EMPOWERING PUPILS TO SUCCEED: TEACHING FOR INDEPENDENT LEARNING AND THINKING

by

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SINOPSIS

Die vermoe tot onafhanklike leer en denke is 'n noodsaaklike vaardigheid in 'n samelewing wat al hoe meer kompleks word. Opvoeders dra dus toenemend die verantwoordelikheid om leerlinge met hierdie vaardigheid toe te rus, eerder as om die klem op 'n leer-en-memoriseer-benadering te laat val.

Aangesien opvoedkundige leiding-onderwysers nie alleen met gedrags- en emosionele probleme van leerlinge gemoeid behoort te wees nie, behoort die bevordering van onafhanklike denke en leer deur samewerking tussen vak- en opvoedkundige leiding-onderwysers benader te word.

In hierdie studie word gefokus op 'n klas van swart leerlinge in 'n oorwegend blanke skool. In oorleg met hul ouers is besluit om die probleme wat die leerlinge met hul akademiese vakke ervaar het, te probeer oorbrug deur samewerking tussen die opvoedkundige leiding ondersyseres en die vak-onderwyseres.

Die doel van die studie was om die interaksie tussen die leerlinge en 'n onderwyseres in 'n spesifieke onderrigsituasie te beskryf, met die doel om riglyne vir vak- en opvoedkundige leiding- onderwysers te ontwikkel. Die oogmerk van die riglyne is the genoemde samewerking tussen hierdie onderwysers, met die oog op die bevordering van onafhanklike denke en leer.

Die navorsingsontwerp is gebaseer op die kwalitatiewe navorsingsparadigma, wat die navorser in staat stel om die te bestudeerde verskynsel in die natuurlike konteks te eksploreer en te beskryf.

'n Video-opname is gemaak van die interaksie tussen 'n onderwyseres (in die aanbieding van 'n les in die media-sentrum) en die betrokke klas. Die onderwerp van die les is gekies op grond van die moontlikhede vir interaksie wat dit bied.

Die video-opname, sowel as 'n woordelikse transkripsie daarvan en veldnotas wat tydens die les gemaak is, is in Fase 1 van die studie ontleed. Die temas wat hieruit geidentifiseer is, is vergelyk met temas uit die relevante literatuur, en het die basis gevorm vir die twaalf riglyne wat daarna in Fase 1 ontwikkel is. Die riglyne vervat verskeie aspekte van 'n interaktiewe onderrig- en leerstyl en behels aspekte soos die volgende:

* 'n Treffende aanknopingspunt.
* Die verwyding van parate antwoorde deur die onderwyser.
* Verduideliking, nuwe woorde en vraagstelling, waar dialoog belankrik is.
* Aansluiting by die ervaringswereld van die leerling.
* Terugvoer.
* Vrywillige deelname.
* Stimulerende studiemateriaal.

Die essensie van die gestelde riglyne is samewerking tussen die opvoedkundige leiding- en vakonderwyser in belang van die kind.

Die studie le klem op die verantwoordelikheid van die opvoedkundige leiding-onderwyser se betrokkenheid ook by die akademiese probleme wat leerlinge mag ervaar.

Leemtes in die studie is uitgewys, waarna aanbevelings vir verdere navorsing gedoen is.

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CHAPTER ONE

CONTEXT, STATEMENT OF PROBLEM AND AIM OF STUDY

1.1 INTRODUCTION

"Schools all over the United States and indeed all over the world, are beginning to plan seriously for teaching thinking" (Beyers, 1988:ix).

These words are being echoed more and more by all role players in the community. A caption on the front page of the magazine "People Dynamics" (1994) reads, "GOOD THINKING - THE MISSING LINK". In this article, the business community informs us that developing the good thinking skills needed to enable employees to participate in decision-making, is the "missing link".

It would appear that good thinking skills are an important requirement for the future and that it is crucial for pupils to develop decision-making and problem solving skills, which may be linked directly to independent thinking. This raises the question as to how to empower our pupils to succeed in becoming independent learners and thinkers in order to cope with the demands of life.

Katz (1994:37) maintains that thinking is rather like a sport or a hobby - it can be taught, practised and improved with the proper effort. The problem is that most of us never stop to analyse how we think - or more important, how we might improve our mental fitness and thinking processes. Katz (1994:37) also states that, contrary to popular belief, breakthrough ideas seldom appear as bolts out of the blue. Instead they occur most often through what Louis Pasteur described as "mental preparation" (the flexible state of mind which encourages proactive thinking).

Instead of "mental preparation", Clur (1994:14) speaks of "cognitive skills empowerment". He argues that cognitive skills empowerment will underpin the success of all development programmes in South Africa over the next five years and ensure improved efficiency through the prevention of mistakes. Cognitive skills empowerment, according to him, releases the 'power of thinking' that lies within each individual. It develops the ability to transfer concepts, to apply reasoning skills and to identify and solve daily problems effectively.

According to Beyer (1988:2), learning to think is not the incidental outcome of classroom study directed at information telling, or memorising, or the study of diverse subjects. Nor is it the result of simply responding to teacher or textbook questions.

More than two decades ago, Little (1973:7) wrote that, implied in our traditional teaching, is the acquisition of cognitive skills, that is, sifting and judging information and using it; the point is that these skills ought to be made a more explicit and self-conscious part of the education system. Little's impression is that content and matter are given greater priority than approach and manner. In other words, the acquisition of cognitive skills is not an explicit part of the education system. Perhaps the most important intellectual skill one can develop is intellectual independence; a capacity to be self-directing and self-regulating; to have independence of mind, judgment and motivation (Little, 1973:3).

There is another reason why the emphasis needs to be placed on the teaching of thinking in our schools and that is because of the explosion of knowledge with which our children are being bombarded. Shaw (1994:7), in writing about the necessity for cognitive education in the development of quality education in South Africa, states that a further motivation for teaching thinking is the fact that we are living in an information age. Employers are recognising the need for thinking individuals, individuals who can adapt to career changes and who can process increasing amounts of information.

When discussing the volume and almost transient nature of information around us, Beyer (1988:25) states that the long-range value of proficiency in thinking takes on special significance, and quotes psychologist Robert Sternberg as saying that bodies of knowledge are important of course, but they often become outdated. This is in contrast with thinking skills which never become outdated. To the contrary, they enable us to acquire knowledge and to reason with it, regardless of the time or place or the kinds of knowledge to which they are applied. "So in my opinion", says Sternberg, "teaching thinking skills is not only a tall order, but the first order of business for a school" (Sternberg in Beyer, 1988:25)

According to Beyer (1988:35) to improve the quality of student thinking as much as we can, we must turn to teaching directly the skills and strategies that constitute thinking. He goes on to say that, in addition to the above, the teaching of thinking in certain subject matter has important humane benefits; he cites Lipman and others (1985) who point out that to teach thinking skills in isolation of certain subjects may communicate a mechanistic view of thinking skills and strategies and thus produce mere skill technicians, devoid of the affective components related to such skills and their uses. This means that, when we teach, for example, problem solving strategies to students, we must be cautious that we do not give the impression that problem solving is a bag of tricks that we can apply at the right time and place (Schmalz, 1991:19). According to Baer (1988:67), the renewed interest in how to teach students to be better thinkers is one of the most important directions that education has taken in recent years. Tishman, Jay and Perkins (1993:147) maintain that what sets good thinkers apart is not simply superior cognitive ability or particular skills; rather, it is their abiding tendencies to explore, inquire, seek clarity, take intellectual risks, and think critically and imaginatively. According to Tishman, et al. (1993:148), these tendencies can be called "thinking dispositions".

The problem facing education is how we can teach thinking more effectively in the school curriculum to empower our children to succeed in life.

1.2 PROBLEM STATEMENT

Part of the responsibility of educational guidance is to give pupils help on the pedagogic-didactic level to enable them to benefit fully from the instruction they receive (Van den Aardweg & Van den Aardweg, 1988:104).

As guidance teacher I was involved in a problem that my form class experienced. Being a Black class in a predominantly white school, they experienced problems with their school work, on account of their lack of proficiency in English. Their parents did not like the idea of putting them in a bridging class which primarily concentrates on language and subject content. Instead we decided, in co-operation with their English and media teachers, to help them change what was originally a passive, acquiescent attitude - which in all probability was due to teaching that emphasises rote learning of factual knowledge, and also, possibly, to the traditional Black culture, which promotes deep respect for senior members of the community and those in authority (Adams & Adams, 1991:43). Both of these could be negative factors in the effort to teach independent learning and thinking.

As independent learning and thinking are fostered by an interactive teaching style (Haywood, 1987:3), the problem to be studied in this research can be formulated as follows:

How can the interaction between the teacher and pupils during the course of a lesson contribute towards a style of teaching and learning which will foster independent learning and thinking, and what guidelines can be developed for guidance and subject teachers as they co-operate in promoting independent learning and thinking in pupils?

1.3 PURPOSE OF THIS RESEARCH

Based on the identified problem, the purpose of this research is to explore and describe the interaction between the pupils and the teacher in a classroom situation during the course of a lesson. The information gathered from this observation will be used to develop guidelines for the co-operation between subject and guidance teachers with regard to fostering independent learning and thinking in pupils.

1.4 PARADIGMATIC PERSPECTIVE

The perspective with regard to the field of educational guidance will be given, as well as a methodological perspective.

1.4.1 Educational guidance

In this research, the study is taken from the perspective of the educational guidance teacher. According to Van den Aardweg and Van den Aardweg (1988:104), guidance and counselling is a comprehensive, pedagogical, ancillary service, involving the goal-directed, conscious, purposeful effort of an educator to support and advise the pupil in all aspects of his becoming so that he can reach his potential. Guidance and counselling involves all students at all phases of their school career. It is the personal assistance given, by an adequately trained person, to an individual, to enable him to manage his own life activities, making his own decisions and plan for his future. In other words to become an independent learner and thinker.

According to Beyer (1988:37), teaching students how to be more skilled at thinking can help them develop greater self-confidence and self-esteem, both of which seem to be crucial prerequisites for the actualisation of their full potential, both personally and academically. We want students to become good thinkers because thinking is at

the heart of what it means to be human; to fail to develop one's potential in this regard is to preclude the full expression of one's humanity (Baron & Sternberg, 1987:32). These authors also maintain that a good thinker is characterised in terms of knowledge, abilities, attitudes and habitual ways of behaving. According to Desforges (1995:197) in order to ultimately survive in a degenerate society, pupils need to know their own minds, to judge things for themselves, to know right from wrong and to act accordingly within the law. These capabilities are known collectively as moral and intellectual autonomy.

Educational guidance and counselling also include help given on the pedagogic/didactic level to the student to enable him to benefit fully from the instruction he receives, so that he may be sufficiently motivated to fulfil his potential (Van den Aardweg & Van den Aardweg, 1988:104). The building of a child's self-esteem is closely linked to his motivation in fulfilling his potential and it is the responsibility of all teachers to provide opportunities for both these attributes to be developed.

1.4.2 Definition of Terminology

In the following section some of the important terms used in this study will be explained.

1.4.2.1 Independent learning and thinking

According to the Cognitive Enrichment Network Program (COGNET) (1995:6), the following seems to encapsulate the concept of independent learning and thinking. In order to be an active generator of information and not just a passive recipient, the pupil must experience inner meaning when involved in the process of learning. This provides intrinsic motivation for learning and remembering.

To be an independent learner means to have the capacity to be self-directing and self-regulating. A feeling of confidence is required; knowing you have the ability to do a particular thing, the lack of which often results in laziness and other avoidance behaviour and the presence of which results in feeling confident and motivated to learn.

