

FIELDWORK AS A COMPENSATORY TEACHING STRATEGY  
FOR RURAL BLACK SENIOR SECONDARY SCHOOLS

THESIS

SUBMITTED IN PARTIAL FULFILMENT OF THE  
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BY

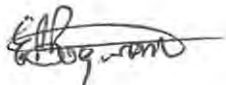
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JULY 1991

DECLARATION

I declare that this dissertation describes my original work, and has not been submitted for a degree at any other university.

E.P. BOQWANA

A handwritten signature in black ink, appearing to read 'E.P. Boqwana', written over a horizontal line.

## ACKNOWLEDGEMENTS

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## ABSTRACT

FIELDWORK AS A COMPENSATORY TEACHING STRATEGY  
FOR RURAL BLACK SENIOR SECONDARY SCHOOLS

The understanding of geographical concepts and the development of skills requires the use of appropriate teaching strategies. Modern school syllabuses emphasize the development of concepts and skills which are basic to the understanding of geography. Geography provides practical learning opportunities which directly involve the learner. Techniques which directly involve the learner are perceived to be the most valuable. Fieldwork, which embraces a wide range of innovative teaching strategies, is the one best suited to give first-hand experience to the pupils.

This study investigates the potential of fieldwork to promote conceptual understanding in geography with special reference to pupils in rural schools. Extensive literature on fieldwork in geographical education was analysed. Surveys of geography teachers and pupils in senior secondary schools were conducted to assess their attitudes towards geography and the use of learner-centred approaches with special reference to fieldwork. The role of fieldwork to promote conceptual understanding was evaluated by exposing two groups of pupils to different field activities. This revealed that fieldwork promotes understanding, stimulates interest and builds up confidence even when first introduced at senior secondary level.

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**CHAPTER 1**  
**INTRODUCTION AND PROBLEM SETTING**

**1.1 INTRODUCTION: BACKGROUND TO THE RESEARCH**

The present (1985) school geography curriculum in South Africa is based on the need to develop skills, critical thinking and concept development. The syllabus content of geography challenges geography teachers to consider the manner in which pupils learn geographical skills and develop concepts. The emphasis on skill and concept development implies that there should be a shift towards the development of higher cognitive abilities such as application, analysis, synthesis and evaluation and away from the concentration on rote learning.

Prior to the implementation of the new syllabus in 1973, which was later revised in 1985, geography was a popular elective in black secondary schools. Investigations by Ballantyne (1987) reveal a decline in the number of pupils enrolled for matriculation geography (57% in 1970 and 27% in 1985) which indicates that geography in black education is rapidly declining in popularity. Reasons for this decline include problems associated with the new syllabus and examinations and the limited experience of many geography teachers with interaction activities, especially fieldwork, which gives pupils first-hand experience of what they learn.

**1.2 PROBLEMS IMPOSED BY THE SYLLABUS AND EXAMINATIONS**

The 1987 DET geography syllabus which is concept-based stresses the development of skills and concepts which should be introduced at higher primary level and presented in gradually increasing degrees of complexity until pupils are proficient in their use. There are clear indications that in the present geography syllabus facts are no longer the major criterion of a pupil's ability in geography. Recent matriculation examinations have undergone a marked transformation. Pupils are not only required to know

geographical facts and concepts but they have to interpret, analyse, reason and demonstrate their abilities to apply concepts and arrive at soundly based conclusions. This approach places an increased emphasis on the development of geographical skills through the interpretation of weather maps, topographic maps, aerial photographs and diagrams.

The demands of the new geography syllabus present conceptual problems for those pupils whose teachers rely heavily on the textbook and teacher-directed strategies which do not actively involve pupils. Ballantyne (1984) has observed that the problem of conceptual understanding starts at primary school level. It is argued that lack of conceptualisation at this level is the result of the factual manner in which pupils are taught in South African primary schools. The primary school problem is further emphasized by Kaschula (1987) who conducted research in white primary schools in the Eastern Cape. According to this research the source of the problem of geography teaching at primary level is the teachers' limited geographical knowledge as many teachers ceased studying geography at the end of their standard 7 year at school. The primary school problems investigated by Ballantyne (1984) and Kaschula (1987) are acute in Ciskeian primary schools where the majority of teachers attended teacher training courses after passing standard 8.

Another problem related to the syllabus is that much of what is presented for the Senior Secondary syllabus is beyond the experience of many black pupils particularly in the rural schools. The 1987 syllabus has an urban bias. According to Ballantyne (1987) the content of geography is a reflection of the views and needs of "whites" rather than those of teachers and pupils of other race groups. It is further argued that parts of the syllabus are inappropriate for pupils living in third world communities who also have to contend with the problem of a second language which in most cases is English. Related to the problem of irrelevance identified by Ballantyne (1987) is the lack in pupils' background experience. Pupils whose experience never transcends the local rural environment

in which they are born are likely to experience problems of making sense of the urban environment. Pupils who have travelled to different areas in the country will find it much easier to acquire concepts which relate to various environments.

The researcher's long period of teaching aspects of the syllabus such as urban settlement in standard 10, Economic geography and marine action in standard 9, provides enough evidence that the problems of conceptualisation are intimately linked with the pupils' experience of the world and their development of language. Most rural pupils are unable to generalise about concepts such as are related to wave action, factors of industrial development, models of urban structure and urban hierarchies because their experience is limited to their local environment.

In order to cope with the present geography syllabus pupils need to be proficient in the following geographical skills which include observation, recording, the ability to draw diagrams, interpretation of graphs, diagrams, topographic maps and aerial photographs, logical thinking, application and analysis. It is only through the active participation of pupils that such skills can be effectively developed. Teaching strategies which actively involve pupils and help in the growth of skills and concepts are the use of slides, films, pictures, diagrams, models, games and simulation, worksheets and fieldwork. While some of these strategies are not easy to obtain for rural teachers, fieldwork which forms the basis of this study is applicable even in deprived communities.

Secondary school syllabuses since 1973 have stressed the importance of fieldwork as a teaching strategy, Nicol (1977) and Ballantyne (1984) however, stress the need for fieldwork to begin in the early primary standards in order to equip pupils with some of the basic concepts of the subject such as mapwork, weather recognition and terms such as hills, valleys and plains. It is important that pupils are made familiar with reality and make their own observations and drawings rather

than to copy sketches and notes from the blackboard. Active participation is a more fruitful form of learning geography than the more passive methods of learning characteristic of the traditional classroom. The successful implementation of this strategy, however, requires that teachers have experience in fieldwork techniques.

### 1.3 PROBLEMS IMPOSED BY LIMITED EXPERTISE OF GEOGRAPHY TEACHERS

The limited expertise of geography teachers trained in South Africa in fieldwork methods was identified as one of the major problems accounting for the limited use of fieldwork during a seminar organised by the Western Cape branch of the South African Geographical Society (Nightingale, 1983). A further problem identified in this seminar is that in the past fieldwork has not been an important part of courses offered by most of the local universities and teacher training colleges. This has resulted in teachers feeling insecure when faced with the prospect of teaching outdoors. Furthermore, though there is an extensive literature on fieldwork, there is a very limited amount of material written with the specific needs of South African teachers in mind. The problem is further exacerbated by the fact that the school syllabuses and the textbooks provide the teacher with relatively little guidance in the organisation and administration of fieldwork.

### 1.4 STATEMENT OF THE PROBLEM

Geographical education in relation to the 1987 syllabus is becoming increasingly pupil-centred and concept-based. Accompanying these evolutionary changes in the content of geography has been new knowledge of the process of learning which underpins the importance of interaction strategies in learning geography effectively. Despite these changes in the subject content and methodology, teachers still adhere to teacher directed learning which frequently fails to stimulate thinking in pupils and may at times lead to boredom and the development of negative attitudes towards geography. Pupil-centred learning on the other hand is perceived to encourage

reasoning and development of independent thought. Furthermore, fieldwork is one of the strategies which can be used to reduce the problem of conceptualisation in pupils. Fieldwork which brings pupils into contact with concrete examples enhances their ability to think critically and reach logical conclusions when required to apply their geographical knowledge to the sorts of problem solving which is a feature of modern geography. Through field studies geography learning becomes more meaningful and purposeful. This investigation is based on the hypothesis that the use of fieldwork as a teaching strategy helps to:-

1.4.1 Develop pupils' learning of skills and understanding of concepts.

1.4.2 Provide a basis for effective learning in geography.

1.4.3 Stimulate their interest in the subject.

It is further assumed that:-

1.4.4 The systematic use of fieldwork experiences in the pupils' local environment will enhance their geographical understanding and the development of positive environmental and community attitudes.

1.4.5 Fieldwork activity compensates in part for the background deprivation of rural pupils.

## 1.5 OBJECTIVES OF THE STUDY

The main objectives of this study are to identify:-

1.5.1 the attitudes of geography pupils in Ciskeian rural schools towards geography and the use of fieldwork.

1.5.2 the attitude of Ciskei geography teachers towards the use of learner centred teaching strategies, particularly fieldwork.

1.3.4 learning problems affecting geography pupils in rural schools.

1.3.5 fieldwork sites for secondary schools in Alice.

## 1.6 RESEARCH APPROACH

Data gathering techniques used in this survey include the following:-

1.6.1 Questionnaires designed by the researcher for standard 9 and 10 geography pupils in the Alice circuit.

1.6.2 Questionnaires designed by the researcher for senior secondary geography teachers in Alice schools.

1.6.3 Interviews with standard 7 and 8 Geography teachers in the schools included in the survey.

1.6.4 Analysis of pre-post fieldwork tests.

1.6.5 Worksheets designed by the researcher for standard 9 and 10 fieldwork

1.6.6 Analysis of the results of fieldwork undertaken with standard 9 and 10 pupils from the rural secondary school at which the researcher teaches.

## 1.7 CHAPTER OUTLINE

Chapter 2 which follows justifies the use of fieldwork as a strategy in the teaching of geography by focusing on its aims and educational value. Extensive literature on this field has been surveyed. Chapter 3 discusses research methods used in this survey. In chapter 4 data collected from questionnaires and interviews is analysed. the results of action research are analysed and discussed in chapter 5 in relation to the problem posed and the hypothesis. Chapter 6 is a summary of the research findings and recommendations based on these findings.

## CHAPTER 2

FIELDWORK IN THE TEACHING OF GEOGRAPHY -  
A REVIEW OF THE LITERATURE

## 2.1 INTRODUCTION

Modern geography has given rise to a wealth of strategies designed to achieve the aims and objectives of the subject. Fieldwork which is one of these approaches is perceived to play a significant role in expanding geographic knowledge, developing skills and conceptual understanding as well as stimulating interest in geography thus leading to more effective learning at school level. In this chapter the role that fieldwork can play in developing skills and concepts in geography is discussed and reference to the two broad approaches (the traditional and the field research approaches) that can be used when conducting field studies is made. The chapter further considers the relevance of fieldwork in geographic education as well as its aims and objectives. A sample of field units from the many suggested by overseas and South African geographers on different aspects of geography is examined in an attempt to evaluate their adaptability to Ciskei schools.

## 2.2 FIELDWORK - A DEFINITION

Various terms used to indicate the study of phenomena outside the classroom are: fieldwork, field studies, field research, direct observation, outdoor work and outdoor education. According to Rawling (1977) fieldwork is not synonymous with field research which implies hypothesis testing by means of the collection of data in the field. Nightingale (1977) defines fieldwork as formal study outside the classroom undertaken by school children as part of their academic work. This definition is supported by Bailey (1974) who looks at fieldwork as a method of planned discovery, whereby the teacher prepares situations from which his pupils learn geographical facts and ideas for themselves. In their

definition Hart and Thomas (1986) show that geography as an environmental science is concerned with the relationship between man and his environment and that pupils' awareness of this relationship is developed through contact with reality. According to this definition fieldwork seeks to find answers to relevant questions about the many ways in which people interact with the various environments in which they live and work.

These definitions highlight the basic differences between the two approaches to fieldwork discussed below.

### 2.3 APPROACHES TO FIELDWORK

The two approaches to fieldwork are distinguished by Hart and Thomas (1986) and de Vos (1989). The traditional approach incorporates preparation in the class which provides pupils with background material and acts as an introduction to the observation which is the heart of the approach. Then observation, recording and interpretation take place in the field. Recording can be done in a number of ways e.g. field sketching, map drawing, completing transects or answering questionnaires. Interpretation is carried out in the field and concluded in the classroom by discussion, drawing graphs and maps or writing up field reports. The traditional approach may be depicted in the form of a diagram as follows:

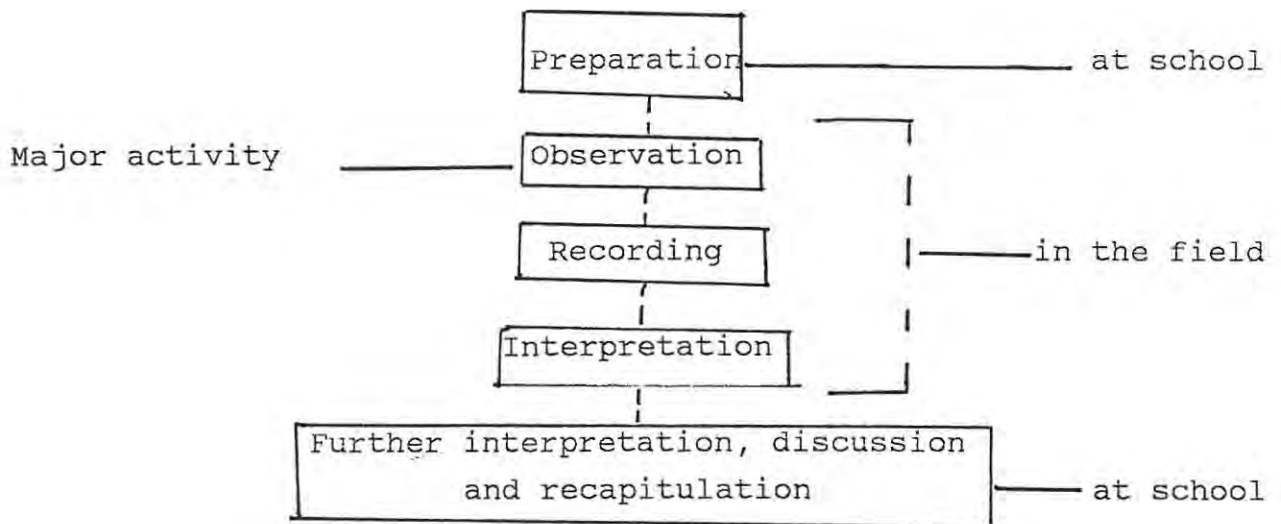


FIGURE 2.1 : TRADITIONAL APPROACH TO FIELDWORK  
(After de Vos, H.J., 1989)

The traditional approach is generally considered to be more suitable for the upper primary and lower secondary levels as pupils at these levels are often not yet ready to formulate their own theories and to make the sort of generalizations with which field research is associated.

### Field Research Approach

According to de Vos (1989) this approach involves more active participation by the pupil who has a greater input in the structure and development of the activity. From theory taught in the classroom and observation in the field, the pupil is introduced to the postulating of an hypothesis and the testing thereof. If the research proves the hypothesis, the pupil can generalise further and reach meaningful conclusions concerning the original problem. If the original hypothesis is not supported by the results, another could be formulated and the pupil could try again. Thus not only does the pupil employ techniques related to the traditional fieldwork but a greater emphasis is placed on analysis, evaluation and generalization (Figure 2.2).

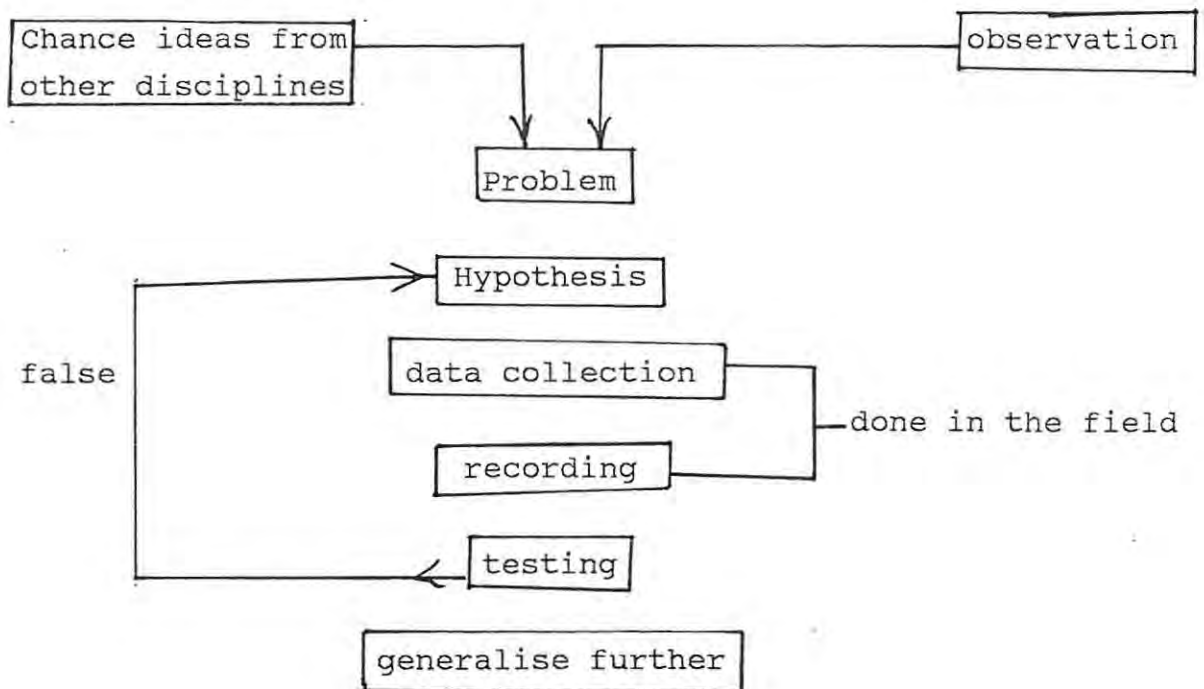


FIGURE 2.2 : FIELD RESEARCH  
(After Hart and Thomas, 1986)

#### 2.4 THE AIMS AND OBJECTIVES OF FIELDWORK

In a growing literature on fieldwork, appeals are made to geography teachers to take pupils outside the confines of the classroom for academic study (Bailey, 1974; Weston, 1977; Nightingale, 1977; and Ballantyne, 1986). The secondary school syllabus also stresses the need for pupils to be given the opportunity to engage in fieldwork activities. It appears that field studies are an important means of developing the critical faculty of pupils. According to Weston (1977) geography teachers must see fieldwork as the core of geography. It is argued that fieldwork provides the teacher with the data from which he can provide hypotheses and the laboratory in which he can test them.

Weston's (1977) objective is to present fieldwork to pupils as a tool, a distinctive mode of analysis or a distinctive way of

looking at their environment. Geography teachers are warned not to offer a course in specialised academic techniques but a series of skills which though geographically oriented, will fit in and complement the other skills of language expression, numeracy and the essential social skills that form part of their general education.

Pupils' understanding is enhanced through participation and practice in the field. This experience will make them realise that for the natural scientist the field is the geographical laboratory (Marker, 1980). Through fieldwork pupils gain a genuine understanding of terms and concepts which they may otherwise use with little understanding. Without field experience simple terms like "steep" or "undulating" or "swift river" mean different things to different pupils. One of the main objectives of geographical fieldwork is that of developing an eye for landscapes, as Briault (1955, p. 67) puts it, "the climax value of fieldwork lies in the training it gives in enabling pupils to look at a landscape geographically."

In a recent paper McPartland and Harvey (1987) suggest three purposes for undertaking fieldwork. The first purpose is the subject - specific purpose. Included here are those aims of fieldwork which assist pupils in gaining a deeper insight into the discipline itself. The specialised vocabulary of geography is strengthened, generalisations and theories of geography are rendered more real and meaningful when revealed in the field. Clark (1980) argues similarly that fieldwork promotes the knowledge of geographical facts, understanding of concepts, geographic principles, theories, and the development of skills, values and attitudes.

The second purpose resides in the opportunity fieldwork offers for the development of social skills such as self-confidence, consideration for others, cooperation and flexibility. Clark (1980) summarizes this purpose as the development of attitudes and personal growth while the preamble to the 1987 syllabus terms it social awareness.

The third purpose termed as "a student-specific purpose" is based on the opportunity fieldwork offers for introducing pupils to important "people - environment issues and the opportunity for the analysis of these issues in the field using appropriate techniques of inquiry" (McPartland and Harvey, 1987, p. 162). This purpose has gained importance as geography itself has acquired a more humanistic approach. As recommended in the geography syllabus, pupils should recognise the relationships that exist between people and their environment. Fieldwork aims to bring together the physical and human aspects of geography, an indication that there is a shift away from the traditional positivistic approach.

The importance of people - environment issues is also stressed by Hart and Thomas (1986) in their integrated framework for fieldwork. To demonstrate the significance of the human aspect in geographical fieldwork Hart and Thomas (1986) propose a framework in which the interaction between man and his environment is a key concept (Figure 2.3). The framework has three main components: people - environment interactions, procedures and techniques and ideas and concepts from geography. The authors emphasize that interference with people environment interactions will generate a number of questions, issues, problems and even challenges which need to be solved. In an attempt to solve these problems, relevant aspects of the problem have to be investigated in the field using procedures and techniques which put emphasis on integrated information gathering.

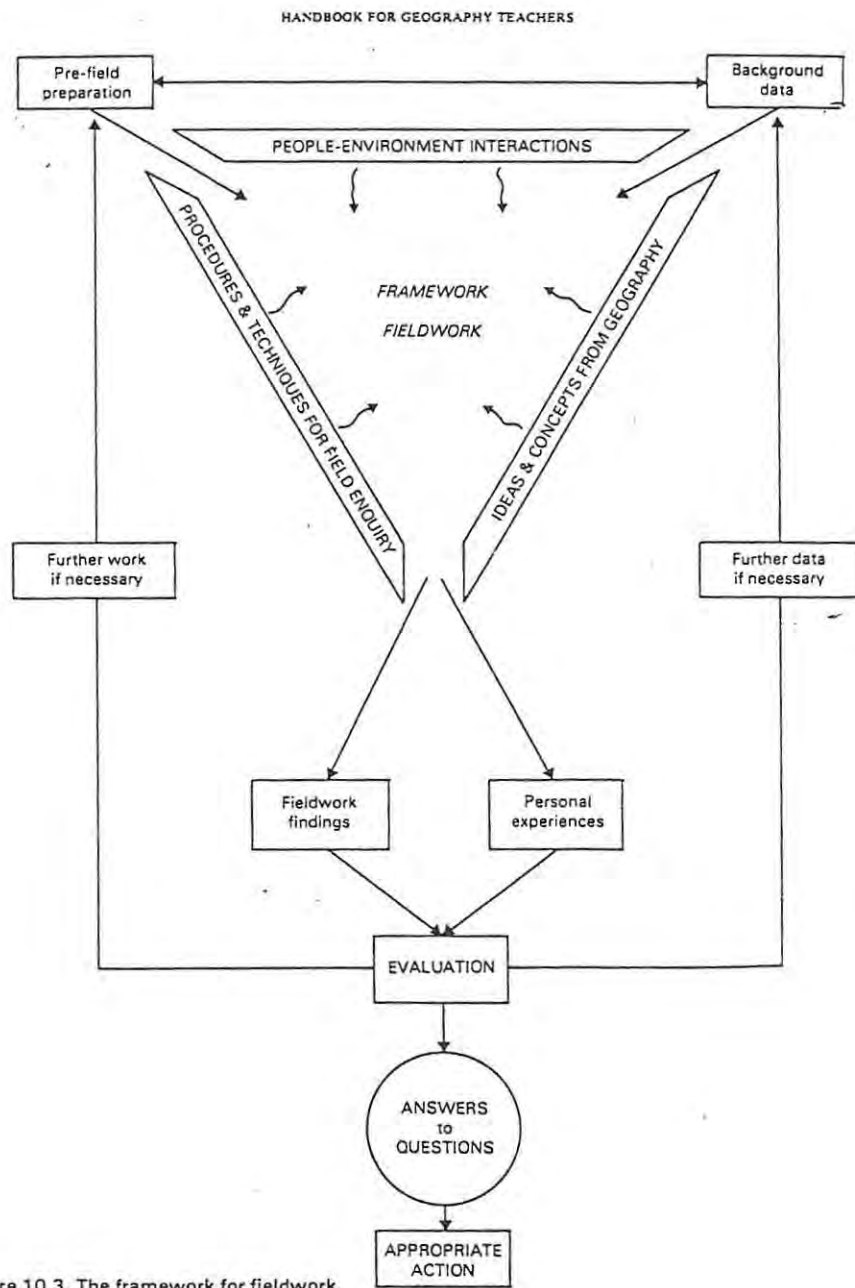
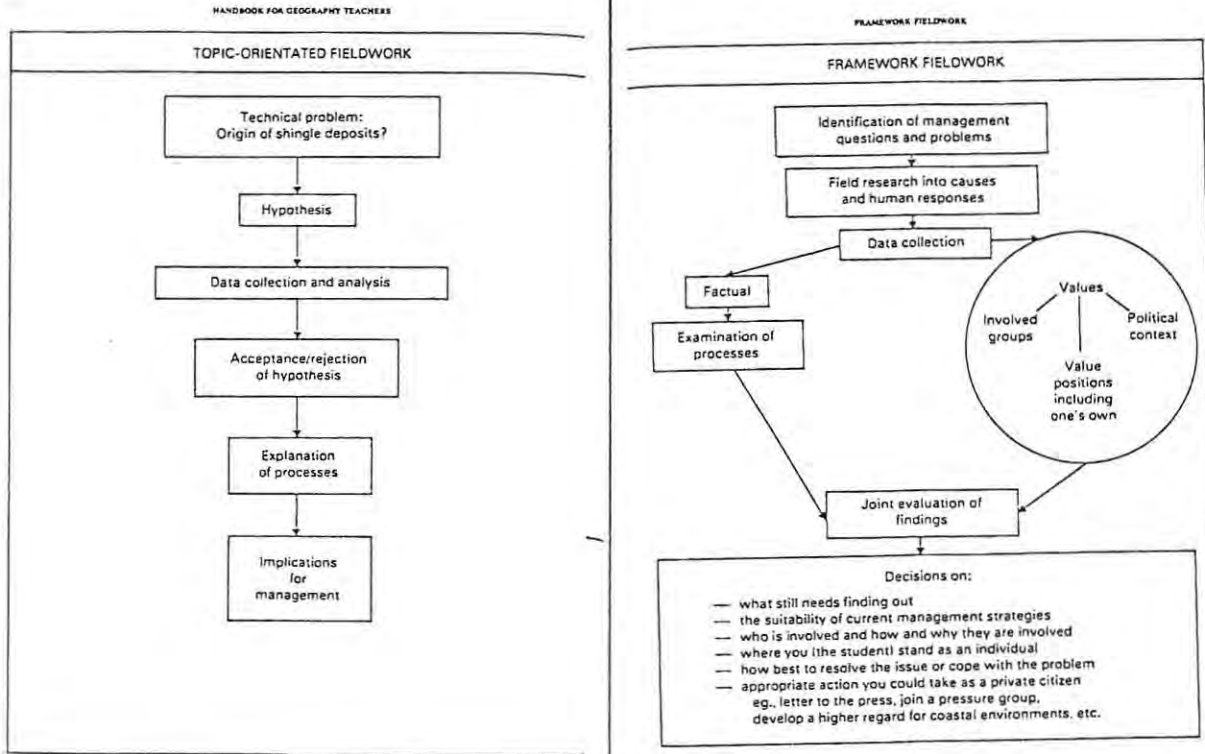


Figure 10.3. The framework for fieldwork.

(Boardman 1986)

FIGURE 2.3 THE FRAMEWORK FOR FIELDWORK



(Boardman 1986)

FIGURE 2.4 TWO APPROACHES TO FIELD STUDY ON COASTAL PROCESSES

Figure 2.4 illustrates how the authors distinguish between framework fieldwork and traditional systematic scientific field research studies.

## 2.5 THE ROLE OF FIELDWORK IN THE DEVELOPMENT OF CONCEPTS, SKILLS AND VALUES

Fieldwork is often regarded as the strategy best suited to develop specific skills, concepts, values and attitudes which are seen as essential to geographical education.

### 2.5.1 Definition and classification of concepts

van Jaarsveld (1987, p.51) defines a concept as "the way in which the mind structures particular experiences such that those experiences become classified and evoke a similar response... concept acquisition and concept growth and therefore are intimately linked to the development of language and a person's experience of the world." Graves (1975) draws a distinction between concepts which can be acquired by observation (observational), concepts which can be acquired by a process of human communication (definitional) and concepts which pertain to one aspect of the subject (organisational).

#### 2.5.1.1 Observational concepts

These occur on three levels.

- (a) Simple descriptive concepts which are easily acquired e.g. soil, shop, waves.
- (b) More abstract concepts which are difficult to experience directly as in the case of the term continent or those which require an understanding of two or three other concepts e.g. sphere of influence, peak land value intersection, aquifer.
- (c) Complex descriptive concepts which require a large number of related concepts e.g. Central Business District.

### 2.5.1.2 Definitional concepts

Are:

- (a) Those that express relationships e.g. soil ecosystems.
- (b) More complex defined relationships in which three or more variables are involved e.g. the concept of geostrophic wind which involves the relationship between wind, air pressure and coriolis force.

### 2.5.2 Concept development and related problems

The classification of concepts given by Graves (1975) indicates that they vary greatly in order of difficulty, but there is very little evidence concerning the various stages at which geographical concepts are acquired. Nevertheless the paper on "Progression" by Bennetts (1981) suggests some guiding principles which can be adopted by teachers while developing skills and concepts in geography. He suggests that since some concepts are more complex than others teachers should design appropriate forms of "explanation" at different levels of understanding. Bennetts (1981) argues that pupils may experience conceptual difficulties in urban studies due to inadequate teaching and/or their lack of direct experience of concepts involved in urban studies. For instance senior secondary pupils limited to a rural environment may experience problems in understanding the hierarchical pattern of shopping centres, the central place theory and processes influencing the CBD. Fieldwork would therefore form the most appropriate method to widen their geographical experiences and provide a basis for the development of concepts. The idea of progression is also stressed by Mills (1988) who states that fieldwork should be so planned that there is a progressive development of key concepts and skills. The concept of the CBD for instance, which is classified as "very complex" can be introduced in standard 7 without reference to the processes influencing it and extended in standard 10 with details on influencing processes. Furthermore a factual field study of a

study of a local town with junior secondary pupils can introduce mapping and identification of features while senior secondary pupils are expected to apply the concepts learned to the towns and cities beyond their direct experience.

Another important suggestion by Bennetts (1981) centres upon pupils' interests, capabilities and maturity. Experiences and tasks chosen by teachers should match pupils' interests and capabilities. In this researcher's experience because of the strategies used at primary schools, pupils at junior secondary level are not yet ready to think abstractly and it would not be appropriate to introduce them to concepts such as hierarchy of urban centres, models of urban structure and central place theory.

