
60	took notes	no	2+3	same	exam prep
61	lost interest	no	2+3	same	revision
62	took notes	no	1+2	same	revision

	likebest
32	1+2+3
33	1+3
34	1+2+3
35	2-good diagram, aids,examples,visual medium
36	1-good method,understandable,repitition,enough time
37	1+4
38	1+3
39	1-good method,understandable,repitition,enough time
40	1-good method,understandable,repitition,enough time
41	1+3
42	1+3
43	1-good method,understandable,repitition,enough time
44	1+3
45	1-good method,understandable,repitition,enough time
46	1-good method,understandable,repitition,enough time
47	1+3
48	3-extra facts, more than teacher,informative
49	1+2
50	1+4
51	3-extra facts, more than teacher,informative
52	2-good diagram, aids,examples,visual medium
53	1+3
54	1+2
55	1+3
56	1+2
57	2-good diagram, aids,examples,visual medium
58	1+4
59	1-good method,understandable,repitition,enough time
60	1+2
61	1+2
62	1+2+4

	notliked
32	1poor method, diags labelled,repitition,too much talk,no inv
33	1poor method, diags labelled,repitition,too much talk,no inv
34	.
35	2+3
36	3+5
37	2+3
38	1poor method, diags labelled,repitition,too much talk,no inv
39	1poor method, diags labelled,repitition,too much talk,no inv
40	3-too long, not enough breaks
41	3-too long, not enough breaks
42	2+3
43	1poor method, diags labelled,repitition,too much talk,no inv
44	.
45	4-presenter's attitude, sense of humour, insulting
46	3-too long, not enough breaks
47	5-background, other
48	.
49	.
50	1poor method, diags labelled,repitition,too much talk,no inv
51	.
52	1poor method, diags labelled,repitition,too much talk,no inv
53	.
54	1+3
55	.
56	2-boring, lost concentration
57	.
58	1poor method, diags labelled,repitition,too much talk,no inv
59	2+3
60	1poor method, diags labelled,repitition,too much talk,no inv
61	1+3
62	1+3+4

	gender	race	age	biograde	whentv
63	Male	Coloured	17 years	Standard grade	3-evenings / nights
64	Male	Coloured	17 years	Standard grade	3-evenings / nights
65	Male	Coloured	18 years	Higher grade	2+3+4
66	Male	Coloured	19 years	Standard grade	3+4
67	Male	Coloured	18 years	Higher grade	2-after school - in the afternoons
68	Male	Coloured	18 years	Standard grade	3-evenings / nights
69	Female	Coloured	17 years	Higher grade	5-do not watch TV
70	Male	Coloured	19 years	Standard grade	4-weekend
71	Female	Coloured	17 years	Higher grade	2+4
72	Female	Coloured	18 years	Higher grade	4-weekend
73	Female	Coloured	18 years	Higher grade	15.00
74	Male	Coloured	18 years	Higher grade	3+4
75	Male	Coloured	18 years	Standard grade	15.00
76	Female	Coloured	18 years	Standard grade	15.00
77	Female	Coloured	17 years	Higher grade	5-do not watch TV
78	Male	Coloured	18 years	Standard grade	15.00
79	Female	Coloured	over 20 year	Higher grade	3-evenings / nights
80	Female	Coloured	19 years	Standard grade	2+3+4
81	Female	Coloured	17 years	Higher grade	2+4

	tvhours	take5	tvsatday	whynotv	channel
63	less than 5 hours	no	no programmes	5-other	SABC3
64	less than 5 hours	no	no programmes	4-not interested inTV	SABC3
65	more than 15 hour	yes	2-childrens programme	3-no time to watch TV	SABC3
66	less than 5 hours	no	2+3	3-no time to watch TV	SABC2
67	less than 15 hours	yes	1+2	.	.
68	less than 10 hours	no	no programmes	3-no time to watch TV	SABC3
69	do not watch tv	no	no programmes	4-not interested inTV	SABC3
70	less than 10 hours	no	1+2	.	SABC3
71	less than 5 hours	no	no programmes	4-not interested inTV	SABC3
72	less than 5 hours	yes	no programmes	3-no time to watch TV	SABC3
73	less than 5 hours	no	1-Learning Channel	.	SABC3
74	less than 10 hours	yes	no programmes	.	SABC3
75	more than 15 hour	no	no programmes	.	SABC3
76	more than 15 hour	yes	1+2	.	SABC3
77	do not watch tv	no	no programmes	.	SABC3
78	less than 10 hours	yes	1+2	3-no time to watch TV	SABC3
79	less than 5 hours	yes	no programmes	3-no time to watch TV	SABC3
80	less than 5 hours	yes	1-Learning Channel	.	SABC3
81	less than 5 hours	yes	1+2	3-no time to watch TV	SABC3

	whenbc	timebc	topic	wherfrm	schhols	booktopc
63	.	.	yes	other	dont know	no
64	weekends	9-11 am	no	.	time of broadcast	no
65	during school	.	no	.	time of broadcast	yes
66	afternoons	2-4 pm	no	.	.	yes
67	weekends	.	.	.	.	no
68	afternoons	2-4 pm	yes	TV	learners from one school	yes
69	.	10-11,30 am	no	.	learners from one school	yes
70	weekends	10-11,30 am	no	.	time of broadcast	no
71	weekends	.	no	.	dont know	no
72	afternoons	9-11 am	no	.	learners from one school	yes
73	during school	9-11 am	no	.	any learner can phone in	no
74	afternoons	10-11,30 am	no	.	dont know	yes
75	weekends	9-11 am	no	.	any learner can phone in	no
76	weekends	10-11,30 am	no	.	any learner can phone in	no
77	.	.	no	.	dont know	no
78	during school	9-11 am	no	.	any learner can phone in	no
79	weekends	9-11 am	no	.	any learner can phone in	no
80	during school	.	yes	.	.	no
81	weekends	9-11 am	no	.	dont know	no