An independent learner has goal-directed behaviour; that is, taking the initiative in setting, seeking and reaching objectives on a consistent basis. Self-development needs to take place; being aware of your uniqueness as an individual and working towards all you can be. A feeling of challenge is required and knowing how to deal with challenge.

According to Haywood (1990:4), in order to achieve the above, a major goal should be to help pupils to develop processes of logical thought that can be applied to the solution of personal, social and moral problems and dilemmas. This goal does not suggest that people should be taught what to think, but that their minds should be liberated by helping them how to think more effectively and systematically.

1.4.2.2 Empowerment

Empowerment in this context for the student does not mean making every effort to cover the curriculum with the emphasis on rote learning and memorisation. It means helping the student take control of his/her life and become an independent learner and thinker, the ability of which will give them the security to adapt to change and to take advantage of the opportunities that create change. Empowerment in this context refers to the human need to have a sense of personal mastery (Charlton, 1993:87).

1.4.2.3 Cognitive Education

Cognitive education involves, among other things, three distinct elements. Firstly, an

emphasis in the curriculum on processes of learning and thinking rather than content and meaningless memorisation. Secondly, effective teaching methodologies for raising awareness about, and the utilization of, cognitive skills and processes within specific subjects. Thirdly, it connects and synthesizes the information and thinking skills (Skuy, 1994:8). The point of departure therefore in cognitive education is teaching for understanding (literal, inferential and critical), as well as teaching for thinking (that is, the teacher employing mediated learning as a means to developing understanding) (Van Wyk, 1994:10).

The TED's "Education for Living" programme (undated), when dealing with the personal self of the pupil and the development and establishing of the self-image and self-concept, refers to the development of the cognitive self as the "conscious development and application of cognitive abilities (for example, logical, critical, independent, innovative, creative and rational thought)". The development of these cognitive skills, according to the department of education, should permeate all subjects. Das (1994:2) quotes Feuerstein (1979) as maintaining that cognitive training has also improved intellectual performance, especially of culturally disadvantaged children.

1.4.2.4 Mediated Learning

Mediated learning takes as its point of departure the concept of cognitive education as explained above.

The approach taken by supporters of mediated learning is that every child can benefit from this style of teaching regardless whether they come under the umbrella of gifted children, disadvantaged children or the everyday child in the school. Haywood and Switsky (1986) as quoted by Samuels, Klein and Haywood (1995:3) suggests that intelligent behaviour requires two components, namely, native ability which is largely genetically determined and cognitive functions which are acquired. According to

these authors, cognitive functions include learned cognitive operations, principles, processes and strategies as well as 'not intellective' factors such as attitudes, beliefs and motivation. The focus of research on cognitive modifiability has been on the modifiability of cognitive functions and stands in contrast to notions of fixed ability in which it is believed that little can be done to change significantly an individual's intelligence and, hence, the environment is adapted to meet the needs of the individual. Gilg (1990:64), when discussing the reasons why high risk youth (youth with learning difficulties) have academic difficulties, cites Feuerstein as assigning causality most directly to cognitive deficiency and therefore identifies the mind as the agent of change in the life of a student. And so, Feuerstein continues, while schools can do little to make a radical change in the environmental conditions under which students live, they can do a considerable amount in the development of the mental capacity of those students.

According to Feuerstein (in Samuels et al., 1995:4), cognitive modifiability is brought about through direct encounter with stimuli and through interaction with others. It is a particular mode of interaction which Feuerstein calls **mediated learning experience**. The criteria for mediation are the following (Wiechers, 1991:7):

* The intervention must be intentional. This means the educator must move in between the child and the outside world and must, for example, through his questioning and focusing of attention, enrich the child's experience of reality. He leads the child in giving true meaning to the situation.

* Bridging (also referred to as "transfer of learning results") is an important concept in mediation. If a child can bridge what he is learning to other situations, he really understands it. Bridging is a very important medium for counteracting rote learning.

* Metacognition. Controlling the child's metacognitive functions in fact

involves the child actively. It is "thinking about thinking". It is very important how a child thinks while searching for an answer - it is in fact more important than the correct answer itself. The process and not just the answer must be controlled.

* Questioning. A key issue as far as mediated learning is concerned is to try not to give a child ready-made answers and not to ask only closed questions. One of the things that seem to inhibit thinking is when a teacher answers children's questions (or his own) by giving a ready-made answer. This has various negative effects, for example, the children become totally dependent upon the teacher for knowledge, because the teacher has the power to answer the questions and the child loses it. Teaching for thinking should empower the child. The tendency of the teacher to give ready-made answers may also destroy a child's self-confidence and contribute to a negative self-concept (Haywood, 1987:4). After a while he does not believe that he is capable of generating knowledge.

1.4.3 Methodological perspective

The qualitative research design was chosen for this study, because it enables the researcher to study the topic of interest in a natural setting. In this case, it was the class under observation in a normal classroom situation. Qualitative research is carried out in ways that are sensitive to the nature of human and cultural social contexts, and is commonly guided by the ethic to remain loyal or true to the phenomenon under study, rather than to any particular set of methodological techniques or principles (Altheide & Johnson in: Denzin & Lincoln, 1994:488).

1.5 RESEARCH DESIGN AND METHODOLOGY

To ensure scientific rigor in the application of the research process, the

implementation of the research design and method will take place as follows:

1.5.1 Research Design

A qualitative, exploratory, descriptive and contextual research design will be used in order to gain as much insight as possible into the interaction that takes place between the pupils of the selected class and the teacher in the classroom situation during the course of a lesson. (The lesson was specifically planned to employ an interactive teaching style.) The insights gained will be used to develop guidelines that will enable teachers to promote independent learning and thinking.

1.5.2 Research Method

Guba's model for trustworthiness will be used to ensure the validity and reliability of this study (Guba & Lincoln 1981:75-91). The four criteria that will be applied will be truth value, applicability, consistency and neutrality. The truth value is ensured by using strategies of credibility; applicability by applying strategies of transferability; consistency is ensured by strategies of dependability and neutrality by strategies of confirmability. The above strategies will be discussed in more detail in chapter two.

The research will comprise two phases. During phase one the interaction between the teacher and pupils during a lesson in a standard six class will be explored and described. During phase two guidelines will be developed and discussed whereby pupils can be assisted to become independent in their learning and thinking.

1.5.2.1 Phase I:

Exploration and description of the interaction between pupils and the teacher in a classroom situation during the course of a lesson.

To enable an exploratory and descriptive study to take place, phase one will consist

of sampling, collecting of data, analysis of data and literature control.

* Sampling - The target population consists of a standard six class of Black pupils in a multicultural school.

* Data-gathering will take place by making a video recording of a lesson depicting the interaction between pupils and the teacher. A verbatim transcription will be made of the video recording and field notes will be prepared.

* In order to explore and describe the interaction between the pupils and the teacher in the classroom situation during the course of the lesson, analysis of the data is necessary, namely, the video recording of the lesson, a verbatim transcription of the video recording and field notes based on observation that took place during the lesson. A literature control will also be made as a method of data confirmation.

1.5.2.2 Phase 2:

Description of guidelines for the co-operation between guidance and subject teachers with regard to promoting independent learning and thinking of pupils.

During this phase, guidelines for the co-operation between guidance and subject teachers with regard to promoting independent learning and thinking of pupils will be developed, based on the results of the analysis of the data in phase one in conjunction with a literature control. To ensure that the presentation of data as incorporated in the guidelines reflects the experience accurately, a final peer check will take place with my colleagues at school.

1.6 CONCLUSION

The orientation and rationale as well as scientific foundation of the study is stated in chapter one. Research design and methodology follows in chapter two. Chapter three will contain the results of the data-analysis and literature control. In chapter four guidelines and recommendations for the style of teaching that will promote independent learning and thinking will be discussed. Chapter five will conclude the dissertation with an overview of the study and its results.

CHAPTER TWO
RESEARCH DESIGN AND METHODOLOGY

2.1 INTRODUCTION

In chapter one the orientation and rationale of the research study were described. In chapter two the research design and method of this study will be given.

A qualitative research design was chosen for this study, as it involves an interpretative, naturalistic approach to its subject matter. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them (Denzin & Lincoln, 1994:3). It is largely an explorative, descriptive and contextualised process where the researcher gradually seeks to understand the phenomenon through immersion in the everyday life of the setting chosen for the study (Creswell, 1994:161). The researcher is a teacher at the particular school where the study is taking place, observing current classroom situations in order to explore and describe how teaching and learning takes place.

2.2 OBJECTIVES

Based on the identified problem in chapter one, the purpose of this research is to explore and describe the interaction between the pupils and the teacher in a classroom situation with a view to developing guidelines for the co-operation between guidance and subject teachers in order to foster independent learning and thinking in pupils.

2.3 RESEARCH DESIGN

According to Merriam (1988), a research design is similar to an architectural blueprint. It is a plan for assembling, organisizing and integrating information (data) and it results in a specific end product (research findings). The selection of a particular design is determined by how the problem is shaped, by the questions it raises, and by the type of end product desired.

The type of inquiry decided upon in this case was that of a qualitative study which will be exploratory, descriptive and contextual in nature (Mouton & Marais, 1991:43-44,51).

2.3.1 Qualitative

Qualitative research is based on assumptions that are very different from quantitative design (Kvale, 1983:175). Theory or hypotheses are not established a priori. It focuses on the process that is occurring as well as the product or outcome (Creswell, 1994:162). Qualitative research involves fieldwork, fundamentally depending on watching people in their own territory (Kirk & Miller, 1986:12). The qualitative researcher, rather than some inanimate mechanism, is the primary instrument for data collection (Eisner, 1991; Fraenkel & Wallan, 1990; Lincoln & Guba, 1985; Merriam, 1988, as quoted by Creswell, 1994:162). Qualitative researchers are particularly interested in understanding how things occur (Fraenkel & Wallan, 1990; Merriam, 1988, as quoted in Creswell, 1994:162).

Mouton and Marais (1994:161) refers to qualitative research as that which emerges from the development of investigation and which can often not be rejected.

Based on the above approach the purpose of this research is to explore, or investigate, the interaction between the pupils and the teacher in a classroom situation

during the course of a lesson. The emerging information gathered from observing the interaction that took place during the lesson will be used to develop guidelines for subject and guidance teachers as they co-operate in fostering independent learning and thinking in pupils.

2.3.2 Exploratory

According to Mouton and Marais (1994:43), exploratory studies usually lead to insight and comprehension rather than the collection of accurate and replicable data...hypotheses tend to be developed as a result of such research, rather than research being guided by hypotheses or, as in this case, criteria. Mouton and Marais (1994:43) maintain, therefore, that it is important to follow an open and flexible research strategy and that the best guarantee for the completion of an exploratory study is to be found in the researcher's willingness to examine new ideas and suggestions and to be open to new stimuli. Use should be made of methods such as literature reviews, interviews, case study and informants which may lead to insight and comprehension.

With this in mind, a video recording was made of a lesson which took place in the Media centre during which classroom interaction was observed and explored for the purpose providing guidelines for the fostering of independent learning and thinking in pupils. A comprehensive literature control was undertaken to add further insight and comprehension.

2.3.3 Descriptive

The data that emerge from a qualitative study are descriptive. That is, data are reported in words or pictures, rather than in numbers (Fraenkel & Wallan, 1990; Locke et al., 1987; Marshall & Rossman, 1989; Merriam, 1988, as quoted by Creswell, 1994: 162). A verbatim transcription will be made of the video recording; field notes of

impressions during the filming of the lesson will also be recorded.

2.3.4 Contextual

This study is contextual in nature because it deals with exploring and describing the interaction between a class of standard six pupils and their teacher in the classroom situation in a specific school.