Table 2.1 illustrates how the principles suggested by Bennetts (1981) can be applied to a particular topic, that of shopping patterns.

Although phase 2 is suggested for the junior secondary level, in South Africa this study would also be appropriate for the senior secondary pupils who have limited field experience.

The idea of progression is also supported by Bruner (in Graves, 1975) who argues that the same concepts can be presented in gradually increasing degrees of complexity until the concepts become refined and ultimately new and more abstract concepts are grasped. It has been pointed out that the conceptual structures involved in geography are complex, however, these must be built upon a foundation of simpler concepts based on observation. It is the task of the teacher to provide appropriate learning experiences which facilitate the discovery of geographical concepts and skills. Fieldwork well prepared and properly conducted is one teaching strategy that performs this function with regard to those areas of the syllabus which lend themselves to field experiences.

TABLE 2.1

A PROGRESSION IN THE DEVELOPMENT OF IDEAS  
ON SHOPPING PATTERNS

(Adapted from Bennetts (1981, p.177))

PHASE 1 (9-12 years)

Emphasis on direct experience of shopping  
behaviour - individuals & families  
Shopping centres, especially small local centres  
identifying conspicuous features and simple  
recurrent patterns

PHASE 2 (12-14 years)

More rigorous analysis of shopping behaviour and  
spatial patterns e.g. factors influencing where  
to shop aggregate behavioural patterns - shopping  
fields' size and spacing of shopping centres  
hierarchical patterns

PHASE 3 (14-16 years)

Study of more complex processes and relationships  
e.g. the characteristics of town centres, processes  
which lead to changes in shopping patterns and processes.

PHASE 4 (16-18 years)

Explicit use of more abstract ideas e.g. analysis of  
the concept "centrality", introduction to "central  
place theory", introduction to "retail gravity models".

gradual extension of experience

progressive development of ideas and skills

increase in complexity

increase in abstraction

increase in precision

### 2.5.3 Skills, values and attitudes

The acquisition and development of skills is essential in the learning of geography as the understanding of concepts depends on the use of certain skills. Waters (1982), identifies a number of skills which pupils have to demonstrate in class, in preparation for fieldwork, in the field and in follow-up activities. These include:

1. Investigative skills such as observation, identification, classification, interpretation and analysis. These skills form part of the work stimulated by a field activity and then completed in follow-up work.
2. Extractive skills in which pupils are exposed to a variety of resources such as books, pictures, photographs, slides, maps, charts etc. when preparing for fieldwork or in follow-up. Such skills help in developing independent learning.
3. Manipulative skills - these involve the use of equipment such as cameras, measuring tapes, or tape recorders in the field.
4. Graphic skills which are essential both in the classroom and in the field. Pupils are able to present their findings in the field by means of maps, diagrams, sketches, photographs and slides.
5. Communicative skills such as reading and talking.
6. Social skills - pupils in the field often work in groups. They have to learn to be tolerant and cooperative. During discussions they have to accept and respect other people's views.

Social issues and matters of environmental concern which constitute much of the subject matter of geography are value-laden. It is therefore important that pupils develop positive

attitudes and values to make them aware and to understand and appreciate other people's beliefs and life-styles, to encourage rational discussion and reflection, and to open their minds towards a concern for their environment and its resources (Mills, 1988). Some of the aims can be achieved by the implementation of fieldwork while others need strategies such as role play and games and simulations.

## **2.6 THE RELATIONSHIP BETWEEN FIELDWORK AS A TEACHING STRATEGY AND OTHER RECOGNISED STRATEGIES FOR GEOGRAPHICAL EDUCATION**

Modern approaches to fieldwork such as framework fieldwork are concerned with preparation for the excursion, data collection and follow-up activities designed to reach the necessary conclusions or to solve the problems related to the field activity. This approach to fieldwork lends itself to the incorporation of a variety of teaching strategies which may be employed either in the preparation phase or in the follow-up stage. The strategies discussed below are particularly valuable in this regard.

### **2.6.1 Worksheets**

Worksheets are applicable both in the classroom during preparation and follow-up and outside the classroom during the field activity. In the classroom they help to stimulate thinking and reasoning while in the field they give instructions as to what has to be done. They help to develop some of the skills referred to by Waters (1982). As skills are developed concepts are gradually acquired.

### **2.6.2 Games and simulations**

Classroom simulation may help pupils understand urban problems, shopping patterns, problems of conservation and management before going into the field. By assuming roles in particular issues pupils are exposed to different attitudes. Role play also involves pupils in decision-making and stimulates their critical thinking. The resource material used

by pupils during role play contributes towards the development of concepts relevant for the particular issue being considered.

### 2.6.3 Group discussion

Group discussion as a strategy is applicable both in the classroom and in the field. In the field the pupils are usually grouped and they can discuss their findings before recording or completing worksheets. The group structure means that any individual's lack of understanding about a particular technique or concept could be overcome by the support of the rest of the group. Throughout the activity pupils play an active role and this improves not only their understanding of concepts but also their language competence.

### 2.6.4 Models

Three-dimensional models, theoretical models and schematic models can be used in data processing after fieldwork or in reinforcement follow-up. Pupils can be referred to models of urban structure after a survey of land use patterns in an urban area or they can be asked to draw schematic models of hypothetical ports, towns, coastal resorts as a method of data presentation after undertaking fieldwork. In this way pupils' skills are developed while concepts learned are applied to other environments and important issues.

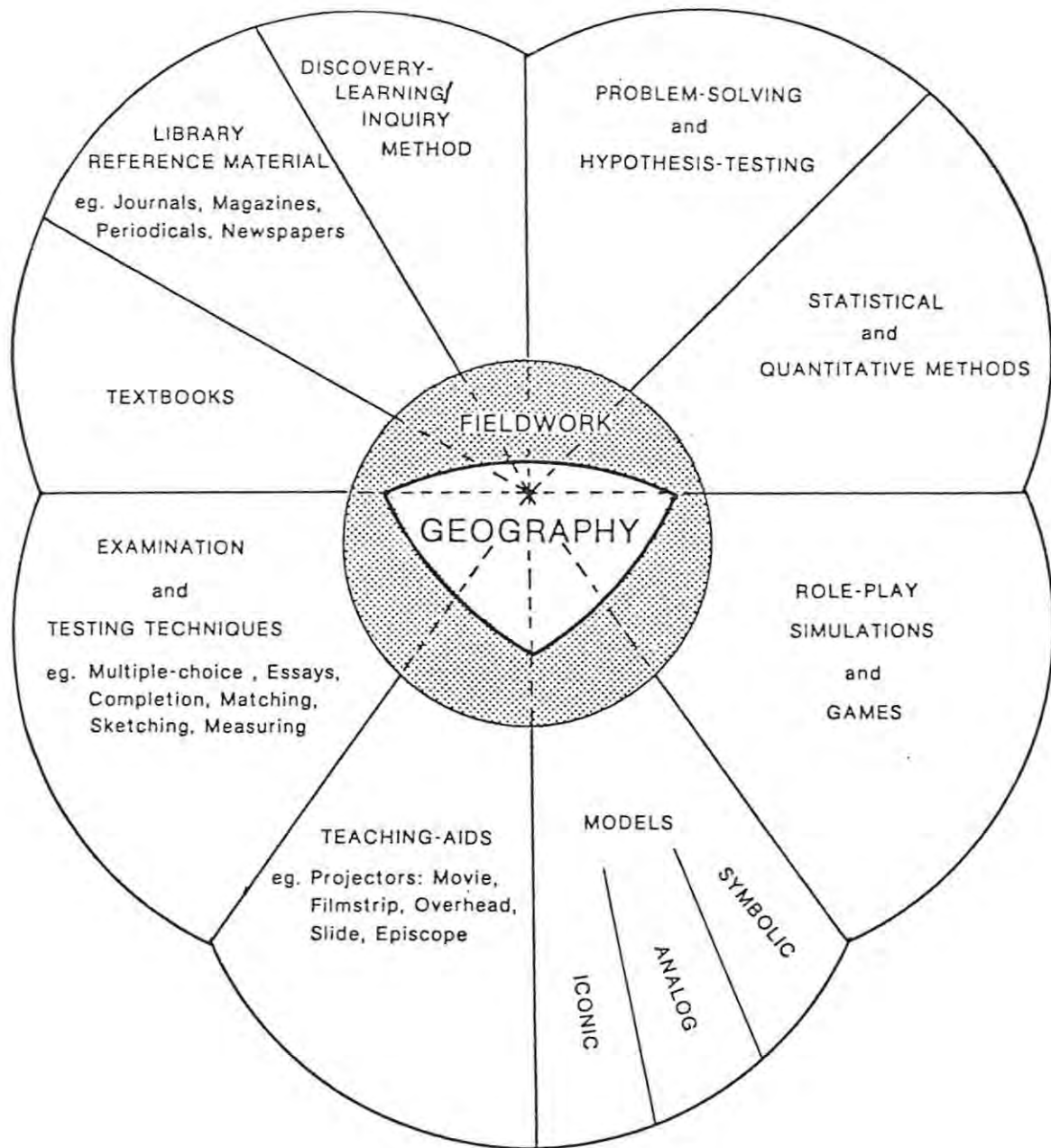
### 2.6.5 Pictures, films, slides and photographs

These are teaching aids which have the ability to bring reality into the classroom. Pictures, slides or photographs of a beach area or the CBD can be used together with worksheets to develop pupils' thinking and introduce them to particular concepts while preparing for fieldwork. These can also be used to compare areas visited with areas beyond pupils' experiences. Photographs taken in the field can also be used during follow-up learning. The above discussion reveals the close links between a variety of strategies with fieldwork

techniques all of which require the pupil's active participation.

## 2.7 THE RELEVANCE OF FIELDWORK IN GEOGRAPHY

Yeates (1984) claims that geography is a science concerned with the development and testing of theories that predict the spatial distribution and location of various characteristics on the surface of the earth. Geography as considered by Yeates (1984) cannot therefore be seen as consisting merely of the acquisition of facts but as a field of enquiry related to a scientific approach. The positivistic approach in geography resulted in fieldwork being perceived as an indispensable part of geographical education.



( Adapted from Ledger, 1978 )

FIGURE 2.5  
TEACHING STRATEGIES : A MODEL FOR  
"NEW" GEOGRAPHY TEACHING IN SOUTH AFRICA

Biddle and Deer (1973) argue that modern school geography ought not only to observe and describe but also synthesize and analyse the real world. Fieldwork does just that. To make its fullest contribution in the schools and to strengthen its place in the school curriculum, geography has to train pupils to think and fieldwork properly conducted has been shown to perform that function. Most geographers therefore regard fieldwork as an essential part of geography (Bailey, 1974; Ledger, 1978; Webster, 1979; Rawling, 1977 and Gamble, 1981).

Bailey (1974) states that geography is both a body of knowledge and a distinctive method of study with fieldwork perceived as the best and most immediate means of bringing these two aspects of the subject together in the experience of the pupil. Fieldwork therefore has to be accepted as a necessary part of geographical education and not as an optional extra. The relevance of fieldwork in geographical education is illustrated by Ledger (1978) in his model of teaching strategies for geography teaching in South Africa (Figure 2.5). Fieldwork as indicated in the model embraces all the other strategies suggested by Ledger (1978). These strategies can be used as alternatives to fieldwork but they can also be used in preparation for fieldwork, in data processing after fieldwork or in re-enforcement follow-up.

Webster (1979) suggests that geography teachers ought to rely more on first-hand studies of the real world as the current trend in the teaching of geography is the interpretation of features and activities in the local area in order to formulate principles of geographic behaviour. As reflected in Webster's (1979) argument, geography pupils need geographical skills and concepts to help them understand the physical, economic and social environment in which they grow up. Webster, writing at the time of the new 1973 syllabus which encouraged fieldwork, justifies the relevance of this strategy as he argues that the changes which have taken place in geography are accompanied by new knowledge of processes of learning which emphasize the importance of fieldwork in learning geography effectively.

The literature cited clearly reflects that teachers who still depend on resources like textbooks, or other secondary sources deprive pupils of the development of the geographic skills, concepts and knowledge they need to understand the complexities of the subject. Analysis and synthesis referred to by Biddle and Deer (1973) imply that geography is no longer concerned with establishing facts but is concerned with solutions to problems and clarity of thought and therefore has to stimulate pupils to think. With the help of the syllabus preamble DET (1987) the exponents of fieldwork appeal to geography teachers to take a fresh look at their aims and objectives and to adopt a more learner-centred approach which requires active participation from pupils. It is unfortunate that while fieldwork has been accepted as an integral part of education in countries such as Britain and the United States, South Africa still lags behind in this aspect of geographic teaching (Ballantyne, 1986).

While examples of fieldwork units abound in overseas literature from primary school level upwards fieldwork is not practised widely in South Africa as is reflected by the limited literature.

## 2.8 SELECT BIBLIOGRAPHY OF FIELDWORK UNITS

There is an extensive amount of literature on fieldwork units of which the whole range is too great to be surveyed in this study. For the purposes of this study four field units by overseas geographers and four by South African geographers will be selected for discussion focusing mainly on aims, techniques and adaptability to Ciskei schools.

The selected units are tabulated in table 2.2 below.

TABLE 2.2  
TABLE OF SELECTED UNITS

	URBAN	RURAL
1.	Shopping behaviour UK 11-12 years	River studies UK (Middleschool pupils)
2.	Industrial location UK 6th form	Farm studies SA (Std 7)
3.	Transect study SA Std 7	River systems SA Std 9
4.	Wynberg Village Trail SA Std 10	River Studies UK (4th year pupils)

2.8.1 Introducing settlement studies through fieldwork (Raw, 1982). Shopping Behaviour.

The basic aim of this study is to introduce key concepts in settlement geography, develop mapping and geographical skills and encourage discussion and analysis in 11-12 year olds at a UK school. Data collected includes the following: number, type and location of shops, customers' shopping behaviour and flow of traffic along the main through routes. A 1:25000 map is used to locate types of shops using a simple classification. A recording schedule for shopping behaviour comprising five questions appears in Appendix 2A Traffic flow is counted at certain points over a 15 minute period. Data is collected in the form of questions and answers.

Pupils are required to interpret their recorded data and graphs and make conclusions using the following hypothesis:

1. The number and range of retail functions measure the importance of a settlement.
2. Settlements provide retail services for their own population and for the populations of lower order settlements in the surrounding area.
3. The number of shopping trips decline with distance from the town.

4. Shoppers travel longer distances to purchase comparison (shopping) goods than convenience goods.
5. Convenience goods are purchased more frequently than (shopping) comparison goods.
6. The internal structure of historic market centres is not suitable for the demands of modern transport.

This approach claims that the specialised vocabulary of geography can be grasped when pupils interpret the collected data. Furthermore a number of skills can be developed such as those associated with observation, recording and data analysis. The 11-12 age group for which this unit is designed comprises the higher primary level in Ciskei schools. It is not possible at present to adapt for this level in those schools where fieldwork is unknown at primary level. Even for standard 7 where settlement geography appears in the syllabus in the existing circumstances the techniques of data collection and the terminology used would present some difficulties. This study can however be conducted in any town by senior secondary classes in Ciskei schools. The terms used such as hinterland, hierarchy, distance decay, convenience and comparison (shopping) goods are well beyond the vocabulary of standard 7 pupils in Ciskei schools. Simple observations such as land use functions and traffic counts could form the starting point at the standard 7 level in those rural schools in which the pupils have no previous field experiences.

#### 2.8.2 Fieldwork relating to industrial location (Grenyer, 1985)

This field unit is based on Economic Geography in the United Kingdom for post matric pupils. Pupils had to investigate reasons for industrial location from industrialists. Before undertaking fieldwork of this nature pupils are given a theoretical background on the factors affecting industrial location, regional policy and the role of the government in providing incentives. These will form the basis of their hypothesis which they have to formulate by ranking locational

factors in the order they considered important before conducting the interviews. Data is collected by means of questionnaires which are compiled by pupils during interviews with industrialists (Appendix 2B). To test the hypothesis, data collected is combined and compared with the pupil's ranking order using simple correlation techniques (Appendix 2C). From the results of the comparisons, conclusions are made and pupils have to write reports on the study as their project.

This is a suitable survey for standard 9 and 10 pupils especially for schools in Dimbaza and Mdantsane where there are factories. The technique of data collection used is simple and encourages communication as pupils have to interview subjects. Concepts involved in this section of Economic Geography (Std 9 & 10) can be reinforced.

### 2.8.3 Two approaches with fieldwork with middleschool pupils (Rawling. 1971).

#### Unit 1: River Studies

This paper outlines fieldwork excursions undertaken with 9-13 year olds in the UK. For the purpose of this study one unit only is discussed. The excursion relating to river studies is designed to introduce pupils directly to stream characteristics such as channel pattern and profile which are part of the std 9 and 10 syllabus in South Africa. Pupils locate their areas of investigation using a 1:50,000 map. Their understanding of concepts as difficult as stream piracy and related features could be reinforced in the field. This study would equip pupils with an array of skills such as drawing cross-sections, sketching, map reading and taking measurements. The worksheet which appears in Appendix 2D is relevant for South African schools and the questions used are within the comprehension of senior secondary pupils.

#### 2.8.4 Types of fieldwork in the lower secondary school (Graves, 1980)

##### River Studies

The main objectives of this river study designed for the 12-14 year old level in the UK, are to reinforce map reading skills, develop conceptual understanding of geomorphological features and to investigate relationships between rock types and land use. A 1:25,000 map, (Figure 2.6), is used to locate areas to be investigated. The questionnaire/worksheet (Appendix 2E) trains pupils in map reading skills, in field observation of cultural and physical features, in recording and in inductive thinking about possible relationships between cultural and physical features. Although the survey is designed for the junior secondary standards, it is applicable to the senior secondary level in South Africa particularly in Ciskei schools where fieldwork is seldom if ever done.

#### 2.8.5 Studying river systems (Nightingale, 1983)

Nightingale provides four field units on river systems using different techniques, but for the purposes of this study one unit only is selected: Paradise Nature Valley Reserve (Appendix 2F). Suggestions of possible studies to be undertaken by teachers and types of introductory work which precede investigation are given. Nightingale (1983) attempts to encourage the use of scientific methods in geographical investigation. A further objective is to introduce an enquiry based approach to river studies and develop analytical skills. Teachers are advised to use local river systems instead of travelling far afield in search of rivers that appear to conform most closely to expectations generated by the textbook. The importance of introductory lessons which use secondary sources such as maps, pictures, photographs and historical records is stressed. Exercises which teachers can use in the introductory lessons appear in Appendix 2G. The methods of investigation depend on the age and ability of the pupils, time available and concepts to be taught. The field

survey unit selected is designed for standard 7 pupils in the Durban area in Natal. In this unit factual knowledge, geographical relationships and geographical skills are blended together. River studies are in the syllabus for standard 7, 9 and 10, but this field unit appears to have too much depth and detail for standard 7 pupils with no previous field experience. The writer is aware that the pupils for whom this study was designed might have handled fieldwork from primary school level and at standard 7 have a higher level of competence. This survey could therefore be attempted with senior secondary pupils in Ciskei schools.

#### 2.8.6 A transect survey of Grahamstown (Burton, unpublished)

The survey sheet (Appendix 2H) was designed for standard 7 pupils at a private school. Classroom preparation involves drawing a rough plan of the route from a 1:50,000 map of Grahamstown marking in the streets and blocks. A list of land use data to be collected is supplied with a table. For investigation purposes the pupils are grouped, each group records all land use subdivisions required. The data collected will be combined in class. Each pupil is expected to hand in a written report on the transect pointing out relationships and patterns observed. Using the transect diagram pupils have to delimit functional zones and look for relationships between functions, age of buildings, land values and physical environment. Data recorded on the transect is presented by means of separate graphs so that correlations can be easily identified. A variety of geographical skills could be developed by this unit and pupils are stimulated to think when looking for relationships. This study is suitable for standard 7 pupils who are experienced in outdoor work but it is also relevant for senior secondary pupils in Ciskei schools.

#### 2.8.7 Farm study (Nicol, 1975)

A farm study forms an integral part of the geography syllabus for standard 7, the level for which the study under discussion was prepared. A farm visit forms a useful case study for

regional geography at secondary school level. It throws light on the physical environment, settlement and economic geography of a region. Nicol (1975) states that preparatory work for this activity should focus pupils' attention on important points in the man-environment relationships. The questionnaire (Appendix 2I) is used and pupils interview farmers about factual information but questions requiring reasons are answered by pupils themselves. An outline map of the farm showing boundaries, access road, fences, and prominent topographic features is supplied to each pupil to record land use types (Figure 2.7). Further discussions with farmers continue after the pupils have answered the deductive questions. Back in the classroom each pupil writes a report on the farm unit and includes a land-use map. It is suggested that the teacher rounds off the survey with some follow-up lesson emphasizing the importance of human activities in relation to the local geographical environment, the interdependence of urban settlements and farmers, and the role played by climatic conditions and soils on farming operations. This is a relevant study for any standard 7 pupils who have access to this type of farm unit including those who have no fieldwork experience.

#### 2.8.8 The Wynberg Village Trail (Ballantyne & Attwell, 1985)

The authors' concern in this particular study is that there is very little attention given to the development of positive attitudes towards the environment through the study of geography. Their contention is that environmental attitudes, values and behaviour in pupils can be developed by involving them in urban trails. In this way a critical analysis of environmental problems can be undertaken and pupils can simulate real life processes involved in environmental issues. Pupils can be involved in urban trails around their local areas to develop environmental literacy. Such a study is likely to stimulate environmental awareness and further inquiry because pupils play an active part in collecting and evaluating data during the course of such a trail as this. The unit suggests a trail in the Wynberg village in Cape Town. The

worksheet provided is designed to include different activities both for individual and group work, each for a specific purpose.

The activities orientate pupils to the village environment and make them aware of the unique character of the area in terms of architecture, land use mixture and resultant environmental problems. Pupils walk through the village along a specified route and answer questions on the worksheet (Appendix 2J and Figure 2.8). Exercises which follow are group exercises which involve investigations of environmental problems resulting from factors such as mixed land use and traffic problems, all of which involve role play in which pupils are expected to write reports on the environmental problems of the area they have investigated and to suggest possible solutions. From this field unit the pupils will learn that the cultural landscape is a visible expression of past and present interactions between man and the environment. The various activities in which they are involved are designed to promote their decision making skills and to improve their attitudes and values towards the environment. This excursion is therefore an example of how framework fieldwork could be applied to an urban study.

This particular study could be introduced to matric and post matric students in Ciskei schools.

#### 2.8.9 Fieldwork in South African textbooks

Having cited and analysed field units from general geography texts and journals it is important to review South African school geography textbooks in order to assess the extent to which fieldwork is dealt with. a List of textbooks reviewed

## FIELDWORK IN SOUTH AFRICAN TEXTBOOKS

TABLE 2.3

CLASS	TITTLE, TOPIC AND PAGE	AUTHORS	PUBLISHERS
Std 7	<b>Exciting Geography Std 7</b> 1. A farm study, pp 221-222 2. An urban study, pp 245-246	P Rauby (1986)	McGraw-Hill Book Co
	<b>Understanding Our World</b> 1. A farm study, pp 75-78 2. An urban study, pp 78-79	CGF Bester (1985)	Maskew Miller Longman
	<b>Exploring Geography 7</b> Approach to fieldwork, pp 152-161	LB Hurry & JK Craig (1985)	Via Afrika
	<b>Geography in Action</b> A farm study, pp 106-113	D Rix (1986)	Juta & Co
	<b>New Window on the World</b> Fieldwork, pp 20-21	JL Earle et al	Juta & Co
	Std 8	<b>Geography in Action</b> 1. Fieldwork pp 23-33 2. Fieldwork pp 109-110	D Rix (1986)
<b>Exploring Geography</b> Fieldwork - Geography outside the classroom pp 47-65		LB Hurry (1986)	Via Afrika
Std 9	<b>Senior Geography New Syllabus 1986</b> A field excursion to a pulp & paper plant pp 36-40	CJ Swanevelder	Nasou Ltd
	<b>Geography in Action</b> Fieldwork pp 18-19	D Rix (1986)	Juta & Co
	<b>Active Geography Std 9</b> A fieldwork excursion to a concentrated fruit juice factory pp 40-43	JN Steyn (1986)	De Jager- Haum
	<b>New Window on the World</b> Fieldwork pp 20-21	JN Earle	Juta & Co
Std 10	<b>Active Geography Std 10</b> Fieldwork - an exercise in urban land use pp 16-23	JN Steyn (1986)	
	<b>Exploring Geography Std 10</b> Fieldwork and the scientific method	LB Hurry (1986)	Via Afrika

## Senior Geography Std 10

1. Fieldwork in an urban area, pp 36-41
2. A field excursion and landscape interpretation pp 156-158

CJ

Swanevelder  
(1987)

Nasou Ltd

appears in Table 2.3.

The above analysis reveals that although fieldwork occupies a more a prominent place in recent textbooks than previously, by comparison with overseas literature the South African teacher is still given relatively little guidance in the organisation and administration of fieldwork. Most of the textbooks listed in table 2.3 however fail to give practical examples of field units to be undertaken in order to guide teachers who have a limited conception of what fieldwork is about. The standard 7 textbook writers Rauby (1985) and Bester (1985) give examples of field studies to be undertaken but instead of designing worksheets or questionnaires which can be adapted by teachers they suggest headings to be used.

## 2.9 CONCLUSION

The exponents of fieldwork unanimously agree that fieldwork is an essential part of any geographical course as it places the pupil in contact with reality beyond the confines of the classroom. It has been argued that outdoor experiences provide a basis for the development of concepts and attitudes, help to equip pupils with an array of skills and enable them to become concerned with issues.

Reference to the need for progression in the development of geographic skills and concepts though fieldwork has been made. It has been suggested that geography teachers should focus on the nature of what is to be taught, the pupil and his needs, then to select appropriate teaching/learning approaches which actively involve pupils. The important contribution that fieldwork has made in developing concepts has been emphasized. It has also been shown that various strategies which involve active participation by the pupil can be used as an alternative to fieldwork or incorporated in fieldwork.

Some textbooks used in secondary education have examples of fieldwork, though very few have designed worksheets to guide

teachers.

CHAPTER 3  
METHODOLOGY

3.1 INTRODUCTION

The primary purpose of this research was to examine fieldwork as a strategy to develop conceptual understanding and geographical skills in schools where pupils are disadvantaged both by their economic situation and the problems they experience with the language medium used to teach geography. To achieve this objective the researcher needed to design and administer field activities which, while being viable in terms of the school's location, would develop the necessary concepts and skills in those areas of the syllabus in which pupils experienced problems. Before applying the action research greater clarity was needed with regard to:

- (i) pupils' and teachers' perceptions of aspects of the syllabus and of various teaching strategies;
- (ii) the pupils' home circumstances to ascertain the extent to which these influence their performance in geography.

This research therefore occurred in two phases. The first phase was a survey involving geography teachers and their pupils. The second phase involved action research. This chapter examines the instruments which were used to collect data.

The survey included the following instruments:

- (i) Questionnaires for
  - (a) senior secondary geography teachers in the Alice circuit;
  - (b) senior secondary geography pupils in the Alice circuit.
- (ii) Interviews with junior secondary geography teachers in the Alice circuit.

The action research involved standard 9 and standard 10 geography pupils from the researcher's school.

### 3.2 THE SURVEY

A small-scale survey confined to nine senior secondary schools in the Alice circuit was conducted to gather information related to teachers' and pupils' attitude towards geography as well as the possible learning problems which result from their social environment. Out of 16 senior secondary schools in the circuit nine schools offer geography. Questionnaires and interviews were the only efficient and practical means through which the researcher could get access to a large sample and obtain direct information about pupils' and teachers' attitudes, feelings and opinions.

#### 3.2.1 Questionnaires

A questionnaire is a popular method of conducting a survey in which a list of questions is asked by the researcher to gather information relevant to the problem investigated. According to Cohen and Manion (1986); Gay (1987) and Dane (1990) questionnaires are either posted to the respondents to complete or are completed under the supervision of the researcher. Two types of questionnaires distinguished by these authors are a closed or structured questionnaire in which the respondent is given a list of suggested responses and an open or non-structured questionnaire which does not suggest answers for the respondent. The main disadvantage of closed questionnaires is that the researcher cannot probe the respondents' feelings, attitudes and opinions. However it is advantageous as it facilitates answering, is easy to code and analyse and is relatively objective. Open questionnaires on the other hand leave much more interpretation to the respondent but create problems for the researcher in the organisation of answers into categories for a qualitative analysis.

With regard to the size of the sample Cohen and Manion (1986)

suggest that a minimum sample of 30% will represent the population being surveyed. Other aspects of the survey which need consideration are validity and reliability. According to Wiersma (1980), the questionnaire is valid if its results can be accurately interpreted and generalised to the population, while reliability refers to the degree to which an instrument is consistent in producing the same results when measuring the same thing.

The following are advantages of using questionnaires:

- \* they permit a wide coverage at a minimum expense of time and money;
- \* wide coverage makes for greater validity in the results by promoting the selection of a larger and more representative group;
- \* the impersonal nature of the questionnaire may elicit more candid and objective replies and therefore more valid responses (Cohen and Manion, 1986).

The main disadvantage of posted questionnaires is their susceptibility to non-response which may affect the validity of the results. Wiersma (1980), warns that data may be useless when a questionnaire is incorrectly completed or the questions are misinterpreted. Bias may also arise from the respondents' lack of understanding of the questions.

Questionnaires were the only means for the researcher to gain access to the surveyed population with minimum costs and time. This instrument enabled the researcher to select a larger and more representative sample thus increasing the validity of the survey. Access to the schools surveyed was obtained through the Assistant Director of the Alice circuit with whom the researcher discussed the purpose of the investigation. The researcher contacted the school principals and the geography teachers at the schools and organised the practical details of the survey. This included discussion regarding the classes which would be involved, assistance needed from teachers and the time which would be needed.

### 3.2.1.1 Questionnaires for Geography teachers

The survey which was conducted in July 1989 involved all the teachers responsible for standard 8 to 10 geography in the nine schools involved in the survey. Covering letters explaining the purpose of the study were included with the questionnaire (Appendix A). The questionnaires attempted to discover whether senior geography teachers have the required qualifications to teach senior secondary geography, their use of learner centred teaching strategies and their attitude towards the use of fieldwork as a teaching strategy. The researcher collected questionnaires to avoid the problem of low returns. Out of twenty questionnaires sent to the teachers eighteen were returned.

### 3.2.1.2 Questionnaires for pupils

The table below provides a list of schools involved in the survey and the number of geography pupils comprising the population.