	nwspaper	whynolc	whylc	howmany
63	do not know	2+3+6	to improve biology results	less than 5
64	do not know	3+6	just happen to be there	less than 5
65	daily news	.	interesting	about 10
66	daily news	2-did not know about the programme	.	.
67	daily news	.	.	about 10
68	daily news	other	.	.
69	sowetan	4-time of broadcast was not suitable	just happen to be there	less than 5
70	sowetan	.	just happen to be there	less than 5
71	do not know	4-time of broadcast was not suitable	to improve biology results	less than 5
72	sowetan	3-did not know the time	just happen to be there	less than 5
73	sowetan	.	interesting	.
74	sowetan	4-time of broadcast was not suitable	.	.
75	sowetan	4-time of broadcast was not suitable	felt that it should be watched	less than 5
76	do not know	2-did not know about the programme	just happen to be there	less than 5
77	sowetan	2-did not know about the programme	.	.
78	sowetan	.	interesting	about 10
79	do not know	2-did not know about the programme	.	.
80	daily news	.	to improve biology results	.
81	daily news	.	to improve biology results	less than 5

	whichway	before	while
63	watched only when broadcast after school	.	3-take notes
64	.	.	.
65	live	find out when	1+3
66	.	.	.
67	live	find out what	.
68	.	.	.
69	watched only when broadcast after school	.	.
70	.	.	3-take notes
71	as videos	both when and what	2+3
72	as videos	.	1+2+3
73	watched only when broadcast after school	.	1+3
74	.	.	.
75	watched only when broadcast after school	find out what	3-take notes
76	live	.	.
77	.	.	.
78	live and videos	both when and what	1+2
79	.	.	.
80	live	.	3-take notes
81	live	.	1-use aids

	after	tmethod	english	howmuch	length
63	1+2	good	most of the time	most of it	ok
64	.	good	most of the time	most of it	too long
65	1+3	good	most of the time	most of it	too long
66	.	good	some of the tim	some of it	ok
67	1-discuss- other educators	excellent	most of the time	most of it	ok
68	.	good	most of the time	most of it	ok
69	.	good	most of the time	most of it	too long
70	3-make notes	excellent	most of the time	most of it	too long
71	1-discuss- other educators	good	most of the time	most of it	ok
72	2-discuss- learners	good	most of the time	most of it	too long
73	1+3	excellent	most of the time	most of it	ok
74	.	good	most of the time	most of it	too long
75	1-discuss- other educators	good	most of the time	most of it	too long
76	.	excellent	most of the time	most of it	ok
77	.	excellent	most of the time	most of it	too long
78	2+3	excellent	most of the time	most of it	too long
79	.	good	most of the time	some of it	too long
80	3-make notes	good	most of the time	most of it	too long
81	2-discuss- learners	excellent	most of the time	most of it	ok

	whilew	cquests	alsohave	compare	bestuse
63	.	yes, some of them	2-exam questions	same	add to teachers lesson
64	.	yes, some of them	2-exam questions	same	.
65	.	yes,most of them	2-exam questions	tv better	.
66	lost interest	.	1-notes	same	exam prep
67	.	yes, some of them	2-exam questions	tv better	.
68	took notes	yes, some of them	2+3	class better	exam prep
69	.	yes, some of them	2-exam questions	same	exam prep
70	.	yes, some of them	1+2	tv better	exam prep
71	.	yes, some of them	2+3	same	.
72	lost interest	yes, some of them	1+2	same	.
73	took notes	yes, some of them	2-exam questions	same	add to teachers lesson
74	.	no	2+3	tv better	exam prep
75	lost interest	no	2-exam questions	same	.
76	lost interest	no	1+2+3	same	add to teachers lesson
77	.	no	1+2	same	add to teachers lesson
78	lost interest	yes, some of them	1+2	same	revision
79	.	no	1+3	tv better	exam prep
80	.	yes, some of them	3-tel no (after hours)	tv better	add to teachers lesson
81	took notes	yes,most of them	2-exam questions	tv better	add to teachers lesson

	likebest
63	1-good method,understandable,repitition,enough time
64	2-good diagram, aids,examples,visual medium
65	1-good method,understandable,repitition,enough time
66	1-good method,understandable,repitition,enough time
67	2+4
68	1-good method,understandable,repitition,enough time
69	.
70	1-good method,understandable,repitition,enough time
71	3-extra facts, more than teacher,informative
72	1+3
73	1+2
74	1-good method,understandable,repitition,enough time
75	1+2
76	1+3
77	1+2
78	1-good method,understandable,repitition,enough time
79	1+2
80	1+2
81	1+2

	notliked
63	.
64	1+4
65	1poor method, diags labelled,repitition,too much talk,no inv
66	.
67	4-presenter's attitude, sense of humour, insulting
68	1poor method, diags labelled,repitition,too much talk,no inv
69	2+3
70	3-too long, not enough breaks
71	3-too long, not enough breaks
72	1+3
73	3-too long, not enough breaks
74	1+2+3
75	1+3
76	1poor method, diags labelled,repitition,too much talk,no inv
77	1+3
78	1poor method, diags labelled,repitition,too much talk,no inv
79	3-too long, not enough breaks
80	1+2
81	1poor method, diags labelled,repitition,too much talk,no inv