Mouton and Marais (l99l:49-50) describe a contextual research strategy as one in which events or phenomena are studied for the interest which they may have as representative examples of a larger population or similar events or phenomena.

2.4 RESEARCH METHOD

The discussion of the research method will be specific and comprehensive in order to describe various facets of the research process with attention to detail. The modus operandi of the researcher will be dealt with sequentially in the order of proceedings.

In order to assess the trustworthiness or rigor of qualitative research, measures need to be taken to ensure this trustworthiness.

2.4.1 Measures to ensure trustworthiness

Guba's model for trustworthiness was utilised to contribute to the validity and reliability of this study (Guba & Lincoln, 1981:75-91). The four criteria for trustworthiness are: truth value, applicability, consistency and neutrality. The truth value was ensured by using strategies of credibility and applicability by applying strategies of transferability. Consistency was ensured by strategies of dependability and neutrality by strategies of confirmability. The above strategies were applied as follows:

2.4.1.1 Credibility

The following aspects contribute to the credibility of the study:

a) Reflexivity

Aamodt (1982) as quoted by Krefting (1991:218) noted that the qualitative approach is reflexive in that the researcher is part of the research, not separate from it. I was able to observe the lesson and make the necessary field notes by using "bracketing" and "intuiting" (Oiler, 1982, as quoted in Burns & Grove, 1995:8). "Bracketing" means that all preconceived ideas are placed within brackets. During intuiting the focus was on independent learning and thinking in the classroom situation.

b) Triangulation

This is a powerful strategy for enhancing the quality of the research. It is based on the idea of convergence of multiple perspectives for mutual confirmation of data to ensure that all aspects of a phenomenon have been investigated (Krefting, 1991:219).

In this study data was collected by means of a video recording, a transcription of the video recording and field notes of the observation. Giorgi's (1985:10-19) and Kerlinger's (1986:477) methods were used by an independent coder for data analysis: a literature control also forms part of triangulation.

c) Peer examination

An independent coder was used to critically assess the videotape recording, transcription of the video recording and field notes based on observation of the

pupils in their classroom situation. The authority of the independent coder was established because of extensive previous experience with qualitative methods.

d) Structural coherence

This ensures that there are no unexplained inconsistencies between the data and their interpretations. This research has as its focus the subject of exploring teacher/pupil interaction aimed at stimulating independent learning and thinking of standard six pupils in the classroom context.

2.4.1.2 Transferability

It is the responsibility of the researcher to provide an adequate database to allow transferability judgments to be made by others. According to Krefting (l99l:22)), therefore, it is critical that researchers provide dense background information about the informants and the research context and setting to allow others to assess how transferable the findings are.

2.4.1.3 Dependability

This criterion relates to the consistency of findings (Guba & Lincoln, l981:75-91). The different data collecting methods used in this research are observation and video recording. In addition a dense description of methods will provide information as to how repeatable the study might be or how unique the situation. This will be provided in phase one of this research. Dependability can also be enhanced through triangulation to ensure that the limitations of one method of data collection are compensated by the use of alternative data-gathering methods. The use of colleagues and methodological experts (peer examination) to check the research plan and implementation is another means of ensuring dependability, in addition to a literature control (Krefting l99l:221).

2.4.1.4 Confirmability

This strategy involves an external auditor (independent coder) attempting to follow through the natural history or progression of events in a project to try to understand how and why decisions were made (Guba & Lincoln, 1981:75-91). In addition, auditability suggests that another researcher could arrive at comparable conclusions given the same data and research context. The field notes of the observation, video recording and a verbatim transcription of the video recording were handed to an independent coder for analysis. Also useful for the establishment of confirmability is the multiple methods of triangulation as a means of analysis as discussed above, as well as reflexive analysis to ensure that the researcher is aware of his or her influence on the data (Krefting, 1991:221).

2.4.2 Ethical Measures

According to Miles and Huberman (1994:288), qualitative data analysis is more than a technical matter. We cannot focus only on the quality of the knowledge we are producing, as if its truth were all that counts. We must also consider the rightness or wrongness of our actions as qualitative researchers in relation to the people whose lives we are studying, to our colleagues and to those who sponsor our work. Miles and Huberman (1994:291) quote McQuillan and Muncey (1990) as suggesting that a school should ask the researcher the following questions before it agrees to proceed. 1) What is the focus of the research? What are the guiding questions? Why and for whom is the research being done? 2) How will data be collected? 3) Who will be asked to participate in this research? 4) What role(s) will school personnel be asked to play in this research? 5) How will participants' confidentiality be protected? 6) Will research participants assist in data analysis? 7) What feedback will the school receive, what form will it take, and at what stages of the research process will be be provided?

In this particular study, my colleague was very willing to allow me to video and observe during the lesson concerned. My principal was also approached as to my intentions and my pupils were very excited about being videoed. Consent from the parents was not necessary because the emphasis was not on the pupils but how independent learning and thinking can be promoted in the classroom situation.

The research will take place in two phases - phase one will explore and describe by means of field work the interaction between the students and the teacher in the classroom situation, and phase two will describe guidelines for teachers to promote independent learning and thinking; the guidelines will be based on themes; identified through data analysis, supported by relevant literature.

2.4.3 Phase I:

Exploration and description of the interaction between pupils and the teacher in a classroom situation during the course of the lesson.

Phase one consists of choosing the target population, collecting data, analysis of data and literature control.

2.4.3.I Sampling

Sample Population - The sampling population consists of a standard six class of Black pupils in a multicultural school.

Method - The purposive sampling method was used to select participants because they were available for participation in the study at the time it was conducted (Burns & Grove, 1995:218). The method in choosing the sample unit was purposive inasmuch as the teacher and the standard six pupils were engaged in interactive teaching.

2.4.3.2 Data-gathering

A video recording was made of a lesson. Field notes were made of the observation that took place while the lesson was being videoed in the Media Centre (Bottorff in Morse ed.,1994:248-252). The media teacher was in the process of giving a series of lessons on the phenomenon of unidentified flying objects - a subject of intrigue and controversy. I requested her, in the giving of the lesson, to ensure that the principle of interactive teaching be applied.

a) Video Recording

The purpose of the videotaping was to explore and describe the interaction between pupils and teacher in a classroom situation.

One of the major strengths of video recording is its capacity of a more thorough and complete analysis. It is also a valuable aid in the compiling of field notes. Two major limitations in the use of video recordings are the absence of contextual data beyond what is recorded and the lack of opportunity to test emerging interpretative theories as an active participator in the scene (Poggenpoel, 1995:1-9), quotes Bottorff in Morse, ed. 1994:247). It may also sometimes be difficult to interpret. However, it is still very advantageous in that it enables one to catch every subtle unit of meaning by watching it several times. In addition, it has the advantage over an audiotape inasmuch as body language can also be interpreted. Even though the presence of the observer may be disruptive and affect responses, this was not the case in this study. During the course of the year a good rapport was built up with the pupils in this particular standard six class, making it an open and non-threatening situation when I needed to do the videotaping (which was done in September), thereby virtually cancelling any restrictions on normal behaviour which is usually a point of criticism against the use of video

recordings.

b) Observation.

Observation of the lesson given in the Media Centre took place while it was being videotaped. According to Merriam (l988:90), examples of elements likely to be present in an observation are: the setting, namely the physical environment which in this case was the classroom situation; the participants, (a standard six class of Black pupils in a predominantly White school), activities and interactions, for example what is going on - which in this instance is the interaction between pupils and teacher in the current classroom situation.

What to observe is determined by several factors; the most important is one's purpose in conducting the study in the first place. For example the educator is observing the standard six class because she is interested in whether they are stimulated to become independent learners and thinkers. What to observe is also somewhat a function of how structured the observer wants to be. A less structured observation was needed here by making use of the video camera.

Once the observation is completed, it is suggested that field notes be recorded as soon as possible in order to remember the observations made and to be able to retrieve and analyse them at a later date. Field notes were made from the observation that took placé during the lesson described above. The format of the field notes usually includes the following: Verbal descriptions of the setting, the people and the activities, direct quotations or at least the substance of what was said. Observer's comments - put in the margins or in the running narrative and identified by underlining, bracketing, or the initials "OC".

Observer's comments include the researcher's feelings, reactions, hunches, initial interpretations and working hypotheses (Merriam 1988:98).

Field notes are categorised according to the purpose they will serve, namely into observational notes, theoretical notes, methodological notes and personal notes (Polit & Hungler, 1987:271-272).

The advantages of observation are that the researcher has firsthand experience with informants, recording information as it occurs, especially unusual aspects that can be noticed during observation.

c) The Researcher as a measurement tool

According to Krefting (1991:220) who quotes Miles and Huberman (1984), the essence of credibility is the unique authority of the researcher, the "I was there" element. In this instance the researcher was able to observe the lesson. Krefting (1991:220) further quotes Miles and Huberman (1984) as stating that one of the characteristics necessary to assess the trustworthiness of the human instrument is the degree of familiarity with the phenomenon and the setting under study. My interest in the subject of cognitive development was aroused by attending a conference in 1994 and a panel discussion in 1995 at the university of the Witwatersrand. In addition to the above, the staff at our school were addressed by a visiting speaker on the approach taken by Adey and Shayer (1994) in their book "Really Raising Standards" dealing with cognitive intervention and academic achievement. A comprehensive literature study on the subject of cognitive development and the teaching of thinking was also undertaken.

2.4.3.3 Data-analysis

The purpose of qualitative analysis can be summarised from Wilson (1989:457-461) as exploration and description, accounting for and illustrating qualitative findings, discovery and explanation and extension of theory. The purpose of this research is to explore and describe the interaction between the pupils and the teacher in a classroom situation during the course of a lesson. The information gathered from this observation will be used to develop guidelines for the co-operation between subject and guidance teachers with regard to fostering independent learning and thinking in pupils.

Accordingly, data collected as per above methods necessitated analysis. The video recording of the lesson in the Media Centre was transcribed verbatim (Addendum B). Data analysis of the video recording, transcription of the video recording and field notes will be undertaken by an independent coder using Giorgi's (1985:10-19) and Kerlinger's (1986:477) methods of analysis. An independent coder contributes to the trustworthiness of the study by giving an objective point of view. Perhaps the strongest argument for the retention of objectivity in qualitative research comes from Kirk and Miller (1986:2) who says the following:- "Objectivity....is the essential basis of all good research. Without it the only reason the reader of the research might have for accepting the conclusions of the investigator, would be an authoritarian respect for the person of the author".

A protocol for use by the independent coder will be provided (see addendum A). This will include instructions or guidelines pertaining to her modus operandi in reviewing the data for analysis. It will be contingent upon the independent coder to produce the conclusions to which she comes.

Data will be coded by using "bracketing" and "intuiting". By bracketing the information, the independent coder suspends or lays aside what is known about the experience

being studied. This procedure gets rid of sedimented views and deconstructs and also facilitates "seeing" all the facets of the phenomenon (Oiler, 1982, as quoted in Burns & Grove, 1995:8). Intuiting is the process of actually "looking at" the phenomenon. The researcher during intuiting, focuses all awareness and energy on the subject of interest. This allows for an increase in insight. This procedure requires absolute concentration and complete absorption with the experience being studied (Oiler, 1982, in Burns & Grove, 1995:8). Words and themes must be underlined and placed into categories. If sub-categories are also identified the interrelationships between categories and sub-categories must be indicated. This must be followed by a consensus discussion between the researcher and independent coder. In this way a further aspect of the validity of findings will be dealt with.