TABLE 3.1  
SCHOOLS AND NUMBER OF PUPILS PER CLASS

SCHOOLS	STANDARD NINE	STANDARD TEN
A	30	24
B	42	36
C	56	43
D	36	18
E	-	37
F	70	63
G	29	23
H	33	41
I	<u>26</u>	<u>16</u>
	322	301

A total of 473 pupils was surveyed in six out of the nine schools listed in the table above. Three of the schools could not be surveyed because of unrest during the period of the survey. The questionnaire which appears in Appendix B was

divided into three parts. The first part pertained to home background which is believed to have a profound influence on the pupils' performance at school. Part two probed pupils' attitudes towards the different sections of the geography syllabus. The final part investigated pupils' experience of areas outside their local environment. Out of thirty three questions, twenty seven were closed to facilitate answering, coding and analysis.

A sample size of 500 was considered representative in terms of validity explained by Cohen and Manion (1986). Since three of the schools could not be included in the survey, a clustered sample in which all geography pupils in schools A, B, C, F, G, and H (Table 3.1) were surveyed was selected. However 473 pupils completed the questionnaires as some pupils were absent from school on the dates of the survey. This comprised a return rate of 76% which, according to Cohen and Manion (1986), is a high return for questionnaires and helps to increase the validity of the survey. The implementation of the questionnaire was preceded by a pilot survey involving twenty pupils from school D (Table 3.1) which had a total of fifty four pupils. Pupils at this school were not part of the sample though part of the population. School D was randomly selected from the three schools not included in the sample.

The pilot survey was conducted to determine whether the administration of the questionnaires could be undertaken by staff members other than the researcher and to ensure that the questionnaires contained no ambiguities or other problems relating to the interpretation of the questions which would reduce the validity and the reliability of the responses. The pilot survey revealed the need for the researcher to administer the questionnaire herself as pupils were permitted to take the questionnaires home rather than complete them in class. This led to low returns as questionnaires were lost or misplaced. Furthermore during the completion of the questionnaires pupils had copied answers from each other, thus creating an invalid and unreliable set of responses. The main survey was therefore administered by the researcher with the

help of teachers in each of the schools surveyed. The researcher visited the schools during afternoon studies from the first week to the third week of August 1989.

The data collected from the pupils' and teachers' questionnaires were qualitatively and quantitatively analysed. The quantitative analysis was completed by means of computation using a BMDP programme.

### 3.2.2 Interviews

An interview is a survey method which involves conversation between the researcher and the respondent in order to obtain information relevant to the problem investigated (Cohen and Manion, 1986). In terms of design, interviews are either structured, semistructured or unstructured. In a structured interview set questions are asked and the answers are recorded on a standardised schedule. In a semistructured interview the researcher poses predetermined questions but has considerable flexibility concerning follow-up questions (Slavin, 1984). The main advantage of a structured interview is its uniformity of measurement which leads to greater reliability. Furthermore structured interviews are easily coded for purposes of analysis. Disadvantages include their lack of depth and the fact that respondents are restricted to alternatives that may not suit them. Flexibility is the main advantage of a semistructured interview as the interviewer has the opportunity to probe for more specific answers to clear up any misunderstanding. The researcher can also encourage cooperation and establish a rapport (Dane, 1990). However flexibility is also a disadvantage because not every respondent is asked the same questions thus reducing validity.

Interviews are generally expensive, time consuming and usually involve small samples. While research shows interviews to have a high reliability their validity is lower than that of a questionnaire.

### 3.2.2.1 Interviews with junior secondary geography teachers

Although standard six and standard 7 geography teachers did not form part of the survey they were interviewed to investigate the sort of geographical foundations laid in these classes. The researcher's contention is that the foundations laid in the lower classes influence pupils' understanding and attitude towards the subject in the senior classes. Thirteen teachers in the nine schools involved in the survey were visited and interviewed by the researcher individually in their schools. Semi-structured interviews were used because of their flexibility. Teachers' geography qualifications, the methods they use in teaching geography and their attitude towards the subject provided the basic structure of these interviews. The researcher recorded the responses on tape during the interview.

The largest possible samples were involved to increase validity and reliability. The high response rate of 76% (pupils' questionnaires) and 90% (teachers' questionnaires) ensured a high validity for this small scale survey. The researcher eliminated the problems of non-response by supervising pupils' questionnaires and collecting questionnaires from teachers.

### 3.3 ACTION RESEARCH

Action research involving standard 9 and standard 10 geography pupils from the researcher's school was undertaken to investigate the effectiveness of fieldwork in developing geographic skills and concepts. Two standards were used because the researcher wanted to focus on certain aspects of the syllabus which experience had shown to be conceptually problematic. These included the geomorphology of coastal areas which forms part of the standard 9 syllabus and standard 10 urban geography.

Action research is defined as a "small scale intervention in the functioning of the real world and a close examination of

the effects of such examination" (Cohen and Manion, p. 208). The main purpose of action research is to solve classroom problems. According to Gay (1987) action research is a means by which concerned school personnel can attempt to improve the educational process at least within their environment. Cohen and Manion (1986) identify the following purposes of action research:

- \* to equip teachers with new skills and methods.
- \* to introduce additional or innovative teaching approaches to teaching and learning.
- \* to remedy problems diagnosed in specific situations.
- \* to provide an alternative to the more subjective, impressionistic approach to problem solving in the classroom.

The areas of school life in which action research is applicable are teaching methods, learning strategies, in-service development of teachers and the development of attitudes (Cohen and Manion, 1986).

A major disadvantage associated with action research is that the sample is restricted and unrepresentative and generalisations of the findings are limited to the environment in which the research is carried out.

The main purpose of this action research was to introduce a teaching/learning approach the results of which would reveal the extent to which fieldwork is able to promote the development of skills and concepts in pupils with no previous field experience. The instruments used in the action research programme were evaluated by a non-participant observer in order to ensure that these instruments were both valid and reliable.

Before conducting the action research pretests were administered for diagnostic purposes. The researcher wanted to identify specific conceptual problems that pupils experienced with those sections of the syllabus which they would study in

the field. The researcher hoped that post-test results would reveal the extent to which the field experience had affected pupils' understanding the identified concepts. It was not practical to use an experimental and a control group because of the limitations occurring at the school.

According to Slavin (1984), a problem associated with the pre-post test situation is the fact that pretesting would probably increase post-test scores even without the additional strategy which is designed to improve pupils' performance. Furthermore pupils' prior exposure to the test gives them practice in test items or they may become sensitive to the issues addressed in the post-test. A further issue relating to pre- post test situations is that of comparability of tests in order to ensure validity and reliability. The pretest post- tests items must be the same.

Pre- post tests given as preparation and follow-up to the action research appear in Table 3.2 for standard 9 and Table 3.3 for standard 10. The standard 9 test focused on beach studies while the standard 10 test was on urban studies. These were sections of the syllabus in which pupils showed conceptual problems.

TABLE 3.2  
MARINE ACTION STD 9

## PRE-FIELDWORK TEST

NO TIME LIMIT

This test is aimed at testing your understanding of wave action and resultant landforms theoretically dealt with in the classroom before we undertake a field excursion.

NAME:.....

- 1 Match the statements in column A with the correct answers in column B. Place only the corresponding letters next to the numbers.

COLUMN ACOLUMN B

- |  |  |
|--|--|
| 1.1 friction between wind and sea causes                         | (a) Backwash<br>(1.1.....)                                     |
| 1.2 wind strength increases                                      | (b) swash<br>(1.2.....)  |
| 1.3 friction between the base of the waves and the sea bed       | (c) wave length<br>(1.3.....)                                  |
| 1.4 waves break  | (d) wave refraction<br>(1.4.....)                              |
| 1.5 water thrown forward when the wave breaks is called          | (e) at the headland<br>(1.5.....)                              |
| 1.6 the force of waves is strong when they break                 | (f) wave height<br>(1.6.....)                                  |
| 1.7 the horizontal distance of waves                             | (g) at the bayhead<br>(1.7.....)                               |
| 1.8 wave length is wide  | (h) waves to develop<br>(1.8.....)                             |
| 1.9 beach material is removed by                                 | (i) retards the forward movement of waves<br>(1.9.....)        |
| 1.10 waves tend to change direction when they approach the shore | (j) when they reach shallow waters on the beach<br>(1.10.....) |

/20/

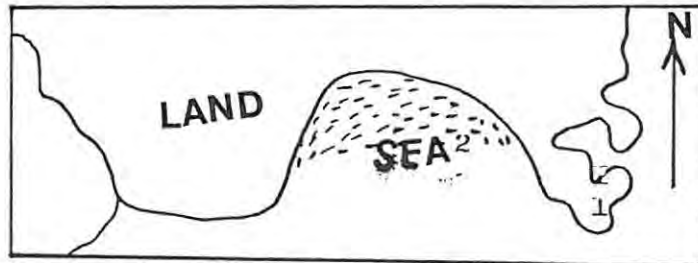
2. Select the item which best completes each of the following statements. Tick the letter chosen as correct.
- 2.1 Water thrown forward at the beach by breaking waves  
(a) flows back to the sea at backwash  
(b) collects in pools  
(c) is drained by sand and it disappears
- 2.2 Waves break when  
(a) wind strength is reduced  
(b) there is friction between waves and the sea bed  
(c) reaching a deep area on the beach
- 2.3 The amount of load carried by the swash of waves depends largely on  
(a) the energy of the waves  
(b) the angle of the beach  
(c) the type of material removed
- 2.4 On a steep beach waves  
(a) deposit more material than is removed  
(b) remove more material than is deposited  
(c) neither deposit nor erode

TABLE 3.2 (cont)

- 2.5 When waves break against a rocky cliff air is trapped in cracks and joints and explodes when released. This is known as
  - (a) corrasion
  - (b) hydraulic action
  - (c) oscillation
- 2.6 Rocks along the coast are shattered by
  - (a) attrition
  - (b) corrasion
  - (c) hydraulic action
- 2.7 The formation of caves along the beach is the result of
  - (a) attrition
  - (b) corrasion
  - (c) hydraulic action
- 2.8 The main source of sand found on coastal areas is the
  - (a) land
  - (b) sea
  - (c) beach
- 2.9 A spit of sand extending across the bay to the next headland is a
  - (a) bay bar
  - (b) sand bar
  - (c) tombolo
- 2.10 A shallow body of water separated from the sea by a narrow strip of land or sand bar is a
  - (a) tombolo
  - (b) sand bar
  - (c) lagoon

/20/

3. Refer to the figure below



- 3.1 Name the features marked (1).....(2)  
 (2).....(2)
- 3.2 Which side of the feature 1 is most exposed to wave attack .....(2)  
 Give one reason for your answer .....(2)
- 3.3 Is the main wave action at 2 erosional or depositional? .....
- 3.4 Mention any two features likely to occur because of wave action at 1 .....(4)
- 3.5 Where do you expect dune formation? at 1 or at 2 .....(2)  
 Give one reason for your answer .....(2)
- 4. Refer to the attached topographic map of Plettenberg Bay
- 4.1 Which area is likely to have cliffs, Robberg or Plettenberg Bay? .....(2)
- 4.2 Shortly explain your answer in  
 4.1.....(1)
- 4.3 What type of coastal feature is Robberg? .....(1)

TABLE 3.2 (cont)

4.4	Name the features closing the mouth of Keurboomsrivier .....(2)
4.5	Are the coastal features at the mouth of Keurboomsrivier erosional or depositional? .....(2)
4.6	What type of feature is Blind rock (at the bay) .....(2)
4.7	There is an island called Die Eiland south of Robberg what is its height in metres? .....(2)
4.8	Name the coastal feature joining Die Eiland to Robberg .....(2)
4.9	Is the feature at 4.8 depositional or erosional? .....(2)
4.10	The feature at 4.8 is the result of (constructive, des- tructive waves) .....(2)
Total 75	

# 3423AB PLETTENBERGBAAI



Mean magnetic declination 23°, 6 West of True North (1977.0) Mean annual change 2' Eastwards (1971-1975).  
 Gemiddelde magnetiese deklinasie 23°, 6 Wes van Ware Noorde (1977.0) Gemiddelde jaarlikse



1:50 000

CONTOUR INTERKONTOERTUSSENRE

TABLE 3.3

## URBAN SETTLEMENT STD 10

PRE-FIELDWORK TEST

MARKS 100

The aim of this test is to test your understanding of concepts, facts and principles already taught in urban settlement geography.

NAME .....

1. Tick the correct answer from the alternatives given. Do not put any other marks on the paper.
  - 1.1 In the field the main distinguishing feature one notices between the CBD and the industrial area is
    - (a) high land values
    - (b) number of people employed
    - (c) degree of accessibility
    - (d) height of buildings
  - 1.2 Some high order functions found in the CBD are
    - (a) department store, secondhand shops, parks
    - (b) department stores, garages, chain stores
    - (c) department store, food market, chain stores
    - (d) department stores, food supermarkets, second-hand furniture
  - 1.3 Evidence of intensive use of land in the CBD is
    - (a) high land values
    - (b) height of buildings
    - (c) types of functions
    - (d) traffic congestion
  - 1.4 The functional zone with a mixture of functions is the
    - (a) CBD
    - (b) zone in transition
    - (c) residential zone
    - (d) industrial zone
  - 1.5 Settlements developing along natural features like rivers or mountain ranges show a
    - (a) star shape
    - (b) linear shape
    - (c) rectangular shape
    - (d) circular shape
  - 1.6 Vincent Park in East London, Glenfair in Pretoria and Sandton City in Johannesburg are examples of
    - (a) functions in the rural urban fringe
    - (b) shopping complexes
    - (c) models of urban structure
    - (d) residential areas
  - 1.7 Financial institutions found in the office blocks of the CBD
    - (a) chemists, hotels and parks
    - (b) banks, building societies and insurance companies
    - (c) banks, attorneys and insurance companies
    - (d) building societies, hotels and chemists
  - 1.8 The urban zone with decaying houses is the
    - (a) rural-urban fringe
    - (b) zone in transition
    - (c) squatter camp
    - (d) industrial zone
  - 1.9 According to Davis' classification of urban hierarchies East London is a
    - (a) Major Metropolitan area
    - (b) Metropolitan area
    - (c) Major country town
    - (d) Primate Metropolitan area

TABLE 3.3 (cont)

- 1.10 All Western cities show the following functional structure
- (a) CBD near the centre, upper class residential area, heavy industry, flat and hotel area at the outskirts
  - (b) CBD near the city centre, upper class residential area, flat and hotel near railway lines, heavy industry
  - (c) CBD near city centre, flat and hotel not far, upper class residential area on the outskirts, heavy industry near railway lines or water transport facilities
  - (d) CBD near city centre, upper class residential near railway lines, factories on the outskirts and flats and hotels on flat land.

(20)

2. State whether true or false. Write T or F in the brackets provided.

- 2.1 High land values at the CBD serve as "pull" factors to the city centre (.....)
- 2.2 Vacant houses and vacant shops are characteristic of the zone in transition (.....)
- 2.3 Specialised shops e.g. jewellers are usually located in the transition zone (.....)
- 2.4 Heavy industries are usually located away from the upper class residential area (.....)
- 2.5 Large tracts of land are attractive and serve as "pull" factors to factories (.....)
- 2.6 The zone of the city with the highest pedestrian and vehicular traffic is the industrial zone (.....)
- 2.7 All urban function found in East London are also found in the town of Alice (.....)
- 2.8 Professional services found in the CBD include banks, building societies and insurance companies (.....)
- 2.9 A shopping centre houses a number of shops in one building complex and provides extensive parking for customers (.....)
- 2.10 Squatter camps usually develop in the Zone in transition (.....)

(20)

3. Match the statements in column A with the statements in column B. Match these statements by ticking the correct letter

<u>COLUMN A</u>	<u>COLUMN B</u>
3.1 the view of the city from the side	A rural-urban fringe
3.2 the arrangement of urban settlements according to the functions	B transition zone
3.3 the zone where airports, power stations and sports fields are often found	C urban profile
3.4 Rail transport, canals and navigable rivers	D hierarchy of urban settlements
3.5 zone of decay	E determine the location of heavy industries
3.1 A B C D E	3.2 A B C D E
3.3 A B C D E	3.4 A B C D E
3.5 A B C D E	

TABLE 3.3 (cont)

4. Refer to the topographic map of PIETERMARITZBURG 2930 CB
- 4.1 Name the type of street plan found at the CBD  
 .....
- 4.2 The street plan at Imbali south west of the city is  
 (gridiron, radial - concentric, irregular)  
 .....
- 4.3 Which residential areas are likely to accommodate the upper  
 class?  
 (i) Clarendon, Wembley and Chase Valley Downs OR  
 (ii) Woodlands and mountain Rise?
- 4.4 Give two reasons for the situation of Manson's Mill factory  
 north-east of  
 .....  
 (2).....  
 .....
- 4.5 How do you identify the rural-urban fringe on this map?  
 .....
- 4.6 What is the direction of the rural-urban fringe from the  
 city centre?  
 .....
- 4.7 Which part of the city is situated on a fairly flat area  
 (i) the CBD OR  
 (ii) the residential areas of Clarendon, WEmbley and  
 Case valley?
- 4.8 Account for the linear pattern followed by the industrial  
 area at Willowton just north of Scottsville race course  
 .....  
 ..... (30)
5. Supply one word for the following:
- 5.1 the zone in which the following activities are found -  
 airports, power stations, sewerage farms cemeteries etc  
 (.....)
- 5.2 A residential area at the outskirts of the city in which  
 every available material is used for construction  
 (.....)
- 5.3 A land use zone which accommodates financial, commercial,  
 administrative and entertainment functions  
 (.....)
- 5.4 a land use zone depending on bulk transport like harbours  
 and railway lines (.....)
- 5.5 a model of urban structure in which land use zones extend  
 along the most traffic routes  
 (.....)
- 5.6 an urban functional zone not found in the town of Alice  
 (.....)
- 5.7 a town supplying the surrounding rural community with urban  
 services is the  
 (.....)
- 5.8 an urban zone with terraced houses  
 (.....)

TABLE 3.3 (cont)

6. Given below is a list of urban functions found in the different functional zones of a city. Arrange them correctly in the appropriate columns.

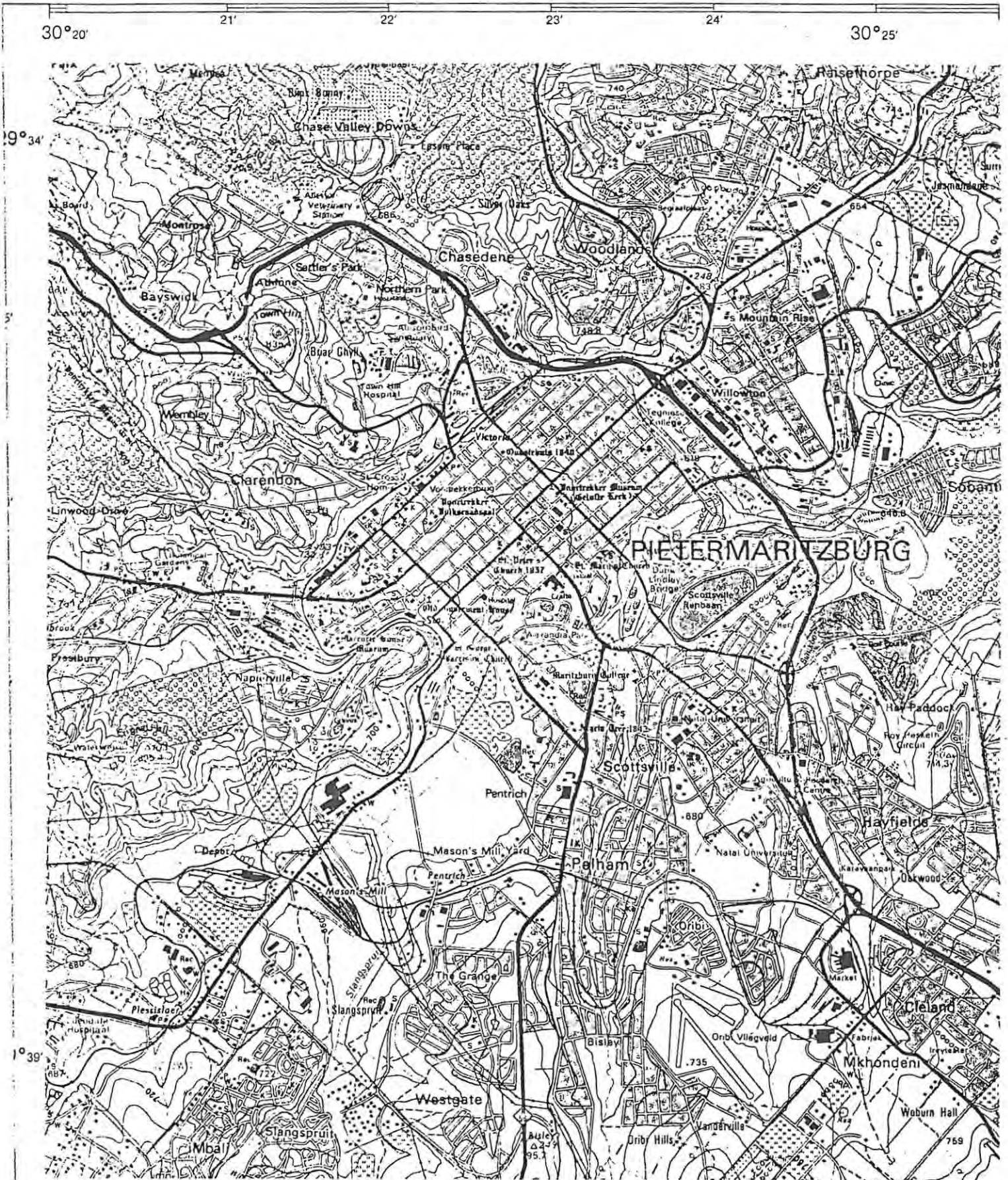
	<u>CBD</u>	<u>ZONE IN TRANSITION</u>	<u>NON-CBD</u>
1.			
2.			
3.			
4.			
5.			
6.			

LIST OF FUNCTIONS:

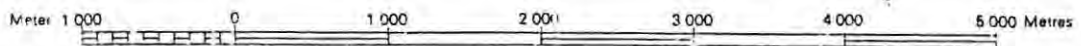
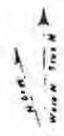
- |                                |                      |
|--------------------------------|----------------------|
| A. Department store (Garlicks) | B. Second-hand shops |
| C. parks                       | D. Banks             |
| E. schools                     | F. Garages           |
| G. churches                    | H. supermarkets      |
| I. light industry              | J. heavy industry    |
| K. insurance company           | L. News agent        |
| M. shoe repairs                | N. Cinema            |

(14)

# 2930CB PIETERMARITZBURG



magnetic declination 20° 3 West  
 North(1981.0) Mean annual change  
 (rd)(1975-1980):  
 die magnetiese deklinasie : 0° 3 West  
 Noordoed(1981.0. Geïndigde jaarlikse  
 ring 2° Oos-waarts 1975-1980)



CONTOUR INTERVAL 20 METRES  
 KONTOERTUSSENRUIMTE 20 METER

1:50 000

Figure 8.33

The test in Table 3.2 stressed pupils' understanding of concepts and processes already learnt which they would also encounter in the field. Question 1, in which pupils had to match correct answers and question 2, which is a multiple choice, required pupils to display their knowledge of facts and content, definition of terms, principles and concepts. Question 3, which referred pupils to a diagram, and question 4, based on a topographical map of Plettenberg Bay, tested pupils' higher abilities such as application of factual knowledge, interpretation and analysis.

The test in Table 3.3 attempted to evaluate pupils' understanding of work already done in urban studies (the growth and distribution of urban settlements and the internal structure of the city). The questions were designed such that Bloom's (1956) cognitive abilities of factual knowledge, comprehension, application and analysis would be demonstrated by the pupils. Question 1, which is a multiple choice, required both factual knowledge and comprehension. Question 2, in which pupils had to state "True" or "False", seemed simple but demanded deeper insight into the facts and terminology used. Question 3 required pupils to match correct answers, most of which were definitions of terms. A topographical map depicting an urban area (question 4) was used. This map was not directly related to the fieldwork undertaken but the researcher wanted to test pupils' abilities to apply the concepts associated with this section of the syllabus through interpretation and analysis. The fifth question was simple and straight forward requiring pupils to complete sentences choosing from lists of terms provided. Data obtained from tests was analysed both quantitatively and qualitatively.

### 3.3.1 Beach studies with standard 9 pupils

The researcher's experience in teaching standard 9 geomorphology over a number of years has consistently revealed that many pupils lack the basic understanding of the processes involved in wave action and related concepts such as wave length and height, swash and backwash, wave refraction,

constructive and destructive waves etc. It was for this reason that the field excursion to Nahoon beach in East London was conducted by the researcher. This excursion attempted to achieve the following objectives:

- A. To enable pupils to realise that most of what they study in coastal geomorphology involves observable processes and phenomena in the real world.
- B. To enable the pupils to integrate theory obtained in the classroom with observations in the field.
- C. To clarify certain basic concepts such as wave length, breaking waves, swash and so forth in the field.
- D. To develop pupils' confidence in finding out information independently and thereby to evoke interest in the subject.
- E. To develop pupils' geographical skills such as making accurate observations, recording and field sketching.

Preparations for the excursion included the following:

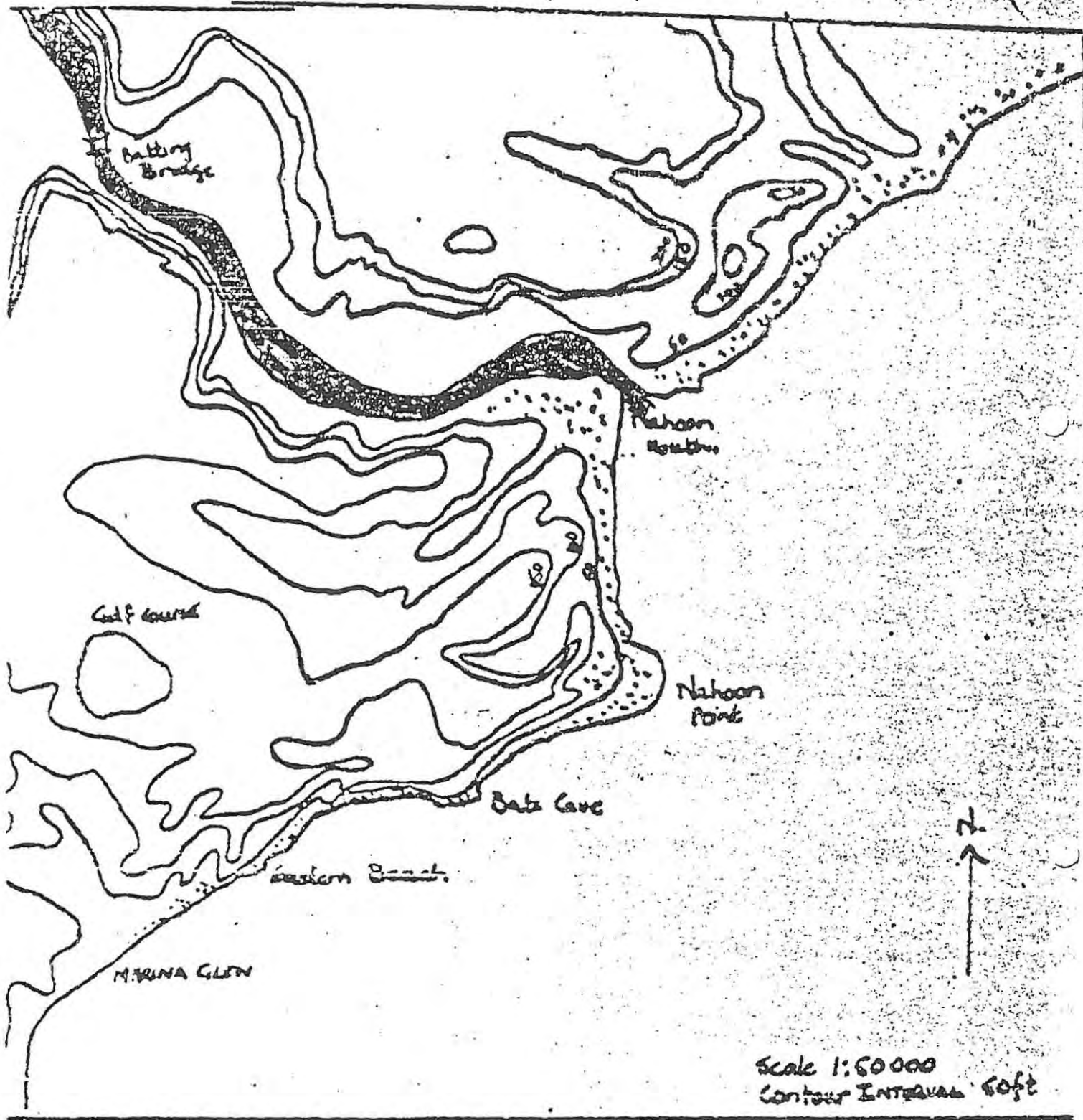
- 1. obtaining permission from the school principal and the circuit office;
- 2. writing to parents giving essential details and requesting them to contribute towards transport fares;
- 3. teaching and testing the section to be studied in the field;
- 4. making a reconnaissance of the beach;
- 5. designing worksheets for use in the field;
- 6. explaining to pupils what has to be done in the field and how to carry out the tasks.

TABLE 3.4

WORKSHEET: WAVE ACTION AND RESULTANT LANDFORM  
NAHOON BEACH

INSTRUCTIONS: You will be divided into 9 groups of 6 each. Discuss the questions asked before you attempt to answer them.

1. Time the frequency of the waves - (a) at the beach  
(b) at Nahoon Point
2. Compare the height (amplitude) of waves at both sites.
3. Compare the angle at which waves approach the shore at the two sites. N.B. when friction retards the waves so that the wave front is bent it is known as REFRACTION. Is there any evidence of refraction? Where?
4. From Nahoon point watch the waves approach
  - (i) do waves begin to break (show white)?
  - (ii) do all waves break at the same point?
  - (iii) why do waves break?
5. Compare the noise of breaking waves on the beach and at Nahoon Point.
6. Where does the wave exert the greatest force - at the beach or at Nahoon Point? Why?
7. When a wave breaks at the beach it washes forward and has forward energy (swash)
  - (i) what happens to the water?
  - (ii) what happens to the next wave?
8. Where are the wave lengths shortest - at Nahoon Point or at the beach? At what point can these waves be said to be destructive and where constructive?
9. What features result from the destructive nature of waves and what from constructive action of waves? (generally)
10. Draw simple sketches of the features mentioned.
11. Where do waves reach the shore first? why?
12. What do you notice about the activity of the waves at the point of break at the bay head - are the waves eroding or depositing?
13. Is the swash carrying material up the beach further than backwash is carrying material down or vice-versa? Explain why?
14. From the list given below choose and write down all the material you have seen : sand, solid rock, pebbles, shells.
15. Compare sand from the beach with that from the dunes in terms of : colour, composition and size.
16. Draw a profile of any cliffs, label any bedding planes, faults or joints visible.
17. Is there any evidence of overhang or evidence of cliff collapse or retreat at Nahoon Point?
18. Do you observe any sea weeds?
19. Where are the sea weeds found - at the beach or at Nahoon Point?
20. Do sea weeds grow on rocks or on sand?
21. What is the colour of sea weeds?
22. What evidence is there that sea water does not reach the dune area?



Scale 1:60000  
Contour Interval 60ft

TABLE 3.5

FIELDWORK TO NAHOON BEACH  
EVALUATION TEST STD 9

The field excursion to Nahoon Beach was a learning experience and not a picnic. It was undertaken to:

- (a) develop your observational skills
- (b) develop your reasoning skills
- (c) reinforce your understanding of wave action
- (d) to foster your love and interest in geography and nature.

The following questions are not set to test your ability but to investigate the success of the above objectives. Try to answer all the questions giving all the details you can.

1. What do you think you gained from the fieldwork excursion to Nahoon Beach? Explain fully.
2. Do you think your understanding of wave action was different at the beach than when taught in the classroom? Explain.
3. After undertaking this fieldwork, which method do you prefer
  - (i) listening to the teacher explaining in the classroom or
  - (ii) self-activity in which you try to find the answers for yourself as you did at Nahoon Beach? Explain.
4. Which method do you think would make you understand facts and remember them easily:
  - (i) listen to the teacher and learn the textbook
  - (ii) listen to the teacher, learn the textbook and go to the field to discover the truth? Explain.
5. Which concepts associated with wave action did you understand better in the field than you did in the classroom?
6. Did you like the method used in the field-given questions to find out answers on your own. Explain your answer.
7. Was this your first visit to the beach? If NO how did this visit differ from your previous visits?
8. What is the difference between the approach used at the beach and the approach used in the classroom?
9. Apart from marine action, which other topics do you think need field learning?
10. In which other subject/s do you think fieldwork can be used?
11. Would you encourage field excursions for learning purposes for all geography classes? Give reasons.

THANK YOU

At the beach worksheets which required pupils to observe waves in action were used (Table 3.4). The main purpose of this worksheet was to develop the concepts introduced to pupils in the classroom and to enable them to apply these concepts to reality. The researcher hoped that this approach would equip even the below average pupil with an understanding of marine action. Learning by doing at the beach would make pupils realise that the teacher and the textbook are not the primary sources of geographical knowledge but secondary sources. The worksheet was also designed to promote pupils' reasoning skills. Pupils were divided into nine groups of six each. The researcher, with the assistance of a student teacher from Fort Hare, observed pupils as they worked in groups and gave help when required to do so.

Follow-up was in the form of a test which was designed to probe their perceptions regarding the field excursion (Table 3.5).

### 3.3.2 Standard 10 fieldwork

The standard 10 pupils were exposed to urban field studies and soil studies.

The main objectives of undertaking urban field studies were:

- A. To reinforce factual knowledge e.g. cities have more services and activities than small towns;
- B. To develop understanding of abstract and concrete concepts as well as of geographical theories e.g high land values, clustering of shops or theoretical models of urban structure;
- C. To introduce the geographical skills of observation, recording and mapping;
- D. To foster personal growth as pupils would undertake individual and group work in the field;

E. To provide motivation in the subject.

(i) Preliminary geographical surveys Alice and Fort Beaufort

Field surveys of the small towns of Alice and Fort Beaufort (Table 3.6) were conducted as preliminary studies for the East London excursion. Theoretical explanations of hierarchies of urban centres, morphological structure of cities, spheres of influence, high order and low order functions etc, were given in the classroom. Having assessed pupils' understanding in this section of the syllabus through discussions and written tests, the researcher discovered that the majority of the pupils' conceptual understanding of this section was poorly developed. The researcher therefore deemed it necessary to undertake a local urban survey which would bring pupils in contact with concrete examples of what they have learnt in the classroom. Comparisons between the two small towns and the city of East London would clarify concepts such as the hierarchy of urban centres.

Since it was their first field experience, the worksheet designed was simple so that pupils could make independent observations and make comparisons and come to conclusions.

(ii) East London Field Survey

The towns of Alice and Fort Beaufort do not offer good examples with regard to concepts such as high order functions, the urban profile, traffic congestion, land-use pattern, urban models etc. In order to expose pupils to the CBD concept with related functions and problems, they were taken to the CBD of East London. The worksheet required pupils to work in small groups observing and recording types of functions located at the CBD, the height of buildings and the flow of traffic both vehicular and pedestrian at certain points in Oxford Street (Table 3.7). Pupils already had a theoretical knowledge of regions of high rise buildings in a city, clustering of functions in the CBD and traffic congestion. Understanding of this theory had been reinforced by using pictures and aerial

photographs from Geography in Action Std 10 by Rix, Earle, Keats, Beavon, Powel and van Schalkwyk (1987) and Exploring Geography Std 10 by Hurry (1986).

Responding to the worksheet instructions was intended to reinforce their understanding of functional differentiation, intensity of land use and other related aspects of urban land use and morphology.

Follow-up was in the form of a test which focused on what was observed in the field (Table 3.8).

### (iii) Soil Studies

Although it is easy to explain soil horizons, properties and soil forming factors using soil samples and blackboard diagrams, the researcher saw the need to take pupils outdoors to remove the burden of memorizing facts and copying diagrams from the textbook and also to bring them into contact with reality. This section of the syllabus was chosen because a local area could be studied. The objectives to be achieved by undertaking soil studies included the following:

- A. To enable pupils to identify soil horizons in the soil profile.
- B. To see the relationship between soil colour, rock type and organic material.
- C. To draw pupils' attention to the relationship between slope and soil depth and type of vegetation.
- D. To develop geographic skills of observation, sketching and recording.

Preparations for this study included teaching the section using soil samples brought by pupils from different areas and designing a worksheet which would be used in the field. The researcher went through the worksheet with pupils explaining

what they were expected to do. Before designing the worksheet the researcher visited the site to identify what the pupils were able to observe.

At the end of this study it was hoped that pupils would have a broad understanding of the soil profile, soil texture and structure. A river bank about 700 metres from Jabavu High school was chosen as a suitable site. The worksheet (Table 3.9) required pupils to draw the soil profile as they observed it, to identify the soil colour and test the texture of the soil by rubbing the soil between the fingers. They also had to observe the structure of the soil and the presence of organic material in the soil. These questions would enable them to appreciate the validity of what is written in the textbooks. Pupils then had to report on their findings in class and draw conclusions, an activity which aimed to develop their communication skills.

A formative evaluation was used to assess each of the stages used in action research and qualitative results are given in chapter 5.

TABLE 3.6

## ALICE AND FORT BEAUFORT FIELD SURVEY

HYPOTHESIS: The towns of Alice and Fort Beaufort are on the same order in Davies' hierarchy of urban centres, but there are more services at Fort Beaufort than at Alice.

D A T E O F S U R V E Y :

.....

N A M E O F T O W N :

.....

This survey will focus on the types and number of services found in each town. Use the list given below and record the number of each establishment on the worksheet provided. Since there are five types of establishments required, divide yourselves into five groups, each group recording only one type.

CLASS ACTIVITY

Data collected by the different groups will be transferred to one worksheet and different graphs drawn. From the graphs conclusions will be made and the hypothesis accepted or rejected.

WORKSHEET

SERVICES / ESTABLISHMENTS

NUMBER

CONVENIENCE SHOPS

1. General store
2. Grocer
3. Butcher
4. Chemists
5. Baker
6. Food supermarket

SHOPPER'S GOODS STORES

1. Clothes (men)
2. Clothes (women)
3. Clothes (family shop)
4. Shoes
5. Electrical goods
6. Hardware

SPECIALISED STORES

1. Bookshop
2. Furniture
3. Gift shop
4. Jeweller
5. Toys
6. Second hand furniture

AUTOSALES AND SERVICE TRADES

1. Garage (a) Petrol  
(b) petrol and repairs  
(c) petrol, repairs & car sales
2. Dry cleaners
3. Optician
4. Funeral director
5. Travel agent

LEGAL, FINANCIAL AND OTHER SERVICES

1. Building Society  
(a) Branch  
(b) Agency
2. Bank  
(a) Branch  
(b) Agency

## 3. Hospital

- (i) For each town total the number of each type
- (ii) Total all the services for each town - there will be five totals in each case
- (iii) Draw a graph for each town - totals on the vertical axis and services on the horizontal
- (iv) Comment on the differences or similarities shown by the two graphs
- (v) Which of these two towns do you think has a higher population? Give a reason.

TABLE 3.7  
EAST LONDON EXCURSION  
FOCUS ON THE CBD

HYPOTHESIS TO BE TESTED:

1. The highest buildings are found in the CBD where most retail, financial and professional functions competing for the most accessible areas are found.
2. That certain types of shops selling "shopper's goods" like clothes and shoes tend to cluster so that customers may compare their goods.
3. That certain professional services (e.g. legal and financial) tend to cluster so that business contact may be facilitated.

OBJECTIVES

The main objectives may be distinguished as:

1. Educational objectives
2. Learning objectives

EDUCATIONAL OBJECTIVES

1. to develop observational skills
2. to develop reasoning skills
3. to foster pupils' love for and interest in Geography

LEARNING OBJECTIVES

After the excursion the most important learning objective would then be that pupils would have learned to:

1. identify and classify urban functions
2. observe and record land-data in the field
3. present data in the form of mapping and drawing of graphs

The purpose of the excursion is to observe and record the:

1. types of functions found in the CBD
2. height of buildings in the CBD
3. traffic flows at certain points in Oxford street

THE EXCURSION

You are expected to observe carefully details that will help achieve the above objectives and to record them accurately and precisely on the street map provided.

Fourteen blocks form the CBD, and are bounded by Caxton and North streets. Since five of the blocks are small, you will be divided into eleven groups of at least four each. Each group will note down the types of functions in coded form and also the height of buildings - number of storeys.

Traffic counts will be done at Oxford street; one group will count traffic moving to the south and it will be located at the corner of Union street east of Oxford, while the other group will be at the western corner of Gladstone street. Please note the side of Oxford street with the densest pedestrian traffic.

CLASS ACTIVITY

Back in class the data collected will be compiled into a map showing the functions of the CBD. A graph showing the height of buildings and the direction in which they decrease will also be drawn

Analysis will be in the form of a test based on the excursion. Pupils will have to compile a detailed report for the school Principal.

TABLE 3.7 (cont)

USE THE FOLLOWING CODES:

Shops - mark S  
 Offices - mark O  
 Entertainment - mark E

SHOPS:

SS Supermarket  
 S1 Self-service grocer  
 S2 Non-self-service grocer  
 S3 Confectioner (bread and cake)  
 S4 Other food shops (state type)  
 S5 Tobacconist, News agent, sweets  
 S6 Boots and shoes  
 S7 Men's wear  
 S8 Women's wear  
 S9 Clothing (general)  
 S10 Furniture, furnishings, carpets  
 S11 Radio, electrical goods, rentals  
 S12 Cycles, prams, accessories  
 S13 Stationery, books  
 S14 Leather goods  
 S15 Chemists, photographic goods  
 S16 Sports goods  
 S17 Toys  
 S18 Jewellery, watches, clocks  
 S19 Department store (Garlicks)  
 S20 Variety store (Woolworths)  
 S21 Caterer, restaurant, fish and chips, snack bar  
 S22 Gas and electricity show room  
 S23 Car and motor cycle showroom

OFFICES

01 Solicitor  
 02 Estate agent  
 03 Accountant  
 04 Surveyor  
 05 Engineer  
 06 Architect  
 07 Insurance  
 08 Bank  
 09 Building society  
 010 Local Government office  
 011 Central Government office

ENTERTAINMENT

EC cinemas and theatres  
 ED dance hall  
 EP public house - not residential

N.B. Only ground floor functions should be noted

GEOGRAPHY STD 10

TRAFFIC COUNT SHEET

GROUP: .....

GROUP: .....

LEADER: .....

STREET

DIRECTION OF MOVEMENT RECORDED

DATE AND TIME OF CENSUS

CARS

HEAVY COMMERCIAL VEHICLES (TRUCKS)

BUSES

MOTOR-CYCLES

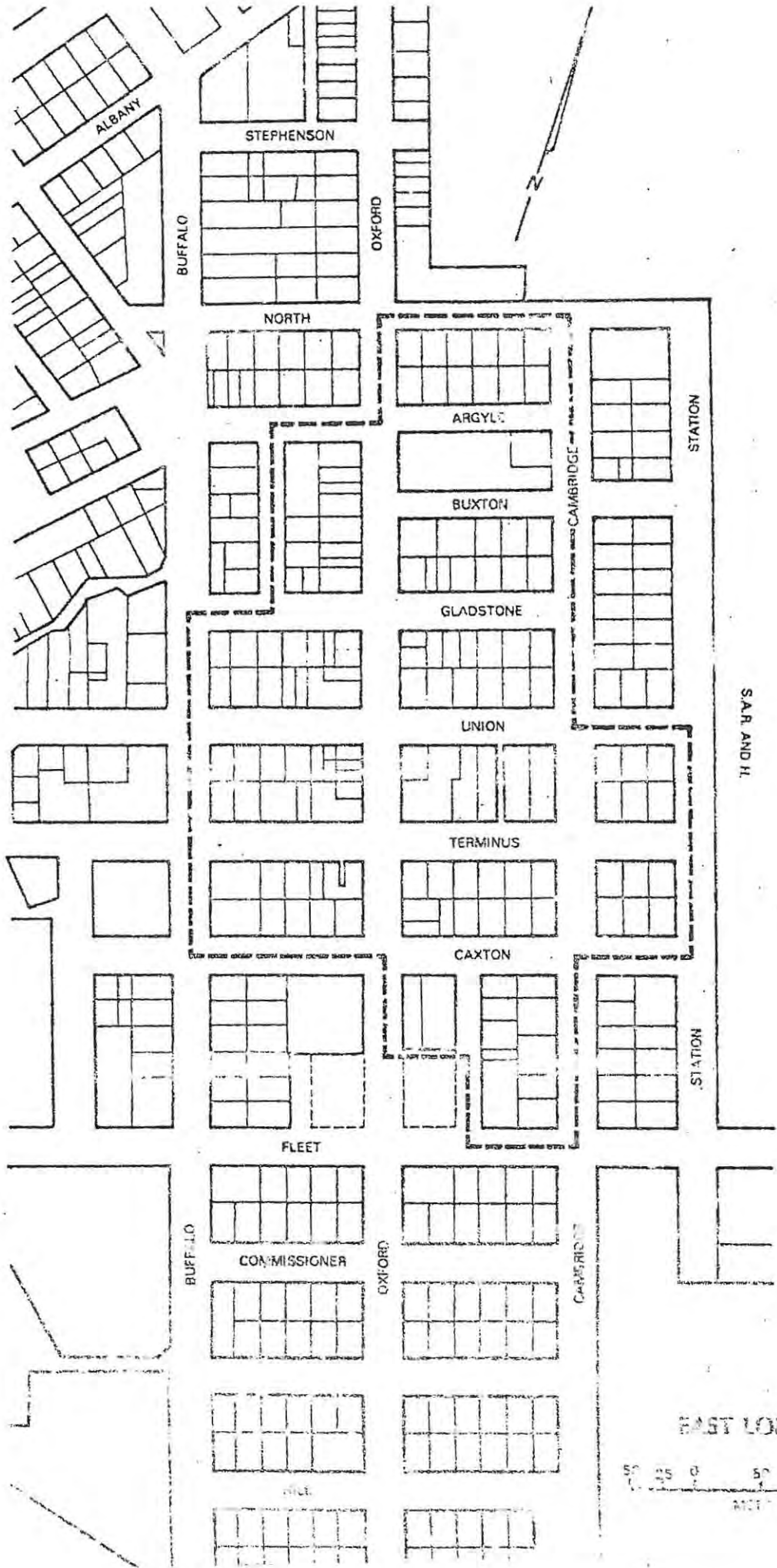


TABLE 3.8

## GEOGRAPHY STD 10

## TEST ON EAST LONDON EXCURSION

1. Explain why there is a concentration of high buildings in the CBD.
2. Does this apply to other cities as well?
3. Are there other areas in East London where there is a concentration of high buildings? Explain.
4. Which side of Oxford street has a concentration of high buildings?
5. Give a reason for that concentration.
6. What technological developments have made the construction of high rise buildings possible?
7. Which is the tallest building in East London?
8. From your observations and recordings did you notice any clustering of similar types of uses?
9. If yes which uses are those?
10. In which street/s are they clustered?
11. What term best describes the street pattern of East London's CBD?
12. Apart from road transport which other types of transport are available in East London?
13. Which of these types is/are not found at Alice?
14. On which river is the harbour of East London sited?
15. What is the main export product handled in East London?
16. Which side of Oxford street records the densest pedestrian traffic? Why?
17. Why is East London called a High Order Centre while Alice is called a Low Order Centre?
18. Give two examples of shops selling long range goods not found in Alice.
19. To which model of urban structure does East London approximate?
20. What position does East London hold in the South African hierarchy of urban settlements?
21. Which of the following functions are not found at Oxford street from Argyle to Terminus Street?  
petrol station, green grocer, news agent, dry cleaner, jewellery shop.

TABLE 3.9  
GEOGRAPHY STD 10  
SOIL STUDY

WORKSHEET

This study is intended to achieve the following objectives:

- \* to differentiate between the structure and texture of the soil
  - \* to understand that the different horizons differ in composition
  - \* the soil profile either has all the horizons or some of the horizons mentioned in the textbook
  - \* to understand the relationship between soil structure and vegetation
1. Draw a labelled sketch of the soil profile in your note book.
  2. Describe the vegetation growing on the surface
  3. Describe the colour of each layer in simple terms like dark brown, grey, yellow, etc.
  4. Take a sample from each layer - test the texture of each sample by rubbing the soil between your fingers - comment.
  5. Test the structure of your samples by shaking the soil sample in a container of water. You will have to leave this for at least 24 hours to settle. Then explain what you see in the experiment.
  6. Test the presence of organic material in the different horizons by spreading a soil sample on a piece of paper.
  7. Say which horizon has organic material and why?
  8. Do you think this area is suitable for crop cultivation?

Your findings will be discussed in class. Each group will report on its findings, then these will be compared with the textbook.

### 3.4 CONCLUSION

The survey research methods used were considered suitable to gain access to the population surveyed. The researcher tried to reduce the problems of unreliability and invalidity of questionnaires by including a large sample. Limitations arising from non-response were avoided by supervising the completion of pupils' questionnaires and collecting teachers' questionnaires. The researcher sought to identify environmental problems which affect pupils' learning in the rural schools. Pupils' attitudes towards certain sections of the syllabus would provide the researcher with the basis on which to argue for the use of pupil centred teaching strategies like fieldwork. The researcher gathered information relating to teachers' attitudes towards learner-centred strategies with a view to recommend their use. Action research was mainly implemented to examine its success as a teaching strategy to develop concepts and skills in pupils and to assess its value in geographical education. It is hoped that the data collected will isolate problems and enable the researcher to suggest possible solutions.

## CHAPTER 4

## RESEARCH RESULTS - TEACHER AND PUPIL QUESTIONNAIRE

## 4.1 INTRODUCTION

The survey undertaken in the Alice district in Ciskei involved the nine secondary schools offering geography. Questionnaires, involving standard 9 and standard 10 geography pupils and senior secondary geography teachers were administered, while interviews were conducted with thirteen junior secondary geography teachers.

The questionnaire designed for the pupils attempted to:

1. clarify and identify areas within the pupils' home environment which could affect or influence their conceptual understanding of those aspects of the syllabus selected for the action research in the second phase of the study;
2. examine pupils' perceptions of and attitudes to geography as a subject;
3. investigate their perceptions of the teaching strategies used to teach geography.

The questionnaire designed for the geography teachers was intended to identify their perceptions of the syllabus, their attitude towards selected aspects of the syllabus and the strategies which they use for the teaching of geography. The teachers' survey was also an attempt to examine their responses to a number of learner-centred teaching strategies with special reference to fieldwork. The interviews with the junior secondary teachers were conducted to establish the conceptual and skill development to which pupils are exposed in this phase of their geography. Data collected from these surveys are presented and analysed in this chapter.

TABLE 4.1

## QUESTIONS RELATING TO THE PUPILS' HOME BACKGROUND.

Place of birth	<ol style="list-style-type: none"> <li>1. Township (ilokishi)</li> <li>2. Village (elalini)</li> <li>3. Farm</li> </ol>
How long have you stayed in your place of birth?	<ol style="list-style-type: none"> <li>1. Less than 3 years</li> <li>2. 4 to 7 years</li> <li>3. 8 to 11 years</li> <li>4. 12 to 15 years</li> <li>5. 16 years and above</li> </ol>
Present home	<ol style="list-style-type: none"> <li>1. Township (ilokishi)</li> <li>2. Village (elalini)</li> <li>3. Farm</li> </ol>
Where did you pass Std 5?	<ol style="list-style-type: none"> <li>1. Urban school (ilokishi)</li> <li>2. Village school (elalini)</li> <li>3. Farm school</li> </ol>
For how long have you been at the present school?	<ol style="list-style-type: none"> <li>1. Less than 3 years</li> <li>2. 3 to 5 years</li> <li>3. 6 to 8 years</li> </ol>
How far is your home from school?	<ol style="list-style-type: none"> <li>1. less than 1 km</li> <li>2. 2 to 4 km</li> <li>3. 6 to 7 km</li> <li>4. More than 8 km</li> </ol>
How do you usually travel to school?	<ol style="list-style-type: none"> <li>1. On foot</li> <li>2. By bus</li> <li>3. By taxi</li> <li>4. By bicycle</li> <li>5. By family car</li> </ol>
Level of education	<ol style="list-style-type: none"> <li>1. No formal education</li> <li>2. Primary education</li> <li>3. Std 8</li> <li>4. Teacher's course (PTC)</li> <li>5. Matric or school leavers</li> <li>6. University education</li> </ol>
What jobs do your parents do?	<ol style="list-style-type: none"> <li>(a) Mother</li> <li>(b) Father</li> </ol>

TABLE 4.2

RESULTS ON PUPILS HOME BACKGROUND  
(Expressed as percentages)

4.2 (a)	Place of birth: Present home		
	Village	55 %	67,2%
	Township	38,8%	30,1%
	White Farms	<u>11,2%</u>	<u>2,7%</u>
		100,0%	100,0%
4.2 (b)	Primary school education		
	Village	74,9%	
	Township	21,7%	
	Farms	<u>3,4%</u>	
		100,0%	
4.2 (c)	Period in present school 62,3% of the respondents had attended the village schools for more than three years while 37,7% had less than three years.		
4.2 (d)	Distance to school		
	Distance	%	
	0-1 km	48,7	
	2-4 km	26,7	
	5-7 km	14,0	
	8-10km	<u>10,6</u>	
		100,0	
4.2 (e)	Means of transport		
	On foot		89,9%
	By bus		7,0%
	By taxi		2,1%
	By bicycle		0,2%
	Private transport		<u>0,8%</u>
			100,0%
4.2 (f)	Parents' level of education.		
	There is a preponderance of parents (26,5%) with no formal education; 17,2% have junior certificate; 4,7% primary teacher's course; 10,4% matric certificate and 2,3% have university education (figure 4.2)		
4.2 (g)	Occupation of parents		
	<u>Occupation</u>	<u>Mother</u>	<u>Father</u>
	Unskilled	18,5	14,8
	Unemployed	60,9	41,7
	Skilled	1,3	5,8
	Professional & managerial	5,1	5,9
	Clerical & administrative	8,0	13,8
	Business & commercial	<u>6,2</u>	<u>18,0</u>
		100,0	100,0

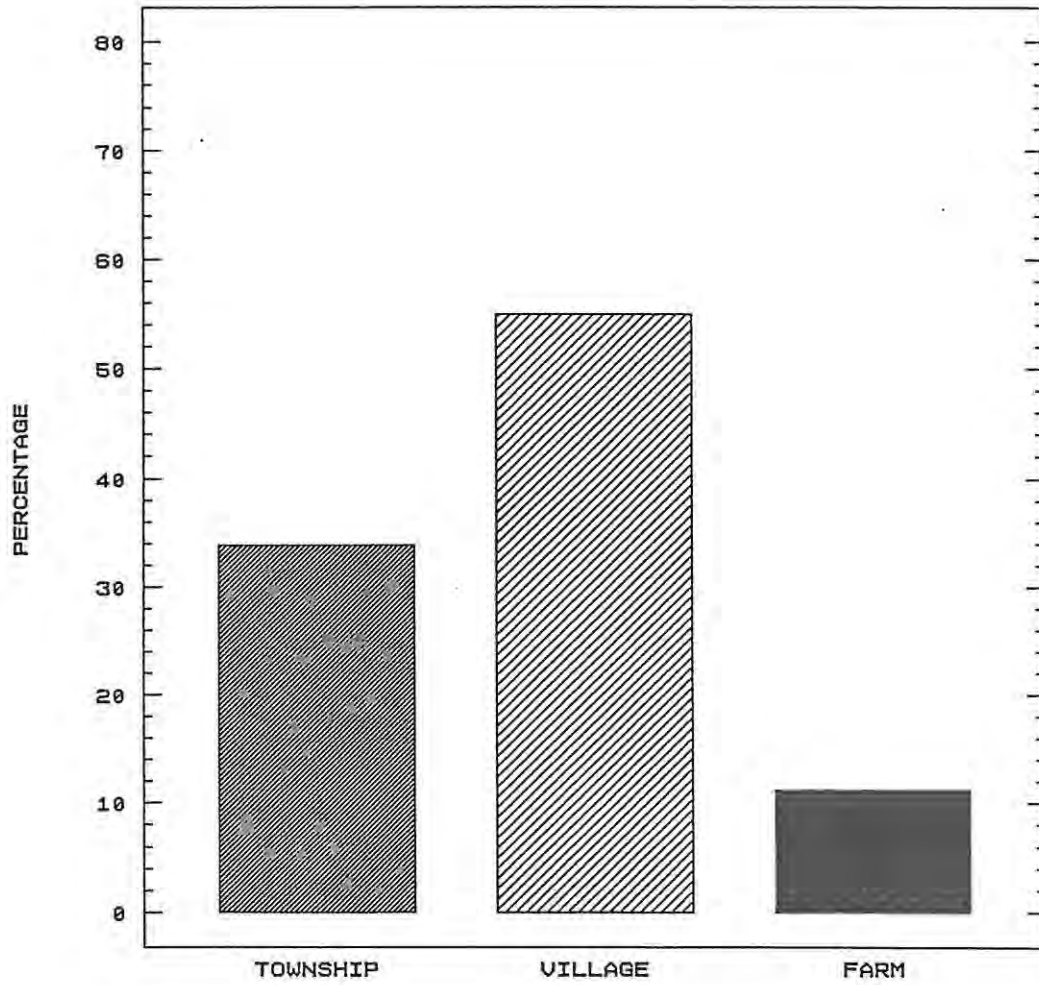


FIGURE 4.1  
PLACE OF BIRTH

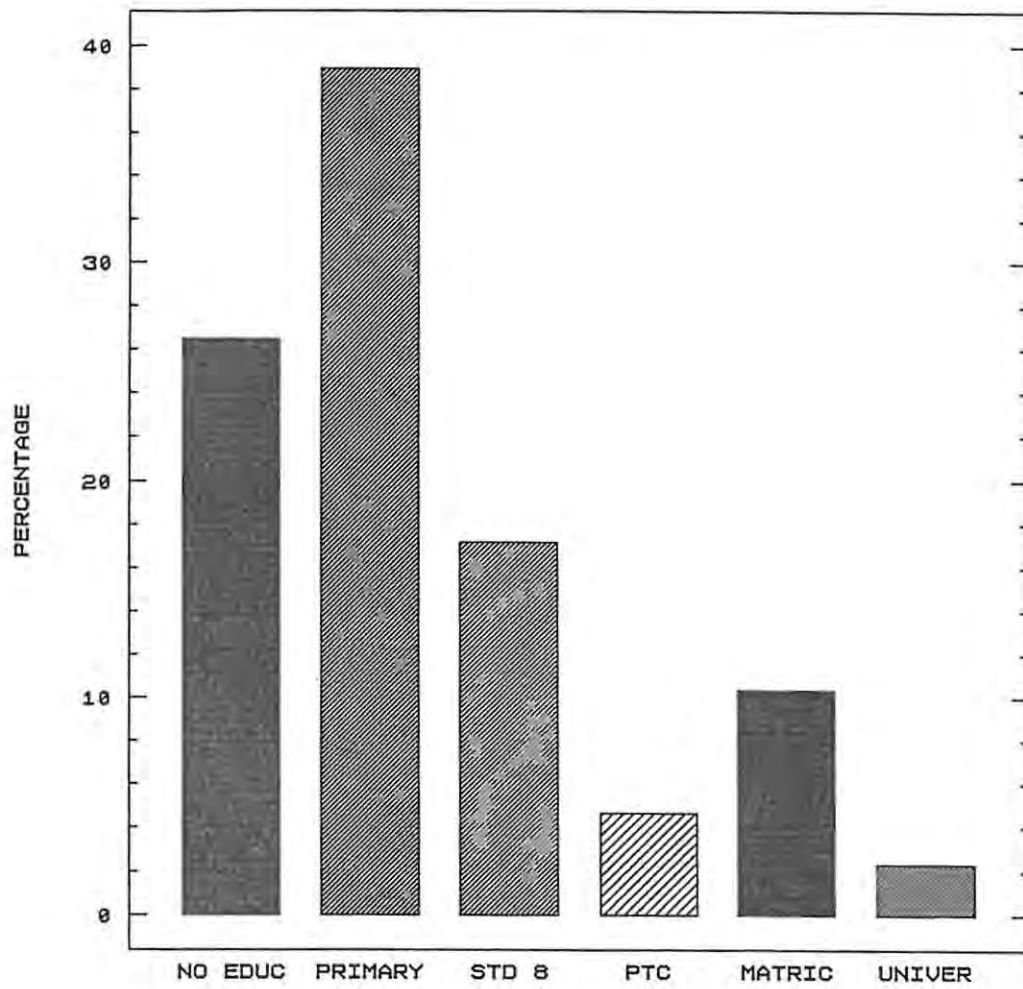


FIGURE 4.2  
PARENTS' LEVEL OF EDUCATION

#### 4.2 RESULTS AND ANALYSIS OF PUPILS' QUESTIONNAIRE

The first section of the questionnaire (Appendix 3B) concerned aspects relating to the pupils' social background. Part one of this section (Table 4.1) collected information pertaining to the home environment.

Figure 4.1 illustrates respondents' place of birth. Of the total sample (473), 55% were born in villages, 34% in urban areas and 11% on farms. The present place of residence reveals an increase in the number of village residents (Table 4.2a)

Although 55% of the respondents were born in villages, 74% obtained their primary education in village schools (Tables 4.2(a) and 4.2(b)). This may be ascribed to the fact that many parents residing in townships often send their children to relatives in villages where there is generally more stability than in the urban areas. 37,7% of the respondents whose attendance in village schools was less than three years were either from neighbouring junior secondary schools or from urban schools in Ciskei or outside Ciskei. 55% born in the villages compared with the respondents who obtained their primary education in village schools (74,5%) and 62,3% whose attendance in village schools was more than three years indicate that the majority of rural pupils are confined to their local environment and may therefore experience problems in understanding some aspects of their geography syllabus which are not related to their rural environment.

As reflected in Table 4.2(d), more than 60% of the respondents lived within reasonable walking distance from their secondary schools. When these data are compared with the means of transport available it appears that the majority walked to school (Table 4.2(e)). Although 89,9% walked to school, not all came within the 0-4 km distance. Some rural pupils walk distances of more than 7 km either due to lack of regular transport in the area, the inaccessibility of the area or pupils' lack of financial resources for transport. Such

transport problems result in late arrival or in regular absenteeism.

The occupational status of parents compares well with their level of education (Table 4.2(f)). Of the 26% of the parents with no formal education, more than 60% are either unemployed or they occupy unskilled positions. Pupils from such families are likely to experience a number of problems such as limited access to the media, lack of experience of other environments and total reliance on the teacher and the textbook. It is for these reasons that fieldwork is regarded as being essential particularly for rural pupils whose social background is not conducive to learning.

Very few aspects of the geography syllabus are directly related to the rural environment in which pupils grow up. It is necessary that they have direct experience of other areas so that they can relate what they learn in the classroom to real situations they know. The second part of this section of the questionnaire concerns pupils' experiences outside their local rural environment.

TABLE 4.3  
 QUESTIONS PERTAINING TO PUPILS' EXPERIENCE  
 OF OTHER ENVIRONMENTS

Did you at any time in the past five years spend your holidays away from home?	Yes No
If yes, in which places have you spent your holidays?	(a) (b) (c) (d)
Have you ever been to the beach?	Yes No
If yes, which beach have you been to?	(a) (b) (c) (d)
Which towns other than Alice have you been to?	(a) (b) (c) (d)
For what purposes did you go to the towns mentioned above?	For shopping Visiting friends/relatives Other (please state)

Responses to questions in Table 4.3 reveal that 60% of the respondents had spent holidays at places other than their homes and most of them had been to the small towns in the Eastern Cape. 13.1% had been to Cape Town, 26% to Port Elizabeth, 9,7% to East London and 51,2% to the small towns neighbouring Ciskei; Ciskei villages and towns. A question requesting respondents to indicate towns other than Alice with which they were familiar revealed that 26% had been to Port Elizabeth, 13,1% to Cape Town and 11,2% to East London. The remaining 49,7% had been to towns such as Cradock, Grahamstown, Uitenhage, King William's Town as well as the small towns in and outside Ciskei. Most of these respondents had been to these places either for shopping or visiting friends or relatives.

Most of the areas to which the majority of the respondents had been, lack some of the cultural features needed to widen their geographic horizons hence the need for experiential learning in the field. The resources of the village environment are limited in so far as the senior geography content (Settlement and Economic) is concerned. Moreover the standard 9 geography syllabus requires the study of marine action with its abstract processes by pupils who have never been to the beach. Only 39,6% had been to the beach which implies that the majority of the rural pupils learn this section of the syllabus by rote where films are not available and fieldwork to the beach is not undertaken. While the school has the responsibility to extend the pupils' horizons beyond their local environment through the use of learner-centred strategies, it is also the responsibility of the parents to extend the pupils' environment by taking them to places of interest. When one considers the number of parents with no formal education and the number who are unemployed or are unskilled workers, it is not surprising that the majority of pupils have a limited or no experience of areas outside Alice.

Pupils gain awareness, knowledge and understanding of other environments through watching television and/or reading newspapers. The final part of the first section of the questionnaire concerned pupils' exposure to the media. Aspects that were considered relevant included their exposure to radio, television and newspapers (Table 4.4).

TABLE 4.4.

## QUESTIONS RELATING TO PUPILS' EXPOSURE TO THE MEDIA.

How often do you watch TV?	1. Regularly 2. Sometimes 3. Seldom 4. Never
How often do you listen to the radio news?	1. Regularly 2. Sometimes 3. Seldom 4. Never
How often do you read newspapers?	1. Daily 2. Once a week 3. Seldom 4. Never
Where do you get a newspaper?	School library Home Friend's home Other (xela)

TABLE 4.5.

RESULTS ON EXPOSURE TO THE MEDIA.  
(Expressed as percentages).

The cross tabulation of pupils' exposure to the media reveals the following findings.

4.5(a)	Radio	Television	Newspapers
Regularly	22,7	8,3	2,9%
Sometimes	63,1	15,3	25,2
Seldom	12,7	36,1	24,9
Never	1,5	40,3	48,0
	<u>100,0</u>	<u>100,0</u>	<u>100,0</u>
4.5(b)	Source of newspaper		
	School	2,5%	
	Home	20,9%	
	Friends' home	24,6%	
	Other	4,0%	

The cross tabular analysis of pupils' exposure to television in relation to the place of residence (Figure 4.3) shows that 13% of the urban residents watch television regularly while the corresponding responses for the village and farm residents were 4% and 8% respectively. Forty percent of the village, 10% of the farm and 21% of the township respondents had no access

to television.

Fifty-two percent of the respondents indicated that they had access to newspapers. It appears from the table that rural schools do not supply pupils with newspapers, perhaps this is due to limited school funds. The use of audio visual material in the classroom or mass media, which rural schools can ill afford, extends pupils' geographical horizons. It is unfortunate that only 8,3% have regular access to television despite its relevance to the learning of geography and other subjects. The mass media is of great importance to the geography pupils in particular as it exposes them to areas remote from their local environment.

The generally low responses in terms of media access reveals that many pupils are deprived of a resource which could significantly broaden their horizons in terms of their spatial understanding and therefore their conceptual development in those aspects of the syllabus which require an understanding of environments beyond the pupils' experiences.

The second section of the questionnaire was concerned with pupils' attitudes towards sections of the geography syllabus (Table 4.6)

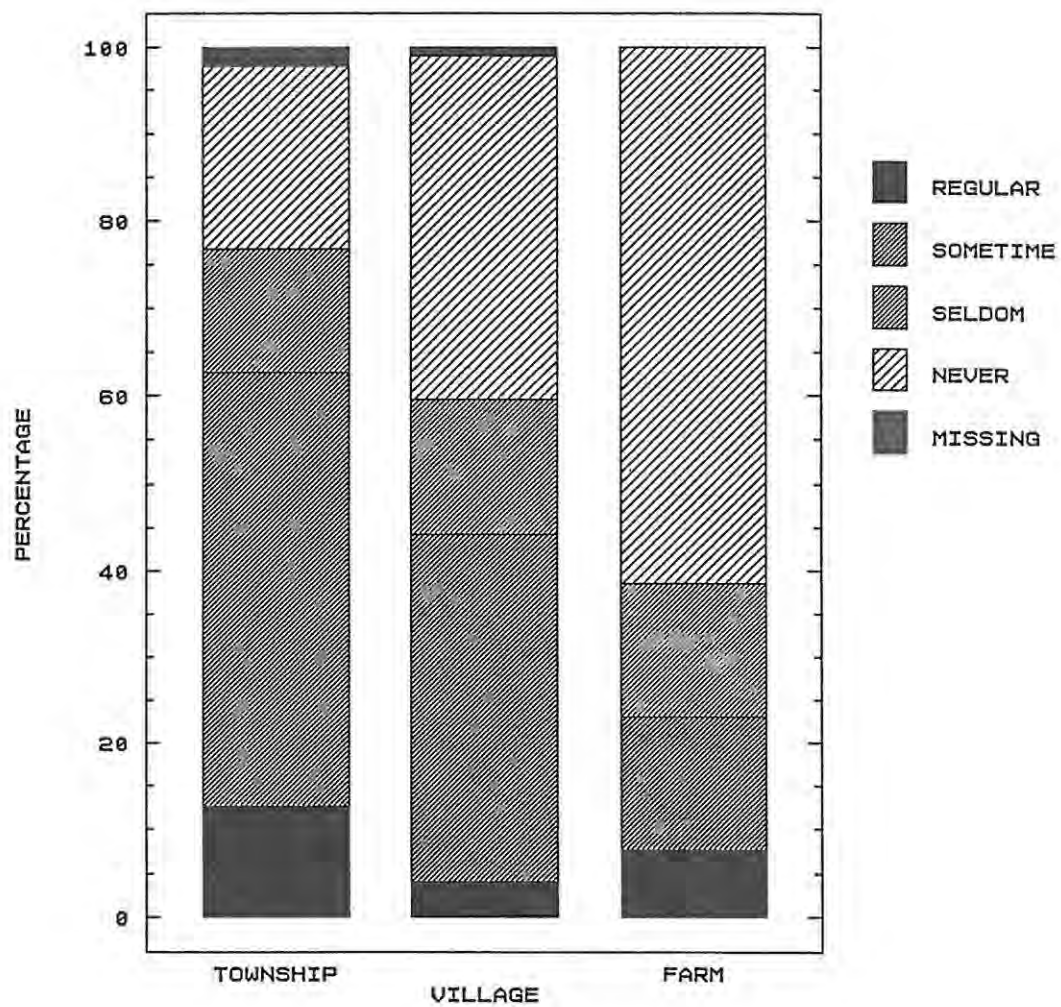


FIGURE 4.3  
EXPOSURE TO TV

TABLE 4.6

## PUPILS' ATTITUDE TOWARDS GEOGRAPHY.

Rate the following Geography sections, ticking the one you think best describes your feelings.

SECTIONS	TICK THIS BLOCK
Mapwork	1. Very interesting 2. Uninteresting 3. Easy to understand 4. Difficult to understand 5. Boring
Climatology	1. Very interesting 2. Uninteresting 3. Easy to understand 4. Difficult to understand 5. Boring
Geomorphology	1. Very interesting 2. Uninteresting 3. Easy to understand 4. Difficult to understand 5. Boring
Economic Geography	1. Very interesting 2. Uninteresting 3. Easy to understand 4. Difficult to understand 5. Boring
Settlement Geography	1. Very interesting 2. Uninteresting 3. Easy to understand 4. Difficult to understand 5. Boring
Regional Geography (South Africa)	1. Very interesting 2. Uninteresting 3. Easy to understand 4. Difficult to understand 5. Boring
Regional Geography (rest of Africa)	1. Very interesting 2. Uninteresting 3. Easy to understand 4. Difficult to understand 5. Boring
World outside Africa	1. Very interesting 2. Uninteresting 3. Easy to understand 4. Difficult to understand 5. Boring

For each of these sections of the syllabus pupils' responses are illustrated by means of Figures 4.4 (a) - 4.4(h). The research findings generally show that geography is perceived as a difficult but interesting subject. However, there are indications that pupils experience problems with mapwork (Figure 4.4a) and regional geography (Figures 4.4(b) and 4.4(c)).

Table 4.6(a) indicates these sections which are perceived difficult, boring or uninteresting (expressed as percentages)

TABLE 4.6 (a)  
DIFFICULT, BORING AND UNINTERESTING SECTIONS  
(Expressed as percentages)

	Mapwork	Rest of Africa	World
Difficult	55,3%	43,0%	41,8%
Boring	19,8%	17,8%	29,9%
Uninteresting	12,8%	24,0%	18,1%
Easy	7,8%	8,0%	5,4%
Very interesting	4,2%	7,1%	8,6%
Missing	0,1%	0,1%	0,1%
	<u>100,0</u>	<u>100,0</u>	<u>100,0</u>

With regard to other sections the research showed that:

1. 24% regarded Economic geography as being easy (Figure 4.4(d) while the corresponding response was 28% for geomorphology (Figure 4.4(e)).
2. Although climatology is perceived as being abstract there are indications that it is considered to be very interesting (35%) but difficult (40,8%) (Figure 4,4(f)).
3. Settlement geography (Figure 4.4(g) and South Africa (Figure 4.4(h) are dominated by missing responses because only standard 10 pupils responded to these sections.

Pupils' negative attitudes towards mapwork and regional geography may be traced back to the primary school level. Research by Ballantyne (1983) reveals that methods which encourage pupils to learn large quantities of geographical

information by rote are used. Pupils entering secondary school level therefore have a poorly developed understanding of maps or their role in geography. Their negative attitudes to mapwork and their inability to read and interpret topographic maps included by the researcher in the pre-post tests analysed in chapter 5, is probably a result of their lack of experience of graphic skills at a stage when pupils are most receptive to conceptual development in this area of geography (Catling 1987). Introducing mapwork to standard six and seven pupils in the field can certainly remove boredom and indifference as pupils are not passively listening to the teacher but are actively involved.

The pupils' lack of interest in regional studies may well be the result of the way in which they were approached in the primary school. According to Catling (1987) pupils' interest in people, places and events is stimulated by a study of their own environment and community by means of fieldwork experiences. Therefore where this type of experience is not provided it may limit the pupils' interest in regional studies at a later stage of their schooling.

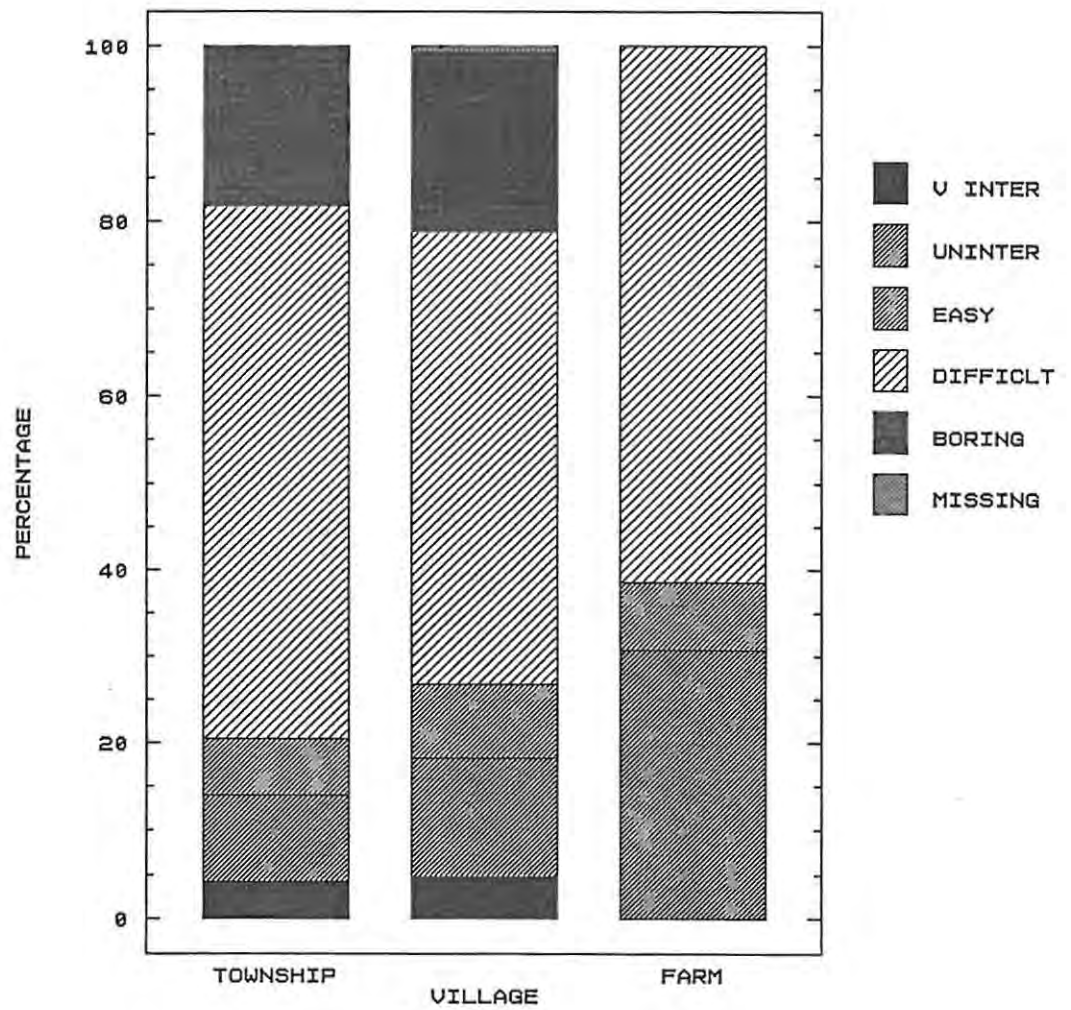


FIGURE 4.4 (a)  
ATTITUDE TOWARDS GEOGRAPHY - MAPWORK

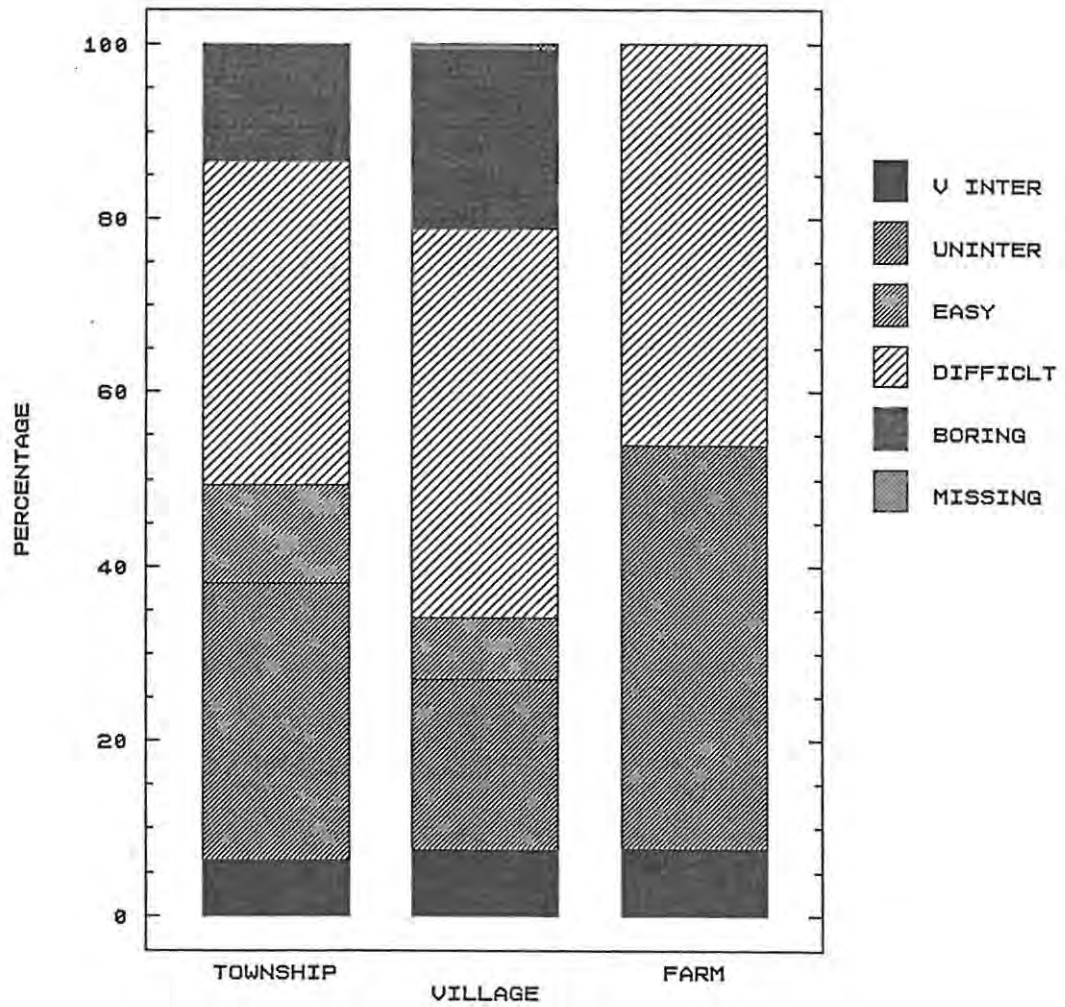


FIGURE 4.4 (b)  
 ATTITUDE TOWARDS GEOGRAPHY  
 REGIONAL GEOGRAPHY - REST OF AFRICA

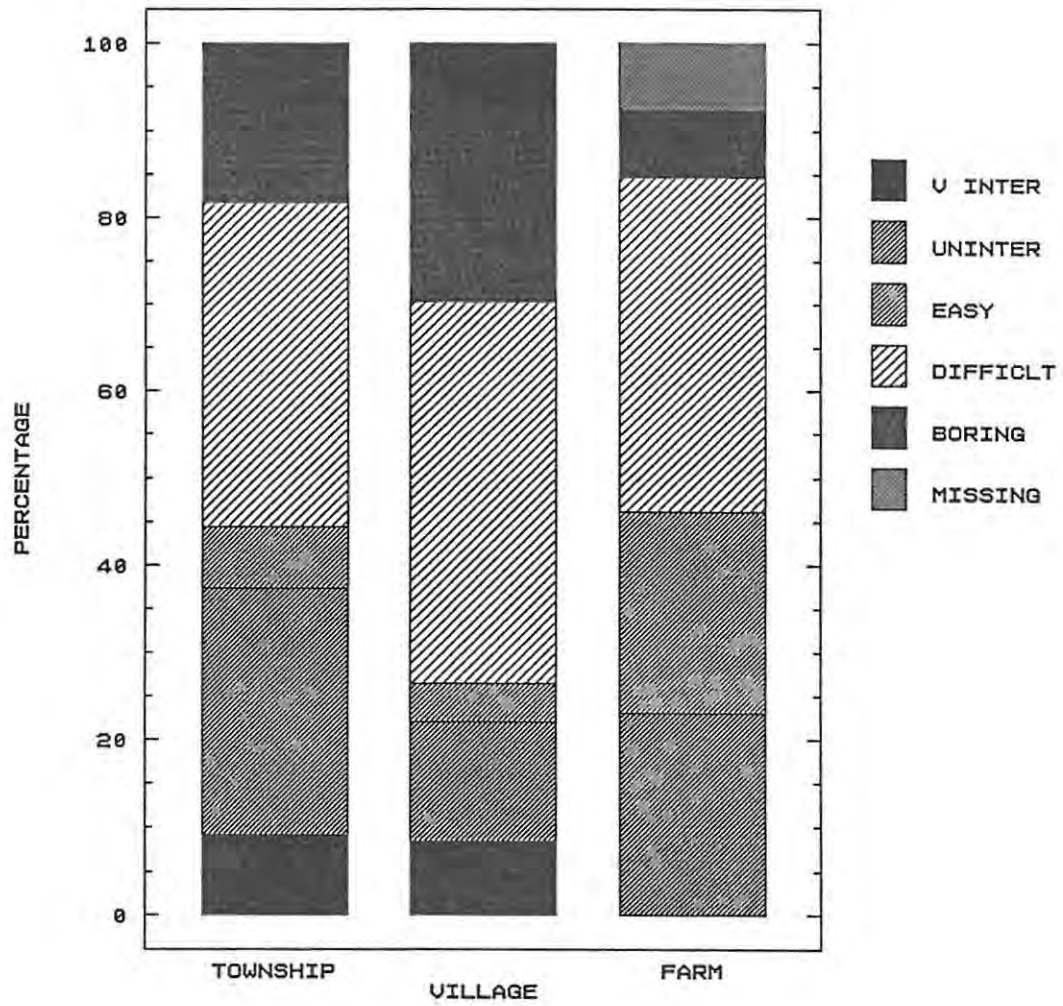


FIGURE 4.4 (c)  
 ATTITUDE TOWARDS GEOGRAPHY  
 REGIONAL GEOGRAPHY - WORLD OUTSIDE AFRICA

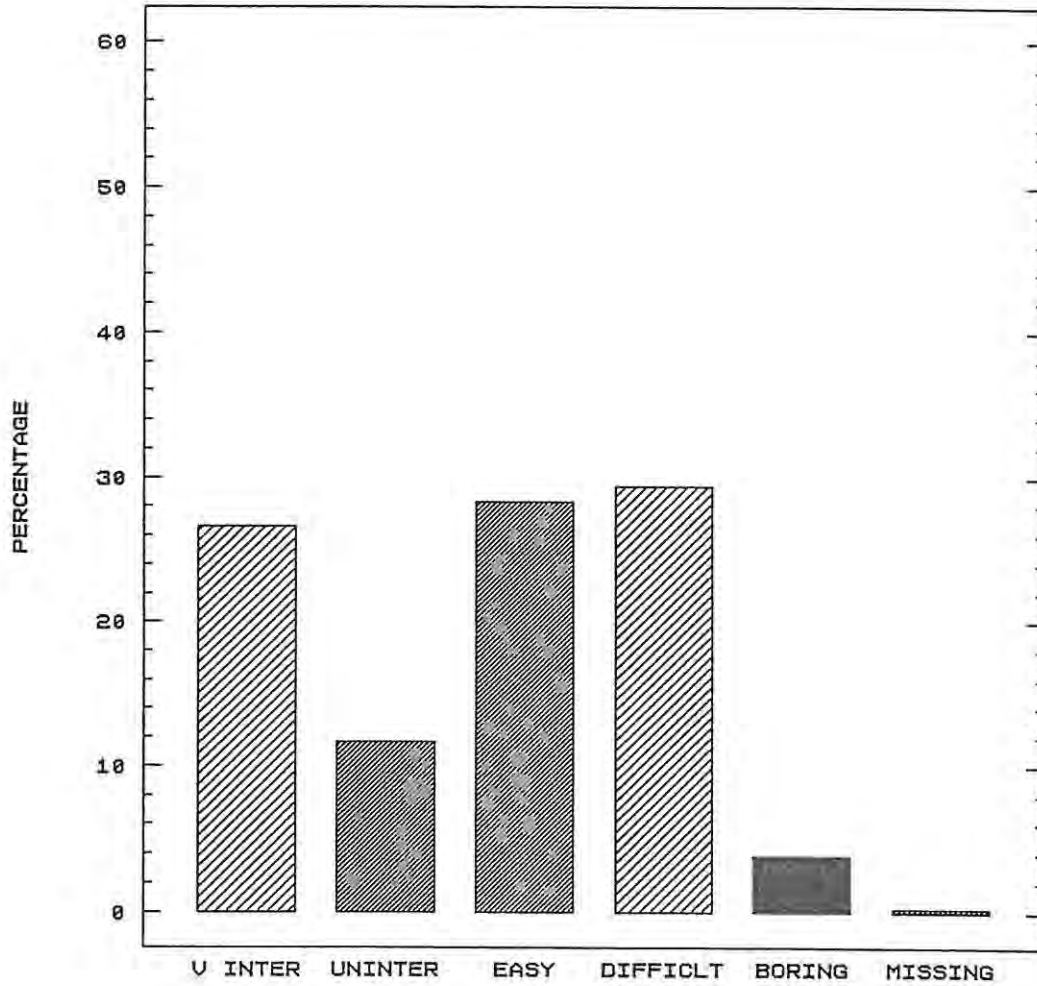


FIGURE 4.4 (d)  
ATTITUDE TOWARDS GEOGRAPHY  
ECONOMIC GEOGRAPHY

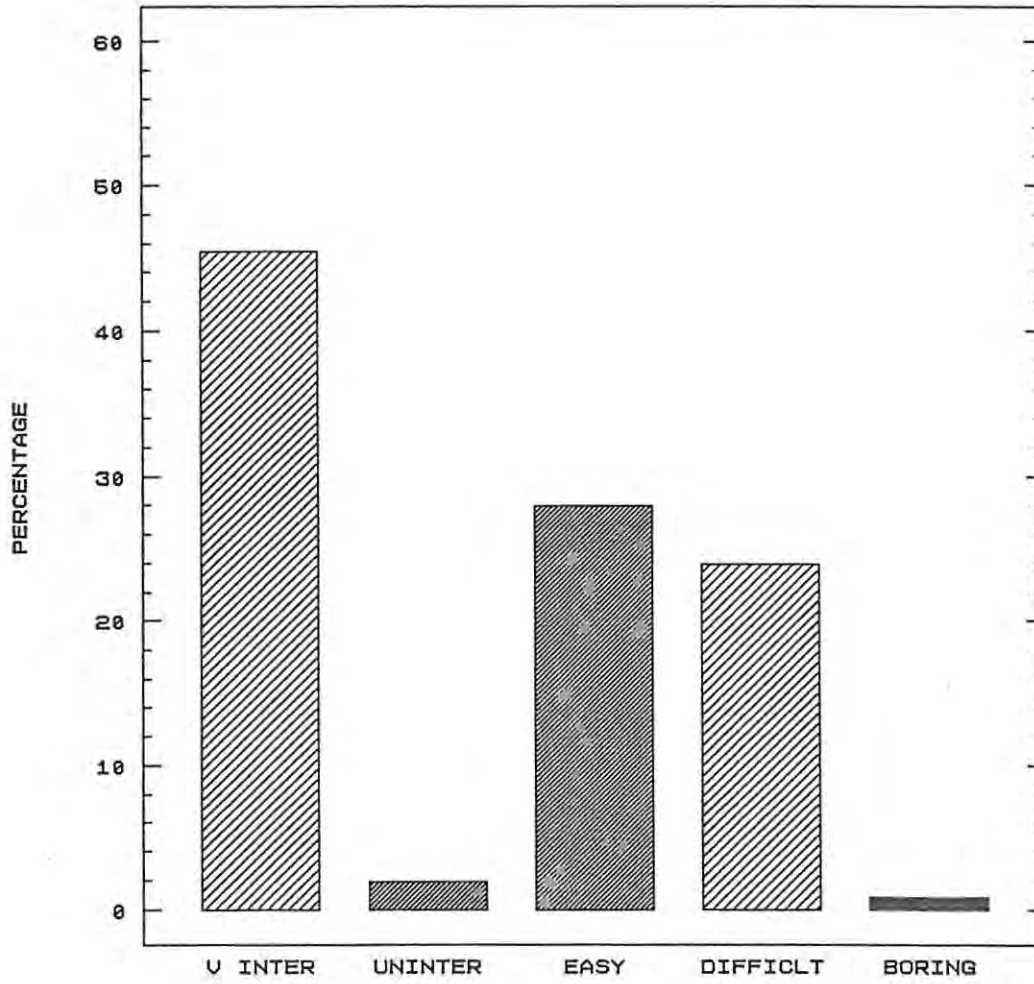


FIGURE 4.4 (e)  
ATTITUDE TOWARDS GEOGRAPHY  
GEOMORPHOLOGY

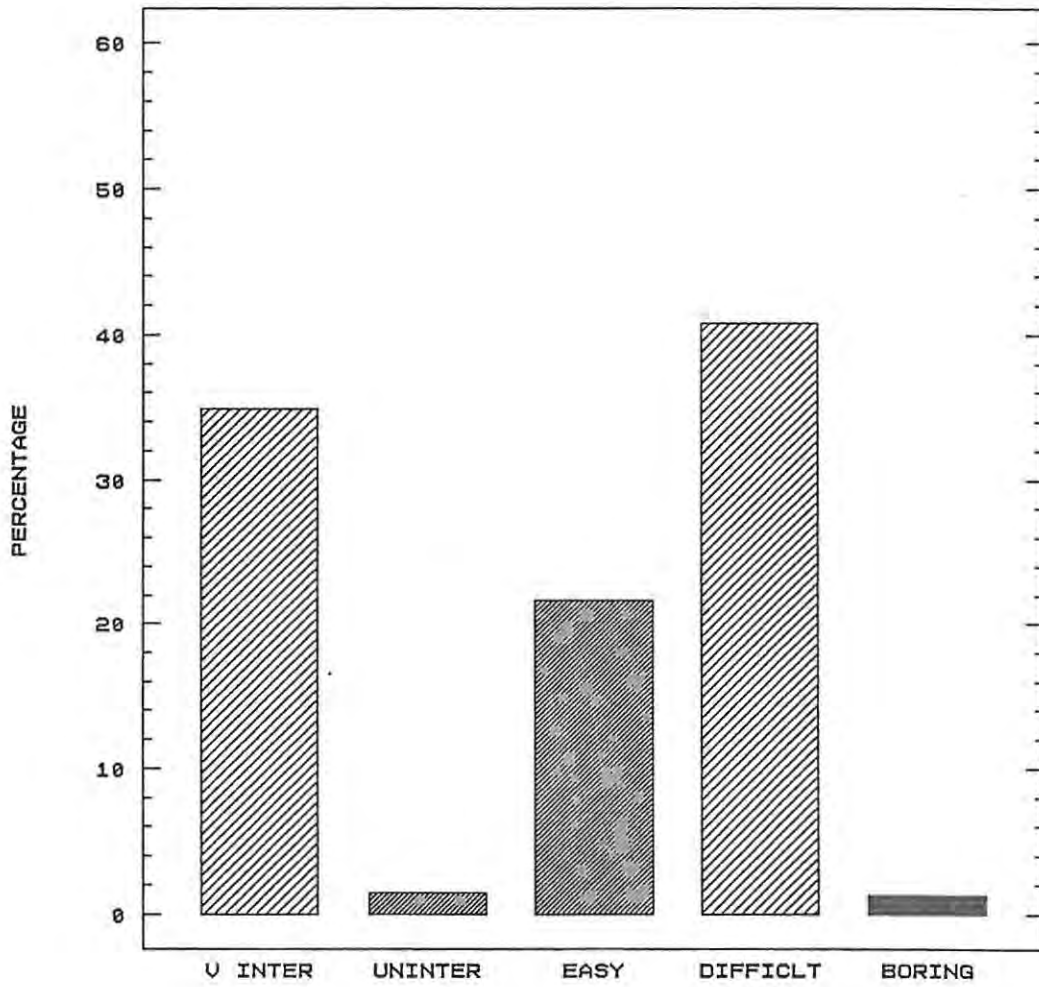


FIGURE 4.4 (f)  
ATTITUDE TOWARDS GEOGRAPHY  
CLIMATOLOGY

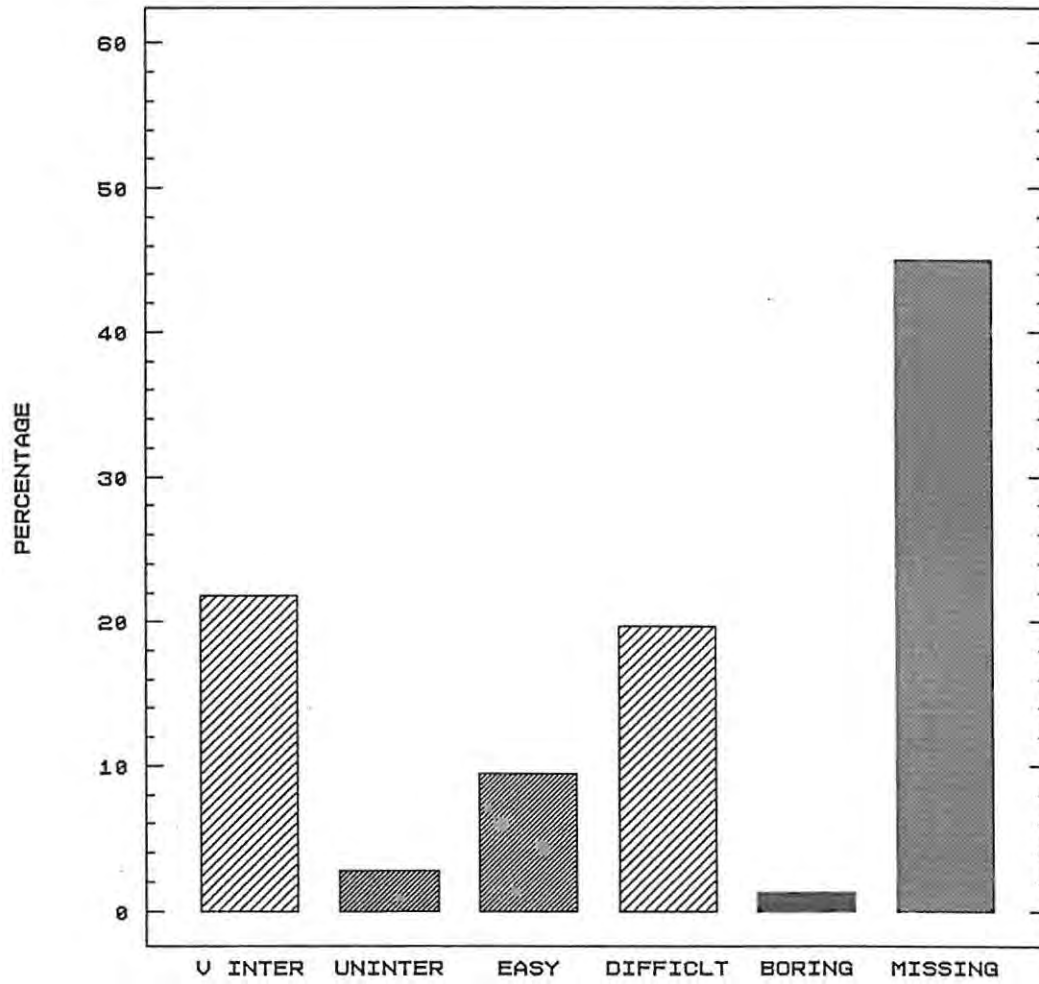


FIGURE 4.4 (g)  
ATTITUDE TOWARDS GEOGRAPHY  
SETTLEMENT

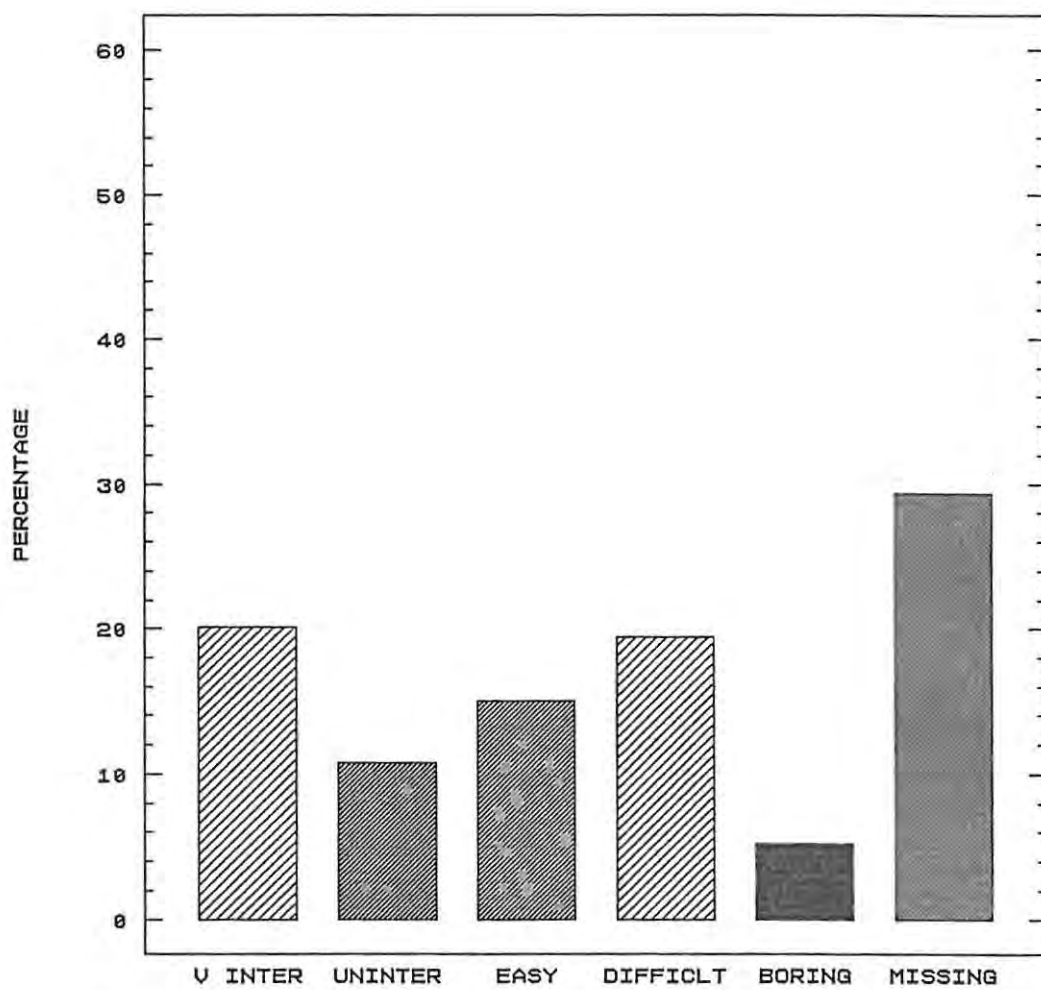


FIGURE 4.4 (h)  
ATTITUDE TOWARDS GEOGRAPHY  
REGIONAL GEOGRAPHY - SOUTH AFRICA

Table 4.6 (b) pertained to pupils' attitude towards other content subjects.

TABLE 4.6 (b)  
QUESTIONS RELATING TO ATTITUDE TOWARDS GEOGRAPHY  
AND OTHER CONTENT SUBJECTS.

The following are some of the subjects you study at school. Tick the appropriate box in each case. N.B. only three subjects apply to you.

SUBJECTS	RATING		
	Very Interesting	Interesting but difficult	Uninteresting
Biology			
History			
Mathematics			
Physical Science			
Agriculture			
Geography			

TABLE 4.6 (c)

ATTITUDE TOWARDS GEOGRAPHY AND OTHER CONTENT SUBJECTS. (Expressed as percentages)			
	Very Interesting	Interesting but difficult	Uninteresting
Geography	26.0	65.1	8.9
Biology	31.1	62.8	6.1
History	35.0	44.5	20.5
Mathematics	20.4	63.0	16.6
Agriculture	74.2	16.7	9.1
Physical Science	13.5	26.9	59.6

The table above reflects that geography is not the only subject which presents problems to pupils. With the exception of physical science pupils showed a positive attitude towards the subjects they learn despite the fact that most of them were perceived to be difficult. When geography is compared with other so-called "content" subjects the attitude difficult but interesting becomes clearer. The final question, Table 4.6(d), required pupils to indicate their sources of learning other than the teacher.

TABLE 4.6 (d):

## QUESTION CONCERNING PUPILS' LEARNING RESOURCES

In your study of Geography, which other source(s) do you use as well as your textbook and teacher's notes?	
(a)	Library books
(b)	Educational TV programmes
(c)	Newspapers
(d)	Study aids
(e)	Group discussion
(f)	Nothing
THANK YOU FOR YOUR TIME	

Responses to this question are given in table 4.6 (e).

TABLE 4.6 (e)

## RESULTS ON LEARNING RESOURCES (expressed as %)

Group discussion	69,0%
Study aids	13,5
Nothing	9,2
Newspapers	6,2
Library	1,2
T.V. programmes	0,9
	100,0%

The table above reflects that pupils in the rural schools depend entirely on their textbooks and teachers. Since pupils perceive geography to be difficult it is appropriate that they are exposed to a wide range of resources which are provided by

both the school and the home.

This survey revealed that the majority of those geography pupils come from socio-economic backgrounds that are not conducive to the development of spatial and conceptual understanding. These problems tend to be exacerbated where the school is unable for, a number of reasons, to provide the necessary teaching resources which can aid pupils' understanding of those aspects of the syllabus that are outside their experiences.

4.3 RESULTS AND ANALYSIS OF TEACHERS' QUESTIONNAIRE

The first section of this questionnaire (Appendix 3A) established geography teachers' background in geography and their commitment to the subject (Table 4.7)

TABLE 4.7  
TEACHERS' GEOGRAPHICAL BACKGROUND,  
POSTS HELD AND COMMITMENTS IN GEOGRAPHY.

PERSONAL INFORMATION					
1.	Male	Female			
2.	University courses in Geography				
	Course I	Course II	Course III	Honours	Masters
	College				
3.	Institution attended				
	College of Education			University	
4.	Present post				
	First year teacher	Teacher	H.O.D.	Deputy Principal	Principal
5.	Highest geography standard usually taught				
	Std 6	Std 7	Std 8	Std 9	Std 10
6.	Other subjects and classes taught				
	(a).....				
	(b).....				
	(c).....				
7.	Number of teaching periods per week				

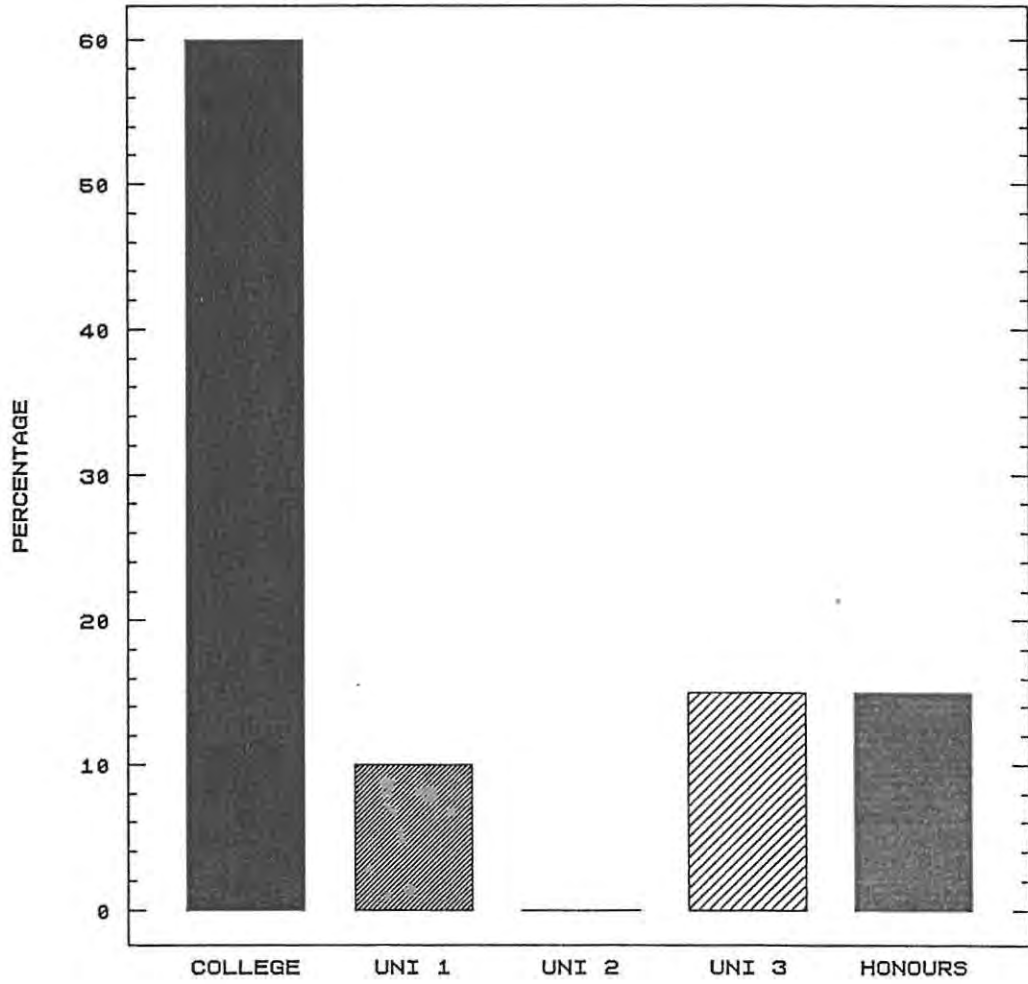


FIGURE 4.5  
COURSES IN GEOGRAPHY

Teachers' geographical background appears in Figure 4.5. Teaching posts occupied by the surveyed teachers are shown in the following table:

TABLE 4.7 (a)

TEACHERS' POSTS.  
(Expressed as percentages)

First year teacher	6,25
Teacher	62,50
H.O.D.	6,25
Deputy Principal	12,50
Principal	12,50
	<u>100,00</u>

TABLE 4.7 (b)

## NUMBER OF TEACHING PERIODS.

Percentage	Teaching periods
6,25	12
12,50	14
12,50	24
18,75	31
12,50	33
18,75	35
12,50	37
6,25	41

Of the teachers surveyed, 81,3% usually teach geography up to standard 10 despite the fact that only 30% have university training in the subject (Figure 4.5). 18,7% have taught geography from standard 6, to 8. Only 43,25% are geography specialists. The rest also teach Biology, Xhosa or English in the senior classes. Indications are that rural schools are understaffed, as a result specialisation is not a common practice. Another problem revealed by the research is that many geography teachers are not qualified to teach the levels at which they are expected to teach.

The second part of the questionnaire pertained to teachers' perceptions of teaching strategies used in geography (Table 4.7(e)).

TABLE 4.7 (c)

## ATTITUDE TOWARDS TEACHING METHODS

Indicate the frequency with which you use the following teaching techniques:-

T e c h - n i q u e	Never	Very Seldom	Seldom	Often	Very Often
Photo- graphs					
Pictures					
Mapwork					
Field trips					
W o r k - s h e e t					
Overhead projec- tor					
Textbook					
Films					
Slides					
Talk & chalk					
Sound tapes					
Video films					
Roneod notes					
N e w s - p a p e r a r t i c l e s					
Others (Please add)					

Indicate the frequency with which you feel the following teaching techniques should be used

T e c h - n i q u e	Never	Very Seldom	Seldom	Often	Very Often
Photo- graphs					
Pictures					
Mapwork					
Field trips					
W o r k - s h e e t					
Overhead projec- tor					
Textbook					

Films					
Slides					
Talk & chalk					
Sound tapes					
Video films					
Discussion					
reading of roneod material					
News - paper articles					

Teachers' perceptions of the various teaching strategies used in geography are reflected in Figures 4.6(a), (b) and (c). The Figures reveal that the most frequently used teaching method is "talk and chalk". (Figure 4.6a).

The Table below ranks selected teaching techniques according to their popularity.

TABLE 4.7 (d)  
TECHNIQUES POPULARLY USED (VERY OFTEN.)

Talk and chalk	87,5%
Textbook	37,5
Mapwork	25,0
Photographs	<u>12,5</u>
	100,0

Techniques that are rarely used are shown in Table 4.7(e)

TABLE 4.7 (e)

TECHNIQUES RARELY USED  
(DOMINATED BY NEVER AND VERY SELDOM)

T e c h - nique	Never	Very Seldom	Seldom	Often	Very Often
Slides	100	-	-	-	-
Tapes	87.5	12.5	-	-	-
O v e r - head Projec- tor	75.0	12.5	12.5	-	-
Films	75.0	25.0	-	-	-
Video	62.5	37.5	-	-	-
Models	62.5	-	-	37.5	-
W o r k - sheets	25.0	-	50.0	25.0	-
F i e l d - work	12.5	50	12.5	-	-
P i c - tures	-	12.5	50.0	37.5	-
Roneod notes	-	25.0	37.5	37.5	-
N e w s - papers	-	62.5	37.5	-	-

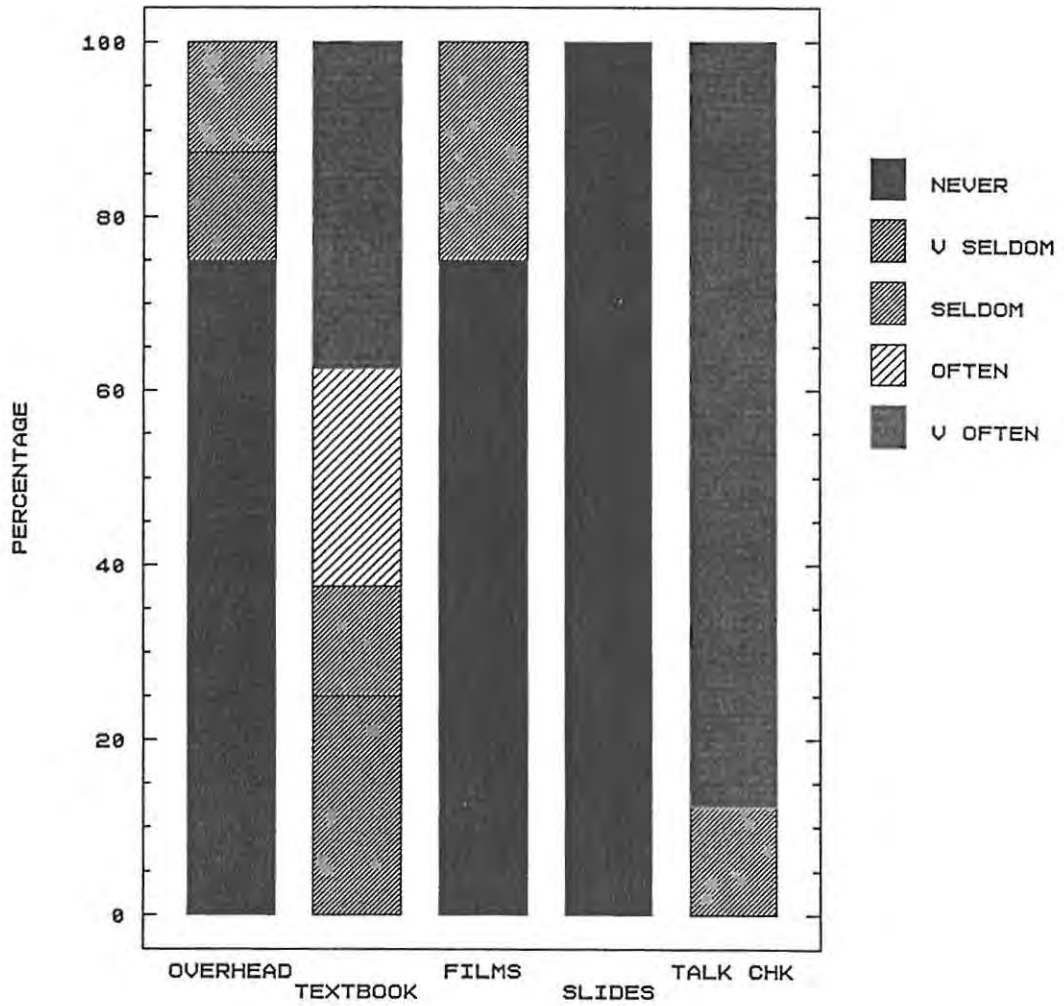


FIGURE 4.6 (a)  
TEACHING TECHNIQUES USED

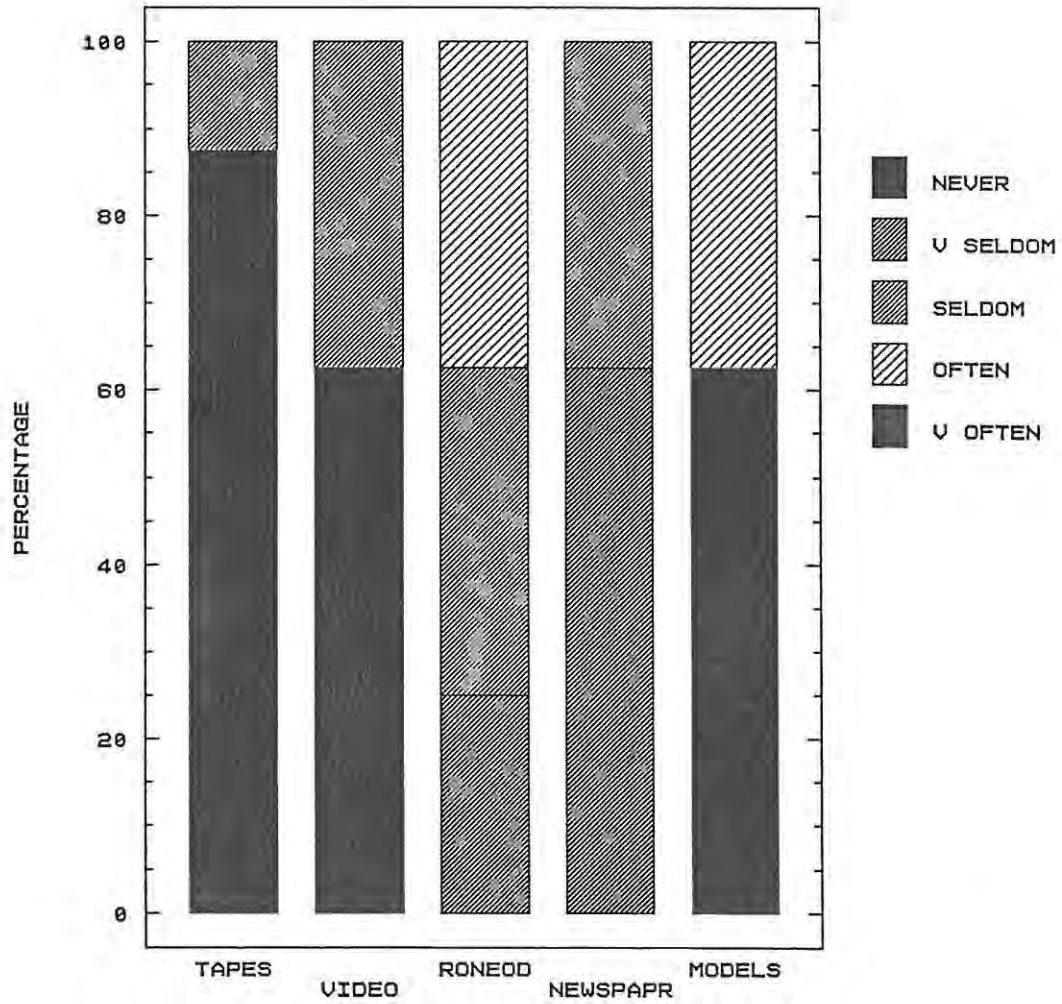


FIGURE 4.6 (b)  
TEACHING TECHNIQUES USED

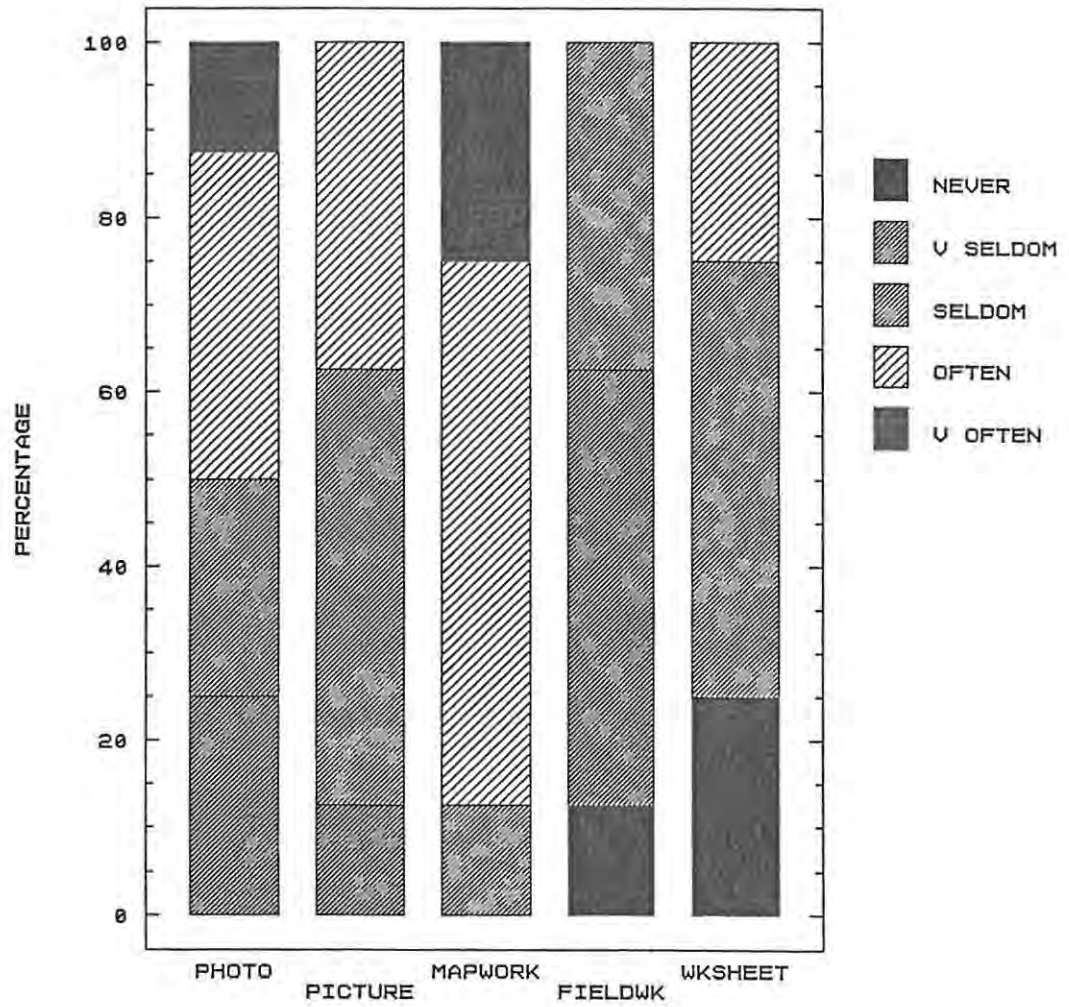


FIGURE 4.6 (c)  
TEACHING TECHNIQUES USED

The frequent use of talk and chalk (87,5%) implies that more often than not pupils in the rural schools play a passive role in the learning situation. Talk and chalk is sometimes irreplaceable but cannot be used for too long or too frequently without producing boredom. Teachers probably make extensive use of talk and chalk (87,5%) and the textbook (37,5%) because they are the only resources they perceived as being at their disposal.

Teaching problems experienced by teachers can be solved by using methods which actively involve pupils and diminish the role of the teacher as a source of data input. Unfortunately rural schools have very limited or no access to techniques such as slides, films, overhead projectors and videos (Table 4.7 (e) but fieldwork, which brings a vitalizing influence to the study of geography, is accessible to all rural schools.

The fact that worksheets are popular among 25% of the respondents only, reflects that teachers are not aware that this is one of the best strategies to use to relieve the pressure of overloaded classrooms and to introduce participation in the classroom. 62,5% of the teachers surveyed did not use models despite the fact that the geography syllabus recommends their use to provide effective representations of the real world.

Physical models can be made by teachers and pupils themselves to illustrate a number of features both cultural and physical. Teachers who rarely use models are probably not aware that it is essential for them to develop a sense of reality in the teaching situation.

Teachers' perceptions regarding teaching techniques which should be used are shown in the Table below.

TABLE 4.7 (f)  
TECHNIQUES THAT SHOULD BE USED

	Very Often	Often	Seldom	Very Seldom	Never	
Slides	12.5	37.5	37.5	12.5	-	100%
Tapes	-	50.0	25.0	25.0	-	100%
Overhead P.	25.0	62.5	12.5	-	-	100%
Films	12.5	37.5	25.0	25.0	-	100%
Video	25.0	37.5	25.0	12.5	-	100%
Models	-	37.5	-	-	62.5	100%
Fieldwork	-	75.0	25.0	-	-	100%
Pictures	62.5	25.0	12.5	-	-	100%
Record notes	12.5	25.0	37.5	25.0	-	100%
Newspapers	25.0	62.5	12.5	-	-	100%
Worksheets	25.0	25.0	50.0	-	-	100%

The teaching techniques tabulated above reflect those rarely used by respondents. Respondents seemed to recognise the importance of these techniques as reflected in the column for "often" in Table 4.7 (f) although they rarely used them. 62.5% of the respondents felt that models should not be used at all. Teachers who are not interested in using models are perhaps not sure how they are made and lack the enthusiasm to find out.

Table 4.7 (g) concerned teachers' perceptions regarding the use of fieldwork.

TABLE 4.7 (g)

ATTITUDE TOWARDS THE USE OF FIELDWORK

1. In your opinion the role of fieldwork in geography is:  
 essential                      highly desirable                      of moderate value  
 of little value                      a waste of time
2. Do you ever take your classes out for fieldwork?  
 Yes              No
3. If YES specify which standards  
 Std 6      Std 7      Std 8      Std 9      Std 10
4. Indicate the average number of times per year each class goes out into the field to conduct fieldwork.  
 Once                      3-4                      5 and above
5. Do you consider most of your pupils enjoy fieldwork?  
 definitely      to a reasonable extent      a few only  
 no, hardly at all
6. Use the following to rate the importance of fieldwork for each of the following sections in Geography:-  
 1. essential  
 2. highly desirable  
 3. of moderate value  
 4. of little value  
 5. a waste of time  
 (a) Climatology  
 (b) Geomorphology  
 (c) Urban settlements  
 (d) Mapwork  
 (e) Regional geography e.g. South Africa  
 (f) Other (Please specify  
 .....
7. I you have never undertaken fieldwork, what are your reasons for not undertaking it?  
 (a) .....  
 (b) .....  
 (c) .....  
 (d) .....

I would appreciate the opportunity of discussing further the place of fieldwork in schools. Would you be willing to discuss this with me?  
 .....

Thank you for your co-operation

Teachers' responses to the questions concerning their attitude towards the use of fieldwork are illustrated in Figure 4.14. 62,5% regarded fieldwork as being essential for the development of geographical concepts, while 37,5% thought it highly desirable. The respondents who nevertheless undertake fieldwork comprised 25% of the sample. They usually undertake it with standard 10 pupils at least once a year and they had discovered that pupils enjoy it greatly.

Sections of the syllabus which teachers perceived to be suitable for fieldwork appear in Table 4.7 (h)

TABLE 4.7 (h)

## SECTIONS SUITABLE FOR FIELDWORK

	Essen- tial	Highly desir- able	of moder- ate value	of little value	A waste of time
Geo- morphol ogy	37.5	25.0	-	37.5	-
Climat- ology	12.5	18.75	31.25	37.5	-
Urban Studies	12.5	37.5	12.5	12.5	-
Mapwork	12.5	12.5	37.5	37.5	-
Region- al	12.5	12.5	6.25	31.5	37.5
Other Econo- mic	12.5	-	-	-	-
All S e c - tions	6.25	-	-	-	-
Ecology	6.25	-	-	-	-

The Table reveals that there are respondents who have little understanding of what fieldwork is and what it entails as more than 30% regarded fieldwork as being of little value for

almost all sections, although the geography syllabus from standard 6 to 10 recommends the use of fieldwork, most

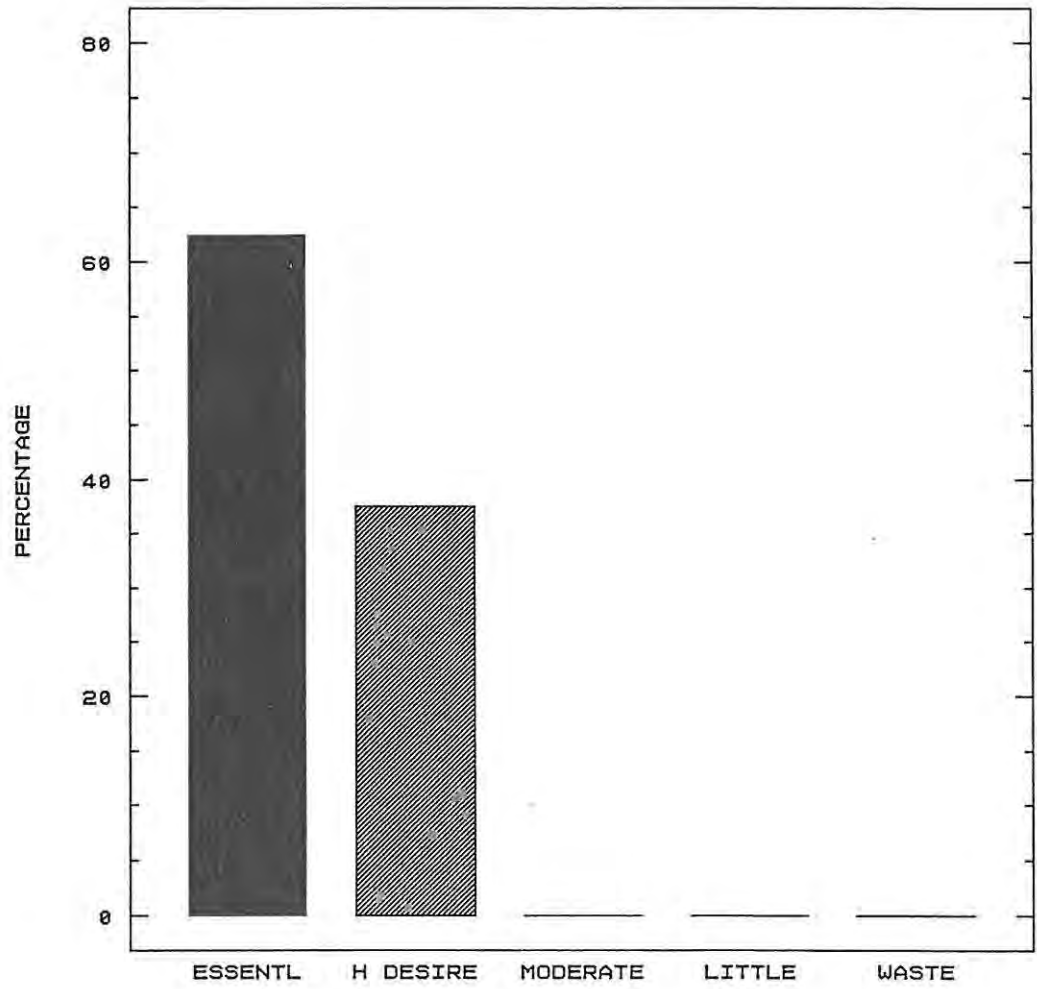


FIGURE 4.7  
ATTITUDE TOWARDS THE USE OF FIELDWORK

teachers did not know what fieldwork was until they discussed it with the researcher. Reasons given for not undertaking fieldwork were:

- i) financial constraints;
- ii) constraints with time and other teachers;
- iii) not being sure what fieldwork entails.

There are clear indications that the majority of teachers surveyed had very little understanding of what fieldwork is and how it should be conducted. Teachers who undertook fieldwork with standard 10 pupils only were perhaps not aware that it should be introduced as early as standard 6. While the geography syllabus recommends the use of fieldwork from standard 6 to standard 10, more time should be devoted to it in the first four years, before the demands of the external examinations become too pressing. Teachers who have very little understanding of how to organise and administer fieldwork or techniques which can be employed in the field are unable to perceive the role and value of the school grounds and its immediate environs for field studies.

This research revealed that the majority of geography teachers in the rural schools teach in very conservative ways either because they do not have the resources to introduce learner centred strategies or they lack knowledge about new methods, or they are not enthusiastic enough to implement these new techniques.

The last part of this survey was an interview conducted with junior secondary teachers.

#### 4.4 PUPILS' GEOGRAPHIC FOUNDATIONS: Interviews with junior secondary teachers.

The research showed that 76,9% of the teachers interviewed have no training in geography. The high number of unqualified geography teachers implies that geography teachers who are expected to build the necessary geographical foundations do not understand the essence of the subject and are unable to

communicate it appropriately to the pupils. This is supported by the fact that the textbook and note-taking dominate the teaching process (76,9%). Teachers reliance on these demotivating teaching methods is an indication that teachers lack sound geographical knowledge and are not competent to teach the subject. It was also discovered that junior secondary teachers rely on the prescribed textbook only (61,3%). It is surprising that teachers who do not qualify to teach the subject do not see the need to use a wide range of resources to improve their understanding of the subject. 76,9% never used models such as maps or globes either because they were not available at their schools or teachers did not see the need. 30,8% were teaching geography together with history as social studies. It was found out that teachers had a preference for history because it is easier to explain.

The research revealed that there is monotony in the teaching patterns of non-specialist geography teachers which cannot generate interest in the subject. Textbooks are the focal point of their teaching.

#### 4.5 CONCLUSION

This research has identified a number of problems which may affect the learning of geographical skills and the growth of concepts basic to the understanding of geography. The home environment together with the socio-economic conditions under which many rural pupils live have shed light on the learning problems experienced by rural pupils. Very few pupils have access to the media which implies that the majority are deprived of the learning experience they need to develop an awareness of environments beyond their home area. Fieldwork can certainly compensate in part for these environmental deprivations.

The negative attitude adopted by rural pupils towards mapwork is a reflection on the poor geographic foundations laid down by geography teachers who used demotivating methods like the textbook and note-writing. Graphic skills like mapwork are

correctly developed when pupils are actively involved in the learning situation.

## CHAPTER 5

## FIELDWORK : DATA ANALYSIS AND POTENTIAL FIELDWORK SITES

## 5.1 INTRODUCTION

With a view to testing the effectiveness of fieldwork as a teaching strategy when first introduced at senior secondary level, field trips to various sites were undertaken by the researcher with standard 9 and standard 10 geography pupils from her school. Four classes were involved, two standard 9 groups and two standard 10 groups. The composition of the standard 9 groups were as follows : 9A twenty seven pupils, 9C forty-seven pupils. The standard 10 grouping was as follows: 10A twenty-three pupils, 10C forty pupils. Fifty-four standard 9 pupils were included in the excursion as the rest were not able to pay for the trip to the beach. Both standard 10 groups were involved in all the fieldwork, however, it was only possible to include 48 standard 10 pupils in the East London excursion as only those were able to pay for the excursion. This, as previously mentioned, was one of the limitations of the research.

Fieldwork experiences utilised are reflected in the table below:

TABLE 5.1  
FIELDWORK EXPERIENCES

CLASS	NUMBER	EXCURSION	DATE
Std 9	54	Nahoon Beach	25/07/89
Std 10	63	Alice Town	02/08/89
Std 10	57	Fort Beaufort	07/08/89
Std 10	48	East London (CBD)	18/08/89
Std 10	61	Soils	30/08/89

## 5.2 ACTION RESEARCH RESULTS

### 5.2.1 Standard 9 Beach Study

The following preparations were made prior to the field activity :

1. The section of the syllabus related to wave action was taught by the researcher using pictures, photographs and diagrams depicting coastal phenomena. Group discussions were used to interpret photographs and pictures illustrating coastal features. In order to evaluate pupils' grasp of the concepts taught, a test which was also written after the field activity was set. The pretest was written by all the pupils while the post test was written by only those who were included in the action research.
2. Worksheets designed for use in the field were discussed with the pupils so that they knew what they were expected to do in the field.
3. Pupils had to pay for the trip, therefore parents were requested to help in this regard. Final transport arrangements were made three weeks before the trip.

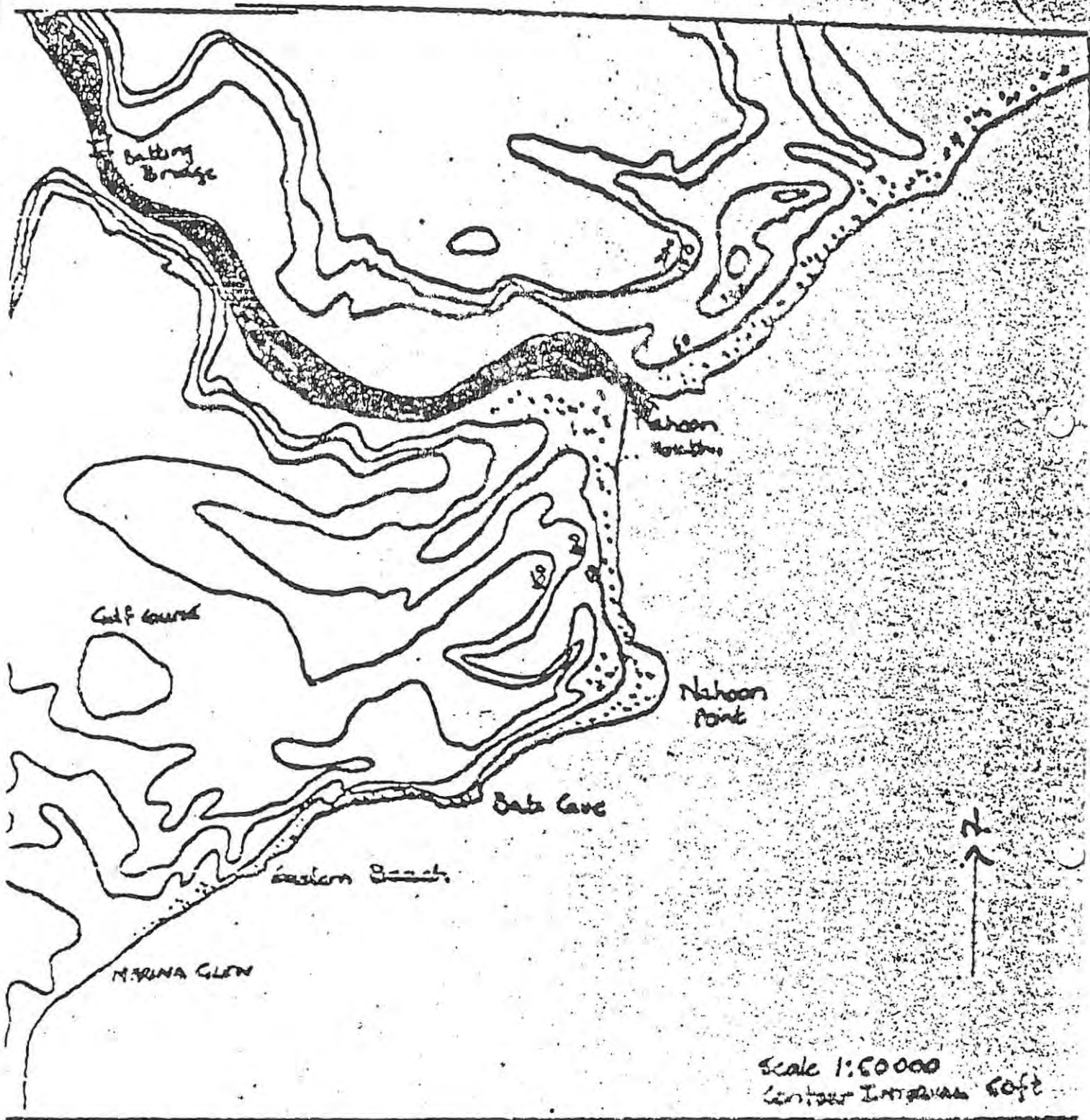
The section on marine action was selected because the researcher had discovered throughout her experience of teaching standard 9 geography that many pupils have conceptual problems with learning the section related to wave action. It was hoped that the field experience would provide them with the opportunity to apply concepts developed in the classroom to the real situation. Furthermore, pupils would realise that what they had to learn was concerned with existing reality and not an abstraction. Data collection involved visual observation and recording of the action of the waves and features that were found on the site using the worksheet (Table 5.2).

TABLE 5.2

WORKSHEET: WAVE ACTION AND RESULTANT LANDFORM  
NAHOON BEACH

INSTRUCTIONS: You will be divided into 9 groups of 6 each. Discuss the questions asked before you attempt to answer them.

1. Time the frequency of the waves - (a) at the beach  
(b) at Nahoon Point
2. Compare the height (amplitude) of waves at both sites.
3. Compare the angle at which waves approach the shore at the two sites. N.B. when friction retards the waves so that the wave front is bent it is known as REFRACTION. Is there any evidence of refraction? Where?
4. From Nahoon Point watch the waves approach
  - (i) do waves begin to break (show white)?
  - (ii) do all waves break at the same point?
  - (iii) why do waves break?
5. Compare the noise of breaking waves on the beach and at Nahoon Point.
6. Where does the wave exert the greatest force - at the beach or at Nahoon Point? Why?
7. When a wave breaks at the beach it washes forward and has forward energy (swash)
  - (i) what happens to the water?
  - (ii) what happens to the next wave?
8. Where are the wave lengths shortest - at Nahoon Point or at the beach? At what point can these waves be said to be destructive and where constructive?
9. What features result from the destructive nature of waves and what from constructive action of waves? (generally)
10. Draw simple sketches of the features mentioned.
11. Where do waves reach the shore first? why?
12. What do you notice about the activity of the waves at the point of break at the bay head - are the waves eroding or depositing?
13. Is the swash carrying material up the beach further than backwash is carrying material down or vice-versa? Explain why?
14. From the list given below choose and write down all the material you have seen : sand, solid rock, pebbles, shells.
15. Compare sand from the beach with that from the dunes in terms of : colour, composition and size.
16. Draw a profile of any cliffs, label any bedding planes faults or joints visible.
17. Is there any evidence of overhang or evidence of cliff collapse or retreat at Nahoon Point?
18. Do you observe any sea weeds?
19. Where are the sea weeds found - at the beach or at Nahoon Point?
20. Do sea weeds grow on rocks or on sand?
21. What is the colour of sea weeds?
22. What evidence is there that sea water does not reach the dune area?



Pupils were encouraged to discuss their findings as groups before recording, which was in the form of note-taking and field sketching. The researcher, with the help of a student teacher from Fort Hare, remained in the background and gave assistance when required to do so. The researcher made the following observations in the field:

- (a) Pupils showed great willingness and enthusiasm to learn on their own. Even those who were shy in the classroom showed great initiative in group discussions.
- (b) The practical work in which pupils were engaged aroused their curiosity as indicated by questions they asked. They did not confine themselves to the questionnaire but wanted to know more about the origin of salts in sea water, the shape of sand dunes, the high and the low watermark and so forth.
- (c) The researcher experienced no disciplinary problems, an indication that pupils were motivated, interested and committed.

Analysis of the pupils' worksheets revealed the following:

- (a) Pupils' answers tended to lack detail as they were unfamiliar with this particular strategy. 90.7% of the pupils failed to answer questions 6, 10 and 12 adequately which required them to give reasons for their answers (Table 5.2). The researcher attributes this deficiency to pupils' lack of confidence, a lack of field experience as well as the language problem.
- (b) Pupils displayed an extremely poor performance in field sketching. None of them attempted question 15 (Table 5.2). Discussions with the pupils supported the researcher's contention that they have never been exposed to sketching the landscape although they often copy diagrams from the textbook or the chalkboard.

TABLE 5.3

FIELDWORK TO NAHOON BEACH  
EVALUATION TEST STD 9

The field excursion to Nahoon Beach was a learning experience and not a picnic. It was undertaken to:

- (a) develop your observational skills
- (b) develop your reasoning skills
- (c) reinforce your understanding of wave action
- (d) to foster your love and interest in geography and nature.

The following questions are not set to test your ability but to investigate the success of the above objectives. Try to answer all the questions giving all the details you can.

1. What do you think you gained from the fieldwork excursion to Nahoon Beach? Explain fully.
2. Do you think your understanding of wave action was different at the beach than when taught in the classroom? Explain.
3. After undertaking this fieldwork, which method do you prefer
  - (i) listening to the teacher explaining in the classroom or
  - (ii) self-activity in which you try to find the answers for yourself as you did at Nahoon Beach? Explain.
4. Which method do you think would make you understand facts and remember them easily:
  - (i) listen to the teacher and learn the textbook
  - (ii) listen to the teacher, learn the textbook and go to the field to discover the truth? Explain.
5. Which concepts associated with wave action did you understand better in the field than you did in the classroom?
6. Did you like the method used in the field-given questions to find out answers on your own. Explain your answer.
7. Was this your first visit to the beach? If NO how did this visit differ from your previous visits?
8. What is the difference between the approach used at the beach and the approach used in the classroom?
9. Apart from marine action which other topics do you think need field learning?
10. In which other subject/s do you think fieldwork can be used?
11. Would you encourage field excursions for learning purposes for all geography classes? Give reasons.

THANK YOU

Pupils were required to evaluate the excursion by means of a questionnaire (Table 5.3). Two evaluation papers randomly chosen by the researcher appear in Table 5.4. This evaluation helped the researcher to assess the value of fieldwork from the pupils' perspectives. An analysis of this evaluation revealed the following:

- (a) 87% had not grasped the basic concepts taught in the classroom;
- (b) the visit to the beach was a first experience for 79.6% of the pupils;
- (c) 20.4% who had been to the beach realised the educational value of the excursion compared to their previous visits;
- (d) all the pupils realised the educational value of first-hand learning and they all felt that biology could also be taught through this strategy;
- (e) 38.8% mentioned history as another of the subject which needs field experience;
- (f) Pupils' evaluations also revealed that the field activity had stimulated interest in this section of the syllabus which they found boring in the classroom as they had to picture the action of the waves (Table 5.4 (2));
- (g) Pupils enjoyed participation in the field as it gave them the opportunity to develop their intellectual skills (Table 5.4 (3));
- (h) First hand experience of the action of waves emphasized the reality of geography particularly to pupils who were skeptical about the processes and concepts explained in the textbook;
- (i) Contact with reality promoted their understanding of concepts as they were not passively listening to the

teacher but trying to find out answers for themselves through observation (Table 5.4 (4));

- (j) Pupils appreciated and valued the opportunity they had with regard to interacting with each other. This stimulated the development of social skills (Table 5.4 (6));
- (k) The field activity provided the opportunity to rely on oneself and others and the value of shared experience in an unfamiliar environment (Table 5.4 (6&7));
- (l) The conventional methods of classroom teaching encourage rote learning (Table 5.4 (8));
- (m) Pupils learn best when involved and are able to retain the information for a long time. (Table 5.4 (1,3,4)).

On the basis of the pupils' evaluation it is concluded that the field experience had successfully transformed words into experience. Besides, the activity had reinforced the reality of geography as it enabled pupils to observe the processes they could not understand in the textbook e.g., swash, backwash, the rise and fall of sea waves and so forth. The activity had apparently incorporated an element of excitement particularly for the pupils visiting the beach for the first time.

TABLE 5.4

PUPIL A	EVALUATION TEST	29/08/89
1.	I became to understand the (subject) that of waves action, for an example I didn't have an imagination of a headland, but now I've seen it I think I won't forget it because it something that I saw.	
2.	Yes my understanding of wave action is now different, because before the tour I lost interest because it bored me to study about things that you can see but have no chance or being unable to see them.	
3.	After undertaking this fieldwork, the method I prefer is self-activity in which one tries to find out answers for him/herself because the things one observed him/herself stays longer in mind than the things told because the things one is told may turn to be like stories.	
4.	I prefer that of listening to the teacher, learn the textbook go to the field to discover the truth because I feel there are more chances of putting the subject on mind and things seen are things stay longer in mind than things told.	
5.	Is that when waves approach the shore break the water eroded by the waves have a dark colour.	
6.	Yes I liked the method used in the field because it gave us a chance to think while discussing, remembering things we've forgotten and teaching each other.	
7.	No There is a difference because this time we were school-mates it gave us a chance to understand each other more, getting together and this was an educational one and we noticed more things which were educational.	
8.	On a classroom a student is given information to keep in mind no matter if he/she have no idea but n the field work we talk and see.	
9.	Wind action, things like visiting weather stations.	
10.	I feel biology is one of the subjects that need fieldwork or laboratory observation.	
11.	NO, it may waste a lot of time and because some of the topics do not/ or may not need field excursion.	

TABLE 5.4 (cont)

## PUPIL B

1. from Nahoon I gained more information about waves. During holidays I was just going to the beach for swimming, and I did not noticed that when waves reached the shore they breaks because it is shallower and, the speed of wind is being decreased. I also saw how waves erode and how they construct. I also gained to compare the height of waves. I also the swash and backwash facially when they occur.
2. yes
3. I prefer self-activity in which you try find out answers for yourself because from fieldwork I understand easily because I see things happening in front of me and I also try to identify things. It is also not easily to forget things when you saw them.
4. Listen to the teacher, learn the textbook and go to the field to discover the truth, because I want to compare the information that I gained from the textbook and I will easily understand when I saw them in the field.
5. wind, yes
6. Yes because that makes me perfect to read not also to depend on the teacher to give you things all the time. In the classroom we did not work together some are just making a noise others did not participate in the class.
7. No on my previous visits I was go for swimming not for learning abut waves etc.
- 8.
- 9.
10. Biology
11. We are all learning geography.

### 5.3 PRE-POST TEST RESULTS

#### 5.3.1 Standard 9 test results

Preparation for field activities included setting a test which focused on pupils' grasp of concepts and terms theoretically taught in the classroom which they would also observe in the field (Table 5.5). The same test was rewritten after the excursion to evaluate the extent to which pupils' understanding had been promoted by the activities. Test papers for the pretest were marked but not returned to the pupils and they were not aware that the same test would be written after the excursion. Table 5.6 below presents test scores before and after fieldwork.

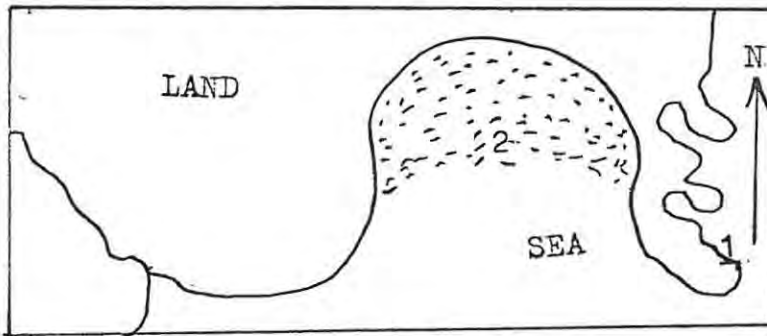


TABLE 5.5 (cont)

- 2.5 When waves break against a rocky cliff air is trapped in cracks and joints and explodes when released. This is known as
  - (a) corrasion
  - (b) hydraulic action
  - (c) oscillation
- 2.6 Rocks along the coast are shattered by
  - (a) attrition
  - (b) corrasion
  - (c) hydraulic action
- 2.7 The formation of caves along the beach is the result of
  - (a) attrition
  - (b) corrasion
  - (c) hydraulic action
- 2.8 The main source of sand found on coastal areas is the
  - (a) land
  - (b) sea
  - (c) beach
- 2.9 A spit of sand extending across the bay to the next headland is a
  - (a) bay bar
  - (b) sand bar
  - (c) tombolo
- 2.10 A shallow body of water separated from the sea by a narrow strip of land or sand bar is a
  - (a) tombolo
  - (b) sand bar
  - (c) lagoon

/20/

3. Refer to the figure below



- 3.1 Name the features marked
  - (1).....(2)
  - (2).....(2)
- 3.2 Which side of the feature 1 is most exposed to wave attack
  - .....(2)
  - Give one reason for your answer
  - .....(2)
- 3.3 Is the main wave action at 2 erosional or depositional?
  - .....(2)
- 3.4 Mention any two features likely to occur because of wave action at 1
  - .....(4)
- 3.5 Where do you expect dune formation? at 1 or at 2
  - .....(2)
  - Give one reason for your answer
  - .....(2)

- 4. Refer to the attached topographic map of Plettenberg Bay
- 4.1 Which area is likely to have cliffs, Robberg or Plettenberg Bay?  
.....(2)
- 4.2 Shortly explain your answer in  
4.1 .....( )
- 4.3 What type of coastal feature is Robberg?  
.....(1)

TABLE 5.5 (cont)

4.4	Name the features closing the mouth of Keurboomsrivier	(2)
4.5	Are the coastal features at the mouth of Keurboomsrivier erosional or depositional?	(2)
4.6	What type of feature is Blind rock (at the bay)	(2)
4.7	There is an island called Die Eiland south of Robberg what is its height in metres?	(2)
4.8	Name the coastal feature joining Die Eiland to Robberg	(2)
4.9	Is the feature at 4.8 depositional or erosional?	(2)
4.10	The feature at 4.8 is the result of (constructive, destructive waves)	(2)
Total		75

# 3423AB PLETTENBERGBAAI



Mean magnetic declination 23°.6 West of True North (1977.0) Mean annual change 2' Eastwards (1971-1975).  
 Gemiddelde magnetiese deklinasie 23°.6 Wes van Ware Noorde (1977.0) Gemiddelde jaarlikse verandering 2' Ooswaarts (1971-1975)



1:50 000

CONTOUR INTERVAL  
 KONTOERTUSSENRUIM

Figure 7.50

TABLE 5.6  
STANDARD 9 TEST SCORES : PRE-POST TEST  
(expressed as percentages)

BEFORE FIELDWORK SCORES	FREQUENCIES	AFTER FIELDWORK FREQUENCIES
21-30	16	5
31-40	25	33
41-50	11	12
51-60	2	4
61-70	0	0
71-80	0	0
81-90	0	0
91-100	0	0
Class averages 28.8%		34%

Pupils' test performance both prior and after fieldwork indicated that there were conceptual problems particularly before fieldwork was conducted. This is well illustrated in Table 5.6. Although the averages for both tests are low, fieldwork promoted pupils' conceptual understanding to a certain degree. The majority of the pupils scored between 31% and 40% in both tests. The fact that none of the pupils obtained above 60% indicates that pupils had problems with this section of the syllabus.

Pupils' scores for questions 1 and 2, which required factual knowledge, are compared with scores for questions 3 and 4, which emphasized higher cognitive abilities (Table 5.5). Test scores are illustrated in the figures below.

FIGURE 5.1 : SCORES FOR QUESTIONS 1 & 2

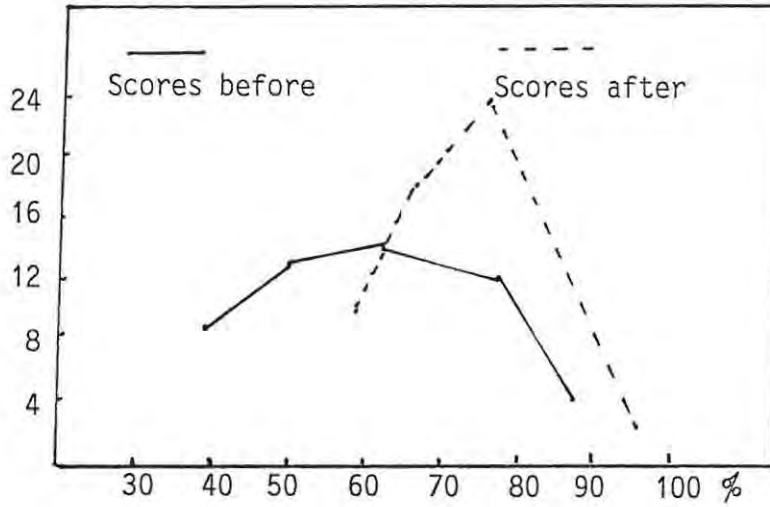
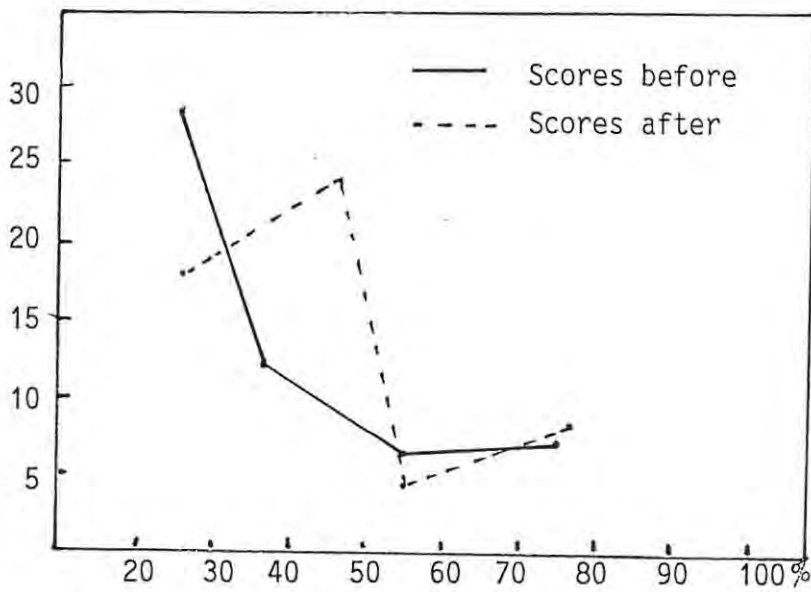


FIGURE 5.2 : SCORES FOR QUESTIONS 3 & 4



Analysis of Figure 5.1 shows that high scores were obtained where pupils had to match (question 1) or choose from a list of alternative answers (question 2). Test scores improved in this area greatly after fieldwork. Pupils showed great deficiencies in map reading and interpretation as well as in the application of factual knowledge already known (Figure 5.2). Pupils failed to answer question 3 correctly both before and after fieldwork. They had to apply the theory they had been taught in relation to the action of waves to a diagram depicting a coastal area with a bay and a headland. Question 4 was an interpretation of a topographic map of Plettenberg Bay. This question was poorly answered both prior and after the field experience. Pupils' failure to analyse maps and apply their theoretical knowledge is an indication that they rely mostly on rote learning. For instance they could easily give definitions of concepts like tombolo, stacks, sand bars but could not identify these on the Plettenberg Bay map.

Another possibility for pupils' failure to answer question 4 correctly might be the fact that none of the features they had to identify on the Plettenberg Bay map were observed in the field. This leads the researcher to conclude that the increase in the scores in questions 1 and 2 were influenced by the fact that they had observed most of what was asked in these questions (Table 5.5) in the field.

### 5.3.2 Standard 10 fieldwork

Local field studies were undertaken with standard 10 geography pupils comparing urban services and establishments between Alice and Fort Beaufort towns. The study of the two towns was meant to introduce pupils with no field experience to visual observation and recording in the field before a survey of East London was undertaken. The researcher was aware of the problems of introducing standard 10 pupils to fieldwork such as the demands of the external examinations. The field study of the urban areas was reinforcing geographical theory which pupils had already encountered in the classroom. The study of the CBD of East London in particular provided the opportunity

to study geographically a locality quite different from the pupils' own area. Another field study was a local study of soils which also forms part of the standard 10 geography syllabus. Sections related to the syllabus were selected so that pupils could clearly see the study as being part of the normal pattern of work.

Before undertaking the field activities the following preparations were made:

The section on urban studies was taught using topographic maps and aerial photographs of urban areas. Pupils' attention was drawn to aspects such as land-use patterns and influencing factors, characteristics of the CBD, hierarchy of urban centres, low order and high order functions etc. Pupils' understanding of the section taught was assessed by means of a test which was repeated after the East London field activity. Worksheets designed by the researcher for the urban field trips were discussed in the classroom to clarify a number of points. Transport arrangements included writing letters to parents in which the researcher was appealing for financial help in order to fund the trip to East London which could not be funded by the school.

#### 5.3.2.1 Alice and Fort Beaufort Survey

Pupils' first experience in the field was in the town of Alice about four kilometres from their school, followed by Fort Beaufort, twenty kilometres from Alice. The worksheet used for both towns appears in Table 5.7. The questionnaire was kept simple in order to ensure that pupils had no problems in making visual observations and recording data.

TABLE 5.7

## ALICE AND FORT BEAUFORT FIELD SURVEY

HYPOTHESIS: The towns of Alice and Fort Beaufort are on the same order in Davies' hierarchy of urban centres, but there are more services at Fort Beaufort than at Alice.

DATE OF SURVEY:  
.....

NAME OF TOWN:  
.....

This survey will focus on the types and number of services found in each town. Use the list given below and record the number of each establishment on the worksheet provided. Since there are five types of establishments required, divide yourselves into five groups, each group recording only one type.

CLASS ACTIVITY

Data collected by the different groups will be transferred to one worksheet and different graphs drawn. From the graphs conclusions will be made and the hypothesis accepted or rejected.

WORKSHEET

SERVICES / ESTABLISHMENTS

NUMBER

CONVENIENCE SHOPS

1. General store
2. Grocer
3. Butcher
4. Chemists
5. Baker
6. Food supermarket

SHOPPER'S GOODS STORES

1. Clothes (men)
2. Clothes (women)
3. Clothes (family shop)
4. Shoes
5. Electrical goods
6. Hardware

SPECIALISED STORES

1. Bookshop
2. Furniture
3. Gift shop
4. Jeweller
5. Toys
6. Second hand furniture

AUTOSALES AND SERVICE TRADES

1. Garage (a) Petrol  
(b) petrol and repairs  
(c) petrol, repairs & car sales
2. Dry cleaners
3. Optician
4. Funeral director
5. Travel agent

LEGAL, FINANCIAL AND OTHER SERVICES

1. Building Society  
(a) Branch  
(b) Agency
2. Bank  
(a) Branch  
(b) Agency

## 3. Hospital

- (i) For each town total the number of each type
- (ii) Total all the services for each town - there will be five totals in each case
- (iii) Draw a graph for each town - totals on the vertical axis and services on the horizontal
- (iv) Comment on the difference or similarities shown by the two graphs
- (v) Which of these two towns do you think has a higher population? Give a reason.

The researcher made the following investigations in the field:

- (1) The activity encouraged self organisation and determination which enabled pupils to work independently of the teacher.
- (2) Pupils were enthusiastic to find out answers for themselves.
- (3) They showed initiative while working as groups.
- (4) The activity developed their ability to work considerately with others.
- (5) Pupils were so committed to their work that there were no disciplinary difficulties.
- (6) As it was their first experience the period of observation was longer than expected.

Data presentation in the form of graphs which pupils had to compare in order to prove validity of the hypothesis stated on the worksheet proved that pupils' graphic skills in relation to the presentation of raw data in the form of graphs was poorly developed. Although the technique was explained to them, they failed to draw graphs which could approximately represent data collected. However, from graphs drawn by the researcher they could draw reasonable conclusions which showed that the weakness was a skill deficiency and not conceptual.

In addition to the preparations for the urban activities stated above, the researcher accompanied a field excursion conducted with geography students of the Fort Hare branch at Zwelitsha. The researcher accompanied this group to observe how the activity was conducted because she was not experienced in fieldwork. Having observed the activity, the researcher compiled worksheets which would be used by her standard 10 pupils in the field.

Pupils were also supplied with street maps, a separate sheet for traffic counts and a questionnaire worksheet (Table 5.8) which was explained in the classroom during the preparation stage. Pupils had to observe and record functions found in the CBD in coded form at street level only. The height of buildings (number of storeys) was also recorded on the street map provided. Traffic counts were made at the main street (Oxford) between Gladstone and Union streets. Before field observations were made pupils had a view of the city's structure from the top of the highest building in East London. It was from that point that their attention was drawn to the location of industries in relation to the railway line and the harbour, the street pattern in the CBD which they compared to the street pattern supplied, areas of tall buildings.

Further observations by the researcher in the field were:

- (a) The enthusiasm and excitement shown by the pupils.
- (b) The ease with which they could classify functions in the CBD.
- (c) Pupils' ability to work co-operatively in an unfamiliar and challenging environment.
- (d) The excitement provided by traffic counts, particularly pedestrians.

Pupils' recording of functions and building heights on the street map was marked with accuracy. Pupils were expected to present data in the form of mapping and drawing graphs, but this objective was not achieved as pupils had to prepare for trial examinations. This was one of the limitations in undertaking fieldwork with standard 10 pupils. The only follow-up was in the form of a test (Table 5.9) which, unlike the standard 9 evaluation, was designed to assess pupils' understanding of concepts involved in the field activity. Furthermore the test was intended to emphasize the purpose and relevance of the outdoor activity. The answers reflected that

the activity was educationally effective compared to the normal classroom methods of teaching and learning. The pupils' responses revealed that factual and conceptual understanding had been promoted - (60.4%) but there were still areas of misconception. Pupils tended to give memorised textbook information rather than their actual observations and findings. In response to question 1 (Table 5.9), 87.6% mentioned "intensive" land use but they could not explain the meaning of the term nor give reasons for the intensive use of land in the CBD. This reflected the fact that traditional teaching techniques make pupils rate the textbook knowledge as superior to their own personal knowledge, stifle initiative and reduce confidence in their own opinions. Due to a lack of field experience they were not sure that their original answers would be accepted and continued to rely on the textbook. Other misunderstood terms were "technological" developments (question 6) and "clustering" (question 8). This problem can be attributed to the use of technical language in geography which is communicated to the pupils through the medium of a second language, English.

#### 5.3.2.2 Soil Studies

The section on soils was chosen because it could be studied in a local area and also for its simplicity. The survey of soils was used to challenge and extend pupils' knowledge of soils gained in the classroom. The method used was visual observation followed by recording in the form of note taking and sketching. Pupils had to test the presence of organic material in the soil, its texture and structure (Table 5.10). The researcher hoped that the field activities in which pupils were engaged would make them realise that learning can take place other than in the classroom and that this would develop interest in the subject.

TABLE 5.8

EAST LONDON EXCURSION  
FOCUS ON THE CBDHYPOTHESIS TO BE TESTED:

1. The highest buildings are found in the CBD where most retail, financial and professional functions competing for the most accessible areas are found.
2. That certain types of shops selling "shoppers' goods" like clothes and shoes tend to cluster so that customers may compare their goods.
3. That certain professional services, (e.g. legal and financial) tend to cluster so that business contact may be facilitated.

OBJECTIVES

The main objectives may be distinguished as:

1. Educational objectives
2. Learning objectives

EDUCATIONAL OBJECTIVES

1. to develop observational skills
2. to develop reasoning skills
3. to foster pupils' love for and interest in Geography

LEARNING OBJECTIVES

After the excursion the most important learning objective would then be that pupils would have learned to:

1. identify and classify urban functions
2. observe and record land-data in the field
3. present data in the form of mapping and drawing of graphs

The purpose of the excursion is to observe and record the:

1. types of functions found in the CBD
2. height of buildings in the CBD
3. traffic flows at certain points in Oxford street

THE EXCURSION

You are expected to observe carefully details that will help achieve the above objectives and to record them accurately and precisely on the street map provided.

Fourteen blocks form the CBD, and are bounded by Caxton and North streets. Since five of the blocks are small, you will be divided into eleven groups of at least four each. Each group will note down the types of functions in coded form and also the height of buildings - number of storeys.

Traffic counts will be done at Oxford street, one group will count traffic moving to the south and it will be located at the corner of Union street east of Oxford, while the other group will be at the western corner of Gladstone street. Please note the side of Oxford street with the densest pedestrian traffic.

CLASS ACTIVITY

Back in class the data collected will be compiled into a map showing the functions of the CBD. A graph showing the height of buildings and the direction to which they decrease will also be drawn.

Analysis will be in the form of a test based on the excursion. Pupils will have to compile detailed report for the school Principal.

TABLE 5.8 (cont)

USE THE FOLLOWING CODES:

Shops - mark S  
 Offices - mark O  
 Entertainment - mark E

SHOPS:

SS Supermarket  
 S1 Self-service grocer  
 S2 Non-self-service grocer  
 S3 Confectioner (bread and cake)  
 S4 Other food shops (state type)  
 S5 Tobacconist, News agent, sweets  
 S6 Boots and shoes  
 S7 Mens' wear  
 S8 womens' wear  
 S9 Clothing (general)  
 S10 Furniture, furnishings, carpets  
 S11 Radio, electrical goods, rentals  
 S12 Cycles, prams, accessories  
 S13 Stationery, books  
 S14 Leather goods  
 S15 Chemists, photographic goods  
 S16 Sports goods  
 S17 Toys  
 S18 Jewellery, watches, clocks  
 S19 Department store (Garlicks)  
 S20 Variety store (Woolworths)  
 S21 Caterer, restaurant, fish and chips, snack bar  
 S22 Gas and electricity show room  
 S23 Car and motor cycle showroom

OFFICES

01 Solicitor  
 02 Estate agent  
 03 Accountant  
 04 Surveyor  
 05 Engineer  
 06 Architect  
 07 Insurance  
 08 Bank  
 09 Building society  
 010 Local Government office  
 011 Central Government office

ENTERTAINMENT

EC cinemas and theatres  
 ED dance hall  
 EP public house - not residential

N.B. Only ground floor functions should be noted

GEOGRAPHY STD 10  
TRAFFIC COUNT SHEET

GROUP:  
.....

GROUP LEADER:  
.....

STREET

DIRECTION OF MOVEMENT RECORDED

DATE AND TIME OF CENSUS

CARS

HEAVY COMMERCIAL VEHICLES (TRUCKS)

BUSES

MOTOR-CYCLES



## TABLE 5.9

## GEOGRAPHY STD 10

## TEST ON EAST LONDON EXCURSION

1. Explain why there is a concentration of high buildings in the CBD.
2. Does this apply to other cities as well?
3. Are there other areas in East London where there is a concentration of high buildings? Explain.
4. Which side of Oxford street has a concentration of high buildings?
5. Give a reason for that concentration.
6. What technological developments have made the construction of high rise buildings possible?
7. Which is the tallest building in East London?
8. From your observations and recordings did you notice any clustering of similar types of uses?
9. If yes which uses are those?
10. In which street/s are they clustered?
11. What term best describes the street pattern of East London's CBD?
12. Apart from road transport which other types of transport are available in East London?
13. Which of these types is/are not found at Alice?
14. On which river is the harbour of East London sited?
15. What is the main export product handled in East London?
16. Which side of Oxford street records the densest pedestrian traffic? Why?
17. Why is East London called a High Order Centre while Alice is called a Low Order Centre?
18. Give two examples of shops selling long range goods not found in Alice.
19. To which model of urban structure does East London approximate?
20. What position does East London hold in the South African hierarchy of urban settlements?
21. Which of the following functions are not found at Oxford street from Argyle to Terminus Street?  
Petrol station, green grocer, News agent, dry cleaner, jewellery shop.

Preparations for this activity included teaching the section on soil in the geography syllabus, visiting the site and designing worksheets which were discussed in class before they were used in the field. The soil study was marked with great willingness and enthusiasm to work unaided in gathering and analysing data. Pupils seemed to have gained confidence in field techniques and data presentation as this was their third field experience. Groups were remarkably keen when presenting the results of the experiment testing the structure of the soil. There was great improvement in their ability to present data through discussion. They could easily draw differences and similarities between their field observations and the textbook. For instance they realised, through observation, that the soil profile of the area studied did not have the B - horizon.

TABLE 5.10  
GEOGRAPHY STD 10  
SOIL STUDY

WORKSHEET

This study is intended to achieve the following objectives:

- \* to differentiate between the structure and texture of the soil
  - \* to understand that the different horizons differ in composition
  - \* the soil profile either has all the horizons or some of the horizons mentioned in the textbook
  - \* to understand the relationship between soil structure and vegetation
1. Draw a labelled sketch of the soil profile in your note book.
  2. Describe the vegetation growing on the surface.
  3. Describe the colour of each layer in simple terms like dark brown, grey, yellow etc.
  4. Take a sample from each layer - test the texture of each sample by rubbing the soil between your fingers - comment
  5. Test the structure of your samples by shaking the soil sample in a container of water. You will have to leave this for at least 24 hours to settle. Then explain what you see in the experiment.
  6. Test the presence of organic material in the different horizons by spreading a soil sample on a piece of paper.
  7. Say which horizon has organic material and why?
  8. Do you think this area is suitable for crop cultivation?

Your findings will be discussed in class. Each group will report on its findings, then these will be compared with the textbook.

## 5.3.3 Standard 10 Test Results

Pupils' performance in the test written before the field activity revealed that they had grasped some of the concepts theoretically taught in the classroom. The average was 56.5% and it increased to 64.2% in the post test. Test scores for pre - and post tests are compared in Table 5.11.

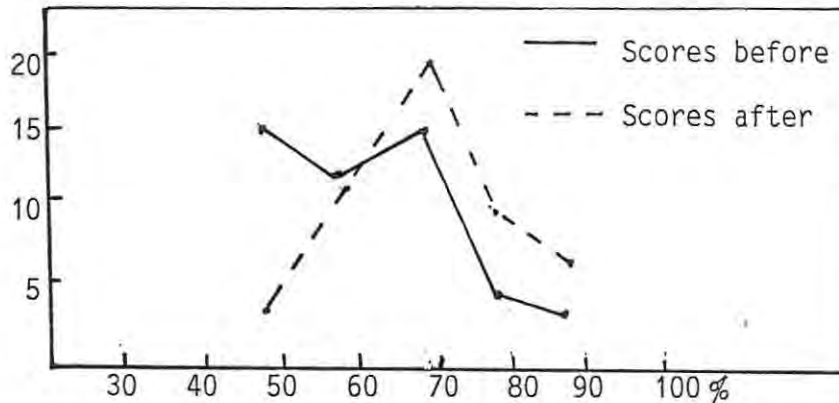
TABLE 5.11  
STANDARD 10 SCORES BEFORE AND AFTER FIELDWORK  
(Urban studies) EXPRESSED AS PERCENTAGES

BEFORE SCORES	FREQUENCIES	AFTER FREQUENCIES
40-49	15	3
50-59	12	11
60-69	15	19
70-79	4	9
80-89	2	6
90-100	0	0
Class averages	56.5%	64.2%

Fifteen pupils scored between 40 and 49% before fieldwork but this figure dropped to three after fieldwork, while the number who scored between 80-89% increased from two to six.

Pupils' scores are also compared by means of a graph, Figure 5.3.

FIGURE 5.3 : PRE - POST TEST RESULTS



Although the test scores were not low, some pupils did not understand some of the concepts they had correctly used in the test. There were many geographical terms and concepts such as "hierarchy" of urban centres, "rural urban fringe" which pupils used appropriately in tests but when required to apply or define them minor misconceptions were uncovered. Question 4 (Table 5.12), in which pupils had to interpret and analyse a topographical map was poorly answered. Pupils could not give reasons for the situation of factories on the map, could not identify the rural urban fringe nor could they identify upper class residential areas. To the researcher's surprise they fluently gave general factors influencing the location of industries and functions found in the rural urban fringe when asked to give them orally. Failure to see relationships and apply their factual knowledge correctly implies that they learn by rote, they lack confidence in themselves and their reasoning skills are not yet developed. Lack of field experience which would enable them to compare the map with reality is another problem.

Another possible reason is the fact that question 4 was not directly related to what was observed in the field. This question was included to test their ability to analyse, interpret and apply their knowledge.

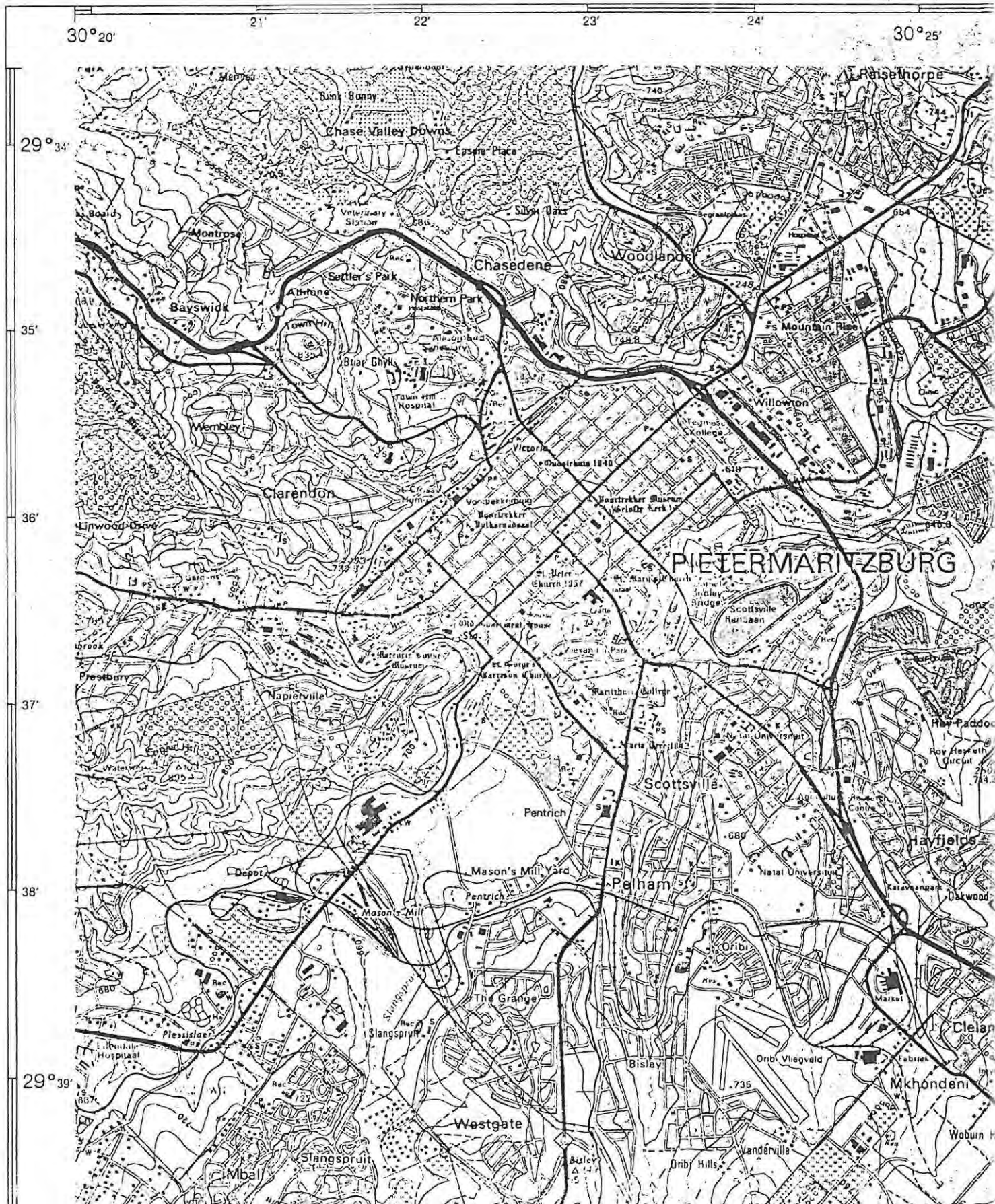
A brief evaluation of fieldwork units on the basis of fieldwork results follows below.

MAP INTERPRETATION AND ANALYSIS

TABLE 5.12

- 4. Refer to the topographic map of PIETERMARITZBURG 2930 CB
  - 4.1 Name the type of street plan found at the CBD  
.....
  - 4.2 The street plan at Imbali south west of the city is  
(gridiron, radial -concentric, irregular)  
.....
  - 4.3 Which residential areas are likely to accommodate the upper  
class?  
(i) Clarendon, Wembley and Chase Valley Downs OR  
(ii) Woodlands and mountain Rise?
  - 4.4 Give two reasons for the situation of Manson's Mill factory  
north-east of  
.....  
(2) .....
  - 4.5 How do you identify the rural-urban fringe on this map?  
.....
  - 4.6 What is the direction of the rural-urban fringe from the  
city centre?  
.....
  - 4.7 Which part of the city is situated on a fairly flat area?  
(i) the CBD OR  
(ii) the residential areas of Clarendon, Wembley and  
Chase valley?
  - 4.8 Account for the linear pattern followed by the industrial  
area at Willowton just north of Scottsville race course  
.....  
.....
- (30)

# 2930CB PIETERMARITZBURG



Mean magnetic declination 20.3 West of True North(1981.0). Mean annual change 2' Eastwards(1975-1980).  
 Gemiddelde magnetiese deklinasie 20.3 West van Ware Noord(1981.0) Gemiddelde jaarlikse verandering 2 Ooswaarts(1975-1980)



1:50 000

CONTOUR INTERVAL 2  
 KONTOERTUSSENRUIMTE

Figure 8 33

#### 5.3.4 Evaluation of fieldwork units on the basis of fieldwork results

The field activities conducted aimed to achieve the objectives stated in chapter 3. Fieldwork units used were selected from sections of the syllabus in which pupils showed conceptual problems (urban studies and beach studies). Soil studies were selected to extend and reinforce pupils' knowledge gained in the classroom. As shown in the discussion above the following results were obtained from fieldwork:

- \* essential geographical and intellectual skills such as observation, recognition, recording and analysis were developed.
- \* social skills - curiosity, confidence and communication were also developed.
- \* pupils gained a genuine understanding of terms and concepts they had been using with little understanding.
- \* theories and generalizations became more real to the pupils.
- \* conceptual understanding was reinforced.

The value of fieldwork units used is reflected in the results analysed above. Results obtained from the follow-up evaluation (beach studies) clearly revealed pupils felt that their contact with reality had actually strengthened the reality of geography as they observed and understood the meaning of concepts which had been meaningless to them. The value of urban fieldwork units is reflected in pupils' accuracy in observing and recording data, an indication that the units used were motivating, challenging and encouraging cooperation to work independently. The development of reasoning skills was clearly shown when data gathered from soil studies was presented. The confidence with which pupils presented their

results proved that their involvement in urban field studies had gradually built up their confidence. They did not show much confidence when data for the Alice and Fort Beaufort surveys were presented, though they reasoned well.

Problems related to the field activities were:

- \* pupils inability to sketch the landscape
- \* failure to present their findings in the form of graphs
- \* failure to map data collected in East London
- \* inadequate reasoning.

Notwithstanding the problems related to the introduction of field activities to pupils at the senior secondary level, this study has conclusively proved that fieldwork is a valuable strategy to use with rural pupils from deprived socio-economic backgrounds. On the basis of the fieldwork results analysed above, geography teachers in the Alice circuit are encouraged to give pupils the opportunities to learn from direct observation in their local environment. The syllabus for standard 6 to 10 was analysed with a view to identify possible areas for field work (Table 5.13). Local fieldwork sites were identified. The fieldwork sites suggested are those which can serve most of the requirements of geography teachers in Alice who wish to give fieldwork the place it deserves in the educational experience of secondary school pupils. Limiting factors such as time and costs do not affect field activities undertaken locally. The enthusiastic teacher can undertake as many field activities as possible using double periods or afternoon study periods. The purpose of using the local environment is not to teach about the locality of the schools, but to give reality to teaching and to make difficult concepts simple by reference to concrete known facts.

Areas of the syllabus (Table 5.13) which do not offer opportunities for local field studies in the Alice circuit are

marine action and industrial development (Standard 9), urban settlements and manufacturing industries (standard 10). The geographical background of the study area in which suitable field sites are identified follows below.

TABLE 5.13

## SYLLABUS TOPICS GIVING OPPORTUNITIES FOR FIELDWORK

STANDARD 6 MAPWORK:	<ol style="list-style-type: none"> <li>1. Direction and bearing</li> <li>2. Scale</li> <li>3. Conventional signs</li> <li>4. Representation of height by contours</li> <li>5. Recognition of simple landforms</li> <li>6. Weather observations and records</li> </ol>
STANDARD 7 MAPWORK:	Elementary study of 1:50 000 maps
GEOMORPHOLOGY:	<ol style="list-style-type: none"> <li>1. Study of landforms resulting from water, wind and waves</li> <li>2. The process of transport and deposition</li> </ol>
SETTLEMENT GEOGRAPHY:	<ol style="list-style-type: none"> <li>1. Study of an important urban settlement with reference to major land use zones</li> <li>2. A farm study or rural settlement types.</li> </ol>
STANDARD 8 MAPWORK:	<ol style="list-style-type: none"> <li>1. Direction and bearing</li> <li>2. Gradient</li> <li>3. Using contours to show relief on maps</li> </ol>
GEOMORPHOLOGY:	<ol style="list-style-type: none"> <li>1. Rock types and associated relief</li> <li>2. Changes in the shape of earth's crust</li> <li>3. External and internal forces that change the shape of the earth.</li> </ol>
WEATHER PROCESSES:	
STANDARD 9 GEOMORPHOLOGY:	<ol style="list-style-type: none"> <li>1. Fluvial processes</li> <li>2. Marine action</li> <li>3. Wind action/solution processes</li> </ol>
CLIMATOLOGY:	Pressure systems, wind systems, precipitations
ECONOMIC GEOGRAPHY:	<ol style="list-style-type: none"> <li>1. Industrial development</li> <li>2. Farming as a primary activity</li> </ol>
STANDARD 10 GEOMORPHOLOGY:	<ol style="list-style-type: none"> <li>1. Drainage systems, slopes, slope forms, structural landscapes</li> <li>2. Soils, soil forming processes, soil erosion and conservation</li> </ol>
CLIMATOLOGY:	<ol style="list-style-type: none"> <li>1. Interaction of weather records, identification of frontal systems and tropical cyclones</li> <li>2. Valley climates</li> <li>3. City climates</li> </ol>
SETTLEMENTS:	<ol style="list-style-type: none"> <li>1. Rural settlements</li> <li>2. