MEDIA USAGE FOR EFFECTIVE TEACHING AND LEARNING IN SOME SECONDARY SCHOOLS IN THE NEBO AREA OF THE LIMPOPO PROVINCE

BY

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[B.A, H.E.D, B.Ed]

Submitted in accordance with the requirements for the degree of
MASTER OF EDUCATION, in Educational Technology
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July 2002

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ACKNOWLEDGEMENTS

I wish to extend my heartfelt thanks and gratitude to the following people for the contributions they have made towards the completion of this study:

DEDICATION

I dedicate this study to my late brother, TSHINYANE HERBERT MODIPA who passed away at the dawn of this study when I was struggling with the proposal. To you HLABIRWA: you have been such a wonderful mentor and brother, history will prove beyond doubt that your efforts were never in vain.

DECLARATION

I declare that the dissertation hereby submitted to the University of the North for the degree of Master of Education has not previously been submitted by me for degree at this or any other University, that it is my own work in design and execution, and that all material contained therein has been duly acknowledged.

Signed: En eba

Date: 31 7 02

ABSTRACT

One's concept of teaching dictates one's view of learning. If teaching is viewed as the delivery of information and the consumption by learners of the facts delivered by the teachers, then learning is necessarily passive. Most of the learners are bored in schools, and some drop out. For those who stay in, schools frequently offer little encouragement to those who have talents exceeding beyond the ability to manipulate words and numbers.

Traditional goal structures tended to be teacher centered. Classrooms are dominated by long speeches. Little if any, time is given to explore the real world. It is a fact that in conventional classrooms, learners who sit still and maintain immobile postures get the teacher's approval. Little if any movement is allowed. However, immobility may not ensure optimum intellectual learning. But, for teachers who will lead learners into the 21st century this pedagogy is dysfunctional. Learning should be more than simply presenting bits of information. Teachers should become managers of learning that uses all devices to enhance learning and improves teaching.

It is against this background that a study of this nature was undertaken. The main aim is to find out if teachers are making use of instructional media for effective teaching and learning. This suggests that there is a tendency among teachers to ignore the potential inherent in the use of these media. However, not all teachers as the literature suggests, resist the use. Empirical study was used to collect data. The study was conducted at Nebo Area of the Limpopo province. Questionnaires were used as instruments to collect the data. The results indicated that most teachers even if they want to use instructional media in their classrooms they do not know how. Insufficient training, lack of infrastructure and fear of losing power may be cited as the main obstacles in integrating these technologies.

It becomes evident then that, we cannot think about effective teaching without thinking about learners. Yet we cannot think about learners without thinking about teachers and teacher training. These suggest that what teachers learnt three years ago at teacher training and subsequently teach their learners today may be outdated. Therefore continuous training and ongoing support will help update teachers to keep abreast in preparing learners for the work place.

TABLE OF CONTENTS

Page

CHAPTER THREE: TOWARDS   EFFECTIVE   TEACHING   AND   LEARNING THROUGH MEDIA INTEGRATION

LIST OF TABLES

LIST OF FIGURES

ADDENDUM A: EDUCATORS' QUESTIONNAIRE

CHAPTER ONE

GENERAL INFORMATION

1.1 BACKGROUND TO THE STUDY

Teachers are now facing more challenges and changes in their work, than before, changes that many have not asked for and whose rationale some have difficulties in understanding. They have taught their subjects for years but now they are urged to use new teaching and learning media in their classrooms. According to Molenda & Russel (1996:507), not all teachers are resisting the change from traditional methods of teaching to technological ones, but the overall picture that emerges is that the usage of teaching and learning media is generally low. Where used, these media tend to be used as additional aids, not as part of broader classroom activities .

Molenda & Russel further states that no classroom lacks technology but simple technology such as charts, graphs and chalkboard are so familiar to those who use them that they tend to be invisible or taken for granted .Yet these simple media are technologies around which the conventional classroom has been shaped (Molenda & Russel, 1996:508).

Chaptal (1998:243) argues that teachers who integrate technology into their teaching and their learners' activities are not the exceptions only a minority of experts. When teachers have developed a use of teaching and learning media, adapted to their strategies and to the needs of their learners, they tend to stick to them whatever modern technology has to offer. New educational media do not replace older ones, they complement them. Bates (1984:16), argues that the teacher's problem is how to convey to learners' certain ideas, basic knowledge in the shortest time possible. To accomplish this objective, teaching and learning media are indispensable. They will not replace the teacher but will enhance the process of teaching and learning.

Bates further acknowledges that learning devices that teachers can use are many and varied. They can range from a diagram drawn in sand with a stick to an expensive language laboratory or closed

circuit television. Despite these organized instructions, many teachers still cling to verbal symbolism as their means of teaching instruction. They continue to use ordinary language, metaphors, similes and other figures of speech. Bates further states that word of mouth alone is not sufficient as such, and the new media can be a powerful tool only in the hands of a careful teacher (1984: 16).

In this regard, Molenda and Russel (1996:431), maintain that used sensibly, teaching media can be of value to any teacher. Unfortunately, many teachers are wary of approaching educational technology because of the mystique which surrounds much of it. What should be the basic tools of the teacher's craft have often been obscured in a fog of incomprehensibility by educational theorists and technologists who lack clarity of expression.

According to Minton (1991:136), the teacher does not have to be a technician in order to use any form of instructional media. As a result of insufficient practical training, many teachers do not recognise the potential benefits of many simple teaching media available at their disposal at a very little.

The teacher is an important resource for learners, but not the only one they can use. Minton argues further that some teachers put intolerable burdens on themselves in order to deliver because they feel all learning must be funneled through them. The emphasis has, however, changed. Teachers should become managers of learning and be able to make use of all teaching and learning devices.

Trotter (1994: 15) says that a balanced approach to teaching is the correct way to use media. He also believes that any medium used must form an integral part of the lesson; it should not be a separate or incidental activity. The introduction of the use of new teaching and learning media does not suggest that teachers should be replaced in the near future. It means that the abilities of teachers should be enhanced, and learning made more effective by means of appropriate instructional media (Chaptal, 1997a: 120).

Plateeuw (1997:117) argues that the tools that teachers have added to their repertoire of educational technology over time (e.g. chalkboard, textbooks) have been simple, durable, flexible and responsive to teacher- defined problems in meeting the demands of daily classroom instruction. There is thus a need for the use of educational media in teaching and learning because of the challenges that education is facing. These challenges are threefold:

- Transition from an industrial to an information society. Traditionally, schools provided settings where individuals were prepared for the industrial society. In this society, the focus was on 'making things', on industrial production. Today 's education system faces the challenges to prepare learners for the information society in which the focus shifts to handling information.

- People's need for education that is individualized, flexible and suitable for their special needs. Growing individualization in, and diversification of society, calls for specific approaches to education. Standardized methods and classroom approaches will no longer be sufficient for individual needs.

- Lifelong learning and new demands for learning. The guarantee for open and equal access to education for everybody is almost unaffordable under the current educational system.

Schools should utilize new technologies not as a cure-all in themselves but, to create a rich learning environment that can accommodate individual differences in learning speeds and styles. Young people of today are growing up in a world where knowledge of visual or more broadly-based media are needed. A great deal of communication today is conveyed through a combination of different media: written, verbal, visual, iconic and so on. The visual aspect is becoming more and more important today, strongly influenced as it is by the news, advertising and videos. The contemporary learner has to be able to retrieve from different sources and media the information that he can benefit from his studies, and later on in the everyday working environment (Sirvio, 1994:43).

This researcher is of the opinion that many teachers are afraid to use teaching and learning media. New media technology become incidentals or forms of entertainment in the middle of ordinary lessons. From the researcher's own experience instructional media are not being used effectively in secondary schools for effective teaching and learning .

1.2   STATEMENT OF THE PROBLEM

Many teachers ignore the use of new instructional materials in their classroom practice. They probably do not recognize the potential of many simple teaching media available at very little or no cost and the fact that these can facilitate their teaching and enhance the process of learning. They often complain of the cost involved in purchasing this media. Apparently, they forget or do not know that simple teaching and learning media are available at their disposal (Mbangwana, 1997: 50).

Quite often, instructional media are selected and used not for a clear thought-out reason but because they are available. Media should never be used as an optional extra to a lesson nor as a substitute for a teacher. The central and dominant aim of educational media is to bring the world to the classroom (Bendeich, 1988:2). Unfortunately, some teachers regard the new possibilities of educational media only as a technical, and not pedagogical or didactic, improvement. In some cases these media are regarded as affording relaxation in the middle of ordinary teaching routines. They are not appreciated as opportunities to change the ways of teaching and learning and to finding new solutions to old problems. Many learning techniques such as pair-work, group work, and independent studies could be stimulated through effective use of the new educational media (Sirvio, 1994: 44).

Most teachers do not use these media as expected of them. Although these should never replace a teacher, they should act as a complement to the methods of teaching. Although these media in themselves do not posses any disadvantages as far as learning is concerned, it is possible that wrong perceptions about them or their incorrect application by teachers may lead to ineffective teaching-learning situations. Media which contain technical inaccuracies may easily create misconceptions in the learner. However if correctly applied educational media are dynamic and fundamental. Their value cannot be overlooked but can only be exploited if they are used as an integral part of the teachers' classroom activities. (Gawe & Jacobs, 1996:242).

In the light of the problem described above, the following are the research questions:

- Are secondary school teachers able to make use of media at their disposal for effective teaching and learning?
- Do teachers make use of teaching media to enhance the process of teaching and improve the culture of learning?
- Do teachers in teacher training receive enough training on the use of new teaching and learning media?
- Are teaching media regarded by some teachers as entertainment or technical devices instead of being pedagogical?

The above questions will be discussed in the context of some secondary schools in the Nebo area of the Limpopo Province .

1.3   AIM AND OBJECTIVES OF THE STUDY

The aim of the study is:

The study will seek ways and means of encouraging teachers to use media at their disposal.

Objectives of the study:

- to investigate whether teachers at secondary schools in Nebo (Region six), Limpopo Province, are able to use media at their disposal for teaching and learning;

- to investigate whether secondary school teachers are able to make use of media at their disposal for effective teaching and learning;

- to find out if teachers receive enough training in teacher-training institutions on the use of teaching and learning media; and

–   to find out if teaching media are regarded by some teachers as entertainment or technical devices instead of being pedagogical.

1.4   DELIMITATION OF THE STUDY

This study will be conducted in the Nebo area in the Limpopo Province. It is the view of this researcher that Nebo is the most representative of the Limpopo Province because :

–   it consists of peri-urban and rural schools;
-        it encompasses historically model- c schools, private schools and government schools.

Nebo area is situated in the south east of Polokwane in the Limpopo Province of South Africa. It is approximately 135 kilometers from the said city (Polokwane). Nebo is a peri-rural area with a population of more than 30 000 people. Questionnaires will be sent to teachers at selected schools in this area.

1.5   RESEARCH METHODOLOGY

Research methodology refers to the range of approaches used in research to gather data which are to be used as a basis for inference   and interpretation, explanation and prediction (Cohen and Manion, 1995 :38). Two main types of approaches are used in research namely, qualitative and quantitative approaches. A qualitative approach is defined as an inquiry process of understanding a social or human problem based on building a complex, holistic picture, formed with words, and containing reporting detailed views of informants. It is conducted in a natural setting (Cresswell, 1992: 02).

A quantitative approach, on the other hand, can be defined as an inquiry into social or human phenomena, based on testing a theory composed of various variables, measured with numbers and

analyzed with statistical procedures in order to determine whether the predictive generalizations of a theory hold true (Cresswell, 1992: 02).

A quantitative approach presents results in the form of numbers while a qualitative approach presents facts in a narration. The two approaches also differ in terms of their methodologies of data collection. The quantitative approach uses experimental and non-experimental methods while the qualitative one uses ethnographic and analytic methods (McMillan & Schumacher, 1993: 14). The qualitative and quantitative approaches will be used in this study.

1.6   DATA COLLECTION

The following instruments will be used to collect data:

1.6.1 Literature Study

A literature review will be conducted in order to expand upon the context and background of the study, define the problem and provide an empirical basis for the whole study (Frankel & Warren, 1996:67). This review will also help to:

- share with the reader the results of studies that are closely related to the current study;
- provide a framework for establishing the importance of the study; and
- extend dialogue on the current study.

In the light of the aims of this research project, a literature review will be conducted in this study to shed light on the use of media in secondary schools. The literature review will concentrate on a wide review of relevant writings such as articles, journals, major books on the subject and dissertations published nationally and internationally.

1.6.2 Empirical Study

To supplement the literature review an empirical study will be conducted. The following instrument will be used to collect data:

1.6.2.1 Questionnaires

Questionnaires are questions that have been written down and given to respondents for completion (Babbie, 1990: 147). Structured questionnaires will be designed and administered to teachers at three chosen schools in the Nebo area to find out if teaching media are used effectively. Structured questionnaires are preferred because:

- Their answers are standardized and can be compared from person to person;
- The answers are much easier to decode and analyze and they can often be decoded directly from the questionnaire thus saving time and energy;
- The answers are relatively complete and a minimum of irrelevant responses is received (Bailey, 1982: 118).

The questionnaires will be used to measure the following variables:

- The extent to which teachers make use of teaching media.
- The extent to which media are used integrally and not as incidentals.
- The extent to which learners are introduced to instructional and educational media to enhance the process of learning.
- The extent to which schools pay serious attention to ensure the availability of teaching media.

1.6.2.2 Observation

According to Bailey (1982:239) observation is the primary technique for collecting data on nonverbal behaviour. Although observation most commonly involves sight or visual data collection, it could also include data collection via the other senses, such as hearing, touch or smell. This researcher will directly observe both visual and auditory phenomena that are specific and record them systematically. The observational method will be used to measure the extent to which teachers make use of teaching and learning media for effective teaching and learning.

1.6.3 Data Analysis

In every study the collected data need to be analyzed before they can be interpreted. The purpose of data analysis is:

- to describe the data clearly;
- to identify what is typical and atypical among the data;
- to bring to light differences, relationships and other patterns existent in the data; and
- to ultimately answer research questions (Charles, 1988: 118).

The data collected in this study through questionnaire and observation will be analyzed qualitatively and the results will be expressed in statistical terminology (Charles, 1988: 118).

1.7   SAMPLING

Sampling can be defined as a process of selecting individuals who will participate in a study (Fraenkel and Warren, 1996:97). Due to the constraints of money, time and accessibility, a small group or subset of the population will be used in such a way that the knowledge gained is representative of the entire population. This smaller group or subset is a sample. Cluster sampling will be used in this study. This is the selection of groups or clusters of subjects rather than

individuals (Fraenkel and Warren, 1996:97).

Instead of randomly selecting a sample of teachers from every school, only teachers from selected schools will constitute the sample. The subjects will be selected on the basis that they are representative of the population.

1.8 DEFINITION OF TERMS

In studies of this nature it is important to define and explain the terms used. This is to avoid situation where the researcher speaks at cross- purpose with others. This is to say that most words lack meaning unless they are used in a context.

1.8.1 Learning

Gagne (1985:2), defines learning as a change in human disposition or capability of such a change that persists over a period of time and is not simply ascribable to the process of growth. The kind of behavior called learning exhibits itself as a change in behavior. The inference of learning is made by comparing what behavior was possible before the individual was placed in a learning situation and what behavior can be exhibited after such treatment. The change may be, and often is, an increased capability for some type of performance. The change in behavior should have more than momentary permanence. It should be capable of being retained over some period of time and it must be distinguishable from the kind of change that is attributed to growth.

Klein (1987:33) however, defines learning as a relative change in the ability to exhibit a behavior. This change occurs as a result of successful or unsuccessful experience. From this definition there are three components:

- The change in behavior must be relatively permanent to be considered an example of learning. Learners often alter behavior as the result of motivational changes. However, learning is not necessarily responsible for learners' behavior.

10

- Learning reflects a change in the potential for a behavior. Learning does not automatically lead to a change in behavior. Learners should be sufficiently motivated to translate learning into a behavior. They might be unable to exhibit a particular behavior even though they have learned it and are sufficiently motivated to exhibit it.

- Many examples of behavior change do not reflect the learning process. From this definition, learning represents a relatively permanent change in the potential for a behavior, a change which develops through successful or unsuccessful experience.

Shunk (1991:2) outlines the process of learning in the following ways:

- A change in behavior, or its capacity, results from practice or other forms of experience;
- A change, or the capacity of such a change, occurs in the learner's behavior and
- The change, or its capacity, endures overtime. From these outlines learning is a process with the ultimate purpose of bringing change in the behavior of the learner.

Driscoll (1994:8-9) defines learning as a persisting change in human performance brought about as a result of the learner's interaction with the environment. The key word in these definitions is change. To learn is to change one's level of ability or knowledge. Typically, learning is measured by the amount of change that occurs within an individual's level of performance. Most learning is the result of an interplay between processes internal to the individual and events external to the individual. The processes internal to the individual have the focus of the attention by learning theorists in education. The most fruitful theory for education is the information processing model of learning by (Johnston, 1987:3). Johnston postulates that learning comprises a number of processes between the point when a learner is stimulated and the point when the response is produced that indicates that learning has occurred. Among the processes are attention to the stimulus, retention in short-term memory, selective perception of characteristics of the stimulus, semantic encoding storage in the long-term memory, retrieval of information, response generation, performance and feedback. Learning is by its nature an active process and learners learn best when they are actively involved.

11

Active learning is designed around the assumption that 'historical' learning is a passive, solitary process. This is only one view of the nature of learning. An alternative view is that learning is primarily an active, group process. Technology brings more than just their potential as teaching and learning in the classrooms. Any learning situation is complex and multi-dimensional. Learning is not simply about the absorption of facts or even the organization of those facts. It is worth sketching out the evidence and support for the belief that effective learning is active and cooperative. There are two elements to the assertion here:

- that learners are active; and
- that learning is somehow a deeply social process with the possible implication that it is more effective within groups. Thus learning is not a single stranded concept although it is often presented as such.

One's concept of teaching dictates one's view of learning. If teaching is viewed as the delivery of information, then learning becomes passive. It is regarded as the consumption by learners of the facts delivered by teachers. However, for learners who will compete in the 21st century this pedagogy is dysfunctional. Learners who cannot think, solve problems and be able to handle information will be destined to seek employment in the shrinking pool of unskilled jobs. Teaching should be more than simply presenting bits of information. In this view of teaching, teachers not only facilitate learners to develop basic skills but help them become life-long learners, effective problem solvers, and productive team workers.

The next paragraph will look at phases of learning:

Planning

This phase focuses on what should be or needs to be learned and how this learning might be accomplished. This plan helps to delineate what the learners presently know or can do and what they should know and be able to do. This plan highly influences the manner in which the information is developed, presented, and received by the learner.

Implementation

In this phase the emphasis is on using the plan and putting it into action based on what is to be learned and what situational constraints have been determined. Implementation may require the selection, assembly, or creation of instructional materials using various instructional approaches, techniques and media. Once determined, those materials can be used.

The evaluation phase

The emphasis is on the evaluation of both the effectiveness of the materials and the overall learning accomplished by the learners. Teachers reflect and review what is accomplished and how best can the instruction be designed or improved.

1.8.2 Technology

According to Newby, Donald, James, James (1996:14) technology may be defined as the systematic application of scientific or other organized knowledge to practical task. In this sense technology performs a bridging function between research and theoretical explorations on the other. Just as there is space technology, engineering technology and medical technology, there is also educational and instructional technology. The main focus in this study is on educational and instructional technology for effective teaching and learning in schools.

1.8.3 Educational Technology

Educational technology does not refer to the use of projectors, tape recorders, closed circuit television or computers. It refers to the use of instructional designs and teaching models that help teachers and learners to achieve the objectives and goals of education within minimum effort and cost (Vedanayagam, 1988 :23). It involves the application of scientific knowledge to education. This includes input, output and process aspects of education, development of methods and techniques for effective learning and designing tools for measuring learning outcomes. Therefore educational

technology refers to the application of scientific principles to instruction, so that the pertinent technological methods are adopted for communication and effective learning. There is no doubt that proper use of teaching media will result in making learning more interesting and rewarding.

Educational technology in the broader sense is knowledge and competence for improving the educational process, knowledge and competence for using hardware and software (Percival and Ellington (1993:20). From this definition, educational technology may be regarded as the body of knowledge resulting from the application of the science of teaching and learning to the real world of the classroom, together with tools and the methodologies developed to assist in these applications. Educational technology therefore, is concerned with the overall methodology and set of techniques employed in the application of instructional principles.

According to the Council for Educational Technology (CET, 1988:2), education technology is the development, application and evaluation of systems, techniques and aids to improve the process of human learning. It is regarded as the scientific knowledge about learning and conditions of learning, to improve the effectiveness and efficiency of teaching and learning. In the absence of scientifically established principles, education technology implements techniques of empirical testing to improve learning situations.

1.8.4 Instructional technology

This term is often used interchangeably with educational technology. However, instructional technology presents refinements not found in the meaning of educational technology. Instructional technology is a media born of the communications revolution which can be used for instructional purposes alongside the teacher, textbook and the chalkboard. Commission on Instructional Technology(1988) defines this concepts as the systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communications, and employing a combination of human and non-human resources to bring about more effective instruction. The purpose of instructional technology is to make education more productive and more individual, to give instruction a more scientific base

14

and to make it more powerful, learning more immediate and access more equal.

From the above literature, instructional technology may be defined as a process of applying scientific knowledge about human learning to the practical task of teaching and learning. Instructional technology translates and applies basic research on human learning to produce methods (processes) and tools (products) that teachers and learners can use to increase learning effectiveness. Thus, it can be viewed as a subset of a larger technology, that is, educational technology. It is the systematic application of strategies and techniques derived from behavior and physical science concepts and other knowledge to the solution of instructional problems (Heinich, Molenda & Russell, 1996:16). Given this explanation, a definition of instructional media is important.

1.8.5 Instructional media

A medium is a channel of communication. This word is derived from the Latin word meaning 'between', it refers to that which carries information between a source and a receiver, e.g. slides, video tapes, diagrams, printed materials, and computer software. These are called instructional media when they carry messages with an instructional purpose. Their purpose is to facilitate communication and enhance learning. They serve a variety of roles in teaching and learning. Their primary role is to facilitate learning. They, however, do this by providing a stimulus rich environment. Newby, Donald, James & James (1996:67) indicate that instructional media are tools used by the teacher or given to learners to use and achieve specific teaching and learning objectives gained from sources other than traditional media. According to Gawe and Jacobs (1996: 282), the term media when employed in an educational context refers to whatever combination of things or systems of objects used to deliver communications or other instructional stimuli to the learner. Media do not design or formulate these communications, they simply deliver them. The content and scheduling of the communications delivered by media may be relatively simple, like a set of familiar tools to quite complex, as in the case of feedback to the learner from a computer screen.

Heinich, Molenda, and Russel (1996:5) define instructional media as different ways and means by which information can be delivered to a learner. In one case the medium may be a video in another

it may be a teacher delivering the instruction, and in another it may be the use of an overhead projector and so on. Each medium represents a means of presenting information to the learner.

Duminy, Dreyer and Steyn (1990:194) state that 'media' is a very wide term and refers to all forms of communication. Normally,'media' are associated with newspapers, the radio, television and so on. Even in the educational sphere the term has a very wide meaning, as it includes people and events, apart from all the mechanical, electronic and printed materials used for communication.

Newby et al (1996:19) argue in this regard that instructional media is any person, material, or event that establishes conditions which enable the learner to acquire skills, knowledge and attitudes. In most cases instructional media consist of software and hardware. Instructional media have the following potentials for teachers and learners:

- To present the materials in a manner readily perceived, used, and assimilated by the learner;
- To deliver materials in a teacher- independent manner, allowing students some independence and control over how much of the material they will experience and why;
- To allow learners to experience materials through various senses (e.g. seeing the projected, pictures, reading the textual materials and hearing sounds);
- To provide learners with repeated and varied experience;
- To gain and maintain learners' attention to the subject matter;
- To motivate learners towards some goal;
- To present information in a manner that otherwise could not be experienced by the individual learner;
- To accommodate varying sizes of audiences in effective and efficient media.

Instructional media are generally viewed as tangible presentation tools such as overhead transparencies, real slides, video tapes and computer programs. It is however, critical to keep in mind that no matter how good the medium, learning will be hindered if the message is poorly designed. Likewise, if the message is well designed but delivered in such a manner that the learner cannot understand it correctly, similar poor outcomes will result.

When well known communication media such as television, computers, video, the radio and films are used for educational purposes, they are called educational media. Educational media can be divided into teaching and learning. When the emphasis is on the activities of the teacher and the media are used for demonstration they are called teaching media. However, if the emphasis is on the learner activities, they are referred to as learning media (Yule and Steyn, 1991:2).

The researcher acknowledges that effective teaching and learning cannot be carried out without the use of instructional media.

1.9. RESEARCH FRAMEWORK

Chapter one will encompass general orientation to the study, statement of the problem, aim of the study, research methodology, definitions of concepts and research framework.

Chapter two will focus on approaches to effective teaching and learning.

Chapter three will focus on effective teaching and learning through media integration.

Chapter four will deal with empirical research, collection of data, analysis and interpretation of the data collected.

Chapter five will focus on the findings, conclusions and recommendations.

1.10. SUMMARY

Effective teaching begins with first hand or concrete experience and proceeds towards more abstract experiences. Thus a student who has the advantage of reacting to well selected and wisely used media can learn more effectively than one who is provided with largely verbal information. A

learner profits most from instruction when he becomes involved. A learner who is knowledgeable and whose interests are aroused is better able to perform as a creative and inventive human being.

CHAPTER TWO

APPROACHES TO EFFECTIVE TEACHING AND LEARNING

2.1 INTRODUCTION

Never before have the challenges of education in South Africa been more pronounced than today. It is exciting however, that people are able to meet these challenges and reverse the situation towards prosperity for all learners, where the most disadvantaged together with the advantaged all benefit equally. The prerequisite for this would be to, once again, recognise a pivotal characteristic of man which has somehow never been overtly addressed in education before (Bengu, 1997:1).

2.2 LEARNING IN THE TWENTY FIRST CENTURY

The increasing complexity of social conditions has brought to the forefront the importance of learning to co-operate and co-operating to learn. Contemporary living, according to Sharan (1990: 1), puts emphasis on a citizen's skills in relating with others. The future as predicted by Kagan (1985: 8) will hold an even more compelling need to deal with interpersonal, intergroup and inter-societal tensions and learning. Thus, parallel with the traditional academic curriculum, school should be concerned with developing learners' interpersonal skills.

Kagan(1985: 2) argues in this regard that if humans are to live cooperatively, they should experience the living process of cooperation in the classrooms. Engelbrecht, Kriegler & Booysen (1996: 274) indicate that one begins life as an infant, totally dependent on others, overtime one becomes more independent.

One's concept of teaching as indicated by Sanders (1997: 704), dictates one's view of learning. If teaching is viewed as the delivery of information and the consumption by learners of the facts delivered by the teacher, then learning is necessarily passive. For learners who will live in the

twenty-first century this pedagogy is dysfunctional. Learners who cannot think, solve problems, and work with others will be destined to seek employment in the shrinking pool of unskilled jobs.

Teaching should be more than simply presenting bits of information. It means providing learners with opportunities to do high quality work that requires them to learn information thoughtfully to accomplish a given task. Thus learning can be regarded as an active process that occurs as a result of producing high quality work. In this view of teaching, teachers not only facilitate learners to develop basic skills but also help learners become life-long learners, effective problem solvers and productive team workers.

This is supported by Gawe and Jacobs (1996: 2) who maintain that the success of the teaching-learning activity stands or falls by the teacher's ingenuity in creating a classroom climate that is conducive to active participation. In order to culminate in an effective learning classroom, activities should form a participative engagement of learners in significant learning activities. For any teaching to be of value, it should be seen to be resulting in meaningful learning.

Meyers and Jones (1993:15) argue in this regard that some learners today are bored in schools and many drop out. For those who stay in, schools frequently offer little encouragement to those who have talents exceeding beyond the ability to manipulate words and numbers. Most learners have tough-mindedness that could assist them in becoming leaders and workers. What they need is to be actively engaged in learning activities. Traditional goal structures tended to be teacher centered. In most schools teachers are still controlling learning by continually imparting knowledge, maintaining control and validating thinking. This emphasis should change. Teachers need to be managers of learning that uses all devices to enhance teaching and improves learning.

Learners as cited by Newby, Donald, James & James (1996: 16) should also undergo a major shift in values and attitudes on participative learning. The school experience has taught learners that the teacher is there to validate their thinking and direct learning. For years learners have been constantly compared with one another for grades and recognition. But researchers have criticized this atmosphere that still dominates most classrooms. Newby et al (1996: 50), further argue that

pitting learners against learners in the attainment of grades is contrary to the societal requirements of job teamwork. Competition in the classroom interferes with student learning from each other. It is argued in this regard that learners need to develop skills in working and learning together because their eventual workplace will require teamwork.

Different models of classroom management will constitute a major part on which this section will focus. This section will concentrate on the following models or approaches to effective teaching and learning within the school system:

- Active learning/ participative approach
- Collaborative / cooperative learning
- Resource based learning.

2.3   ACTIVE LEARNING

Teachers who have watched children playing know that they like to move. But in many classrooms relatively little movement is tolerated. Learners who pay attention, sit still, cooperate and generally maintain immobile postures during learning activities are the ones who get the teacher's approval. However, immobility may not ensure optimum intellectual learning. Research conducted by Cratty (1985: 3), has shown how various kinds of physical activities and exercises interact with academic performance, learning and overall school achievement. This data is confirmed by Lerch (1981: 10) in the hypothesis that many children learn best when movement is part of their learning regime.

In early childhood stages of development, children learn a great deal from physically handling things and trying them out. To the dismay of their parents, they break their toys, just to find what is inside. In Gawe & Jacobs (1996: 20), good lasting lessons are learnt from experiencing reality first hand. In most highly formalised and rigid classrooms in secondary schools, there is a tendency to parcel up information and to give it to learners as if it were their lunch boxes. Little time, if any, is given to learners to experiment with a variety of teaching and learning media. Gawe and Jacobs further state that teaching and learning media enhance the understanding of the content. They help teachers present the lesson/content in a concrete form through involving learner's senses.

21

Researchers as cited by Meyers & Jones (1993:17), have argued that active learning encourages learners to be self-directed, critically reflective, politically active, and fair-minded, as well as competent in the skills that are essential to meaningful lives and careers. Despite their sometime passiveness, most learners are capable of acquiring these abilities, because deep inside remains a desire to explore. Most teachers who agree that teaching is more than transmitting information to the uninitiated, merely filling empty vessels will, agree that making room for a variety of activities enhances learning.

Additionally, it has been found as cited by Cratty (1985:3) that relieving the pressure of too many school hours by intervals of active learning activities and recreation often leads to better educational and intellectual performance. Although there are learners of different learning styles, the use of vigorous action as a teaching tool plays an important role in the education of both the hyper and the hypo active learners. Meyers & Jones (1993: 19) define active learning in contrast to the worst of traditional teaching in which teachers actively present information and learners passively receive it. From this, a pedagogy of active learning is necessary.

2.3.1 A pedagogy of active learning

Learning is by its very nature an active process and different people learn in different ways. The active learning principle assumes that the process of learning is about self-development and that learning is truly meaningful only when learners are able to demonstrate what they have been taught. Piaget (1976: 119), maintains that learners do not receive knowledge passively but rather discover and construct knowledge through activities. Learners therefore, no matter what their age, need opportunities to engage in activities with teachers, fellow learners and materials, thus making better sense of the world around them.

2.3.2 Elements associated with active learning as cited by Lerch (1981:21)
- Talking and listening
- Reading
- Writing

–   Reflecting

2.3.2.1 Talking and listening

In a society where silence is hard to come by and mindless chatter pervades daily lives, one might ask, 'why not have learners sit in silence for an entire class, listening to some mindful talk from their teacher?' Of course, learners should learn from their teacher's insights, talk by teachers can be a valuable prelude to active learning. The problem, however, is not that teachers talk, but it is that they talk too much. The reason teachers should provide time and activities for learners to talk and listen to each other is that talking and listening discipline them to be clearer about their thinking (Lerch, 1981: 23).

Sharan(1990: 315) supports this by indicating that if learning involves the active construction of knowledge, then the process requires an opportunity for learners to speak and to hear the response of others. Teachers should encourage learners to practice active listening skills. One way to make sure learners are listening as indicated by Meyers & Jones (1993: 23) is to ask them to paraphrase back what they have just heard.

2.3.2.2 Writing

Like talking, writing clarifies thinking. The purpose of writing as a form of active learning is to help learners explore their own thinking about concepts and issues, thereby expanding their mental structures. Writing, if properly planned by teachers, can be a powerful tool to the expansion, modification, and creation of mental structures. Conradie (1979: 44), advises that writing is an essential activity to create order from chaos, sense from nonsense and meaning from confusion, as such it is the heart of creative learning.

Piaget(1976: 125), concludes that, "if the most efficacious learning occurs when learning is reinforced, then writing, through its inherent reinforcing cycle involving hand, eye, and brain marks

a uniquely powerful multi-representational mode of learning." Thus, writing can be a powerful tool for the active learning classroom.

There are a number of short writing exercises that give instructors feedback on how well they are teaching as suggested by Angelo (1991: 2):

- asking learners the most important idea they remember from a lesson presented that day;
- paraphrasing a key paragraph in last week's reading.

The beauty of short writing exercise as cited by Meyers & Jones (1993: 24), is that any teacher may apply in any class size, from the small group to a large classroom, and in discipline from philosophy to chemistry. However, teachers need to give clear, specific instructions about the purpose of any writing.

Teachers should realise that most of today's learners are products of the television age, they come to classrooms without much experience in writing. Therefore, teachers should make it their task to help learners learn to write, so that they will become better thinkers. Writing in conclusion, can be regarded as the most powerful use of language for developing sustained critical thought and it helps learners to visualize thought and therefore to modify, extend, develop or criticize it (McNeil, 1988:88).

2.3.2.3 Reading

Reading requires learners to think in a different manner, because the object is to understand what others think, as opposed to primarily clarifying learners by talking and writing. Reading as indicated by Zinsser (1988: 49), calls for higher level thinking skills, such as connecting ideas and sources of information, spotting faulty logic in argumentation, recognizing bias and entertaining other perspectives and points of view on a subject. Teachers need to be active guides to ensure that learners attend to the most important aspects they assign for readings.

Meyers & Jones (1993: 28) indicate that reading is such a fundamental learning activity that teachers need to guide learners' reading efforts and provide some structures to those assigned readings. Too often teachers expect that by simply having learners do a certain amount of reading, their objectives will be accomplished. That is usually not the case. Active learning results from the kind of instruction that gives the learner ownership of the learning process.

Learners' previous experiences are as different and unique as their intellectual abilities. Gawe & Jacobs(1996: 9) argue in this regard that the learning activity that the teacher brings to the classroom should be intended to enrich learners' existing understanding of reality through reading, rather than to replace it. To change the culture of passive learning which often prevails in most classrooms, requires concerted effort by the teacher to promote active reading activities.

2.3.2.4 Reflecting

Though cognitive scientists have unraveled some of the mysteries about how the brain works (Hunt, 1982: 28), most teachers in secondary schools still know little about the significant processes of re-formation and consolidation that occur when learners quietly ponder something. However, it is natural that brains need some quiet time to mull over. As Mezirow, 1990: 18) suggests, activities can be designed that involve higher level learning processes and allow learners to foster critical reflection . Accordingly, the active-learning classrooms should include exercises that encourage a healthy dose of quietude and reflection.

Piaget's insights about learning support the need for reflection (Piaget, 1976: 29). Piaget further stresses equilibrium and disequilibrium as important in forming new mental structures. In a sense, the process of learning is an ongoing dialectic between equilibrium and disequilibrium. For it to work, this dialectic need to include some quiet time for reflection so that learners can integrate and appropriate new knowledge.

From Piaget's scenario, teachers need to make room for reflection in their classes for active learning.

By structuring opportunities for pondering and reflection, teachers can help learners sort things out as they restructure old ways of thinking and move on to new understanding. Using active learning in the classroom requires change in how most teachers define their roles, it means spending less time centre-stage as presenters and more time off stage as designers and managers of the learning environment and the teaching process.

Action required as a close accompaniment to learning motivates learners. It is indicated in Lerch (1981: 9), that physical involvement in a thoughtful exercise, particularly when accompanied by vocalizations, together with an opportunity for close visual inspection, promotes a high level of involvement and attention on the part of the learners, even those whose attention spans are poor. Additionally, performance demonstrates immediately whether or not the academic operation in question has been acquired. Teachers are thus provided with vivid and visible information by which to gauge the progress of each learner.

2.2.3 GUIDING PRINCIPLES IN THE USE OF ACTIVE LEARNING

2.3.3.1 Children differ in their intellectual abilities, their performance, interests, rates of learning, and their way of learning

In most secondary schools, learners are mixed in classrooms irrespective of their academic performance. There is a tendency among teachers of evaluating and assessing learners at the same time. Active learning suggests that individual learners be allowed differing amounts of time to establish ideas and to practice skills. A variety of approaches using different procedures and materials should be made available to cater for the individual needs. According to Outcomes Based Education (1997:3), each learner should be given individual attention and be allowed to complete each given task in his own pace. Time should not play any part in determining the outcomes.

2.3.3.2 Children learn best by actively working with realistic problems and real objects in concrete situations

Secondary school learners are at a concrete level of intellectual development, a stage in which they learn best by seeing and doing with real things. Introducing and developing ideas and skills with the paper and pencil exercises, so common to programs that are dominated by printing materials is less meaningful and less effective at this stage. Learners need to understand and explore ideas in handling physical object model. Therefore, educational media can be a powerful tool in accomplishing this task.

2.3.3.3 Children are in control of their own learning

Most learners in secondary schools are able to accept, reject or hold in abeyance any aspect. In addition, they are capable of self-reinforcement by providing their own feedback and directing their learning. Planning and selecting learning activities that will motivate learners is a professional task that requires the following:
- A knowledge of the content and scope of that area of the program;
- Understanding of the characteristics of learners in the classroom;
- Knowledge and availability of appropriate teaching and learning media for the learning content in question; and
- A source or collection of active learning experiences (Lerch, 1981: 10).

When a variety of learning opportunities at the same level of difficulty is available, then learners can participate in their own learning activity. Active learning takes place when teachers step out of the spotlight and help learners take responsibility for their learning. It consists of three interrelated factors i.e.:
- Basic elements (talking and listening; writing; reading; reflecting)
- Learning strategies (small groups, cooperative works, journal writing, problem solving); and
- Teaching resources(assignments, outside speakers, teaching technology, prepared

27

educational materials, commercial and educational television) Meyers & Jones(1993: 20).

2.4   COOPERATIVE LEARNING

What is most important for teachers to realise is that cooperative learning should not be mistaken for group work. Although it involves learners working in small groups, it is a very special kind of group work. It takes place when learners in small groups, cooperate in their learning by encouraging, supporting, assisting one another to achieve optimal learning through employment of social skills.

2.4.1 What is cooperative learning?

Cooperative learning is a way of teaching in which learners work together to ensure that all members in their groups have learnt and assimilated the same content. According to Newby et al (1996: 49), cooperative learning involves small heterogeneous groups of learners working together to learn cooperative and social skills while working towards a common goal. It is an approach in which learners apply communication and critical thinking skills to solve problems or to engage in meaningful learning task together.

Many educators as cited by Kagan (1985: 15) have criticized the competitive atmosphere that still dominates most classrooms. Kagan argues that pitting learners against learners in the attainment of grades is contrary to the societal requirements of job team work. Critics of competitive learning in Johnson & Johnson (1990: 25), recommend an emphasis on cooperative learning as an instructional approach.

According to Adams & Hamm (1990: 3), cooperative learning involves working together to accomplish shared goals that are beneficial. More than other educational innovations, cooperative learning may change school climate by encouraging cooperation, cohesion and team work. In the

next paragraph a distinction will be drawn between cooperative learning and traditional mode of learning:

Table 2.4.1

Cooperative Learning	Traditional mode of learning
– positive interdependence	– No interdependence
– Individual accountability	– No individual accountability
– Heterogeneous membership	– Homogeneous membership
– Shared leadership	– One appointed leader
– Responsible for each other	– Responsible for self only
– Task and maintenance emphasized	– Only task emphasised
– Social skills directly taught	
– Teacher observes and intervenes	– Social skills assumed & ignored
– Group processing occurs	– Teacher ignores
	– No group processing

From the researcher's point of view, cooperative learning is one of the successful stories of educational reforms. Whether it is finding out about new concepts, solving problems or questioning factual information, a collaborative approach as indicated by Moore (1990: 13), helps develop academic skills.

Learners' social orientation and the nature of the instructional method affect academic achievement directly or indirectly. In other words, learners with a more cooperative orientation toward working with peers in cooperative learning classrooms are pervasively integrated into the school day (Sharan, 1990:175).

2.4.2 Effects of cooperative learning have been studied in two principles (Sharan & Shachar, 1990: 5)

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2.4.2.1 Student achievement

Positive effects on student achievement have been observed, because in a cooperative group learners are likely to encourage and help one another to learn.

The positive effects of cooperative learning on student achievement appear frequently and equally in secondary schools, in urban, suburban, rural schools, in subjects as diverse as Mathematics, language arts, social studies or reading. Most studies as indicated by Slavin (1990: 657), show high, average, and low achievers gaining equally from the cooperative experience.

2.4.2.2 Student social relationships

Cooperative learning fosters positive social relations among classmates through peer collaboration and mutual assistance. It gives expression to the motivating effects of working together with others towards a common goal largely free from competition, and it cultivates learners' sense of acceptance on an equal footing with others in the group (Sharan & Shachar, 1990: 243). On the other side, whole-class instruction generally isolates learners psychologically from one another. Furthermore, by emphasizing public recitation in response to the teacher's questions, whole-class instruction also generates invidious social comparisons and competition for the teachers' praise and attention. However cooperative learning techniques place learners of different races or ethnicities in learning groups where each learner is given an equal role in helping the group to achieve its goal. This is essentially the optimal situation for the interracial contact to lead to the positive relationships specified by the most widely accepted theory of intergroup relations (Slavin, 1990: 11).

The effect of cooperative learning strategies on relationships between learners in multi-cultural or multi-racial classrooms is an outstanding case. While most teachers got learners of different ethnic groups into the same classrooms, they have a long way to go in having them form friendships and

interact on an equal and amicable basis. If learners of different races are to develop positive relationships, then learners should be given opportunities to engage in frequent cooperative activity on an equal footing in the classroom. Put another way, if teachers assign learners to work together on a common task it is argued in Slavin (1990: 657), that each learner may contribute substantially to the mutually desired goal and will learn to like and to respect one another across the colour bar.

Most schools, especially historically 'white only,' are now faced with the task of helping learners across the colour bar to interact and to create friendship with each other. Cooperative learning is the best approach to this. It is nevertheless, the responsibility of each teacher to create the atmosphere before encouraging learners to follow suit. The barriers to friendship and positive interaction presented by ethnic differences are serious. However, this is another area in which cooperative learning may overcome substantial differences.

Teachers should make use of cooperative learning strategies to overcome both academic and social goals. Learners with racially or ethnically mixed populations do not necessarily have better intergroup relations based solely on student proximity. However, when similar learners work together in small groups towards a common goal and are allowed to contribute equally, they learn to like and respect one another.

2.4.2.3 Other effects of cooperative learning

Research as indicated in Adams & Hamm (1990: 11), indicates that when learners are encouraged to work cooperatively, there is a positive effect on the overall school environment. In traditional schools, learners are mostly trained to work alone and get the right answers quickly. This however, can hamper collaboration, thinking and the ability needed to handle open-ended situations. Collaboration extends learners' resources as they are encouraged to pool strategies and share information. More withdrawn learners become active also. According to Newby, Donald, James & James (1996: 51), students can learn cooperatively not only through discussion of media presentations but also by producing media.

31

Research has also indicated that learners who work together like school more than those who are not allowed to do so (Kagan, 1985: 13). Higher achievement is also associated with cooperative learning strategy than do competitive and individualistic approaches. The situation in cooperative learning promotes a mutual, active and oral involvement in situations within which learners work silently on their own. The active engagement of providing task related information is found to be significantly correlated with achievement in the cooperative learning strategies. Another potential variable within the cooperative learning technique is the interaction among learners from diverse ability levels. This becomes an advantage in having high, medium and low ability learners work together for a common goal.

One study conducted by Slavin (1990: 77 - 80), found out that emotionally disturbed adolescents who experienced cooperative learning were more likely than traditionally taught learners to interact appropriately with others. Most learners in secondary schools experience this disturbance during adolescence. Teachers should engage them in cooperative learning groups as this fosters positive social relations among classmates through peer collaboration and mutual assistance.

Significantly, increased self esteem has been anticipated as an outcome of cooperative learning because learners in cooperative groups feel more liked by their group mates. The interaction between learners of different achievement levels would benefit the group by developing a more positive attitude towards the subject areas and encouraging higher achievement levels among the low achievers (Slavin, 1990:79, Sharan, 1990:243). In cooperative learning techniques, even the most outstanding learners can reach higher levels of achievement when tutoring others. Self worth for all learners is enhanced through the collaborative process. Academically talented learners are not just providing a service by teaching others, they themselves actually come to understand the material better (Kraft, 1985: 149).

On the basis of what is discussed above, it is the view of the researcher that achievement is higher in cooperative situations than in competitive or individualistic ones and that cooperative efforts result in more frequent use of higher-level reasoning strategies, more frequent process gain, and higher performance. However, it is only under certain conditions that group efforts may be more

productive than individual efforts will do. Those conditions or basic elements are:

- – Positive interdependence;
- – Promotive (face-to-face) interaction;
- – Individual accountability;
- – Interpersonal and small-group skills; and
- – Composition of groups (Johnson & Johnson: 1990; Adams & Hamm, 1990; Slavin, 19903; Sharan, 1990).

2.4.3 Basic elements of cooperative learning

2.4.3.1 Positive interdependence

The first in promoting cooperation among learners is to structure positive interdependence within the learning situation. Positive interdependence exists when a learner perceives that he is linked with others in a way so that he cannot succeed unless they do and that a learner should coordinate the efforts with that of others to complete a given task (Johnson & Johnson, 1990: 27). This indicates that the individual learners, in a cooperative learning group have to be dependent on one another to achieve success. If a learning task is assigned to a group, each learner should make an equal contribution. Only the accumulated efforts of each individual learner in a group will render successful completion of the given learning task. This aspect is very crucial and teachers should make sure that they foster interdependence among learners.

Adger, Kalynpur, Peterson & Bridger (1995: 70), do support Johnson & Johnson (1990: 128) that positive interdependence is achieved when the teacher establishes a system of shared goals for group members, joint rewards, shared materials and information, and assigned social roles within the group. A teacher has two major areas of responsibility in fostering positive interdependence among learners. i.e. one concerned with:

- Academic and the other with
- Social interaction (Adger et al , 1995: 70).

33

2.4.3.1.1 Academic

Academic responsibility calls for formulation of objectives, planning appropriate learning activities and being a resource as learners work cooperatively. Teachers should ask themselves questions before engaging learners in cooperative learning groups. Questions like:

- What do I want to achieve at the end of this activity?
- Do learners have the background knowledge of the activity at hand?
- What is it that I want my learners to know?
- Which method is suitable for this task?
- How will I evaluate the learners and
- Which media will be suitable for the task at hand?

2.4.3.1.2 Social interaction

Responsibilities of the teacher in social interaction involve making informed decisions on group size, teaching learners to fulfil roles assigned to them, and monitoring group process to ensure that all learners participate and respect each other's participation. Teachers should not leave groups unattended for a longer period. There is a tendency among learners in secondary classrooms of abandoning work in the absence of a teacher. Teachers should make sure that they monitor each group and the progress thereof.

2.4.3.2 Face-to-face interaction

Although learning occurs when the learner establishes and maintains an interaction with the learning matter, in cooperative learning situations, learning demands interaction which is direct (face-to-face). Promotive interaction may be defined as individuals encouraging and facilitating each other's efforts to complete tasks and achieve in order to reach the group's goal. This can only be effectively fulfilled when the teacher has designed the learning task that demands such interaction and when the learning environment is physically and effectively conducive to learning.

According to Sharan (1990: 31), promotive face to face interaction is characterized by:

- learners providing each other with efficient and effective help and assistance;

- learners exchanging needed resources such as information and materials and processing information;

- learners providing each other with feedback in order to improve their subsequent performance on assigned tasks and responsibilities;

– learners challenging each other's conclusions and reasoning in order to promote higher-quality decision making;

- learners advocating efforts to achieve mutual goals and

- learners feeling less anxiety and stress.

2.4.3.3 Individual accountability

Very closely related to positive interdependence, is the requirement of individual accountability. Because the purpose of cooperative learning groups is to maximize the learning of each member, a group is not truly cooperative if members are 'slackers' who let others do all the work. To ensure that all members learn, teachers need to assess frequently the level of performance of each group member, each learner should be held accountable for completion of learning tasks given Kagan(1985:214). He further indicates that the smaller the size of the group the greater the individual accountability may be.

2.4.3.4 Interpersonal and small group skills

Placing socially unskilled learners in a learning group and telling them to cooperate will not be successful. Learners should be taught the interpersonal and small-group skills needed for high-quality cooperation, and be motivated to use them (Johnson & Johnson, 1990: 478).

Cooperative learning has been employed to foster positive relations among learners in the multi-ethnic classroom. Most secondary schools which used to barr their doors on learners because of race, colour or belief are now integrated. This can put stress on teachers in trying to foster

understanding and acceptance of one's culture. Therefore, cooperative learning provides greater opportunities to build inter-cultural and interracial understanding. Teachers have a long way to go in having learners in multi-cultural / multiracial classrooms form friendship and interact on an equal and amicable basis. Learners should be taught skills to communicate, collaborate or sociailise with each other.

The interactive nature of cooperative learning also appeals to teachers as fulfilling an important function in the socialization of learners. They (teachers) frequently voice concern about the socialization of learners but often do not know how to cultivate the learners' social skills as part of their instructional procedures. In most heterogeneous classrooms, the socializing role of cooperative learning becomes prominent in filling the need. It enhances mutual exchange and assistance among peers, thereby promoting mutual support and acceptance among classmates on the basis of their common task orientation rather than on the basis of their cultural background. This kind of interaction is needed in classrooms where the ethnic or cultural diversity of the learners can be socially divisive.

2.4.3.5 Composition of group

Because the aim of the cooperative learning group is to maximise the learning of each member, groups should accommodate all irrespective of ability, sex, or culture, to have the greatest variety of resources available and to optimise learning for all. In this aspect, teachers should not allow learners to choose whom they want to be with in the group. There are many roles group members may take with references to skills pertaining to the learning task and to developing skills. Roles should be rotated or changed frequently to enable all learners to assume as many roles as possible. Teachers should make sure that groups become homogenous, in level of ability, age and ethnicity. It is important that these elements be fulfilled, because the failure to adhere to these will abort not only the effectiveness but also the purpose of cooperative learning. (Adams & Hamm, 1990: 277).

2.4.4 Strategy approach to cooperative learning

Hamm & Adams (1992: 21), Good & Brophy ((1994: 283), Gunter, Estes & Schwab (1990: 176), and Sharon (1990: 4) in their studies on active team learning in the classroom, have developed approaches to cooperative learning which have been modified from past efforts (Papo, 1997: 71). These approaches will be discussed briefly hereunder:

2.4.4.1 Student teams and achievement division (STAD)

This approach stresses intergroup competition to learn predetermined facts. The material to be learnt is taught by the teacher or an audiovisual presentation. Learners review the material in four member teams, which are made of high, average and low achieving learners from diverse ethnic and cultural backgrounds. Instead of playing academic games, learners take a weekly quiz, and the score obtained contribute to their teams. Their scores in this instance are based on the degree to which their performance has improved over their past averages.

In STAD the typical group reward for winning the competition is recognition in a class newsletter, however more tangible rewards may be given. Individual accountability to the group is accomplished by having each member's score on a quiz contribute to the team score. Grades are given on the basis of individual performance on the quizzes.

2.4.4.2 Teams-games-tournament (TGT)

TGT is a combination of intragroup cooperation , intergroup competition and instructional games. It begins with the teacher directly teaching a lesson, then learners meet in groups of four or five members (heterogeneously) to complete a set of worksheets on the lesson. Learners of comparable ability from different teams then compete face to face in tournaments. Comparable ability among learners is maintained by having tournament winners compete with learners of higher ability in the next tournament.

2.4.4.3 Circles of learning (LEARNING TOGETHER)

In learning together learners work as a group to complete a single group product. They share ideas and help each other with answers to questions, make sure that all members are involved and have understood group answers, and ask for help from each other before asking the teacher. The product is then handed in and learners get rewards on the basis of group performance.

2.4.4.4 Jigsaw

This approach is a combination of cooperative and individualistic learning. Students learn in cooperative groups but they take individual accountability. Each learner in a five-to-seven-member group is given a unique piece of information on the topic the whole group is studying. After they have read their sections the learners then meet in "expert groups" with their counterparts from other groups and discuss their information. Then the learners return to their group and teach their group mates what they have done. The entire class may then take a test for individual grades. This approach has had positive effects on both achievement and intergroup relations.

2.4.4.5 Jigsaw two

This approach is a modification of Jigsaw. Learners are assigned to four or five member teams. They are then given materials on special topics on which to become "experts." They then discuss their topics in "expert groups", and return to their teammates to teach what they have learned. Finally, the learners take a quiz on the materials and the quiz scores are used to form individual and team scores. Like in STAD, the typical group reward for winning the competition is recognition in a class bulletin or newsletter.

2.4.4.6 Group investigation

In this approach learners in small groups take substantial responsibility for deciding what they will learn, how they will organize themselves to learn it, and how they will communicate what they have

learned to their classmates. There are four major dimension characteristics of this method. First, the class is divided into a number of groups. Secondly, the topics for study are multifaceted for a meaningful division of labour that promotes interdependence among group members. Thirdly, there is multilateral communication among learners who, in addition to simply gathering information, should plan, coordinate, evaluate, analyze, and integrate their work with other learners. Lastly, the teacher should adopt an indirect style of classroom leadership, acting as a resource, providing direction and clarification as needed by learners, and creating a stimulating classroom environment.

2.4.4.7 Cooperative integrated reading and composition (CIRC)

CIRC activities follow a learning sequence: teacher instruction, team practices, pre-assessments, and a quiz. A decision as to the readiness for a quiz is made by teammates. Learners are rewarded with certificates based on the average performance of group members. Learners have equal opportunities because they work at a level appropriate to their ability.

Cooperative learning approaches vary considerably, but their differences are primarily alternative ways to deal with problems inherent in cooperation. Besides their advantages, an inherent danger of the use of heterogenous learning teams is that low achieving learners will have little to contribute to the group's efforts, and that high achieving learners will resent this or belittle the contributions of the low achievers.

2.4.5 Implications for teachers in using cooperative learning

- Cooperative learning may be used successfully with any type of academic task, although the greater the conceptual learning required, the greater will tend to be the efficacy of cooperation.

- Learners should be encouraged to keep each other on task,

- Where possible, cooperative learning groups should be structured so that controversy among

39

group members is possible and is managed constructively;

- As a rule, cooperative learning groups should contain low, medium and high achievers. Learners should not be segregated on the basis of their intellectual ability;

- Positive attitude toward the subject should be discussed and pointed out to learners.

2.4.6 Collaborating with technology and each other

In today's media-fed society, images can engage public attention with small controversies and trivial banalities. This same media connected world can also provide learners with the possibility for controlling and charting the course of their education and their culture. By motivating learners through the excitement of discovery, technology according to Moore (1990: 119) can assist the imaginative spirit of inquiry and make lessons sparkle. Technological systems are less passive and allow distant teachers to illustrate with sound, high-quality graphics, animation, full motion video, and interactive problem solving and simulation.

As technological and human horizons change, a sort of flexible drive and intent is required for innovation and progress. Technology and their media associates can add power and help teachers kick against educational boundaries. The vivid images of media can stimulate learners as they move quickly through the mountains of information.

In spite of the dangers, teachers should use technology to support and strengthen the best in student learning. Studies conducted in Moore (1990: 124) indicated that the power and permanency of what students learn is greater when visually-based mental models are used in conjunction with the printed words. Inferences drawn from visual models can lead to more profound thinking.

In the hands of well prepared teachers, technology can be a powerful tool for collaboration and involving students in active learning. The human imagination can be enhanced by technology in a manner that makes instruction more meaningful. Hence technology can amplify learning.

2.5 RESOURCE BASED LEARNING

Resource based learning is a system that structures resources into a framework enabling students to learn independently. Although it is opposed by some teachers on the grounds that it takes away from them their major responsibility, namely, teaching, and leaves them as mere child watchers, certainly, resource based learning requires that teachers fulfil a different role from that of a conventional teacher who prides on what he can teach. Instead it encourages the teacher to get pride on how well he can get his learners to learn. However, this is not achieved by dispensing knowledge but by stimulating learners through the use of resources. It is important for teachers to know that before resource based learning can be introduced in a school it is necessary for a resource centre to be established (Farrant, 1980:130).

Resource based learning reflects the growing concern for education and instruction to be centred more on the learner than on the teacher. There is an ever increasing need for resources for learning since they (resources) cater for the needs of each learner. Resources during learning, allow the individuals to satisfy their own needs, and to progress at their own pace. Resource based learning may be defined as learning based on the use of materials selected and designed and produced, to meet specified goals and objectives. A resource will therefore be a package of learning aids simple or complex in physical format, or an arrangement of equipment required for the purpose of learner interaction with the package (Clark, 1982: 27).

Arguments used in favour of resource-based learning have also been associated with 'individualised learning'. Individualised and resource based learning are not synonymous, but it will be extremely difficult if not impossible for individualised learning not to be resource-based. However, resource based learning is not necessary individualised since it can be used in small groups. The two (resource based and individual learning) are often designed to meet the needs of the individual as materials are readily available. There are, however, a number of characteristics common to both forms of learning.

The pacing of presentation according to Clark (1982: 32), is a constant problem both for teachers and the learner. As such resource-based learning and individualised learning allow for different rates of progress by learners with different capabilities, backgrounds, interest and motivation. However, resource based learning goes far beyond the mere use of a resource center. It involves a highly structured system of individualised, learner-centered learning that makes full use of both human and non-human resources. A 'resource' in education therefore, may be defined as a system, set of materials or situations that is deliberately created or set up in order to enable an individual learner to learn.

To qualify as a 'resource', the resource should satisfy the following:

1.   Be readily available,

2.   Allow learner self pacing, and

3.   Be individualised.

The resource should cater for the needs of the learners working on their own. While the conventional teaching / learning situation is dominated by the teacher, resource based learning is designed to provide the learner with a highly flexible system of learning which is geared to individual life and learning style. In such learning, the teacher plays supportive rather than central roles. In resource-based learning, a potential learner can be of any age or background and can study in places at times and at a pace which suits the individual rather than the teacher or the school. While textbooks do not normally ask for any interaction other than at an intellectual level, resource based learning regularly seeks response from the learner for three reasons:

–   To control the nature of the learning;

–   To consolidate the learning; and

–   To provide information to the learner on the success pattern of the activity.

The learner becomes actively involved throughout the process. This type of active involvement contrasted with the passivity of the conventional classroom tends to be highly motivating with a high proportion of learners. With resource based learning, the balance and the nature of the classroom activities change. The learner should be more active, the teacher / lecturer more involved in tutorial situations, including an increase in his/her role as a leader of discussion groups. Text-books do not disappear but tend to form parts of courses explicitly justified by the contribution they make to the

skills to be gained by the learners. Classrooms also are not boarded up but tend to be sued less frequently for importing general stimuli to the learners.

Resource-based learning promotes the independent learning skills which contribute to life-long learning. The use of resource-based learning requires a paradigm shift for secondary school teachers. In a resource-based environment teachers should encourage learners:

-   to be active in an inquiry approach to learning;
-   to engage in an inquiry approach to learning;
-   to accept responsibility for their own learning;
-   to be original and creative;
-   to develop problem solving, decision making and evaluation skills; and
-   to develop a broad outlook on the world. A distinction will be made between traditional and resource based learning model:

The following table will try to distinguish between traditional model and resource based learning

Table 2.5.1. Paradigm shift from traditional mode to resource-based learning.

TRADITIONAL LEARNING MODEL	RESOURCE-BASED LEARNING
-Teacher/lecturer as expert	-Teacher as facilitator/guide
- Textbook as primary source	- Variety of sources/media
- Facts as primary	- Questions as primary
- Information as packaged	- Information is discovered
- Emphasis on product	- Emphasis on process
- Assessment is quantitative	- Assessment is quantitative and qualitative

2.5.2 RELUCTANCE/RESISTANCE TO RESOURCE-BASED LEARNING

Most teachers seem reluctant in introducing new educational techniques and resources. In the past, most teachers in secondary schools had little if any training or some knowledge of specialized

teaching and learning techniques, the whole topic is viewed with some suspicion particularly when the teacher sees his/her role as a researcher rather than teaching. Both teachers and teaching are coming increasingly under pressure. Apart from the ominous demands by the government for increased 'productivity' and less favourable staff-student ratios, the very nature of the work is no longer the same. As technological and human horizons change, a sort of flexible drive and intent is required for innovation and progress (Percival & Ellington, 1993: 216). Computers and their media associates can add power and help teachers win against educational boundaries.

2.6 SUMMARY

The chapter on approaches for effective teaching and learning concentrated on aspects such as cooperative learning, active learning, and resource based learning. In these aspects, emphasis was put on learning as an active process and how teachers can integrate instructional media (technology) into these approaches to facilitate and enhance teaching and learning.

For teachers who will lead learners in the twenty-first century, a paradigm shift from traditional teaching to new participative approaches is needed. Traditional goal structures tended to be teacher centred. Teachers controlled learning by imparting knowledge, maintaining control, and validating thinking. This emphasis should change. Teachers need to be managers of learning that uses all devices to enhance teaching and improves learning. Many learners today become bored in schools and many drop out. For those who stay in, schools frequently offer little encouragement to those who have talents exceeding beyond the ability to manipulate words and numbers. However, it is important for teachers to be sensitive to the demands and interests of learners and the work industry. New technological work requirements are changing at an accelerating rate. Schools should also undergo a major shift if they are to produce competitive learners in the workplace.

Though these approaches have been emphasized, the researcher is aware that most teachers are reluctant to change their emphasis on teaching. However, there is a clean record that each of these learning approaches has positive results on teaching and learning.

The next chapter will concentrate on 'Towards effective teaching and learning through media integration.

CHAPTER THREE

TOWARDS EFFECTIVE TEACHING AND LEARNING THROUGH MEDIA INTEGRATION

3.1. INTRODUCTION

One's concept of teaching dictates one's view of learning. If teaching is viewed as the delivery of information, then learning is necessarily passive. Consequently, it is regarded as the consumption, by learners, of the facts delivered by the teacher. However, for learners who will live in the twenty-first century this pedagogy is dysfunctional. Learners who cannot think, solve problems and be able to handle information will be destined to seek employment in the shrinking pool of unskilled jobs. In South Africa, there has been a shift in orientation over the last three years in teaching and learning situations. An Outcomes Based Education (OBE) model was developed to meet the needs and challenges the world is facing. In OBE the learner is not a passive recipient of knowledge, but an active participant in the teaching and learning process.

In OBE the focus is on the learner. There is acknowledgment of human diversity, that learners are unique and each learns in a different way. In a traditional model of teaching, learners were not given opportunities to achieve their full potential at their own pace. Learners may achieve the same outcomes in different ways. Learning was exam driven and content was placed into rigid time frames. The emphasis was on what the teacher wants to achieve rather than on what the learner can achieve at the end of the learning programme. Instead of transferring knowledge and information to the learners, OBE invites learners to think critically about the subject matter being offered to them, to question the existing knowledge, and to question answers rather than merely answering questions. In this model learners experience education as something they do and not as something done to them.

The following table will try to look at the distinction between the traditional model and OBE:

TABLE 3.1.1 TRADITIONAL MODEL VERSUS OUTCOMES BASED EDUCATION

OLD TRADITIONAL MODEL	OUTCOMES BASED EDUCATION
- Passive learners	- Active learners
- Exam driven	- Learners are assessed on an ongoing basis(continuous assessment)
- Rote learning	- Critical thinking and reasoning
- Syllabus is content-based and broken into subjects	- Integration of knowledge. Learning is relevant and connected to real life situation
- Textbook/worksheet bound and teacher centred	- Learner centred and teachers act as facilitators
- Syllabus is viewed as rigid and non-negotiable	- Learning programmes seen as guides that allow teachers to plan creatively and be innovative
- Teacher responsible for learning	- Learners are responsible for their own learning
- Emphasis is on what the teacher hopes to achieve	- Emphasis is on the outcomes
- Content placed into rigid time frames	- Flexible time frames that allow learners to work at their own pace

From the table above teaching should be more than simply presenting bits of information. In this view of teaching, teachers not only facilitate learners to develop basic skills, but help them become life long learners, effective problem solvers, and productive team workers (Van der Horst & Mcdonald, 1997:44).

Effective teaching is essentially concerned with how best to bring about the desired learning by some educational activity. Until the 1960s research on effective teaching was largely dominated by attempts to identify attributes of teachers, such as personally traits, which might have bearing

on their effectiveness, the point being made was that such research almost completely ignored what might be going on in the classroom. However since the 1960s, research on effective teaching focused squarely on the interaction between the teacher and the learner. From the perspective of learners and parents, research on effective teaching has not produced measurable results (Kyriacou, 1986: 9).

Yule & Steyn (1991:27) argues in this regard that when learners were asked to name the characteristics of an effective teacher, they come up with factors like subject knowledge, moral uprightness, enthusiasm and so on. The problem is that qualities such as these merely represent learners' opinions. In order to count as reliable Sotto (1994: 74) states that teachers would need to recognize the correct use of instructional time and instructional media.

Vance (1993: 2) emphasises that teacher effectiveness raises other factors ignored in education. The quality of teacher performance in the classroom is partially due to academic capacity, an indicator that many studies rely on for their conclusion about effective teaching. However, teacher effectiveness requires many skills. Trotter (1994: 15) argues in this regard that a balanced approach to teaching is the correct use of instructional media.

3.2 PARADIGM SHIFT IN TEACHING

In a traditional classroom, a teacher is regarded as a giver of information, perhaps because most of the instruction in the primary and secondary school levels traditionally has involved the presentation of information. The process begins with the teacher, who is seen as the prime source of wisdom and end with a passive receiver (learner). Teaching has been described as the transmission of the material from an instructor's notebook to the learner's. However, the teacher's role is changing. As new resources become available, many of which are designed for individual use, the emphasis of the teacher's role changes to that of the facilitator.

In order to meet the needs and the development of this ever changing world, a shift from traditional learning is required (Siu, 1999:26). Learning should be shifted from knowledge acquisition to learning to learn; from traditional passive learning to active; from teacher centred

to learner centred; from subject based to integration; from rigid, prescribed curriculum to flexible and varied learning experiences; from whole class teaching to small group or individual; to include more emphasis on differences; more emphasis on experiential learning; and more emphasis on collaborating with others (Whitaker, 1993a).

3.2.1 Traditional relationship between teacher and learner

Teacher(sender) $\longrightarrow$ information $\longrightarrow$ student(receiver)

According to Whitaker (1993b), learning should be based on learner centred approach, learners must play an active role. The learner centred approach places emphasis on the learning process. Teachers have to be creative in offering optional opportunities to cater for a wide range of learner interests and ability level. In fact the roles of the teacher have been shifted from instructor to cooperator and from master to leaner.

There is a need for teachers to spend less time teaching their students and more time engaging them in active learning. A teacher should be a 'guide on the side' rather than a 'sage on the stage'. Because technology presents such strong options for learners to work independently, either alone or in small groups, the teacher then shifts from being the source of all authority to being much more of a consultant (Zehr, 1999:4).

3.2.2 Learner centred approach

Figure 3.1 Learner centred approach

decision
maker

Instructor

simulate ⟷ facilitator ⟷ cooperator ⟶ identify problems

an

environment,

set directions,

approaches & methods

Provide flexibility
for students to
make decision

learner

analyse collected data
find answers, propose

Master

upgrade personal
Knowledge, modify
programmes &
settings &
arrangements
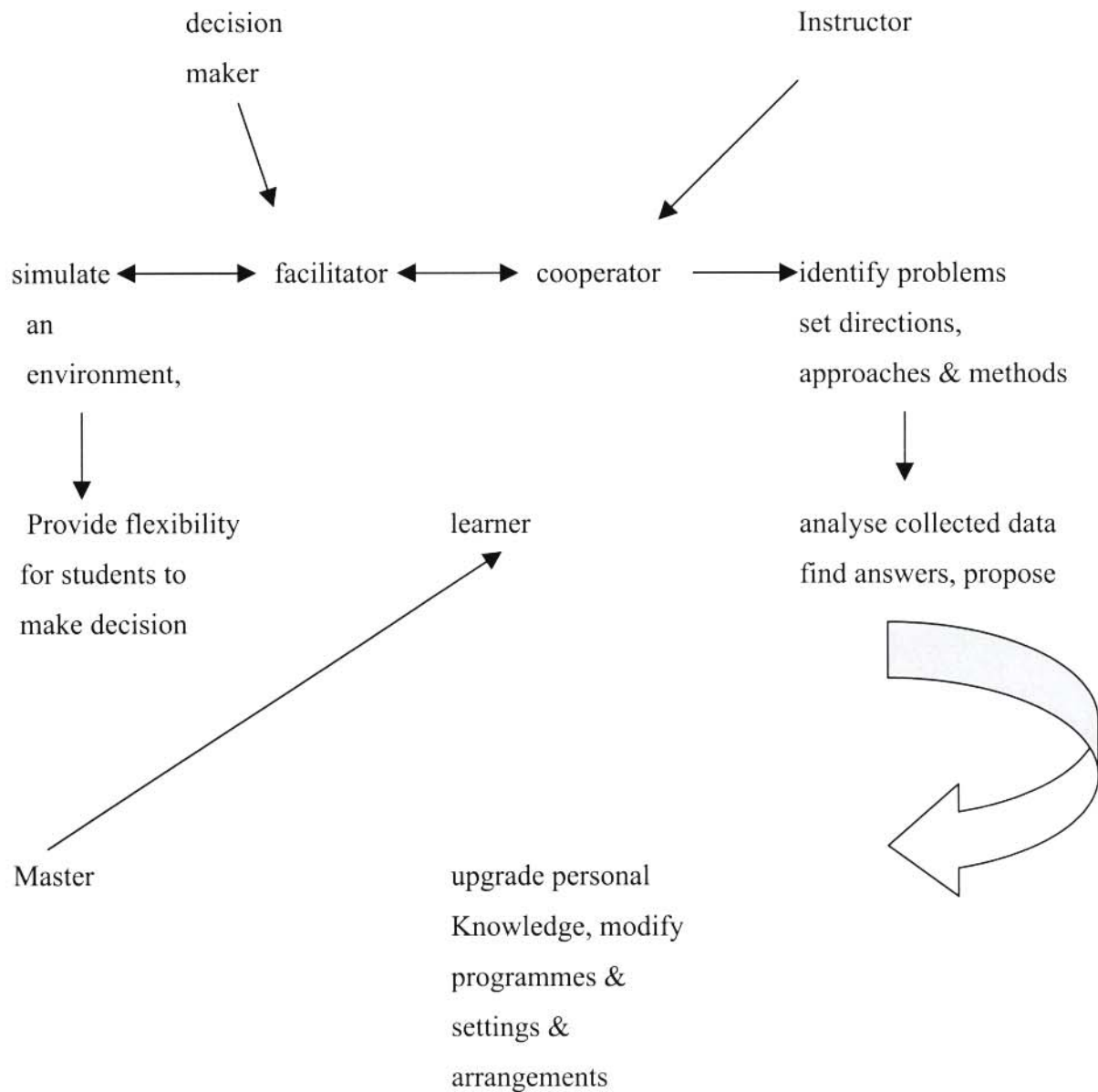
From this model, the role of the teacher changes from that of being a master to that of a learner; from the one of a decision maker to that of a facilitator; from the one of being an instructor to

that of being a cooperator. His main role is to provide flexibility for learners to make decisions. The main emphasis is on the learner and not the teacher.

Table 3.1.2. Comparison of old teaching model and new paradigm assumption (Siu, 1999:28)

OLD TEACHING MODEL	NEW PARADIGM ASSUMPTION
-Emphasis on content, acquiring a body of 'right' information, once and for all.	-Emphasis on learning how to learn
-Learning as a product, a destination	-Learning as a process, a journey
-Hierarchical and authoritarian structure, rewards, conformity, discourages dissent	-Learner and teachers see each other as people not as roles
-Relatively rigid structure, prescribed curriculum	-Flexible structures, varied starting points, mixed learning experiences
-Age related learning	-Integration of age groupings, learning not age specific
-Priority on performance	-Priority given to self-concepts as the key determinant of successful learning
-Emphasis on external world. Inner experience considered inappropriate in school setting	-Use of pupils' inner experience as the key determinants of successful learning
-Guessing and divergent thinking	-Discouraged, encouraged a part of creative process
- Teacher as imparter and instructor of knowledge	- Teacher as a learner too

Because this study focuses on media usage for effective teaching and learning and the integration of teaching and learning media in secondary schools, it is of vital importance to define what teaching is, and basically what is regarded as an effective teaching. This is because teaching and learning media can be used by some teachers as entertainments in the middle of ordinary lessons and not for effective teaching and learning.

3.3 TEACHING

Teaching may be regarded as the provision of opportunities for learners. It is an interactive process as well as an intentional activity (Brown and Atkins, 1988: 2). Reigeluth, Banathy & Olson (1992:7) defines teaching as the process of deciding what methods of instruction are best for bringing about desired changes in learner knowledge and skills for specific course content.

Minton(1991: 6) state that teaching is an attempt to assist learners in acquiring or changing some skill, knowledge, ideas, attitudes or appreciation. However, Newby et al(1996:67) defines it as an effort to assist or shape growth. According to Olson (1992: 2), teaching is not aimed at the production of something, but at developing and exercising the virtues of the group to which the learner and the teacher belong. It is a moral expertise, not a technical one. Given that teaching is a process that aims at changing the behaviour of the learner, it follows then that teaching is a challenge that requires long hours of work and preparation but above all, it requires skills in planning and in the classroom.

3.4 EFFECTIVE TEACHING

Joyce and Weil (1980: 6) suggest that there are many kinds of effective teachers. Effective teaching is much more than an intuitive process. Teachers should continually make decisions and act on them. To do this effectively, the teacher should have both the theoretical knowledge about learning and the learning activity. Teachers should also demonstrate a repertoire of teaching skills that are believed to facilitate learning (Cooper, 1988: 431).

Kyriacou (1986: 5) points out that the first task of effective teaching is good presentation of the appropriate learning activity. Sotto (1994: 74) supports Kyriacou (1986:5) in this regard that teaching cannot be a case of simply 'telling', it should be a case of creating situations that will enable learners to tackle manageable chunks of new learning media directly.

In thinking about effective teaching there is thus reasonable consensus about a basic framework, within which classes of variables can be distinguished. They are:

1. context variables
2. process variables
3. product variables

Their relationship will be shown in a table form.

FIGURE 3.4.1 Basic framework when thinking about effective teaching

Context variables

Teacher characteristics

e.g. sex, age, beliefs,

experience, personality

Learner characteristics ⟶ Process variables

e.g. beliefs, age, ability   teacher perceptions ⟷ learner perceptions

social class, personality   strategies and   strategies and

values.   behavior   behavior

Characteristics of the Learning

task and activity

Class characteristics

e.g. size, range of

ability, social class

Subject characteristics

subject matter, level of

difficulty, general interest.

School characteristics   Product variables

(size, building, facilities, ethos,   -   short-term / long term

disciplinary proportion).   -   educational goals.

Community characteristics ⟶   change in attitudes of learners

affluence, population density,   towards school or subject; gain on

geographical location.   standardised attainment tests,

Characteristic of the occasion   increased level of examinations,

e.g. time of the day, preceding lesson,   greater learner autonomy.

weather, period of academic year

This framework of variable study has attempted to explore effective teaching by relating variables to each other. Two main approaches have developed within this study. The first approach uses some aspects of learner behaviour during the learning activities in place of product variables based on educational outcomes. Thus, whatever teachers do to keep learners on task is, in essence effective teaching. However, the second main approach to process studies, is which rely on the opinions and judgements of those involved and have produced a number of important aspects of teacher and learner behaviour.

3.4.2 Models for thinking about effective teaching

Having considered the conceptual and research problems associated with the notion of effective teaching, it is important to look at the main ways of thinking about effective teaching.

Yule & Steyn (1991:21) further states that there are three models for thinking about effective teaching:

Model One   :   A surface level of analysis;

Model Two   :   A psychological level of analysis and

Model Three :   A pedagogical (craft of teaching) level of analysis.

3.4.2.1 Model One: A surface level of analysis

This approach has focused on two main complementary constructs that appear to be the crucial determinants of effectiveness. The first construct is Active Learning Time, this refers to the amount of time spent by learners actively engaged in the learning task. Langa (1991: 16) argues that children learn best when they are actively engaged. Explanations from somebody who already knows can help. But no matter how good the explanation, the best way to learn is when actively engaged. From this background, learning is generated by two absolutely fundamental factors:

- The need for the learner to be actively engaged and

- The need of the learner's appropriate activity to be reinforced by being rewarded immediately.

The second construct according to Yule & Steyn(1991:27) is the quality of instruction. It refers to the quality of the learning task and the activities in terms of their appropriateness and suitability for bringing about the learning outcomes desired. Research conducted in the construct of active learning time indicated that greater time spent on task behaviour is associated with greater gains in learning attainment. The construct of quality of instruction complement active learning time by emphasizing that the quality of the teaching and learning activities is important for bringing about the desired learning outcomes. Primarily, this involves considering whether the learning activity is organised in the most appropriate and sound ways or not. Thus, when thinking about effective teaching, the vast majority of classroom process variables influence both Active Learning Time and Quality Instruction.

3.4.2.2 Model Two : A psychological level of analysis

This second model of thinking about effective teaching derives from attempts to identify the major psychological variables involved in teaching and learning situations. The model represents an elaboration of the surface level of analysis from a psychological perspective. The psychological level of analysis attempts to make clear the relationship between process variables and educational outcomes by focusing on the relationship between the process variables and the psychological conditions necessary for learning to occur. This approach explains how the process variables influence learning outcomes through psychological processes involved in learning.

A number of psychological concepts, principles and processes have been identified as underlying aspects of effective teaching. These include memory, attention, feedback, attitudes, self-concepts, ability and motivation. However, there are three main aspects of learning which are crucial to a consideration of effective teaching:
i)   The learners should be attending to the learning experience;
ii)   The learner should be receptive to the learning experience; and
i)   The learning experience should be appropriate for the desired learning outcome to take place.

The essence of effective teaching as such lies in the ability of the teacher to set up a learning experience that brings about the desired learning outcomes. In order to achieve this, each learner should be actively engaged in the activity of learning. Therefore, the analysis of effective teaching from a psychological perspective focuses on these conditions and factors that facilitate, or hinder teachers in their efforts to achieve them.

3.4.2.3 Model Three: A pedagogical (craft of teaching) level of analysis

The pedagogical level of analysis has emerged largely from the perspective of effective teaching employed by teacher educators (Yule & Steyn 1991:30). This approach sees teaching as a managerial activity, and it seeks to identify the major tasks of effective teaching and managerial activities required for effectiveness. The pedagogical level of analysis model involves exploring the inter-relationship between three aspects of classroom processes:

i)   Teacher perceptions, strategies and behaviour;

ii)   Learner perceptions, strategies and behaviour; and

iii)   Characteristics of the learning task and activities.

According to Sotto (1994: 49), particular attention has been paid recently to foster transfer from school learning to real life understanding and applications. Indeed the fact that learners learn more effectively by doing rather by listening indicates that a greater emphasis should be given to learner involvement and activities based across the curriculum

3.5 SKILLS REQUIRED FOR EFFECTIVE TEACHING

Joyce and Weil (1980: 6) suggest that for a teacher to achieve the desired learning outcomes, there are skills that are required. These skills are classified as Generic teaching skills and Essential teaching skills. Such skills will be discussed hereunder:

2.5.1 Generic skills are divided into three sub-divisions. That is,

i)   Pre-instructional skills;

ii)   Instructional skills and

iii)   Post-instructional skills.

3.5.1.1 Pre-instructional skills

According to Moore (1990: 6), the key to effective teaching is planning. Planning can be thought of as a sequential decision-making process. Teachers should decide sequentially on answers to the following questions:

- What content should be taught?
- What are the desired learner outcomes?
- What teaching media will be needed?
- What is the best way to introduce the subject?
- What is the best instructional strategy for the intended learning?
- How should the lesson be closed and
- How should the learner be evaluated?

Figure 3.3   Planning process

Step one and step seven

    * Determine content

    * Re-determine content

step six

evaluation

step two

write objectives

step five

closure   LESSON

          PRESENTATION

step three

plan introduction
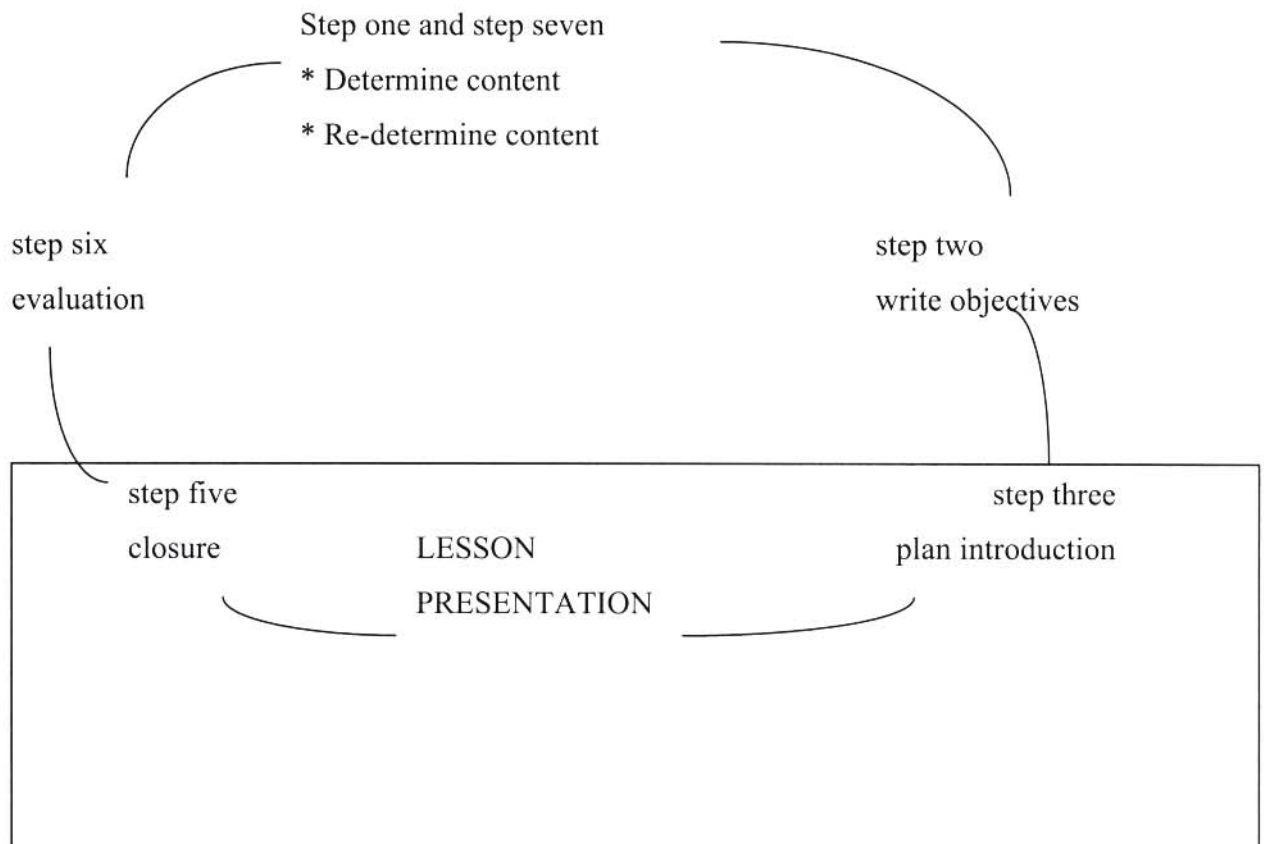
Step one

This step involves selecting the content to be taught. The content can be determined by analyzing state-mandated learner outcomes and curriculum guides or by analyzing learner needs.

Step two

Once the content has been selected, the teacher should decide exactly what the learner should know. Thereafter, objectives are formulated and these should specify exactly what the learner should be able to do upon completion of the lesson.

Step three

The lesson should be introduced and the teacher's objective is to gain the undivided attention of the learner.

Step four

The selection of an instructional strategy in the planning process is of prime importance. The task of the teacher is to select the strategy that best fits the learner's maturity levels, learning styles and the classroom environment.

Step five

This step involves ending the lesson. The closing state should be planned so that the lesson content is made meaningful and is fully understood.

Step six

Finally, the teachers should determine whether he has achieved what he/she wanted to achieve. However, evaluation is not the end, but the starting point for the next planning cycle.

3.5.1.2 INSTRUCTIONAL SKILLS

Once the lesson has been planned, there should be implementation. Central to instruction, according to Trotter (1988: 4), is the ability to use the instructional media correctly, and the ability to communicate. According to Olson (1992: 6), teaching cannot be regarded as effective unless there is effective communication. Moreover, teachers cannot communicate effectively without gaining learner attention and arousing their interest. This requires skills in the use of stimulus variation, questions and reinforcement. Management of the learning environment is also a skill that effective teachers should master. Trotter(1988: 11) confirms that without the skill to manage a classroom, even-well planned lessons can fail.

3.5.1.3 POST INSTRUCTIONAL SKILLS

Effective teaching involves a well-planned and organized evaluation. Teachers should be able to analyze, collect and evaluate information. Although these skills are used following instruction, they should be carefully planned prior to instruction (Moore, 1990: 46).

3.5.2 ESSENTIAL TEACHING SKILLS

Effective teachers are those who design lessons, utilize the appropriate teaching strategies and media, and implement management techniques to optimise learning for all learners. Moore (1990: 65) states that for teachers to be regarded as effective there are essential teaching skills that ought to be mastered. These are:
i)   Attitudes;
ii)   Organization;
iii)   Motivation and
iv)   Communication.

3.5.2.1 Attitudes

An attitude is a way of thinking or behaving in response to particular experiences in a situation. Attitudes are important in triggering interests and motivation to accomplish established goals. They are not only inherent, but can be formed or inculcated. The atmosphere in which the learners find themselves in the classroom plays a role in the formation of sound attitudes. It is important for teachers therefore, to develop sound and positive attitudes in learners for effective teaching and learning (Yule & Steyn, 1991: 21). The development of attitudes should be given serious attention and should not be divorced from learning. Teachers should realise that their attitudes towards learners and the learning content offered have a marked effect on the learner's attitude towards their teaching. Seagoe (1986: 49), emphasizes in this regard that teachers should show interest and respect for learners not necessarily on the basis of their achievement but simply because they are people with dignity. Teachers may hinder the intellectual development of the learners by continuously and openly voicing negative attitudes about other learning contents.

3.5.2.1.2 Organization

Stick (1995: 33) indicates that managerial organization involves using time wisely, preparing teaching and learning media in advance and making sure that whatever is needed during the learning activity is accessible. Organization is carried out at two levels. That is managerial and conceptual. Stick further states that organization involves the manner in which tasks are divided up. The set objectives and goals should serve as a starting point for the organizational aspects of the teaching activities of the teacher.

However, conceptual organization requires the teacher to deal with the prepared lesson step by step, relating the content from what is known and familiar to the learners to the most difficult part of the lesson.

3.5.2.3 Motivation

Motivation is a primary requirement in any teaching-learning situation. It drives learners to seek goals. Whatever behaviour displayed by learners in the classroom should be a motivated one. Langa (1991: 64) emphasizes that teachers should make every effort to create an atmosphere conducive to learning, such that learners' interest in the content overrides distractions. Langa further argues in this regard that in order to create a motivating environment in a classroom situation, the following should be considered:

i) Incorrect answers should not be accepted. Learners should be encouraged to give more accurate answers;

ii) Physical isolation in the classroom or sitting in zones should be avoided;

iii) The teacher should ask responses from both low and high achievers equally;

iv) The teacher should maintain frequent eye contact with all the learners;

v) The teacher should always show low achievers where they went wrong and supply the correct answer (Langa, 1991: 69).

3.5.2.4 Communication

The teaching and learning process is a process of communication, but only if people involved share a common meaning and experiences can communication occur. Messages are transmitted between people, but ideas, concepts and knowledge cannot. To be communicated, thoughts must first be changed (encoded) into some form of verbal or visual symbol or stimulus.

Without good communication, teaching and learning would not occur (Moore, 1990: 146). Kyriacou(1986: 145) supports Moore in this regard that the manner in which teachers express themselves is important in promoting understanding on the side of the learners. To be an effective teacher, Kyriacou argues, one should be a good communicator. Communication has been shown by researchers to be associated with learner achievement and development with instruction. Some of the factors that can destruct effective communication is the use of vague terms such as perhaps, maybe and usually, and these may create a state of uncertainties which detract from effective teaching. Teachers therefore are involved in the communication process

as they interact with learners daily. They (teachers) continually send messages to learners and received messages from them. This communication process can be illustrated in a diagram.

In communication media play a specific role during the movement of a message between the sender and the receiver. However, media may have certain aspects that will negatively influence the message. If a teacher shows learners a film and it is too loud or not focused properly, learners may not receive the message effectively. The fact that media can be a message has substantial implications for its design and its effective usage in communication. Media in communication have the ability to involve more than one of the receiver's senses. Too much media may also inhibit the active participation of the learner.

Figure 3.4 Communication process

<pre>
(Encoding)   (Decoding)
Sender ←──────────────→ Message ←──────────────→ Receiver
(Decoding)   (Encoding)
                          Feedback
</pre>
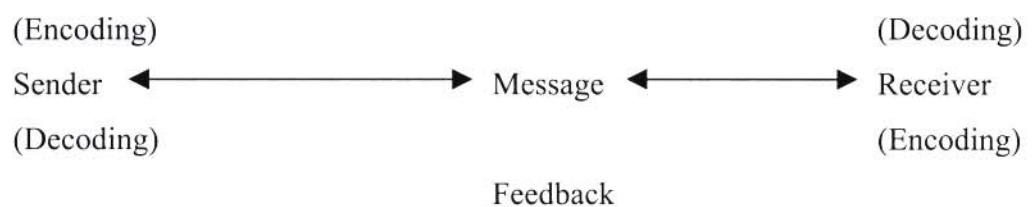
As shown in the figure above, communication can be viewed as a four-phase process. The sender first encodes (composes) a message into a form which will be understood by the receiver and then transmits this message. The transmitted message is received and decoded by a receiver who then encodes some form of reaction to the message. The reaction is often non-verbal and is used to communicate whether the message was understood or not. The receiver then sends the encoded reaction back to the sender who decodes and reacts to the feedback. The sender's reaction to the feedback may be to continue with new information, to clarify the original message or to repeat (Moore, 1990: 146).

Moore (1990:146), further states that noise and interference are usually present during the communication process. Teachers should overcome these if messages are to be received and decoded accurately. Messages may be sent or received through verbal, vocal, physical or situational stimuli. A teacher should be skilled at sending and receiving messages through all these modes. The teacher's ability to decode messages (feedback) transmitted by learners

depends directly on his or her skills at observing and listening. The skills to be examined are verbal, non-verbal and listening skills.

3.5.2.4.1 Verbal Communication

Moore (1990: 147) indicates that teachers talk in order to convey messages to the learners. Unfortunately learning does not always result from teacher talk. Non-verbal variables often determine whether or not something is learned. Papo (1994:43) divides spoken messages into verbal and vocal components. These components are:

1.   Verbal learning.

What is learned in a verbal interaction depends on the meanings attached to the spoken words by the learner. The meanings vary according to the unique experiences through which each learner filters the words (Papo, 1994:32).

2.   Vocal Learning

The human voice can bring words to life. Changes in voice loudness, inflection, tone and rate not only affect the emphasis within messages but can actually change the meaning of words. Although not everyone is endowed with a strong voice that projects well, teachers should learn to interact and emphasize points with their voices. The rate at which teachers speak is important. When the teacher speaks rapidly, it often conveys an unintended message. In contrast, words spoken at a lower rate often communicate their importance and invite careful attention. Tone or inflection can communicate word seriousness or as Papo (1994: 33) points out, that the high-pitched voice can grate on a decoder's nerves so that the learner turns off to spoken words.

3.5.4.2 Non-Verbal Communication

Not all communication is audible. Of special importance to teachers is non-verbal communication namely, the way the teacher looks, stands and moves. These non-verbal messages can reinforce, modify or even contradict verbal messages.

3.5.4.3 Listening skills

Olson (1992: 157) indicates that listening is an art. Although the art of listening requires effort and discipline, it is important for teachers to develop and refine this skill. Listening is an inactive process that can be divided into three sequential steps:

i)   Attentiveness

ii)   Understanding

iii)   Evaluation

3.5.4.3.1 Attention process

Olson (1992:157) further sees attention process as involving focus on the speaker and the message being transmitted. Attentiveness to a speaker is directly related to the relevance of the message as well as to its intensity, concreteness and the setting in which it is delivered. The way one views a speaker also affects listening. Listening also consists of verbal and non-verbal components. Kyriacou (1986: 32) identify four non-verbal cues that affect communication. They suggest that communication can be improved by giving attention to the following:

Eye contact   -   Focusing eyes directly on the speaker shows interest;

Facial expressions -   The facial expressions can show if the person is really listening. Expressions, give feedback either positive or negative to the speaker as to whether the message is being effectively communicated;

Body posture   -   A relaxed listener is a better listener. A listener who is relaxed and leans toward the speaker communicates interest and involvement and

Physical space - The listener should move to a position that provides a comfortable space between him and the speaker. The listener should avoid being too close to too far from the speaker.

Although much to the non-verbal information received is on a conscious level, much is also received at the sub-conscious level. This subconscious information plays an important role both in the decoding process and in the forming of an overall impression of the message.

3.5.4.3.2 Understanding process

This involves mentally processing the information received. Olson, (1992: 159) argues in this regard that the listener actively selects and organizes information based on judgements regarding its relevance and worthiness.

3.5.4.3.3 Evaluation process

In this phase the listener is weighing the message against beliefs, questioning the speaker's motives, challenging the ideas presented and suspecting the validity of the message and thus evaluating what is being said.

Learning therefore, can be defined as a change in learner capacity for performance as a result of experience. Effective teaching should therefore, be directed towards targeted changes in performance. In planning instruction it is necessary for teachers to decide what changes they want from their instruction. The intended changes should be specified. Viewed in this context, an objective can be defined be a clear and unambiguous description of the instructional intentions. Objectives should not a statement of what the teacher plans to put in a lesson but it is a statement of what the learner should get out of the lesson. An effective teaching model can be drawn from this discussion.

FIGURE 3.5 Effective teaching model

| Establish Objectives | → | Teach towards Objectives | → | Evaluate Objectives |
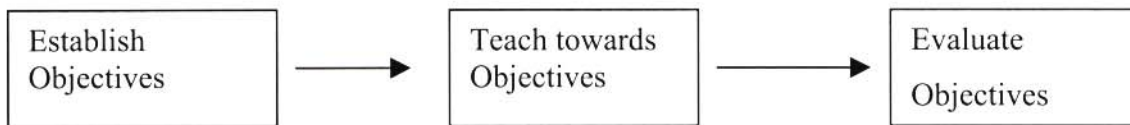
3.6 INTEGRATION OF INSTRUCTIONAL MEDIA FOR EFFECTIVE TEACHING AND LEARNING

Having discussed strategies for effective teaching, it is important to mention the integration of media for effective teaching and learning.

In the early childhood stage of development, children learn a great deal from physically handling things and trying them out. To the dismay of their parents, they break up toys, just to find out what is inside. The classroom situation is no exception to this. Good and lasting lessons are learnt from experiencing reality first hand. In highly formalised and rigid classrooms, there is a tendency in many teachers to parcel up information and to give it to learners as if it were their lunch boxes. Little time if any, is given to learners to experiment with a variety of teaching and learning media in order to arrive at certain conclusions.

According to Gawe and Jacobs (1996:107), teaching and learning media enhance the understanding of the content. Instructional media help the teacher to present the content in a concrete form while involving learners' senses. The teacher should select media that will facilitate meaningful understanding of the content and the achievement of objectives.

However, this is one aspect which many teachers, especially experienced teachers, treat as an option when it should form an integral part of every lesson. Direct observation through the senses improves learners' perception and mastery of the content. By using teaching and learning

media in lessons, the teacher places the learner in a better position to use all senses during learning.

Most teachers in secondary schools are comfortable with the basics i.e. textbooks, lectures, notes, chalkboards, and so on, so that introducing teaching media into their classrooms makes them uneasy. Most are afraid that they might look frantic in front of the learners as they search vainly for an isolated segment in a video-tape. Perhaps, most shy away from using advanced technologies, such as computers, because today's children are the information generation and may know more about these technologies than teachers do. But educational potential inherent in technology, from creative uses of basic audiovisual equipment to more sophisticated high tech options, is impressive and it would be foolish for teachers to dismiss it.

The advocates of technology as cited by Meyers and Jones (1993:142) enthusiastically advocate many advantages for the teaching enterprise. Instructional media can bring learners into contact with experts and new ideas, media recreate experiences and conditions that the best lessons and readings cannot. The wonder of technology and the fact that learners may welcome its use in the classroom, do not necessarily add up to effective learning. However, research does indicate that media can be a valuable partner for teachers and learners. Regrettably, many teachers use teaching and learning media primarily as filler for lessons.

3.6.1 Theoretical grounding for using teaching and learning media

One of the greatest advantages of media, from an overhead projector to closed circuit television, is its rich capability for visual representation. Meyers & Jones (1993:144), indicate that the value of visual presentations is heightened in the context of a growing body of research on human learning. While the traditional mode of teaching had students learning primarily by reading and listening, teachers cannot ignore the fact that learners have a natural attraction to the visual cues and pictorial forms of learning. The value of visual representations as a means of communication in teaching goes beyond mere efficiency. Imagery has powerful effects on learning and retention (Conradie :1979:190). Teaching media can be powerful tools in the hands of a skilled teacher. The correct use of teaching and learning media can be conducive to a participative approach in a

learning situation. The following are the benefits of teaching and learning media as cited by Rooyen & Merwe, (1996:238):

-       Instructional media serve as a motivatory factor to learners

When teachers integrate media into their teaching, the nature of the stimulus and the pace of the instruction during the lesson change. Therefore, the use of teaching and learning media increase learners' motivation by introducing visually attractive, interesting and challenging material into an ordinary lesson. Most learners are sometimes bored in schools and their abilities exceed beyond manipulation of words and numbers. Learners thus need time to explore reality. According to one Chinese proverb (Bates, 1984:128) 'seeing is better than hundred tellings'. Therefore teachers should tell and show learners at the same time. No matter how good the lesson may be prepared visual imagery together with the concreteness of the experience, stimulate the learners' senses, focus their attention and arouse their curiosity and interest.

-       Instructional media make provisional needs of individual learner

Teachers should take note that each learner is unique and that each learns in a different way. Since they differ intellectually and in learning styles, they do not benefit equally when one medium is used. Therefore variation in media usage should be adopted during lessons to enrich the learner's experiences. Teachers should allow learners differing amount of time to establish and to practice skills. A variety of approaches using different procedures and materials should be made available to accommodate the individual needs.

-       Instructional media motivate learner participation

Learners learn best by actively working with realistic problems and real objects in concrete situations. Teachers should fight boredom in classrooms. This results primarily from the lack of involvement on the side of the learners. Introducing and developing ideas and skills with paper and pencil exercises so common to programs that are dominated by printing materials is less meaningful and less effective. Teachers cannot ignore the fact that students learn best by being

actively involved. Freire (1990:26) in his ideology of critical pedagogy emphasizes that education must not be something done for the learners, but something they get involved in.

-    Instructional media serve as a contribution to stimulating learning experiences

The words of the teacher in front of the learners can never be substituted, but are not sufficient. Therefore media can be powerful tools only in the hands of a careful teacher. Although media, live or recorded, do not possess any disadvantages as far as learning is concerned, it is possible that wrong perceptions about teaching media or the incorrect application by teachers lead to ineffective teaching-learning situations. The incorrect and unplanned application of teaching media may easily give rise to an over-relaxed atmosphere and a lack of order which threatens the learner's positive commitment to learning.

A good teaching medium helps to present a meaningful interpretation of abstract situations or phenomena. Media supplement description and assist in explaining words and illustrating relationships thereby giving a more accurate impression of the subject matter. Thus, in supplementing the spoken words, the correct use of media provides a stimulating learning environment, promotes a desire to learn and invigorates teaching.

3.6.2 MYTHS SURROUNDING INTEGRATION OF EDUCATIONAL MEDIA IN TEACHING AND LEARNING

Despite benefits discussed in the preceding paragraphs, there are still myths surrounding integration of educational media into lessons. Kleiman & Johnston (1998:4) indicates that schools are in the midst of an explosion of multimedia digital technology, from computers to closed circuit television and all that goes with them. But the questions remain "will it make education for large numbers of learners? Will it make education systems more effective and efficient? Will it help schools better prepare learners for their lives in the twenty-first century?" Realising answers to these questions requires a clear vision in the integration of instructional technology. Unfortunately, the rapid influx of the technology into schools, is in many cases, running ahead of the educational vision and careful planning necessary to put technology to good

use. In fact, what is being done is often based on misconceptions or myths about what is required to gain substantial educational returns. The following paragraphs will try to look into myths surrounding the integration of these technologies as cited by Kleiman & Johnston (1998:4) & Gardner, Dede, Riel, Cuban (2000:1-4).

3.6.2.1 MYTH ONE: integrating technology into schools will directly improve learning and more technologies will result in greater improvements

Educational media are powerful tools that can enhance teaching and learning in innumerable ways. However, the value of a medium depends upon what purpose it serves and how well it is used. The mind-set of teachers should change, technology integration is not just about picking a good piece of software, it is about good practices in the classroom. Many instructional media in schools, even up to date computers with high speed internet access, are not being used in many ways that significantly enhance teaching and learning. There are many reasons, including the following:

- Teachers have not received adequate training and support for integrating technology into the core of the day to day classroom instruction.

- Teachers often do not have software that supports major curriculum goals and that is consistent with their approaches to teaching, and is well designed for classroom use. While much good educational media has been developed, finding and obtaining what you need to operate the medium you have, and to fit into your curriculum, remain difficult in many cases.

- Technical support is often insufficient, to an extent that if a problem occurs, the teacher and the learner cannot solve it. There may be long delays before a technician is available to address the problem. Thus, teachers feel they cannot depend upon technology, so they do not plan to use for important purposes in the classroom.

- The ways in which media are made available are often inconsistent with teachers' approaches to curriculum planning and classroom management. Many schools have been instructing through the use of media, but it requires continuous daily organization and planning of activities, a style of management that may be new to many teachers. Since this situation makes it difficult to integrate technology into the flow of lessons, it often

encourages teachers to treat this as a special event, rather than as central to the curriculum.

- In developing curriculum materials, publishers have not been able to take into account whether some schools have teacher expertise to make the use of instructional technology central to the curriculum. Therefore, they have typically included activities that will be treated by some as optional supplementary to other class work.

The reality corresponding to this myth is that all this expensive technology will yield little educational return until schools and government address the need for professional development, technical support, curriculum integration, classroom management and the availability of appropriate software.

3.6.2.2 MYTH TWO: There are agreed upon goals and 'best practices' that define how media should be used in classrooms

What educational purposes should media serve in the classroom? Unless these are articulated and clarified, and a consensus is reached, the diverging views can lead to conflicting expectations, approaches to implementing technology, and criteria for its impact, all of which can create barriers to moving forward effectively. The most common goals for using technology in schools include the following:

- Improve learners' acquisition of skills.
- Motivate learners. This goal is often based on the view that schools need to use visually rich materials to capture the interest of learners growing up in a media-intensive world. In addition, technology can help teachers to provide multiple parts of learning to fit individual learning styles and strengths, and can enable learners to work with greater autonomy, collaborate with peers and mentors, and gain access to more information related to their own interest, all of which can help engage their interest.
- Broadening curriculum objectives, adding more problem solving, project-based learning and collaborative work.
- Better prepare students for the work place.

72

- Update education for the twenty-first century. Many believe that the changing world requires that the very structure and culture of schools and classrooms be considered along with what is taught and how it is taught. Visions of the future vary widely, but most features increased student autonomy, more collaborative work both face to face and online, more global connections, richer learning resources than traditional textbooks, and more inquiry, interdisciplinary, and project-based learning.

The reality corresponding to this myth is that educational goals must be clarified and that plans for using and evaluating the impact of technology must be developed.

3.6.2.3 MYTH THREE: Once teachers learn the basics of using technology they are ready to put it to effective use

It is a fact that technology will affect what needs to be taught, how it can be taught, how classrooms are organized and managed, and the roles and expectations of both teachers and learners. That is, technology enhanced classrooms may have both different goals from traditional classrooms.

The reality to this myth is that for technology to be used fully in secondary schools, significant changes are required in teaching practices, curriculum and classroom organization; that these changes do take place over years and require professional development and support for teachers.

3.6.2.4 MYTH FOUR: Some government technology plans are sufficient for placing technology to effective use

Almost every school area has a technology plan in place. Some plans also address integrating technology into the curriculum, evaluating the impact of technology on teaching and learning, but unfortunately, these critical elements only receive cursory attention. Technology plans tend to turn technology into a goal in and of itself, and to separate it from other educational goals and plans. However, technology is a tool and should form part of the plan.

The reality to this myth is that to use technology effectively, it must be integrated into school improvement plans, curriculum plans and professional developments plans. It should not be treated as a separate entity. Significantly, educational returns require that instructional technology be viewed as providing tools to meet the central educational goals not as defining a new, separate set of goals.

3.6.3 NEGATIVE ASPECTS ON INTEGRATION OF EDUCATIONAL MEDIA IN SECONDARY SCHOOLS

Although educational media in themselves do not possess any disadvantages, it is correct to say that wrong perceptions may lead to their ineffectiveness. Media should not substitute the teacher, on the contrary, they should supplement methods of teaching. The following are possible negative aspects on the integration of teaching and learning media in secondary schools:

-       Educational media can be expensive

Chaptal(1997:218) indicates that one of the negative aspects of integrating teaching media is finance. Because of poor economic development, most schools are unable to purchase media. Thus integrating media in schools cost a great deal of money. However, Mbangwana (1997:50) argues in this regard that many teachers ignore the use of instructional materials in their classroom and often complain of the cost involved in purchasing these media. Apparently, they forget or do not know that simple teaching and learning media are available at their disposal. Teachers need to be trained in creating media. They should recognize the potential of many simple teaching media available at little or no cost and the fact that these can facilitate their teaching and enhance the process of learning. Teachers should try to produce their own media.

-       Educational media can be confused with entertainment

According to Bendeich (1988:2), the central and dominant aim of teaching and learning media is to bring the world to the classroom. Unfortunately, some teachers regard media as form of entertainment, and not as pedagogic or didactic. In some cases media are regarded as affording relaxation in the middle of ordinary lesson. In spite of this mis-representations, media should never be used as an optional extra to a lesson, nor as a substitute for the teacher.

-         Educational media can undermine personal contact

Although the use of teaching and learning media cannot be overemphasized, teaching and learning is effective when direct observation prevails in a classroom. The live lessons where teachers make use of all possible forms of illustrative material over and above, their verbal presentation and their presence can never be underestimated. Chaptal (1998:22) suggests that media should not act as substitutes for teachers, but should supplement the teaching and learning processes. Incorrect application by teachers may lead to impersonal situations which are not for the benefit of meaningful learning. As such, this also undermines the very nature of participative teaching.

-         Media can create misconceptions

The usefulness of teaching and learning media is still questioned by some teachers, Freysen (1989:25) supports this in mentioning that educational media are available but there are still teachers who consider themselves the only medium. They feel threatened and scared that media will replace them. There is also lack of clear guidelines according to which media should be selected. Media are still selected haphazardly on the basis of what is available. According to Gawe & Jacobs (1996:240), media that contain technical inaccuracies may easily create misconceptions in the learner if the specific learning opportunities are not handled correctly.

3.6.4 PERCEPTION IN MEDIA

The purpose of media is not only to make learning easier, but also more effective. Learning is improved if learners are able to perceive what they are being taught. This is called perception. Hence, the teacher should always try to present abstract concepts to the learners through the use of concrete and observable examples. Research according to Kozma (1991:179)indicates that various forms of media and their respective selection and utilization processes directly impact what the learner perceives and how information is retained and recalled. The use of teaching and learning media in support of verbal explanation is of the utmost importance. In perception, media help to serve the following:

-       An assistance to the spoken word

Teaching media serve to create a variety of sensory impressions and open channel for the communication of information to the learners. Teaching and learning media enhance the process of perception and understanding and improve the chance for meaningful learning to occur. When using media teachers do not have to rely solely upon their speaking abilities and learners' listening skills for the successful exposition of knowledge. The word of mouth alone is not sufficient, as such media help to transmit, amplify and distribute information more effectively than straight-forward lecturing or reading only.

-       Memory and understanding

For teaching to be judged successful, it should result in effective learning. Learners should be able to remember what they were taught, and demonstrate the task in a way that shows understanding. Teaching media help learners to recall and understand the learning content being taught.

-       Active involvement

Learning is by its very nature active. Furthermore, students learn better when actively involved. Teachers should plan their lesson in such away that learners become actively engaged to avoid using media that lead to mental passivity.

-       Teacher competence

The successful use of teaching media in the classroom requires a skilled and informed teacher. The use of teaching and learning media is not a substitute for the teaching-learning events, but rather facilitates and supplements teaching. The teacher should know when and how to integrate a medium in a lesson media should not be used as incidentals in the middle of ordinary lesson. However, no matter how good and technically sophisticated a specific medium is, there is no substitute for the personality and warmth of an enthusiastic, capable teacher.

3.7 RESISTANCE OF SECONDARY SCHOOL TEACHERS TO EDUCATIONAL MEDIA

Integration of technology into teaching is a major educational paradigm. Technology innovations have the potential to revolutionize teaching and learning environments, yet effective integration is still a hurdle that must be overcome (Murphy, 1997:136).

It is noted in Bell (1996:165) that schools in the twenty-first century will utilize technologies, not as a cure -all in themselves, but to create rich learning environments that accommodate different individuals in learning styles and speeds. Envisioning the change may be the most crucial part. Yet, resistance to media integration can be the most important barrier for media supported environments.

Most teachers do not recognize the potential in teaching and learning media and the fact that this can improve their teaching. Most fear that media will replace them. According to Murphy (1997:137) teachers are reluctant to adopt media as they are frightened of losing power in their classroom and even of becoming redundant in the learning process. Mbangwana (1997:50) argues in this regard that many teachers simply ignore the use of media in their classroom. They think the whole task of teaching is vested in them. Freysen (1989:25) supports Mbangwana in this regard that media are available but there are still teachers who consider themselves the only medium.

Ralph and Young (1993:303) point that most teachers, including those who have taken media courses are uncomfortable with the technologies in teaching. Most are afraid of looking foolish trying to search in vain for a certain aspect in media operation, considering the fact that today's learners are the information generation. They may know better in operating most of the devices than most teachers do.

Aulehla (1991:43-43) goes on to say that most pre-and in-service educational media programs have limited results in producing permanent change in teachers' subsequent instruction. Garret & James (1991:74) supports Aulehla in this regard that many young teachers simply lack adequate

preparation for, confidence in, and the positive attitude towards, using advanced media technologies in their teaching.

Van der Merwe (1989:74) lists some of the causes of the reluctance to the use of media. They are:

- The personality of the teacher. Many teachers seem to be afraid to expose their teaching ability to others;
- Economic causes for resistance. If a school does not have the means to acquire the necessary facilities, support and resources enthusiasm will fade away;
- Outdated subject traditions and aspects of the teaching traditions;
- Insufficient training in aspects relating to didactics;
- Teaching, involving large groups often limits media usage to teachers themselves. It is not possible for each learner to use a medium because usually there are not enough media available for each individual learner.

Chaptal (1998:243) argues that when teachers have developed a use of educational resources adapted to their strategies and needs of their learners they tend to stick to them irrespective of what modern technology can offer. New technologies as noted in Saettler (1996:243), do not replace older ones, they bring them to completion. Lack of administrative support has been noted as the most critical factor for media integration in the classroom. Principals should become the driving forces in this process (Chaptal, 1997:120). Chaptal further indicates that most teachers do not use media properly because they are not aware of the variety of media. Techniques employed in some of these media might also be a problem. As a result media tend to be underutilized.

Numerous other barriers to media integration revolve around teacher training. Lack of teacher technology training has been the failures of most schools trying to grasp technology and harness the power that technology can bring to the classroom. However, successful technology training can be accomplished only through effective administrative leadership.

Stefansdottir (1997:76), indicates that teachers avoiding the use of media in the classroom often have valid points for their avoidance. Although they (teachers) have a point and are quite right in expressing their concerns openly, the fact is that media are important tools that affect the life of

every subject in our society in one way or another. Learners are not exceptions to this technology base world. Teachers therefore have obligations towards learners as tomorrow's society to use these tools (media).

However, not all teachers resist the changes and some start using media immediately. Very often, they do it without thinking about pedagogy or about the very reason of using it. Teachers are sometimes reluctant to adopt media as they are frightened of losing power in their classroom and even of becoming redundant in the learning process (Murphy, 1997:149).

3.7.1 STRATEGIES TO ELIMINATE RESISTANCE IN INTEGRATING INSTRUCTIONAL MEDIA IN THE CLASSROOM

- Teachers should remember that the best media can and should never replace the teacher. Most teachers tend to make themselves 'absent' when media are integrated into lessons. This should be clearly stated out. Media should never act as a substitute but only as supplementary;
- Teachers should adapt media to learners' needs;
- There is no super medium that will meet the requirements for good communication. The most suitable media should be selected.

According to Chaptal (1997:120) the following are the possible elimination of resistance:

- Curricular should be made more flexible enough for teachers to integrate technology;
- Purchasing media is not sufficient to guarantee its usage and effectiveness. In order to be rendered successful, media integration should involve the provision of mediation or support services to help teachers make use of these media;
- Technology alone cannot improve teaching and learning. If it could, teachers would have documented improvements in the learning process. Technology use should be grounded firmly in curricular goals, incorporated in sound instructional processes, and deeply integrated with sound learning content. Absence of this grounding, which too often is

neglected in the rush to glittery applications, means that changes in learner performance are unlikely.

Murphy (1997:136) put it this way "to succeed in effective integration, teachers need instructional support and effective administrators who serve as role models".

According to Claeys, Lowyck & Van der Perre (1997:146-148):

- Teachers need to be reassured that they will not disappear regarding education because they have function that goes beyond transferring knowledge;
- Teachers need technical support. This can be realized by creating a special division within the school recruiting own staff. Alternatively, schools may rely on external contracts with specialized firms to provide technical support;
- Schools increasingly need support staff on issues other than technical problems and experts in devices other than the traditional ones;
- Successful use not only requires constructive learners guided by devoted and well trained teachers but also high quality, well designed educational software that caters for the needs of the intended pedagogic reform.

3.7.2 PRINCIPLES FOR SELECTING MEDIA

Media usage does promote learning. However, there is little indication which media does result in most learning. Media selection is mostly done on the basis of what is available and not on the basis of its effectiveness. According to Freysen (1989:49) the value of media is still questioned by most teachers. They think media will replace them as teachers. They regard themselves as the best and only medium and for this reason often present learning in a verbal form.

3.7.2.1 Factors affecting media selection

- Learning environment (availability of electricity)
- Economic status of the school

-     Didactic space
-     Prior knowledge (age of the child, gender, computer literate, language proficiency)
-     Class size and time aspect

According to Chaptal (1998:243) media are mere vehicles that deliver instruction but do not influence learner achievement any more than the truck that delivers groceries causes changes in nutrition. Freysen (1989:25) argues in this regard that there is ignorance concerning the attributes of various media. It is impossible to select the best media if the teacher is not aware of the possibilities the media have. The possibilities of media are determined by their attributes. Media are often underutilized or not utilized as a result of poor selection at meso or macro level. If the purchases at a high level as well as the implementation of policy do not take the teaching situation at the macro level into account, the media is doomed to remain a white elephant.

3.7.2.2 Guidelines for selecting media

According to Gawe & Jacobs (1996:246) media are not selected at will or according to personal taste, but should be suitable for integration into a specific lesson. They are effective when they are employed to supplement the personality and the teaching skill of the teacher. Although any medium is only an aid, and therefore a secondary consideration in teaching, it should not be seen merely as an addition or appendage to a lesson. It should always constitute an integral part of the lesson.

Rooyen & Van der Merwe (1996:246) support Gawe & Jacobs in this regard that no medium should be used for the sake of using it. The medium should be clear enough to cater for each individual learner. No medium teaches on its own. The teacher has to plan and use the medium in such a way that pupils will learn from it. Chaptal (1997:123) argues in this regard that every medium has its own advantages when used correctly. It is better not to use a medium than to use it haphazardly.

3.8 SUMMARY

Effective teaching begins with first hand or concrete experience and proceeds towards more abstract experiences. Thus a learner who has the advantage of reacting to well selected and wisely planned media can learn more effectively than one who is provided with largely verbal information. Learners profit most from instruction when they become actively involved. Thus learners who are knowledgeable and whose interests are aroused are able to perform better as creative and inventive human beings.

This chapter was devoted to effective teaching and integration of media in the secondary school classroom. Although media enhance the teaching methods in a classroom, they do not constitute a teaching method. Teachers should plan their lessons in such a way that learners' attention is not distracted from the learning process. The word of mouth alone is not sufficient, it is important for teachers to integrate teaching and learning media for the effectiveness of the teaching-learning situation. Although the value of teaching and learning media cannot be overemphasized, media that contain technical inaccuracy can create misconceptions. However, if correctly applied and planned teaching and learning media are dynamic and fundamental in terms of stimulating the response of the learners. They enhance learning and furnish experience. Their value cannot be overlooked but can only be exploited if they are used as substitutes of the teaching methods instead of supplementary.

The next chapter deals will empirical research design, results and discussion.

CHAPTER FOUR

EMPIRICAL RESEARCH DESIGN, RESULTS AND DISCUSSION

4.1 Introduction

The previous chapters reviewed the relevant literature on teaching, effective teaching, approaches to effective teaching and learning, media integration, the reluctance of teachers in using media and strategies to reach reluctant teachers. Attention was given to how instructional media can serve as powerful tools in enhancing learning and improving teaching.

This chapter will focus on empirical research, results and discussion. The aim is to evaluate the extent to which instructional media are used by teachers at secondary schools and the myths they might have on them. The outcomes thereof will be used to recommend on what can be done to encourage teachers to integrate media in their classrooms to help prepare learners to compete in the global village. The central question to the research is: Do teachers at secondary schools make use of instructional media for effective teaching and learning?

4.2 INSTRUMENTS USED IN THE STUDY

A questionnaire was designed to answer the central question as outlined in the introduction. The questionnaire statements were based on the literature review found in chapter two and three and claim content validity. The researcher administered questionnaires to educators in the Nebo Area of the Limpopo Province. This method of investigation was chosen because of the following reasons:

- Sometimes data lie deep within the minds or attitudes, feelings of the subjects. Most people do not feel free when interviewed and they often complain of the time spent during the interviewing sessions;
- Questionnaires collect information quickly and are relatively inexpensive.

4.2.2 Validity

Validity may actually refer to the degree of relevance of the instrument. A reliable instrument is measured by its ability to obtain information that is free from measurement errors. It is important that all research instruments be measured in terms of their validity. The validity of the instrument in this research will be based on content validity. The relevant content was obtained from the literature.

4.3 COMPILATION OF QUESTIONNAIRES

A questionnaire consisting of twenty-nine questions for educators was compiled. It consisted of sections A, B, C and D. The questionnaire contained the following sections:

- Section A (questions one to five) is concerned with the general information. Namely, gender, age, teaching experience, qualifications and subjects taught by the respondents.

- Section B (questions six to ten) deals with the availability of teaching and learning media in the schools;

- Section C (questions eleven to twenty five) deals with attitudes of teachers towards usage of media;

- Section D (questions twenty six to twenty nine) is concerned with the training received by teachers on the use of media.

4.4 SAMPLE

Due to constraints such as finance, the study was limited to the Nebo Area of the Northern Province. The reason is Nebo area is regarded as representative of the Northern Province. Although a larger study could have been desirable, it was not possible to include other areas because the researcher is employed full time. Nebo Area was chosen. The results from this research may lay foundation for future research in other areas.

4.4.1 Sample size

A question that often haunts the mind of a researcher is how large a sample should be in order to be treated as representative of the entire population? Most researchers argue that there is no fixed number or percentage of subjects that determine the size of the adequate sample (Papo, 199:19). They further argue that of more importance is the core from which the sample is selected.

In this study, the sample is constituted of eight schools from the area under study. Nebo Area has a total of eighty-three schools under six circuits. Ten percent of these schools were randomly selected and used in the study. In each and every school ten percentage of teachers formed the population. Random sampling was used. A total of 53 teachers were given questionnaires to respond to.

4.5 ADMINISTRATION OF QUESTIONNAIRES

4.5.1 Procedure followed

To have access to the schools, permission was obtained from the Director of the region (six) under which Nebo Area falls. Area manager was informed and so were the principals. The regional director however requested the copy of the dissertation after completion. The researcher went to the area office to collect lists of the schools. The selection was made out of this list. The overall distribution of the questionnaires was the personal responsibility of the researcher.

4.5.2 Problems encountered

The problem encountered was that of time obtaining permission from the director of region six and getting feedback from the respondents. It took two months before the questionnaires could be completed. The researcher was given a period of two weeks to collect the questionnaires. At one stage when the researcher was asked to come and

collect the questionnaires, teachers could not be found as they were attending a teacher's union meeting. Only principals were available and did not have the responses from the teachers.

The other problem encountered was that of unreturned (lost) questionnaires. From a total of fifty-three questionnaires issued, only 32 were be returned. The principals could not trace some questionnaires and some teachers claimed they were too busy they did not have time to complete them. Despite these hindrances results were gathered.

4.6 PILOT STUDY

Piloting of the instrument was done in one secondary school at Tsimanyane circuit. A total of eighteen teachers were given questionnaires to complete. The main purpose of piloting the instrument was to identify errors and ambiguities, and to test how much time it takes to respond to the questionnaire.

4.7 DATA ANALYSIS

Qualitative data analysis will be used as indicated in chapter one under the above heading. The results of each statement will be followed by a discussion.

SECTION A: GENERAL INFORMATION

Table 4.1 Gender

GENDER	No. of respondents	Percentage(%)
Male	21	58
Female	11	42

Males formed fifty-eight percent of the respondents while the remaining forty-two was constituted of women.

86

Table 4.2 Age

Age	No. of respondents	Percentage (%)
<25	1	3
25-30	5	15
31-35	10	31
36-40	9	28
41>	7	23

The sample is constituted of teachers from different age groups, ranging from twenty-three years to fifty-eight years of age. Of the respondents, thirty-one percent was aged between thirty-one and thirty-five years, twenty-eight was aged between thirty-six and forty, while twenty-three percent constituted those that are forty years and above old, and a small percent of eighteen consists of those between twenty-three and thirty years of age.

Table 4.3 Teaching experience

Years	No. of Respondents	Percentage (%)
0 - 3 years	4	12.5
4 - 7 years	5	15.6
8 - 10 years	5	15.6
11+	18	56.3

The majority of the respondents, fifty-seven percent have been teaching for more than eleven years.

Table 4.4 Teacher qualifications

QUALIFICATION	NO. OF RESPONDENTS	PERCENNTAGE (%)
Highest professional qualification	19	59
Highest academic qualification	13	41

The majority of the respondents are highly qualified in the level of professionalism.

Table 4.5 Taught subjects

SUBJECT	No. of respondents	Percentage(%)
Accounting	7	22
Afrikaans	12	37
Agriculture	6	19
Biology	11	34
Business economics	8	25
Economics	10	32
English	5	16
Geography	10	32
History	3	9
Home economics	12	37
Mathematics	6	19
Physical education	3	9
Physical science	7	22
Technology	2	6
Other	2	6

Other subjects constituted 6%. These are:

▪ tourism: 1

▪ biblical studies: 1

Most teachers indicated that they are teaching more than one subject.

B. AVAILABILITY OF INSTRUCTIONAL MEDIA IN THE SCHOOL

Table 4.6 Availability of resource centres

	No. of respondents	Percentage(%)
Yes	0	0
No	32	100

Hundred percent (100%)of the respondents indicated the unavailability of a resource centre even though most of the schools do have electricity. It is worth mentioning that the unavailability of a resource centre where all learning materials are managed hinders the integration of media in the classroom. This makes it difficult for teachers because some cannot produce their own materials.

Table 4.7 Availability of instructional media

MEDIA	YES		NO	
	No.	%	No.	%
Chalkboard	26	81	6	19
Overhead projectors	15	47	17	53
Slides	4	13	28	87
Television or video	16	50	16	50
Maps	27	84	5	16
Computers	15	47	17	53
Audio tapes	4	13	28	87
Film projector	3	9	29	91
Games	8	25	24	75
Charts	11	34	21	66
Flannel/Magnetic board	1	3	31	97
Other				

The availability and use of traditional media such as chalkboard, charts and maps is still common in most schools. The majority of the respondents indicated that they do not have computers, games to mention but a few. Lack of these educational media hinders integration and deprives learners to be part of the information society and be prepared to compete in the global world.

Table 4.8 Availability of electricity

	No. of respondents	Percentage(%)
Yes	23	72
No	9	28

The majority of the respondents (72%) of the schools are electrified. It is within this context that a factor like electricity cannot be cited as a reason for not integrating teaching and learning media in the classroom.

Table 4.9 Usage of educational media in the classroom

	No. of respondents	Percentage(%)
Yes	22	68
No	10	32

Table 4.9 indicates that the majority of the respondents (68%) make use of instructional media in the classroom.

Table 4.9.1 Availability of electricity

	No. of respondents	Percentage(%)
Yes	14	32
No	8	68

Unavailability of electricity as shown by 68% of the respondents does not deter the use of instructional media in teaching and learning. Only a small percentage 32% of the respondents indicated that they are affected by electricity in their schools.

Table 4.9.2 Instructional media and inadequate training

	No. of respondents	Percentage(%)
Yes	21	66
No	11	34

Lack of training can be cited as one of the reason why teachers cannot make use of teaching and learning media in their classrooms. The majority of the respondents (66%) indicated inadequate training as an obstacle in using instructional media in their teaching.

Table 4.9.3 Lack of administrative support

	No. of respondents	Percentage(%)
Yes	21	66
No	11	34

Although some respondents did mentioned in statement eighteen that they do get support from their colleagues, the majority in this regard (66%) indicated that they lack administrative support on the use of instructional media.

Table 4.9.4 Fear of losing power in the classroom

	No. of respondents	Percentage(%)
Yes	18	56
No	14	44

Most respondents are reluctant to adopt the use of teaching and learning media because of the fear of losing power in the classroom. This is indicated by 56% of educators.

Table 4.9.5 Inadequate time in planning and preparation

	No. of respondents	Percentage(%)
Yes	17	53
No	15	47

Although the majority of the respondents did indicate that they make use of teaching and learning media in their classrooms, some (53%) mentioned that they lack time in planning and preparing these media.

Table 4.10 Teaching materials to support practicals

	No. of respondents	Percentage(%)
Yes	8	25
No	24	75

The majority of the respondents (75%) have indicated that there were enough teaching materials to support elements like practicals of the subjects they are teaching. Very few (25%) saw the materials availability as a problem.

C. ATTITUDES OF TEACHERS TO THE USE OF MEDIA

Table 4.11 Instructional media and myths

	No. of respondents	Percentage(%)
Yes	11	34
No	21	66

Table 4.11 indicates that the majority of the respondents (66%) do not believe in myths surrounding instructional media integration while (34%) made mention of the fact that they lack guidelines on the use of media. Most teachers indicate that they are pessimistic about instructional media integration. Availability of electricity also does contribute, as is the shortage of materials in schools. The smaller percentage (34%) also indicated that some of the subjects lack practicality. Subjects like commerce and lack of exposure to workshops on instructional media integration have also been cited as reasons why most teachers cannot use teaching and learning media in their lessons.

Table 4.12 Teachers as only resources for learners

	No. of respondents	Percentage(%)
Yes	6	19
No	26	81

Table 4.12 indicates that the majority of the respondents acknowledge that they do not regard themselves as the only resources for learners. Therefore, media do play a part in attaining effective teaching and learning.

Table 4.13 Teaching and learning media as primary resources

	No. of respondents	Percentage(%)
Yes	23	72
No	9	28

Table 4.13 indicates that the majority of the respondents (72%) agree that teaching and learning media arouse learners' interests. And the lesser percentage (28%) indicated that there are other materials and activities outside the classroom, which are also good for effective teaching. Field trips are an example of such activities which learners should explore. It was also indicated that textbooks and the teacher are primary resources.

Tables 4.14 Instructional media as supplements

	No. of respondents	Percentage(%)
Yes	20	62.5
No	12	37.5

Table 4.14 indicates that the majority of the respondents (62%) indicated that the subjects they are teaching need no resources to supplement. However, 37% indicated that they it is not possible to achieve the didactical goal without the use of instructional media.)

Table 4.15 Achievement of didactical goals without use of instructional media

	No. of respondents	Percentage(%)
Yes	1	3
No	31	97

Table 4.15 indicates that the majority (97%) of teachers responded that it is not possible to achieve didactical goals without any use of media. This implies that teaching and learning media help to supplement didactical goals. Teaching and learning cannot be regarded as effective without the integration of media. The response given by 97% brings the conclusion that usage of media can never be underestimated. Although media do not possess any advantages as far as teaching and learning is concerned, their correct usage will bring the world to the classroom and enhance teaching.

Table 4.16 Teaching method/s and learning effectiveness

Teaching method	No. of respondents	Percentage
Instructional method only	1	3
Use of media only	1	3
Combination of both	28	88

The highest percentage of respondents (88%) indicated that the instructional method and integration of media complement each other. It is therefore not possible to use one and neglect the other. Among the respondents (6%) ticked all the options, that is, instructional method, the use of media and combination of both.

Table 4.17 Instructional media introduction

	YES		NO	
	No.	%	No.	%
17. 1 In the beginning	6	19	26	81
17.2 At the end	1	3	31	97
17.3 In the middle	7	22	25	78
17.4 As an integral part of the lesson	18	56	14	44

Most of the respondents indicated that media should never be treated as a separate entity, it should form part of the lesson. It should not be brought in either at the beginning or at the end, it should form a part of the entire classroom activity.

Table 4.18 Support from colleagues in planning and preparing instructional media

	No. of respondents	Percentage(%)
Yes	23	72
No	9	28

Table 4.18 indicates that the majority of the respondents 72% do get support from their colleagues when planning and preparing learning materials. The smaller percentage (28%) which indicated that they do not get any support from their colleagues, mentioned that most teachers do not have confidence in using media and that although some are willing to help they do not have the skills and expertise to. There are also those who know how to plan and prepare instructional media but are not willing to share their knowledge with others. Some indicated that the role of media is not yet clear, as there are many developments regarding media.

Table 4.19 Method selection and type of instructional media

	No. of respondents	Percentage(%)
Yes	28	88
No	4	12

Most respondents (88%) indicated that they do consider the type of media to be used when selecting teaching methods. However, there are those who indicated that lack of resources disadvantages them to consider the type of media against the teaching method. They also indicated that sometimes there is no medium to suit their teaching method.

Table 4.20 Friendliness of teaching and learning media

	No. of respondents	Percentage(%)
Yes	27	84
No	5	16

The majority of respondents (84%) indicated that instructional media are user friendly. Only 16% of respondents indicated that teaching media are not user friendly. The latter

percentage of respondents mentioned reasons, among others, that media confuse learners, if broken they are not able to fix them and that they are complicated to an extent that it is not easy to identify faults. Therefore, teachers do view media in a positive way.

Table 4.21 Instructional media as entertainment

	No. of respondents	Percentage(%)
Yes	5	16
No	27	84

The majority (84%) of the respondents are able to recognize teaching and learning media as pedagogical devices. This is against the statement held in chapter one that most teachers regard teaching media as entertainment and affording relaxation in the middle of ordinary lesson. However, some did mention that learners' attention might be distracted, that media consume much time and that it might be mistaken for entertainment on the part of the learners.

Table 4.22 Fear of integrating instructional media in the classroom

	No. of respondents	Percentage(%)
Yes	9	28
No	23	72

Most of the respondents (72%) indicated that they are not afraid to try on new instructional media in their classroom. Lesser percentage that is (28%) of the respondents indicated that they are afraid to try these media in the classroom.

Table 4.22.1 Technical features of equipment

	No. of respondents	Percentage(%)
Yes	15	47
No	17	53

The majority of the respondents indicated that they are not prevented from using teaching and learning media because of lack of technical features of particular equipment even though some did not receive training on some of these media.

Table 4.22.2 Lack of knowledge of certain features

	No. of respondents	Percentage(%)
Yes	19	59
No	13	41

The majority of the respondents (59%) did indicate that they are not afraid to try on new technologies in the classroom. This is amazing since the majority (statement eleven) indicated that lack of exposure to teaching and learning media does contribute in the sluggish integration.

Table 4.22.3 Instructional media as replacements

	No. of respondents	Percentage(%)
Yes	23	72
No	9	28

Most respondents (72%) are afraid to integrate instructional technology in their lessons because they fear that it may, in the near future, replace them. Only (28%) of the respondents indicated that they do not think that one day they will disappear from the education system

Table 4.23.1 Instructional media and individual needs of a learner

	No. of respondents	Percentage(%)
Yes	24	75
No	8	25

The majority of the respondents indicated (75%) that they think media do make provisional needs of individual learners.

Table 4.23.2 Instructional media and learner participation

	No. of respondents	Percentage(%)
Yes	29	91
No	3	9

Table 4.23.2 shows that the majority of the respondents (91%) indicated that media have the potential to motivate learner participation.

Table 4.23.3 Instructional media and stimulation of learning experiences

	No. of respondents	Percentage(%)
Yes	**31**	**97**
No	**1**	**3**

The majority of the respondents (97%) indicated that media do serve as a contribution in stimulating learning experiences.

Table 4.23.4 Instructional media and meaningful interpretation of abstract situations

	No. of respondents	Percentage(%)
Yes	29	91
No	3	9

Table 4.23.4 indicates that of the thirty-two respondents only twenty-nine (91%) indicated that they think that media have the potential to present a meaningful interpretation of abstract information in a concrete form.

Table 4.24.1 Instructional media as entertainment

	No. of respondents	Percentage(%)
True	14	44
Not true	18	56

Table 4.24.1 indicates that a larger percentage of the respondents 56% agree that media can be confused with entertainment instead of being regarded as pedagogical.

Table 4.24.2 Instructional media and expensiveness

	No. of respondents	Percentage(%)
True	21	66
Not true	11	34

Majority of the respondents (66%) indicated that media could be expensive. This does not however, correlate with the responses in statement twenty-six where the majority of the respondents indicated that they are able to produce their own media. This also extends to statement twenty-seven where the majority also indicated that they are able to use the type of media available at their disposal. The other 33% are of the opinion that media are not expensive.

Table 4.24.3 Instructional media undermine personal contact

	No. of respondents	Percentage(%)
True	17	53
Not true	15	47

The majority of the respondents (53%) do agree with the fact that media undermine personal contact with the learners.

Table 4.24.4 Instructional media and misconceptions

	No. of respondents	Percentage(%)
True	13	41
Not true	19	59

Table 4.24.4 shows that the majority of the respondents (59%) indicated that it is not true that media can create misconceptions.

Table 4.25 Instructional media and government subsidy

	No. of respondents	Percentage(%)
Yes	3	9
No	29	91

From the responses, it is clear that the government does not ensure the availability of resources in schools. This hinders the integration and leads to a situation where teachers are left with no option but to resort to traditional method. The majority of the respondents (91%) indicated that the government does not contribute in making sure that resources are available to schools.

D. TRAINING RECEIVED BY TEACHERS ON THE USE OF EDUCATIONAL MEDIA

Table 4.26 Knowledge on production of instructional media

	No. of respondents	Percentage(%)
Yes	22	69
No	10	31

The majority of the respondents (69%) did indicate that they are able to produce their own teaching media. The 31%, which indicated that they are not able to produce their own media, gave reasons like, lack of training on how to produce one's own material, lack of skills and support from the government and that producing materials wastes time.

Table 4.27 Usage of instructional media at the disposal

	No of respondents	Percentage(%)
Yes	26	81
No	6	19

Table 4.27 indicates that of all the responses only 19% mentioned that they are not able to use instructional media available at their disposal.

Table 4.28 Training received by teachers on the use of the following instructional media

	YES		NO	
	No.	%	No.	%
Overhead projector	11	34	21	66
Slides	9	28	23	72
Television/Video	22	69	10	32
Computers	20	63	12	37
Film projectors	11	34	21	66
Games	11	34	21	66
Audio Tapes	11	34	21	66
Maps	11	34	21	66

Lack of adequate training can be identified in this regard as a hindrance in adopting the use of media in the classroom. Looking at the responses only smaller percentage was trained on most of the sophisticated machines. The other percentage is able to operate traditional materials.

Table 4.29 Knowledge on selection of instructional media

	No. of respondents	Percentage(%)
Yes	15	47
No	17	53

Table 4.29 indicates from the responses that most teachers (53%) do not have guidelines on selection of instructional media.

4.8 SUMMARY

In this chapter, results were presented from eight schools in the Nebo area on media usage for effective teaching and learning and analyzed. The analysis was based on availability of instructional media, attitudes of teachers on media and more important the training received by these teachers on the utilization thereof.

The analysis does indicate that teachers are still reluctant to give up traditional methods of teaching and start preparing children for the information age. The training/re-training of teachers is very important. As technology develops teachers should be acquainted with recent developments. The next chapter will focus on the findings, recommendations and conclusion of the study on the use of teaching and learning media.

CHAPTER FIVE

OVERVIEW, FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 OVERVIEW

This study focuses on media integration for effective teaching and learning at secondary schools. When talking about effective teaching and learning, it is natural to focus attention on learners. However, we cannot think about learners without thinking about teachers, and yet we cannot think about teachers without thinking about teacher education and the impact of our rapidly changing world in which we live. This means that what teachers learnt three years ago at teachers' training institutions and subsequently teach their students today may be outdated.

Teachers need to compete with time. In order to meet the needs and development of this changing world, a shift in learning is required. Teachers should not just deliver a block of predetermined facts to students without considering the technological world they come from. Traditional models of teaching tend to be teacher centered. They restrict learning to a passive process. But, for learners who will compete globally in the 21st century, this pedagogy is dysfunctional. Learning is by its nature an active process.

When technology based media appeared in a form and price that made them readily and widely available, some teachers shuddered. They feared that, authorities under the guise of 'progress' could foist machines on students and employ these lifeless but adept mechanical monsters to tamper with the minds of learners. Most teachers anguished that these new instruments could bring a mechanistic world where machines dominated learning, and students became more like automatons than human. These nightmares from the researcher's point of view may have contributed to the sluggish employment of the full power of educational media in schools. However, these fears are totally wrong.

Technology based education will not bring a harsh, unfeeling school system because teachers will prevent that catastrophe. Teachers will remain in schools and they will provide a uniquely human element as machines provide the vast stores of knowledge. Teachers will ensure that education forms and develops the whole person, not merely the intellectual side.

The role of teachers however, must change. Teachers should become managers of learning that uses all devices. Learning should be shifted from fact acquisition to learning to learning. Learners should be in control of their own learning. Learning should be something learners actively get involved in, and not something done to them. However, serious change never happens easily. Most teachers are afraid to relinquish many of their present duties to which they have grown accustomed. For some the change will not be easy. Teachers will need encouragement and will require additional training.

In line with the above overview, the following are the research findings:

5.2 MAJOR FINDINGS

- The rapid pace of change in technology infrastructure and software results in technical paralysis; teachers and schools cannot keep up with the speed of progress. Blocking factors for the introduction of media are problems and pitfalls at institutional and government levels.

There are other factors that affect the use of educational media. These include:

- Economic

    Most of the schools lack even the simplest types of media. The schools operate very small budgets and the purchase and maintenance of educational media is obviously not a priority (Table 4.7 of data analysis).

- Ignorance on the part of teachers and principals about how media can be used to enhance learning in the classroom. Most of the teachers have not been exposed to any forms of educational media, as a result media are under-utilized. Even those who want to use media cannot because they don't know how (Statement 28 of the questionnaire). It is not unusual to find teachers clinging to verbal cues alone.

- Lack of administrative support has been noted as the most critical factor for media integration in schools (Table 4.9.3 of data analysis). Principals should become the driving forces in this process. No member of the staff is responsible for coordinating media resources. The result of all this is that the teachers are generally indifferent about educational media and there is no pressure on the government to provide them with any. Even when materials are provided they are often not put to use.

- Integration of media into the curriculum is a major educational paradigm that must be accomplished for successful use of technology in education. Technology innovations have the potential to revolutionize the teaching and learning environments, yet effective integration is still the hurdle that must be overcome (Table 4.9.2 of data analysis).

- Most schools lack up to date types of media (Table 4.7 of data analysis). As new technologies emerge schools need to compete with times. In most schools teachers still dominate most of the classroom instruction.

- Teachers are not making use of educational media in their classrooms. Even the best teacher finds it a monstrous difficulty to individualize lessons for each learner in any classroom (Table 4.23.1 of data analysis).

- Teachers are afraid of losing power in the classroom (Statement 4.9.4 of data analysis). Because of the power media harness, most teachers fear that media will in the near future replace them.

- Although teaching and learning media are often not put in use, teachers do recognize their value as supplements (Table 4.14 of data analysis). Word of mouth alone is not sufficient.

- Teachers do not regard media as part of the lesson. Media are often treated as incidentals, affording relaxation in the middle of ordinary lessons and not as an integral part of the classroom activity. Media are sometimes mistaken for entertainment (Statement 21of the questionnaire).

- Though most teachers did indicate that they get support from their colleagues some are still reluctant in integrating teaching and learning media in their lessons. The role of media is not yet clarified. However, there is a clean record that indicates that learners learn best when they are actively involved. Media have the potential to arouse their interest (Table 4.18 of data analysis).

- Lack of enough resources limit teachers on the type of teaching methods to use. Teaching methods are not chosen in line with the teaching media. Many a times there are no media to suit one's teaching style (Table 4.6 & Table 4.7 of data analysis). Media are chosen on the basis of availability.

- Most teachers are reluctant to integrate educational media because of lack of technical support. Mostly, people who integrate these media are teachers who are often ill equipped for trouble shooting(Statement 20 of the questionnaire).

- Lack of proper training does contribute to the sluggish employment of these materials. Even those who took media courses cannot cope with the rapid change in technology. Training is not just sufficient (Table 4.9.2 of data analysis). What teachers learnt three years ago at teacher training might be irrelevant in the classrooms today.

- Media have the potential to meet the needs of the individual learner. These encourage participation and stimulate learning experiences. They also have the potential to present abstract interpretation into concrete form (Table 4.23.1, table 4.23.2, table 4.23.3 & table 4.23.4 of data analysis). However, some teachers can take advantage and confuse media with entertainment (Table 4.24.1 of data analysis).

- Most teachers are not aware that simple media are available at their disposal at little cost. Teachers are just not in a position to produce their own media (Table 4.24.2 of data analysis. Old items can be used to achieve this. Media range from a diagram drawn in sand to a closed circuit television. Some teachers regard media as being expensive (Table 4.24.2). Most of the teachers are not trained on production of teaching and learning media. Most are not trained on the use of today's technologies. There are also no guidelines and training on the use and selection of instructional media.

5.3   RECOMMENDATIONS

- Ongoing support should be provided to teachers. This is more important than classes and training. The emotional dimension of this challenge keeps many teachers reluctant from stepping into the technology game. They see networks crashing and they need these materials to work reliably, and they want someone by their side when anything goes wrong.

- Schools should provide sufficient infrastructure that allows easy access to educational media for both teachers and learners.

- Teachers should be assured that they would not disappear from the educational sphere. Teachers need to be assured that their work goes beyond transmitting information. Teachers will continue to be educators while computers will provide the huge quantity of information for students to absorb, but teachers will continually

encourage them to integrate this learning into their lives and will show them how to do it.

There is a tendency to include the government in these partnerships. The government is perceived to have a potential catalyst's role. The following are the recommendation on the part of the government:

- The government should provide schools with the necessary equipment to use good quality educational media.

- The government should finance a knowledge server in each school where schools can find information on the use and integration of educational media.

- The government influence has a political responsibility to take and develop a clear vision of reforming the educational system by using new technologies. The government should therefore provide the necessary framework to get things moving. What is needed from the government is a strategic plan that can be developed over years with progressive dissemination and considering all relevant factors. The focus should be on the training of teachers, provision of infrastructure and other important responsibilities.

- The government should provide rewards and incentives. Too little attention is paid to motivation. The government spends a huge amount of money to upgrade and buy instructional media equipment while begrudging teachers basic incentives to learn and use the equipment. In too many cases teachers are expected to donate their afternoons, evenings and weekends to the learning of these new tools. There should be rewards and incentives to teachers who best integrate instructional media in their classrooms.

- The government should give priority to the provision of educational media in schools. Schools should be provided with at least the basic types of educational media and ensures proper maintenance.

- The ministry of education should organize workshops/seminars on local production and utilization of educational media for secondary school teachers. These will give opportunities for teachers and principals who lack previous exposure to educational media and their use in the classroom. For those who have some experience, such workshops would help to update their knowledge and sharpen their skills in a field in which technologies and their application are constantly changing.

- Teachers should also be involved in the planning and production of these materials.

- Most teachers did indicate that the role of media is not yet clear. The government should not only encourage teachers to integrate media in their classrooms. It should also clarify the bottom line: gains in student performance. Teachers want to know that their work will result in higher performance as measured by increasingly demanding global challenges. And yet no one is providing evidence of such gains. To win them, the government must be able to show measurable results.

- Most of the teachers do not enjoy surprises, disappointments and adventures, especially when they happen during classroom time. It is important for teachers to be told about the changes and the new demands for students to compete in the global village.

- Many technology proponents speak a language that alienates most teachers. They act as if everything from the past (lecturing and traditional methods) are bad while any new technology-rich experience is good. Words like "constructivist learning" and "student centred" classroom are used. Teachers view this rhetoric with great suspicion. It is therefore important that curriculum developers use ordinary language that will not bring suspicion to teachers on the new product.

- The most change occurs when someone 'buys in'. There is too little time spend figuring what turns people on to learning new ideas. Teachers should be asked how they prefer to learn these new materials.

- The investments in professional development should equal the investment in new technologies.

- Principals should firmly support teachers in the adoption and application of educational media by creating a psychological and physical space to experiment and try out new ideas and they should act like modelers of new technology use.

- A teacher community should be created to help those who feel uncomfortable with the integration of media in the classroom.

- Technical support should be provided.

5.4   CONCLUSION

In order to meet the needs and development of the ever-changing world, a shift in learning is required. New roles of teachers should be developed. Teachers should not just deliver a block of pre-determined facts to learners as if it were their lunch box. They should prepare them to compete in the global world.

We live in a society that is strongly defined by images, sounds and spectacles produced by a media culture that dominates leisure time, shapes political views and social behavior, and provides the materials out of which many people construct their senses. It is therefore of utmost importance to pursue projects that develop critical media pedagogy and to teach others and ourselves how to decode critically media messages and to trace their complex range of effects.

Beside all their potential, teaching and learning media are not a miraculous formula to change education and school into the wonderful world we would like them to be. There are still many problems to solve: technical, ethical, cultural and psychological problems that still prevent these technologies from becoming available resources. For some of these obstacles it is just a matter of time, but change only occurs when there is a strong will for it to happen.

Education is a very sensitive area and new tools are frequently difficult to accept and to integrate. Teaching and learning media have a great potential in the education domain. Media can be a powerful tool for teachers and learners to facilitate the establishment of a new educational paradigm. A paradigm that shifts from transmission to appropriation of knowledge; from simple training to cognitive development; from rules to practice where skills to transform data into information and information into knowledge are the key elements. A paradigm that faces education as a dynamic and creative process that places students at the centre of teaching and learning activities considering them autonomous and complete beings, capable of constructing their own knowledge.

There exists a large psychological barrier to trying out and using educational media. It is most difficult to change the pedagogical beliefs underlying teaching and as long as these stay the same introducing educational media will not affect the educational process. It is difficult to change deep-rooted mental structures especially for older teachers, on the art of teaching. Teachers are afraid of losing authority and class control because they believe their competency to teaching and learning is sometimes inferior to that of their learners. But continuous support both from the government and he administrative staff can help change these attitudes. The number of computers purchased, or the number of cables installed will not determine the effectiveness of this. Teachers need reassurance that their jobs will not disappear.

5.5 SUMMARY

In this chapter an overview of the study, major findings, recommendations together with conclusion were discussed. They suggest that teachers need a moral support starting from the government to the administrators. The number of cables schools install or the number of computers purchased will not determine the effectiveness of instructional media. It will be measured in terms of learner competence and skills. The world we live in demand that each learner should have sit in front of a computer during school years. Therefore all the stakeholders should make provision for these media and help learner to become part of the global village.

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ADDENDUM A

A QUESTIONNAIRE FOR EDUCATORS

A questionnaire on media usage in secondary schools for effective teaching and learning.

The aim of this questionnaire is to investigate whether teachers at secondary schools in the Nebo area(Region six), Northern Province are making use of teaching and learning media to complement the exercise of teaching and to enhance the process of learning to the learners.

Please answer all the questions. This questionnaire assures anonymity. As such, your name is not required. Be free and honest, and give your true feelings. The following is an example of how you should complete the questionnaire: Tick the correct answer by indicating with a cross, for example: Who is the current minister of education in South Africa?

Dr Verwoerd	
Mbeki	
Asmal	**X**
Phaahla	

A GENERAL INFORMATION(Tick in the appropriate box/number in the box)

1. Gender

| Male | 1 |
| Female | 2 |

2. Age in years

[ ]

3 How long have you been teaching

0-3 years	1
4-7 years	2
8-10 years	3
11+ years	4

4. Which of the following qualification/s do you hold?

Highest professional qualification		1
Highest academic qualification		2

5. Which of the following subjects are you teaching?

Accounting	1
Afrikaans	2
Agriculture	3
Biology	4
Business economics	5
Economics	6
English	7
Geography	8
History	9
Home economics	10
Mathematics	11
Physical education	12
Physical science	13
Technology	14
Other(specify)	15

B. AVAILABILITY OF INSTRUCTIONAL MEDIA IN THE SCHOOL

6. Does your school have a resource centre?

YES	1
NO	2

7. Indicate the type of instructional media available at your school from the following:

Chalkboard	YES	NO
Overhead projectors	YES	NO
Slides	YES	NO
Television or video	YES	NO
Maps	YES	NO
Computers	YES	NO
Audio tapes	YES	NO
Film projector	YES	NO
Games	YES	NO
Charts	YES	NO
Flannel board/Magnetic board	YES	NO
Other	YES	NO

8. Is your school electrified?

Yes	1
No	2

9. Do you use any instructional media in your classroom

Yes	1
No	2

If No, Is it because of the following reason/s:

3

9.1 Environmental factor like electricity	Yes	No
9.2 Inadequate training on the use of some equipments	Yes	No
9.3 Lack of administrative support	Yes	No
9.4 Afraid of losing power in the classroom	Yes	No
9.5 Inadequate time in planning and preparation	Yes	No

10. Are there enough teaching materials to support elements like practicals of the subject/s you are teaching?

Yes	1
No	2

C. ATTITUDES OF TEACHERS ON THE USE OF MEDIA

11. Are you afraid of approaching instructional media because of the myths that surrounds much of it?

Yes	1
No	2

If No, what might be the reason_____

_____

_____

12. Do you regard yourself as the only resource for learners?

Yes	1
No	2

4

13. Do you regard teaching and learning media as primary resources in the classroom?

Yes	1
No	2

If No, what is the reason_____

_____

_____

14. Do you think the subject/s you are teaching need/s no resources to supplement?

Yes	1
No	2

If No, why_____

_____

_____

15. Is it possible to achieve your didactical goals without any use of instructional media?

Yes	1
No	2

If Yes, how?_____

_____

_____

_____

_____

16. Which of the following method/s do you think make/s teaching more effective?

161 Instructional method	Yes	No
16.2 The use of media	Yes	No
16.3 Combination of both	Yes	No

17. When do you think instructional media should be brought in during a lesson?

17. In the beginning	Yes	No
17.2 At the end	Yes	No
17.3 In the middle	Yes	No
17.4 As an integral part of the lesson	Yes	No

18. Do you get any support from your colleagues in planning and preparing instructional media?

Yes	1
No	2

If no, why_____

_____

_____

19. Do you think about the type of instructional media to be used when selecting your teaching method?

Yes	1
No	2

If no, why_____

20. Are teaching and learning media user friendly?

| Yes | 1 |
| No | 2 |

If No, why_____

_____

_____

21. Do you regard teaching media as entertainment/technical devices in the middle of ordinary lesson instead of pedagogical?

| Yes | 1 |
| No | 2 |

If Yes, how_____

_____

22. Do you think you are afraid to integrate instructional media in the classroom?

| Yes | 1 |
| No | 2 |

If Yes, is it because of the following:

22.1 Lack of knowledge of technical features of a particular equipment?	YES	NO
22.2 Afraid to look foolish in front of learners as you search vainly for something because most learners have these technologies at their homes?	YES	NO
22.3 Afraid that technology may replace you?	Yes	No

23. Do you think instructional media has the potential to do the following:

231 Make provisional needs of individual learner	Yes	No
23.2 Motivate learner participation	Yes	No
23.3 Serve as a contribution in stimulating learning experiences	Yes	No
23.4 Have the potential to present a meaningful interpretation of abstract situation in a concrete form	Yes	No

24. How do you rate the following aspects on instructional media

24. Media can be confused with entertainment	True	Not true
24.2 Media can be expensive	True	Not true
24.3 Media can undermine personal contact	True	Not true
24.4 Media can create misconceptions	True	Not true

25. Does the government contribute in ensuring that enough instructional media are available at your school?

Yes	1
No	2

D. TRAINING RECEIVED BY TEACHERS ON THE USE OF EDUCATIONAL MEDIA

26. Are you able to produce your own instructional media?

Yes	1
No	2

If No, why_____

_____

27. Are you able to make use of instructional media available at your disposal?

Yes	1
No	2

If No, why_____

_____

_____

28. Did you receive training on the use of the following instructional media?

Overhead projector	Yes	No
slides	Yes	No
Television/Video	Yes	No
Computers	Yes	No
Film projectors	Yes	No
Games	Yes	No
Audio Tapes	Yes	No
Maps	Yes	No

29. Do you have guidelines on the use and selection of instructional media?

YES	1
NO	2

THANK YOU FOR TAKING YOUR TIME AND RESPONDING TO THIS QUESTIONNAIRE.