2.4.3.4 Literature Control

According to Merriam (1988:61), all research should take into account previous work in the same area. Investigators who do not take the time to find out what has already been thought or researched may be missing an opportunity to make a significant contribution to their field. Indeed, one function of the literature control is to provide the foundation for contributing to the knowledge base.

2.4.4 Phase 2

During this phase guidelines will be developed from themes identified in the data analysis in conjunction with corresponding themes in the literature. The guidelines are developed so that subject teachers, together with guidance teachers, can promote independent learning and thinking.

To ensure that the presentation of data accurately reflects what took place during the videoing of the lesson, a final peer check will take place with my colleagues at school.

2.5 CONCLUSION

In this chapter, the research design and methodology for exploring the interaction between the teacher and pupils, and describing guidelines to promote independent learning and thinking, has been discussed. An attempt has been made to fully describe all the facets of the research process, as well as justify their use. Considerations such as validity, reliability and ethical implications have also been reviewed. The researcher will operationalise the research process in the manner described in this chapter.

CHAPTER THREE
DISCUSSION OF RESULTS

3.1 INTRODUCTION

In this chapter the results obtained from an analysis of a video recording of a lesson, the transcription of the video recording and field notes of observation that took place during the course of the lesson will be discussed.

3.2 ANALYSIS OF DATA AND LITERATURE CONTROL

The video recording and verbatim transcription of the videoed lesson were analyzed by the researcher and an independent coder in terms of Giorgi's (1985:10-19) and Kerlinger's (1986:477) methods of analysis. A subsequent meeting between the independent coder and myself was held to discuss the results of the analysis to determine the degree of consensus.

Field notes were made as an adjunct to the video recording. These are a necessary part of data gathering as they validate the context in which the video recording took place. According to Wilson (1989:434), a field researcher needs a system for remembering observation and, even more importantly, retrieving and analysing them. The field notes were discussed with the independent coder for the purpose of validation and consensus.

Simultaneous to the discussion of the themes identified in the analysis, a literature control will be made as a further measure of the trustworthiness of the results

obtained in the field research.

According to Marzano (l993:154), twenty years ago the call for the teaching of thinking was a small one made by a few individuals and organisations. In answer to these calls a myriad of programmes and practices have been developed. Some of these will become evident during the discussion of the literature control.

Themes that were identified will be illustrated by quoted examples from the transcription of the video recording of the lesson, followed by a literature control which takes into account previous work in the same area.

3.3 THEMES IDENTIFIED

The themes that were identified are the following:

Trigger, pre-empting of answers, explanation, pupil's experience, new words, instruction and linking, exploring meaning and probing, subject material, visual representation, voluntary participation, confirmation and correction, praise and encouragement and pupils' frame of reference. It will become clear in the following discussion that some of the themes overlap.

3.3.1 Trigger

From the start of the lesson the teacher encourages participation by asking the pupils questions regarding their interest in the subject of unidentified flying objects. This questioning strategy is used to "trigger" off the imagination and stimulate the interest of the pupils, thereby engaging the thinking processes. The teacher asks the pupils, having given them the article to read prior to the lesson,

"Before you read that sheet, have any of you ever heard of unidentified flying objects or flying saucers...?"

According to "The Thinking Teacher" publication newsletter (1984:4) the essence of any effective teaching strategy lies in the questions a teacher asks. The burden is on the cognitive educator to search for and try creative means for enhancing the cognitive growth of children through an effective questioning style.

The November 1985 publication of "The Thinking Teacher" states that, while good mediators typically do ask a number of questions, it is not the number of questions that is significant, but the quality of questions. A good mediator asks questions that are directed to process rather than content. This can be seen as stimulating dialogue. In this respect, Sugden (1989:62) maintains that through conversational dialogue, teacher and children jointly create meaning from the text.

The teacher captures and maintains the interest of the pupils by using what Shalaway (1990:16) calls the Socratic approach. Baron and Sternberg (1987:157) refers to this as Socratic dialogue, that is a time when both teacher and student explore and discover together.

Shalaway (1990:16) argues that by using the Socratic approach, teachers learn to ask the proper questions, listen to student answers to determine hints of comprehension, and respond with follow-up questions that guide the students toward understanding. Right or wrong answers have no place here. Rather than telling them what to do, teachers help students construct their own ideas.

3.3.2 Pre-empting Answers

Even though the teacher uses the themes of questioning and prompting to good effect, she sometimes reverts to the "teacher as instructor" style by not giving the

pupils sufficient time to think about an answer to the question posed, for example,

"...ball of lightning... Have you every heard of that...?
It must be very frightening to be near ball lightning."

"Pinch of salt... the expression, has anyone heard it?
If you take something with a pinch of salt, it just means...."

A key issue as far as mediated learning is concerned, according to Wiechers (1991: 7), is to try not to give a child ready-made answers and not to ask only closed questions; in other words, questions that do not require an answer. One of the things that seem to inhibit thinking is when a teacher answers children's questions (or his own) by giving a ready-made answer. This has various negative effects, for example, besides the children becoming totally dependent upon the teacher for knowledge, this method also tends to destroy a child's self-concept and self-confidence (Haywood, 1987:3). As can be expected the pupils could not interact in this regard. Instead, according to Underbakke, Borg and Peterson (l993:144), the teacher must use what he refers to as "wait-time" (after asking a question, and before calling on someone). This could lead to a greater number of alternative explanations and more pupil participation.

3.3.3 Explanation

Explanation emerges as a recurring theme in the results of the analysis. Without this, reality cannot be unfolded to the pupil (Wiechers, 1991:7). The teacher explains as follows:

"...beings from outer space. Not people like us but strange creatures that live in different parts of the universe..."

"...each aeroplane in a different position, and that makes the shape that is called formation."

"Yes, it's a place where they park aeroplanes..."

"That's not a sphere, that's just a circle or a disc. The sphere is a shape of a ball. This is just a round shape."

This confirms a vital premise of cognitive education as mentioned in chapter one, inasmuch as, if thinking is to take place, understanding must occur (Skuy, 1994:10). Mediated learning experience takes place when the educator places himself between the child and reality and systematically explains his experiential world to the child (Wiechers, 1991:7). He accompanies the child in creating order in his world of experience and understanding. In this way he provides the child's cognitive structure with anchoring ideas and sees to it as well that the child's cognitive structure is logical and functional. The child's thinking is thus refined.

According to Feuerstein (1980) as quoted by Wiechers (1991:6) without mediated learning experience the everyday experiences of the child becomes impoverished.

3.3.4 Pupil's Experience

The teacher utilises the previous experience of pupils by continuously assessing the relevancy of the subject content to the personal experiences of the pupils, for instance,

"Has anyone in this class actually seen an unidentified flying object themselves?"

"Did anyone go to the air show in Pretoria during the holidays?"

"That expression, has anyone heard it?"

Herdman (1994:19) stresses the fact that we need to engage students by using their own lives and realities as a point of departure. Comprehending the text is an interactive process between the reader's background knowledge and the text (Machet, 1991:91). When new learning can be connected with something already known, we start to incorporate the beginnings of understanding into the learning process (Adey & Shayer, 1994:51). According to Sugden (1989:62) what drives the task for the children is the opportunity to bring their personal experience into the lesson and to compare their emergent interpretations of the text against those of peers; gentle exploring of their reasoning by the teacher assists them to create and express increasingly more competent and sophisticated renderings of their experience and of the text. As the conversation unfolds through interaction, the children develop the larger context for why they are engaged in the activity.

3.3.5 New Words

The teacher perceives the significance of helping students understand new terminology from the start of the lesson:

"Now there are going to be a few words that you don't understand in this passage, so let's have a look at these."

This remark caused the children to turn their attention to the article once again.

The explaining of new words before the article is read, is an important aspect, because, according to Adey and Shayer (1994:61) a problem does not even appear as a problem worthy of attention if its terms have no meaning. To concretely prepare and pave the way for pupils to pursue any subject, means establishing familiarity with the vocabulary. Plugging new learning into a network of existing concepts is one of

the requirements of meaningful learning (Adey & Shayer, 1994:5).

Gillies (1995:6) maintains that teachers must use language which facilitates learning and creates a more intimate and supportive classroom context.

3.3.6 Instruction and Linking

The teacher periodically redirects the attention of the pupils to the subject content and also links it to previous information in the article. This promotes focusing on the subject matter. For instance the teacher says,

"Just have a look again at that sheet."

"We had formations just now."

"Just now you said there were no aliens."

According to Woditsch (1991:35) especially heavy emphasis is placed on nurturing the young child's capacity to "point out" - sustain focus - because the strength of that generic skill gives impetus to the others. Strong focus binds the mind to its object with an almost irresistible urge to explore. The mind wants to possess in the only way it can, by knowing, and it knows by penetrating, noting likenesses and distinctions, shaping the object's unique place in the store of all else it knows. Much less than this can satisfy a weak focus. A simple cataloguing of the object as something already familiar will often suffice. With focus, the mind can test significance, try meaning and assign value. Wiechers (1991:7) states that the cognitive skills that the mediator wants to encourage include focus, comparison, classification and systematic exploration.

3.3.7 Exploring meaning and probing

The teacher continuously encourages the pupils to explore meaning, for example,

"What is a base?"

"What is a sphere?"

What is a planet?"

In chapter one it was mentioned that one of the prerequisites in order for the pupil to become an independent learner is that the pupil must experience inner meaning when involved in the process of learning (COGNET, 1995:6). This will provide intrinsic motivation for learning and remembering.

Slavin, Madden, Dolan and Wasik (l994:2) maintain that motivation, curiosity and insight are certain to be much greater when pupils are provided with information or skills to solve problems that have meaning to them. According to Gilg (1990:67) students frequently do not find intrinsic meaning in classroom activities. Thus an effective teacher must consciously assist students in transcending the immediate situation and mentally project the significance of the learned content to real life.

Beyer (l988:54) states that the goal of cognition is meaning making. When any individual thinks, it is for the purpose of producing a specific meaning - a solution to a problem, a new truth, a clearer understanding, a judgment. In the process of exploring meaning the teacher may not be satisfied with only the initial answer to the question, and encourages the pupil to probe deeper into the topic by asking more analytical questions, thus promoting further thought upon the subject. She asks,

"At night - where?"

"Yes, where does it come from?"

Pogrow (1994:64) maintains that without consistent probing, even the most creative curriculum results in dogmatic forms of teaching, and hands-on activities are converted into applying dictated rules.

According to Woditsch (l99l:43) whenever you require a student to extend a performance - to elaborate, revise, or make it more precise - you call to some degree on the skills of analysis. Woditsch (1991:21) calls this "sustained analysis" - the capacity to probe a complex situation until all its components are identified.

When discussing a higher order thinking skills programme, Shalaway (l990:16) states that teachers converse with children to build a thinking environment. Using the Socratic approach, they probe for students' answers, refuse to accept one-word answers, and make students defend everything they say.

Haywood (l987:5) uses the term "process questioning" in this regard. He maintains that this is the single most used mechanism in a cognitive classroom, namely, a classroom where teaching *for* thinking is taking place. During the probing process, use is also made of the concept of metacognition. According to Beyer (l988:47) and Pogrow (1988:20), metacognition has often been described as thinking about thinking. This is necessary in order to facilitate conscious monitoring of comprehension (Bondy, l987:8). In this regard O'Neal and Kimes (l992:2) state that metacognitive-mediational teaching focuses on the processes, rather than content of learning. Brooks (l989:5) states that the metacognitive-mediational teaching style teaches children to be aware of their thinking processes. This awareness is emphasised because the ability to reflect on one's thoughts is a prerequisite to the application of reasoning processes.

3.3.8 Feedback

Throughout the lesson the teacher acknowledges the answers of the pupils, either by means of confirmation or correction, or through praise and encouragement:

3.3.8.1 Confirmation and correction

The teacher uses confirmation and correction, as can be seen from the following quotes:

"That's right, they are objects that fly in the sky..."

"That's right, they fly in a pattern."

"Correct, and what does a quote mean?"

"No that's not the use for inverted commas."

"No, that is not what a base is."

According to Soled (1989:267), the purpose of feedback and corrective procedure is to monitor the child's progress and correct errors and misunderstandings shortly after they have occurred in the learning process. Haywood (1987:5) maintains that good mediational teachers establish the habit of challenging both correct and incorrect responses. Challenging a correct answer conditions the children against the expectation that a challenge by the teacher means that their answers are wrong.

Elias and Clabby (1988:63) maintain that challenging their answers can also train students to keep an open mind. According to Bondy (1987:9), teachers can provide students with opportunities to apply knowledge so that they will receive feedback on

their understanding.

3.3.8.2 Praise and encouragement

The theme of praise is used to acknowledge something well done, for example,

"Yes, they are aliens, good yes, yes you have heard that word."

and the theme of encouragement is used to encourage further participation:

"Please feel free to ask me what they mean...

"Now I want you to decide..."

A criterion of Feuerstein's mediated learning experience is to mediate a feeling of competence (Haywood, 1987:4; Haywood, 1991:3-7). Children's feelings about their own competence as learners are extremely important. The first way is to reward appropriate responses, especially process-oriented responses, with acceptance, acknowledgement and praise.

According to Skuy (n.d.:10), in mediating competence, the mediator helps the individual identify those aspects of his functioning which serve as strengths for him/her, and which can contribute to success; the mediator also heightens the individual's sense of competence and self-esteem by providing opportunities for success.

3.3.9 Voluntary Participation

We see voluntary participation taking place in the lesson. This interaction could be an indication that independent learning and thinking is taking place. A student asks,

"What about the word "off sight"? Can we use that word?"

Wiechers (1991:7) maintains that the true mediator must learn to relinquish power gradually and to empower the child. According to Haywood (1987:4), mediators (the teachers who intentionally intervene in the life of the child for cognitive education to take place) convey the attitude that they and the children are engaged in a shared quest for structural cognitive change in the children. Mediated interactions display mediators' confidence in children's ability to learn and apply appropriate thinking modes and strategies. In contrast to many kinds of non-mediated interactions, mediated ones constitute true dialogue, that is, a "two-way street" in which information is sought by each participant from the other and the unique role of each participant is recognised (Haywood, 1987:4).

According to Gillies (1995:5), when children work with teachers who encourage them to be autonomous learners they tend to value the importance of achievement-related behaviours and to participate actively in classroom activities.

3.3.10 Subject Matter

The article that the teacher chose (on the subject of unidentified flying objects) was one in a series of lessons for the standard six classes; it brings out a very important aspect of teaching for independent learning and thinking, because of the novelty of the content.

Brandt (1988:11) maintains that we have a significant amount of evidence that teaching content alone, and hoping that it will cause students to learn to think, doesn't work. The teaching of content alone is not enough. Content is to be selected for what it contributes to thought processes.

Herdman (1994:22) states that as teachers we need to teach so as to build on

children's curiosity about the world by creating learning situations that provide matter to think about, time to experiment and time to make sense of what is observed.

According to Haywood (1993:1), the primary mission of education is to stretch minds or to train the intellect and thus to enhance each persons's ability to learn on his or her own.

Another way to stimulate thinking is to use an article that is a topic of conflict as in the case of the unidentified flying objects. Adey and Shayer (l994:62) use the term "cognitive conflict" to describe an event or observation which the student finds puzzling and discordant with previous experience and understanding. However, according to them, the conflict situation must be carefully judged by the teacher or curriculum developer to be within a context which is somewhat familiar to the students, and while making a real cognitive demand on the student, not to be so far ahead to be incomprehensible. In other words, it must be sufficiently stimulating to "stretch their minds" but not incomprehensible.

Johnson and Johnson (l988:58/59) writes about teaching critical thinking through structured controversy. Controversies, they maintain, must be defined as interesting problems to be solved rather than as win-lose situations. The aim with this approach is that through controlled argumentation, students can broaden their perspectives, learn material more thoroughly and make better decisions. To produce positive outcomes, teachers need to know how to initiate, nurture and manage controversies constructively.

3.3.ll Visual Presentation

The use of visual aid to capture, maintain and stimulate interest is of vital importance. The teacher uses the pictures of the article,

"Now have a look at the right-hand bottom of the page..."

She uses the overhead projector, with the remark:

"There's an explanation for a planet."

She also uses some new books on the subject,

"Have a look at this book"

This engendered such interest that there were numerous requests from the students after the lesson to take out books on the unidentified flying objects phenomenon. Thinking has been stimulated to such an extent that independent learning seems to be taking place.

According to Pogrow (l994:62), in order to develop students understanding we must create a learning environment that is consistently intriguing; combine visual and interactive experiences with Socratic forms of conversation that help students create mental models and generalize their experiences; and develop cognitive architecture (a system of thinking activities) that unifies learning experience.

3.3.12 Pupil's frame of reference

By asking the pupils what their belief is concerning the subject of unidentified flying objects, the teacher uses bridging (also referred to as 'transfer' of learning results) as an important concept in teaching. The teacher asks,

"Do you believe that unidentified flying objects exist?"

"Now do you think there may be aliens - what do you think?"

"Do you still think, they do not exist?"

Nickerson (1986:96) as quoted by Wiechers (1991:7) states that if a child can bridge what he is learning to other situations, you know that he really understands it. Explicit bridging to other contexts is the final link in the chain of developing, abstracting and generalizing reasoning (Adey & Shayer, 1994:73). Because I as a guidance teacher observed the lesson and the way interaction can stimulate independent learning and thinking, I will be able to help the pupils bridge this to other contexts. Haywood (1988:5) not only reminds teachers that bridging examples should be elicited and not provided, but, in order to make certain that one elicits bridges to familiar situations, it is required that teachers know what situations are, and what situations are not, familiar to their children.

3.4 DISCUSSION OF FIELDS NOTES

Field notes were made as an adjunct to the video recording and transcription of the video recording. These field notes were discussed with the independent coder for validation and a consensus was reached as to which of them were sufficiently significant to justify inclusion in a discussion of the results of the field research.

Observational and theoretical notes will first be discussed in tabulated form in the interest of clarity, followed by general observational notes.

Observational notes are descriptions of events experienced through watching and listening. They contain the who, what, where and how of a situation and contain as little interpretation as possible (Wilson, 1989:380). Theoretical notes are purposeful attempts to derive meaning from the observational notes. Here the researcher interprets, infers and hypothesises in order to ultimately build an analytical scheme (Wilson, 1985:380).

Observational notes	Theoretical notes
On the whole class is very quiet. This class is not normally this quiet. In fact they can be quite noisy. There could be a number of reasons for this.	It could be that they were aware of being videoed. Or it could also be that they do not possess sufficient background knowledge of the subject of unidentified flying objects, even though the article was handed to them prior to the lesson.
This class gave the impression of being very controlled and very disciplined.	Even though there was no evidence of their normal talkativeness, it nevertheless served a positive purpose. According to Rautenbach (1995:2), one of the criteria or rules of a constructive dialogue, is that of keeping order, proactively trying to involve each student in discussion. This is not for the purpose of maintaining rigid order in class, but is necessary for the creating and maintaining of a disciplined enviroment in which children listen to one another and to the teacher.
The teacher gives her lesson in slow measured tones which is slightly different from her normal style.	It could be that because she knew that English was not their mother tongue, the teacher used this style of talking in order to ensure that

	understanding took place.
There were times when she teaches "at" the pupils. However, this tendency did not dominate.	This may negate the positive effect of questioning to actively involve the pupils in the lesson and it could be construed as regarding the pupil only as a passive vessel to be filled with information by the teacher (Brown & Haywood, 1990:6).
Pre-empting of answers.	This is a habit which we as teachers find difficult to break, namely, majoring on the teacher as the main source of information. Once again, this did not happen too frequently.

The teacher went to great lengths to ensure that understanding was taking place by continuously explaining the different aspects of the article as it arose. She gave the pupils the opportunity to further define their answers by probing beyond the initial answers given.

The experience and interest of the pupils are taken into account throughout the lesson, culminating in an endeavour to help them bridge what could be to many of them a subject which would not normally interest them. They were encouraged to formulate their own opinion and judgment on the matter of unidentified flying objects.

The introduction of visual representation near the end of the lesson engendered a great deal of interest in the subject, resulting in quite a number of requests by the pupils to take out books on the subject.

We find, therefore, that even though the subject of unidentified flying objects may not initially have been of interest to some of the pupils, as a result of the lesson a great deal of interest was initiated.

Interest was captured by the choice of an article that really stretched the minds and imagination of the pupils, but with enough so-called evidence as to encourage some real thinking about what they believe concerning this phenomenon.

3.5 CONCLUSION

The results of the field research have been presented, together with a literature control and form the first phase of this study. A qualitative, exploratory, descriptive and contextual study was undertaken with the purpose of gaining as much insight as possible as to how the interaction between the teacher and pupils during the process of learning can reflect a style of teaching which will promote the process of independent learning and thinking.

The themes identified in the data analysis of the interaction that took place during the lesson form the basis of the development of guidelines designed to assist guidance and subject teachers as they co-operate to foster independent learning and thinking in pupils.

The development of guidelines forms phase two of the research and will be discussed in detail in chapter four.

CHAPTER FOUR
GUIDELINES

4.1 INTRODUCTION

This chapter constitutes phase two of the research, inasmuch as guidelines, developed from the themes identified in the data-analysis, will be discussed.

The guidelines are developed in order to assist guidance and subject teachers as they co-operate to foster independent learning and thinking in pupils.

This is necessary to facilitate knowledge acquisition, transfer of concepts, application of reasoning skills, the development of thinking skills (for example, problem-solving and decision-making), and ultimately raising the pupils feelings of confidence and competence.

The incorporation of literature in this phase of the research represents triangulation, which - as has been pointed out in chapter two - contributes to the trustworthiness of the study.

4.2 GUIDELINES

As mentioned previously, for thinking to take place in a classroom situation, all indications point to the fact that the process of the lesson and not just the final product needs to be emphasised (Wiechers, 1991:7). The process involves the interaction that takes place between the teacher and pupils. The ultimate goal of this

interaction is to promote independence of learning and thinking and the approach taken is that of cognitive education based on the style of mediated learning experiences. According to Hoon (1991:3-7), the theory of mediated learning experience has recently been used to develop a teacher-student interactionist model that is especially applicable to high-risk students - students who were perceived by their teachers to have difficulty in concentrating; to have poor study skills and work habits; and to lack confidence and motivation. In this model, teachers are involved as mediators in: (a) producing cognitive change in children; (b) helping children transcend the immediate situation; (c) communicating the meaning and purpose of activities; (d) helping children feel competent; (e) regulating behaviour; and (f) communicating the values of sharing and participation.

Whether or not a given interaction will be useful in promoting the cognitive development of children, will depend on the quality of that interaction. Teachers must learn how to facilitate the learning process by guiding students at all levels through challenging and complex learning experiences and assuring that students acquire the necessary learning skills to be successful as active and independent learners (Feuerstein, 1980; Weir, 1989, as quoted in the Cognitive Enrichment Network Program, 1995:2). According to Brown and Haywood (1990:7), the "student independence" factor describes a theoretical position characterized by collaboration between students and teachers. Teachers who obtain high scores on this factor believe that education is designed to help students think independently, creatively, and in an analytic manner. Students are expected to learn to control their own behaviour and become intrinsically motivated to learn. They are viewed as active learners, sharing in problem solving tasks and applying concepts they have learned.

4.2.1 Specific guidelines

For the purpose of structural coherence, the guidelines will be presented in the same order as the themes identified in the data-analysis.

The essence underlying all the guidelines given below, is that the guidance teacher and the subject teachers should work as a team in the interest of their pupils. Only when this involvement is achieved, can the child be taught as a whole person, where not only his intellectual potential is valued, but all aspects of his person, where he is educated - and not just instructed - for independent learning and thinking.

* Guideline 1: Trigger

The trigger mechanism is necessary to immediately involve student participation. This is accomplished by the use of what is known as Socratic dialogue. According to Baron and Sternberg (1987:157) from the time of Socrates, dialogue has been recognised as an important way of structuring interactions. Socratic dialogue is a time when both teacher and student explore and discover together. By using the Socratic approach, teachers learn to ask the proper questions, listen to student answers to determine hints of comprehension, and respond with follow-up questions that guide the students toward understanding (Shalaway, 1990:16). Right or wrong answers have no place here. Rather than telling them what to do, teachers should help students construct their own ideas.

According to Desforges (1995:137), knowledge cannot simply be given to the learner, the learner must work to make sense of what is offered. Dialogue creates the opportunity for a teacher to be most responsive to the learner's sense-making. In dialogue teachers and learners are collaborators in making meaning.

Guidance teachers should, therefore, encourage pupils to ask questions with regard to their work; subject teachers should also stimulate this interaction between themselves and their pupils, realising that this means a preparedness on their side to create opportunities for questions to be asked, and answered. Questions should be unusual and challenging so that students do not have to be concerned about the reaction of the teacher (Schoombie, 1995:66).

In the context of this study, this encouraging of questions from the pupils is especially important, because, in the traditional Black culture, young people are not encouraged to question their elders; it is considered as pushing oneself forward as an individual (Adams & Adams, 1991:43).

* Guideline 2: Pre-empting answers

Pre-empting answers cannot be regarded as a guideline in the strictest sense of the word because of the negative effect it can have on the learning process. It is, however, necessary to remind teachers to guard against this tendency of pre-empting answers. Answers should be elicited from pupils, not given to them. In other words, wherever possible, ask rather than tell, should be the guideline in this respect (Woditsch 1991:30).

* Guideline 3: Explanation

The goal of cognitive education is to connect and synthesize the information and thinking skills (Skuy, 1994:8). Therefore, for understanding to take place, teachers often need to explicate a difficult or confusing concept to students.

Woditsch (1991:v) states that basically a teacher requires a thorough grasp of the subject matter to be taught, coupled with a sense of how to convey it effectively to students. As this competency is expected of all teachers, this will not be presented as a guideline to teachers.

Guidance teachers should encourage pupils to immediately express any difficulty they may encounter with the work, before new and more complicated work gets added. This can be seen in conjunction with the building of self-confidence in the child, because the self-confident child will not be threatened by admitting that he does not understand something.

* Guideline 4: Pupils' experience

For the purpose of challenging pupils to become independent learners and thinkers, it is essential that learning be relevant to the pupil. Rautenbach (l995:4), states that the gist of Lipman's innovative approach to interest children, was the realization that experiences and issues of children are the best starting point for the development of philosophical dialogues and rigorous thinking (Lipman, 1993:300-302).

The trick to teaching thinking skills is in fact to meet minds where they are and to lead them hence (Woditsch, l99l:iii),or as Savoie and Hughes (l994:54) phrase it, "Give students a problem that really connects with their world, empower them to generate solutions, and watch the serious thinking that follows".

The subject teacher, therefore, should ascertain the level of pupils' knowledge in relation to new subject matter to be presented and keep their life-world in mind when choosing subject matter. Guidance teachers can encourage pupils to use the media centre to read up on new subject matter.

* Guideline 5: New Words

Teaching for understanding requires explaining the terminology of a specific subject as top priority. This should preferably take place at the beginning of a lesson, especially where new work is concerned.

According to Shalaway (1990:16), what discourages learners is that they do not understand. Due to their lack of understanding, they cannot retain information because they have not learned to link new information with existing knowledge. As a result they cannot think through problems and in turn talk about ideas or apply knowledge to new situations. Pogrow (1994:62) maintains that developing a sense of understanding was a more efficient way of developing academic skills and knowledge

than drilling students in the skills alone.

Guidance teachers should support subject teachers in encouraging pupils to make use of every opportunity to enhance their proficiency and understanding of the language of instruction. There are many ways of accomplishing this. For example, making use of reading laboratories, word puzzles and so on, during the course of which the pupils increase their vocabulary by making use of the dictionary and the thesaurus. These lessons can be conducted in a relaxed atmosphere with the teacher acting mainly as facilitator and the students working through the exercises at their own pace and level of understanding. Torrance (1994:113) points out that children learn best what comes to them pleasantly and as personal discovery.

* Guideline 6: Instruction and linking

The above procedure of periodically referring back to the context of the lesson by instruction and linking information, is necessary to keep the focus in order for true understanding to take place and meaning to be derived from the text. Strong focus, according to Woditsch (l99l:35) binds the mind to its object with an almost irresistible urge to explore whereby it will attain meaning and assign value. It is a cognitive skill that the teacher should want to encourage, the absence of which may lead to lack of concentration and loss of contextual understanding, resulting, very possibly, in lack of motivation to learn independently and continue thinking upon the subject.

Shalaway (1990:16) refers to Pogrow's Higher Order Thinking research programme as having come to the conclusion that students need, inter alia, to develop the cognitive skill of "information synthesis". This requires combining information from various sources and identifying the key pieces of information needed to solve a problem.

* Guideline 7: Exploring meaning and probing

For the pupil to consider any learning of value, true assigning of meaning must take place. According to Feuerstein, the educator must move in between the child and the outside world and must through his questioning and focusing of attention enrich the child's experience of reality (Samuels et al., 1995:4). He leads the child in giving true meaning to the situation. Haywood (1987:5) uses the term "process questioning" in this regard. He argues that this is the single most used mechanism in a cognitive classroom, namely, a classroom where teaching for thinking is taking place.

Beyer (1988:46) quotes Arendt as having written that, "Thinking is the quest for meaning". This means that if we as teachers cannot convince the pupil that the pursuit of the particular subject matter is meaningful and interesting, independent learning and thinking may not take place.

For the guidance teachers, the challenge here is to improve the motivation of pupils. This can be done by helping them understand the relevance of the subject matter that they are learning, by making them aware of different occupations that require that particular subject. This implies that subject matter will indeed be relevant; if not, teachers should ask to be involved in the planning of the curriculum for their subject. Adams and Adams (1991:43) remark that the "teacher tells, pupils listen" paradigm into which teachers' skills are locked, and the content overload of most syllabuses prevent even the most skilled teachers from using time to develop pupils' active thinking. The topic of curriculum planning, however, goes beyond the scope of this dissertation.

* Guideline 8: Feedback

Feedback is another vital element in the teaching of independent learning and thinking, and can take place in a variety of ways. For example, as indicated in some

of the themes, in the form of confirmation and correction and also in the form of praise and encouragement. The different forms of feedback during the course of the lesson fulfil different essential purposes.

According to Soled (1989:267), central to mastery learning strategies (in our case, independent learning and thinking) is the use of feedback - corrective procedures at various stages of the learning process. The purpose of feedback and corrective procedure is to monitor the child's progress and correct errors and misunderstandings shortly after they have occurred in the learning process.

Important to the whole process is the formulation of the teacher's answers. Haywood (1987:5), when speaking about challenging the pupils answers, maintains that challenging must be accompanied by the rule of accepting as much as possible of children's responses. This is to encourage further participation and also to mediate a feeling of confidence, which brings to light the importance of the theme of praise and encouragement. According to Woditsch (1991:29), the first overall aim of the thinking skill instructor is to build the student's confidence in his or her thinking ability, even when the student doesn't appear to have much and even before he or she has employed any.

The effective thinking skill instructor exudes confidence in the poor thinker's coming transformation. There simply is no doubt; the teacher encourages the pupil with an attitude of "of course you can do it". The student will need that confidence to survive mistakes and continue despite them (Woditsch 1991:29).

Gilg (1990:67), referring to Feuerstein's mediation of a feeling of competence, maintains that teachers must communicate to students in many ways the fact that they can perform as expected and do have the talent to move forward in an academic setting. Gilg (1990:67) goes on to say that this movement, compared to the expectations of the culture at large, may objectively be very small, but for a particular

student at a particular moment in time, it may be a significant accomplishment.

* Guideline 9: Voluntary Participation

As mentioned by Desforges (1995:137), in dialogue teachers and learners are collaborators in making meaning. The child should become more actively involved in learning, if real thinking is to take place (Soled, 1989:264). This in turn creates interest, enthusiasm and excitement. This links with Guideline 1: Trigger, which is based on the fact that the teacher triggered off the interest of the children through the use of questioning at the beginning of the lesson. Once again subject as well as guidance teachers should encourage pupils to become actively involved in the classroom interaction.

* Guideline 10: Subject matter

Even though we seem to be focusing on the process of learning and the interaction that takes place during the course of the lesson, we cannot overlook the significant role that content and knowledge play in the thinking process.

According to Beyer (1988:48) the assertion that "discovery favours the well-prepared mind", underscores precisely this relationship between thinking and knowledge. He maintains that the ways individuals go about thinking are very much shaped and informed by their knowledge or lack of knowledge of the subject matter being used or thought about.

Goodroe (1987:6) believes content and process to be interdependent aspects of learning. That is, children learn to think about the content information that is either experienced in the environment or presented by an adult. Mediation, that is the intentional intervention of the teacher to help pupils experience meaning from the text, helps the children learn to process the environmental content that surrounds them

and assign meaning to it.

Presseisen (1988:7) in writing on the subject of the need for meaningful curriculums that relate process and content, maintains that the question is therefore not whether we should focus on process or content, but how to relate content and process for the creation of meaningful learning. She goes on to say that in the movement to teach thinking, the emphasis is on presenting knowledge so that it is useful and usable to the learner and that the teacher's major challenge is to manage the complexity of working in subject matter disciplines while transforming content into instruction that will stimulate students' thinking.

* Guideline 11: Visual presentation

According to Progrow (1994:62), different strategies need to be employed to help students in their understanding of a lesson. Amongst others, teachers must at all times seek to create a learning environment that is constantly intriguing. Combining visual and interactive experiences with Socratic forms of conversation helps students create mental models and generalize their experiences. Pogrow (1994:63) maintains that without mental models students find it difficult to go beyond applying rote rules.

* Guideline 12: Pupils' frame of reference

In giving a lesson on the subject of unidentified flying objects, which is basically a new concept to most of the particular pupils in the class that was studied, the teacher, towards the end of the lesson, seeks to "bridge" this knowledge in trying to make it relevant to the pupils' thinking.

According to Haywood (1987:4) to communicate meaning and purpose, teachers need to communicate both the immediate (content) meaning of events, and their generalized relationship to other events. Haywood (1987:65) also suggests that the

following principles should govern the use of bridging:

* "Bridges" should be elicited from the children, not given to them.

* Bridges should be to events and circumstances that are familiar to the children.

* Bridging examples should be simple and straightforward, not complex and logically tortured.

* Bridging examples should be elicited in several domains of experience, especially in other school contexts, home situations and peer group interactions.

4.3 CONCLUSION

The aim of phase two of this research has been to present the guidelines for creating a culture of thinking in a classroom situation that promotes from all quarters the development of good thinking dispositions which will assist the teaching of independent learning and thinking. This is primarily based on the interaction between the teacher and the pupils during the learning process. In this chapter the guidelines were formulated. In the following chapter the study will be concluded with a summary, limitations of the study and recommendations for further research.

CHAPTER 5
CONCLUSION

5.1 INTRODUCTION

Teaching for independent learning and thinking is becoming more and more crucial on account of the advances in technology and increasing amounts of information with which individuals have to cope in their everyday lives. A teaching approach that does not take this into account, is failing to equip pupils with the type of life skills that they will need in order to survive in the future.

As mentioned in chapter one, part of the responsibility of educational guidance is to give pupils help on a pedagogic-didactic level to enable them to benefit fully from the instruction they receive (Van den Aardweg & Van den Aardweg, 1988:104).

The problem I faced with my form class of Black pupils was how I could best help them benefit from the instruction they received despite the fact that they lacked proficiency in English, and change what was originally a passive, acquiescent attitude, to become confident and competent learners and thinkers.

Following Haywood's assumption (1987:3) that independent learning and thinking are fostered by an interactive teaching style, the following study was undertaken.

The first objective of this study as set out in chapter one was to explore and describe the interaction between the pupils and the teacher in a classroom situation during the course of a lesson. The class was, as mentioned, a Black class in a predominantly white school, who experienced problems with their academic achievement. In order

to help them cope, it was decided to co-operate with the media teacher in studying their interaction during a specific lesson.

Because of the value of qualitative research for studying respondents in a natural context, it was chosen for this study. An explorative, descriptive design was used. In order to collect field data, a video recording was made of the lesson. The video recording and a verbatim transcription of the video recording was analysed, in conjunction with an independent coder, in order to identify different themes of the interaction process.

From the results of this analysis, the following themes were identified from the style of interaction that took place during the course of the lesson: Trigger (by making use of the questioning process, to stimulate the interest and thought processes of the pupils); pre-empting of answers (which is a negative theme, because is does not stimulate interaction); explanation (to ascertain understanding); pupils' experience (to assess the relevancy of the subject content to personal experiences of the pupils); new words (to construct meaning); instruction and linking (to remain focused and to refer to previous content); exploring and probing (to assure inner meaning in the learning process in order to provide motivation for independent learning); subject matter (which should stimulate interest); and feedback through confirmation and correction, as well as through praise and encouragement (to raise the competence and confidence of the pupil thereby providing opportunities for success). The last three themes were voluntary participation, visual presentation (making use of visual aids), and pupils' frame of reference (where the pupils had to "bridge" the subject matter to other contexts).

These themes were described and discussed in order to achieve the second objective of the study, namely that of developing guidelines.

The interaction was significant in this study in that it has enabled us to see the value

of not only placing the emphasis on the content of the subject, but also the importance of using the process of the lesson to stimulate and clarify the thinking of the pupils and to seek to engender such enthusiasm for the subject that the pupils will retain an interest in that subject, thereby becoming the independent learners and thinkers we would like them to be.

The study also attempted to show how the guidance teacher and subject teachers should try and co-operate so that the pupil can benefit by becoming an independent learner and thinker, not only in his school work, but transferring and applying that skill to all situations.

5.2 LIMITATIONS

It would have been possible to incorporate further methods of data gathering. In fact, another video recording was made. However, this and additional data gathering was decided against for the following reasons:

Firstly, the length of this dissertation restricted using additional data gathering methods. Secondly, the data collected seemed sufficient inasmuch as it helped maintain focus and there was every indication that this study, as it were, only touched the tip of the iceberg. This is derived from the fact that not only are so many role-players in the community calling for greater emphasis on the teaching of independent learning and thinking, but more and more research is being undertaken in this regard.

5.3 RECOMMENDATIONS

Further research could focus on aspects such as the possibility of involving teachers in curriculum planning, and the implication of the differences in cultures for interactive

teaching.

5.4 CONCLUSION

This study can be concluded with the following statement made by Laubscher (undated, 12):

"While we have the opportunity to transform our educational system, we should make every effort that education in the future will develop skilled, responsible, confident, critical and creative learners".

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ADDENDUM A

LETTER WITH PROTOCOL FOR CONTENT ANALYSIS
OF DATA GATHERED FOR THIS RESEARCH STUDY

RAND AFRIKAANS UNIVERSITY
DEPARTMENT OF EDUCATION

Dear Colleague

PROTOCOL FOR CONTENT ANALYSIS OF DATA GATHERED FOR RESEARCH STUDY

The purpose of this research is to explore and describe the interaction between the pupils and the teacher in a classroom situation with a view to developing guidelines for teachers to foster independent learning and thinking.

I would appreciate it if you would please analyse the following data:

1) The video recording.
2) The transcribed notes of the video recording
3) Field notes of observation.

The lesson on the videotape is transcribed verbatim and requires analysis based on a combination of Giorgi's (1985:10-19) and Kerlinger's (1986:477) methods of analysis, following the steps below.

* Data (video recording, verbatim transcription of video recording and field notes of observation) to be coded by using "bracketing" and "intuiting".

  Bracketing: By bracketing the information, the independent coder suspends or lays aside what is known about the experience being studied. This procedure gets rid of sedimented views and deconstructs and also facilitates "seeing" all the facets of the phenomenon (Oiler, 1982, as quoted in Burns & Grove, 1987:8).

  Intuiting: Intuiting is the process of actually "looking at" the phenomenon. The researcher during intuiting, focuses all awareness and energy on the subject of interest. This allows for an increase in insight. This procedure requires absolute concentration and complete absorption with the experience being studied (Oiler, 1982, as quoted in Burns & Grove, 1987:8).

* Classify words, phrases and themes in the major categories in the data.

* Identify sub-categories under each of the major categories by clustering data together in a logical manner.

* Relationships between major categories and sub-categories must be indicated.

* Consensus discussions between the researcher and independent coder will be held.

Thank you

Yours sincerely

DOLORES NAUDE
M.ED. STUDENT.

ADDENDUM B

QUESTIONING THROUGHOUT

ANALYSED DATA OF VERBATIM TRANSCRIPTION OF VIDEO RECORDED LESSON

TRIGGER

The Standard 6 Class comes in for a lesson by the media teacher:

"Good morning Std 6's - Please sit down. (Settles the class.) Note?

"Before you read that sheet, had any of you ever heard of UFO's or Flying Saucers - hands up. O let's see. OK quite a number - that's fine. How many of you had never heard of Flying Saucers. "Margaret would you tell us of what you knew about Flying Saucers before you read the sheet."

TRIGGER

Reply indistinct "... Fly in the sky...."

That's right, they are objects that fly in the sky, flown by beings from outer space. Not people like us but strange creatures that live in different parts of the universe.

CONFIRMATION EXPLANATION

Pupil Alice, "Mam, are they aliens?"

"Yes, they are aliens, good yes, yes you have heard that word."

PRAISE NEW WORDS

"Has anyone in this class actually seen a UFO? themselves

PUPILS' EXPERIENCE

Not verbatim

Class acknowledges "No"

So no-one has ever seen a UFO with their own eyes?

"Let's have a look at that passage now - take it out. I am going to read it to you. You must follow on the sheet. If you don't have it with you, share with the person next to you.

INSTRUCTION

The heading is Flying Saucers 1947 to the present day. "On 24 June 1947 an American pilot called Kenneth Arnold was helping to search for a transport plane which had crashed somewhere in the mountains of Washington, USA. Suddenly he saw a "formation of nine very bright objects coming from the vicinity of Mount Baker, flying very

ARTICLE

close to the mountain tops and travelling with tremendous speed".

"Now there are going to be a few words that you don't understand in this passage, so let's have a look at those. If there are any others, please feel free to ask me what they mean. NEW WORDS / INSTRUCTION / ENCOURAGEMENT

"The first one that I thought you possibly might not know, is this word "formation". Can anyone tell me perhaps if you know, what does it mean when aeroplane or objects in the sky fly in formation? What does it mean?

Pupil answers, "They make a pattern." CONFIRMATION

Teacher: "That's right they fly in a pattern". Did anyone go to the air show in Pretoria during the holidays? Did you see it on TV? Those aeroplanes .... (Pupils say "yes".) Red aeroplane that come from England. They fly in a pattern. Each aeroplane in a different position, and that makes the shape - that is called formation." CONFIRMATION / PUPILS' EXPERIENCE / EXPLANATION

"So the explanation, "aeroplane flying together in a pattern."

Teacher: "Just have a look again at that sheet, it's got the words "Formation of nine very bright objects" and that whole sentence right to the end of the paragraph has got inverted commas around it. Why did they write inverted commas there? What do they have inverted commas for? INSTRUCTION / EXPLORING MEANING

Pupil gives incorrect answer. - Not verbatim

"No, that's not the use for inverted commas." CORRECTION

Another Pupil (Fareeda, Muslim) "It's a quote."

Teacher: "Correct, and what does a quote mean?" CONFIRMATION / EXPLORING MEANING

Pupil: "It is something you are saying.

Teacher: "The person is actually saying it. So when you CONFIRMATION

read something that's got inverted commas around it, it means that those are the exact words that the person spoke. — EXPLANATION

So Kenneth Arnold said those words, He said them and they've been reported and somebody else wrote them down. They put them in inverted commas for us to see that he said those words himself. We get another set of inverted commas in a minute. Let's carry on reading the second paragraph." — INSTRUCTION

"They flew like no aircraft he had ever seen before, "like a saucer would if you skipped it across the water". Arnold watched them in amazement until they disappeared from view. Then he flew back to his base. — ARTICLE

Teacher: "What is a base?' Pupil answer indistinct. "No that is not what a base is." — EXPLORING MEANING CORRECTION

Pupil: "It's like an airport." (Jade)

Teacher: "Yes, it's a place where they park aeroplanes when they are not being used and it belongs to the Air Force. You know the army is the military, the people that work on the ground and the Air Force is the pilots that fly the Air Force aeroplanes Not the commercial aeroplane, not your — CONFIRMATION EXPLANATION
Boeings that fly from Johannesburg to Durban, not those planes but the military planes, the army planes, the Air Force planes. They stay at the base, at the airfield where the planes are parked and those aeroplane belong to the Air Force. So that's a base. So they flew back to their base.

Teacher: Quotes again from passage, "The newspapers reported his strange experience. And for the first time, people spoke of "flying saucers".
Quote: Ever since Arnold's sighting, thousands of similar reports have flooded in from around the world. startling photographs have been produced. Some objects seem to be saucer-shaped, others shaped like cigars or spheres. — ARTICLE

Teacher: "Right, what are cigars?" EXPLORING MEANING
Pupil's answer indistinct.

Teacher: "Yes, very rich men smoke cigars and it's made of tobacco/ It's like a cigarette - a large cigarette. But it is not wrapped in paper. It is wrapped in tobacco leaves and they have a very strong smell. If you come into a room where a man has been smoking cigars you can smell it immediately. But they have a particular shape, and there's a picture of the shape of a cigar. It's long and thin, but rounded at the end. CONFIRMATION / EXPLANATION

"Now have a look at the right hand bottom corner. There are twelve shapes of UFO's. Which one is the cigar shape?" VISUAL REPRESENTATION

Pupil answers - the sixth one.

Teacher: "The sixth one. Yes, there it is given to you. The sixth one is the right hand corner there - that's the cigar shape. And a "sphere" what's a sphere?" CONFIRMATION / EXPLORING MEANING

Pupil: "A perfectly rounded shape."

Teacher: "A perfectly round solid shape. Is this a sphere?" CONFIRMATION
Pupil: "No"
Teacher: That's not a sphere, that's just a circle or a disc. The sphere is a shape of a ball. This is just a round shape." EXPLANATION
(Teacher continues to read, "The sightings became so frequent that the US Air Force officially examined the reports. The Air Force concluded that most of them could be explained: as sightings of planets or meteors.." ARTICLE
Teacher: "Have you learned what planets are?"
Pupils "Yes"
Teacher: "What is a planet? What does it look like? When do you see it?" EXPLORING MEANING
Pupil: "At night"
Teacher: "At night - where? It's a solid body." PROBING
Pupil: "In the sky." PRE-EMPTIVE ANSWERS

Teacher: Yes, it is difficult to tell the difference between planets and stars but at night when you go out and look at the sky, you see a whole lot of white dots – some of these are planets and some of those are stars. They shine in the sky. (Teacher points to overhead There's an explanation for a planet. Planets and stars shine in the sky." CONFIRMATION / EXPLANATION

Teacher: "What is a meteor?" EXPLORING MEANING
Pupil: "Mam (Jade). It is a piece of rock."
Teacher: "Yes, where does it come from?" CONFIRMATION MOVING
Pupil: "From space, mam."
Teacher: "Yes, from outer space. There's so much that goes on in the sky that we don't know about and one of the things that could happen is that a star could explode. Just blow up and then all the little stones, because the stars are made up of the same things that the earth is made of, all those stones fly through space and sometimes the earth passes through them and when it does you see it at night as a shooting star or a streak of light across the sky and all it is just a little stone flying through the air, but it flies so fast that it catches alight and what we see is the light. Sometimes those little stones land on the ground and you can pick them up, but those are called something else. But a meteor is a stone from an exploded star that flashes through the sky. That's a meteor. So some people have thought they saw an UFO but all they saw was just a flying star." CONFIRMATION / EXPLANATION

Teacher: "How many of you have actually seen a shooting star? You should all see it. You should even try tonight. If you go outside and just look at the sky, especially if you are looking from the top of the building with something flat that you can see past straight against the sky. If you watch that sometimes you see a streak going through. Those are meteors not UFO's PUPILS' EXPERIENCE / ENCOURAGEMENT / EXPLANATION

So I'll read that sentence again, "as sightings of planets or meteors, escaped weather balloons..."

Teacher: "What are those?" A weather balloon, what is EXPLORING MEANING

it?
Have any of you ever seen one going up into the sky? PUPILS' EXPERIENCE

A weather balloon is a huge white balloon or perhaps not that large, I should say it probably reaches up to the ceiling from here the ground and then it's round like that, they fill it with gas. Then they've got a long string and at the end of that string are the instruments that measure the wind and how much moisture is in the air and all that sort of thing. And then they let the balloon go and it floats up into the air. It goes higher and higher until the balloon bursts and the instruments drop to the ground and, if you live in Pretoria like I used to, sometimes people would pick those things up with a little note on it to say, "If you find this box, please bring it back to the weather station". That's the weather balloon. It's much bigger than your normal balloon and it's not a balloon that you can climb in a basket underneath. It's too small for that but it's also big enough to see in the sky. People have seen those and said, "Oh, there goes a UFO". In the meantime it's just the weather bureau that's sent a balloon up into the sky. EXPLANATION

Teacher continues to read article. ARTICLE
"Weather, balloons, cloud formations or ball-lightning. Cloud formations. We had formations just now - aeroplanes flying in a pattern - and a cloud formation just means cloud shapes, the shape of a cloud. And, if you look at the main picture of the man as he looks out of his aeroplane window, those things could easily be big clouds. So we think possibly the people saw cloud formations. LINKING VISUAL REPRESENTATION EXPLANATION

And ball-lightning is a completely different kind of lightning. I've got a photograph here of ball-lightening. There are some cloud formations there and ball-lightning is a ball of light caused by electricity and this ball of light floats through the air. Have you ever heard of that? Pupils " No". I've never seen that but I've heard and this is the very first picture I've ever seen of ball-lightning. Normally lightning flashes in the sky in a cloud and you see it very quickly but EXPLANATION VISUAL REPRESENTATION PUPILS' EXPERIENCE PERSONAL FRAME OF REFERENCE

ball lightning also occurs when there is going to be a storm, and it's much lower and can be the height of a person. It must be very frightening to be near ball-lightning. EXPLANATION PRE-EMPTING ANSWERS

Teacher reads from article:
"Others were deliberate hoaxes (now a hoax is a trick), " optical illusions, or just wishful thinking." Optical illusions, that's rather a difficult word to explain but I've got it described there. An optical illusion is when your eyes are tricked into thinking that something is there when it's not. You see a thing, sometimes if you're travelling through the hot countryside, and you look ahead of the car and you see on the road something that looks like water." (Response), "Yes". "That's an optical illusion. There's no water there. Your eyes are tricked because of the rays of the warmth that comes off the road. So they say here that sometimes people have seen things, that they mistake something for something else." EXPLANATION ARTICLE EXPLANATION

Question from pupil, "What about the word "off sight", can we use that word? Teacher: " I've never heard that word used but you know the word. .....Pupil, "I found it in the dictionary." Teacher, " Oh," off sight, well, if the dictionary says so then we must use it." VOLUNTARY PARTICIPATION CONFIRMATION

Teacher continues to read from article:
"But a small number remained very hard to explain. A small number of things that people saw, were very hard to explain. They were referred to as Unidentified Flying Objects, or UFO's." The U, unidentified; F, flying; O, objects. ARTICLE EXPLANATION

"It is strange that many UFO sightings have been made by people who are usually thought very reliable, (people that you can rely on, that you can believe in): airline pilots, policemen, professors, and priests. Even astronauts have reported seeing UFO's (astronauts, men who fly in the rockets that go to the moon, those are astronauts)" EXPLANATION EXPLANATION

" In 1965 the US Gemini astronaut James McDivitt saw a ARTICLE

cigar-shaped UFO flying above his own orbiting spacecraft (the spacecraft that was flying in the sky). It seemed to be closing in ..... then disappeared. Three astronauts in Skylab II watched a UFO for some time. It was red and seemed to be spinning in orbit about 60 kilometres away. Altogether more than 20 astronauts are said to have made UFO sightings." 20 Astronauts have seen UFO's.

ARTICLE ↓

"Are the Russians or Americans testing secret spacecraft or spy satellites? This is one way of explaining some of the reports. But a far more popular theory is that we are being watched by visitors from outer space."

"Some eye-witnesses even claim to have been kidnapped by aliens. What is kidnapped? Pupils: "taken away". Teacher: "Yes, taken away. For a person to be stolen is being kidnapped. ... So the aliens have picked up these people, taken them in their aircraft and taken them away and then brought them back. " Silvery creatures (this is what they say the aliens look like) with slit mouths have been described. Of course the wilder stories can be taken with a pinch of salt" (that expression, has anyone heard it? If you take something with a pinch of salt? It just means, you don't actually listen to it and take a pinch of salt at the same time. It's an idiom. We mean we take something with a pinch of salt - we can't, we shouldn't really believe it. It's not really true.
That's what it means.

EXPLORING MEANING
CONFIRMATION
EXPLANATION
PUPILS' EXPERIENCE
SELF-EMPTING ANSWERS
EXPLANATION

"The US Air Force's enquiry into UFO's, known as Project Blue Book, concluded in 1969 that the subject was not worth researching any further. But that has not put an end to the reports. In December 1978 a UFO was filmed by an Australian TV crew as it seemed to fly close to their aircraft over New Zealand. Its path was tracked by radar, and the film was shown throughout the world."

ARTICLE

"The official experts may dismiss the subject of UFO's. But public interest is as lively as ever"

Teacher continues:
"Right, now we've read that and we've explained a number

of things and we've heard that Kenneth Arnold saw a UFO. Twenty astronauts saw UFO's. And people keep on ..... the Australian TV crew saw UFO's. People keep on seeing UFO's. Now I want you to decide. Do you think that UFO's actually exist? What do you think? Would you like to tell us? Do you believe that UFO's exist? Do you believe that UFO's are a load of the biggest rubbish under the sun? — ENCOURAGEMENT / PUPILS' FRAME OF REFERENCE

"I don't see any hands! So what do you think?"
Pupil: Mam, I believe that there are no UFO's because God only made people like us and not on other planets.
Teacher: " So you base your belief on something else that you've learned. O.K. What do the others think? What about the twenty astronauts? Who thinks that all this has been made up? — PUPILS' EXPERIENCE / PUPILS' FRAME OF REFERENCE

"Have a look at this book. This came to the library just the other day, "the UFO phenomenon". "The whole book is all about UFO's and they've got pictures of UFO's and they've got pictures of E.T. and aliens. They've got people looking up into the sky to see if they can find the UFO's. They've even got a picture of a burnt-out alien who crashed into the earth. There's a photograph of a burnt-out spacecraft. Here is a picture of the alien that kidnapped these other two people. Here's a photograph of UFO's in the sky — INSTRUCTION / EXPLANATION / VISUAL REPRESENTATION

"Now do you think there may be aliens - what do you think? — PUPILS' FRAME OF REFERENCE

Pupil: "I think there are "

Teacher: "Do you think there are? Why do you think there could be aliens?" — PUPILS' FRAME OF REFERENCE

Pupil: Mam, because 20 men - they are doing all those things and it costs a lot of money. And I don't think they will buy these things like that.

Teacher: "Yes, it doesn't make sense" — CONFIRMATION

Teacher asks another pupil, "What do you think?" — PUPILS' FRAME OF REFERENCE

Pupil: "I think they could exist, but they are not the same as us. So I believe they could exist.

Teacher: "So they could exist" CONFIRMATION

Teacher to another pupil, "Do you still think they do not exist?" PUPILS' FRAME OF REFERENCE

Pupil: "If ever they do exist, why did many people not see them, why did only 20 astronauts see them?"

Teacher: "Yes, many more than just 20 astronauts. CONFIRMATION

Teacher to another pupil, "What do you think?" PUPILS' FRAME OF REFERENCE

Pupil: "I think people cannot go there because you can only go there as an astronaut. You cannot go there and see, you will be missed."

Teacher: "O.K."

Pupil: "Or maybe, Mam, they are made not to be on the earth. Maybe the sun or something does not suit them...and only if you go up will you see them, Mam."

Teacher: "So now do you think there might be aliens)?" PUPILS' FRAME OF REFERENCE

Pupil: "Yes, I think there might be aliens"

Teacher: "Just now you said there were no aliens. O.K." LINKING

Pupil: "Mam, maybe the aliens are afraid of humans"

Teacher: "Yes and they won't come anywhere near us. If you were an alien, would you? PUPILS' FRAME OF REFERENCE

Pupil: "Definitely not"

Teacher: "Why not? Why would you be afraid of humans?" PUPILS' FRAME OF REFERENCE

Pupil: "Mam, because it's something new. It's the first I've seen such things. Maybe they are dangerous. Maybe

they would want to kidnap me and keep me for photos and to prove that there is aliens, I think.

Pupil: Remark indistinct.

Teacher: "Do you now believe that there could be aliens?" PUPILS' FRAME OF REFERENCE

Pupil: "No".

Teacher: "O.K. One last one"

Pupil: " I just feel that it is an optical illusion"

Teacher: "O.K. It is important for you to find out for yourselves why you think the way you do. Are you influenced by what other people think? Are you convinced by their arguments? Or do you know in your own mind exactly what you are thinking? ENCOURAGEMENT PUPILS' FRAME OF REFERENCE

Alright, that's the end of the lesson, thank you.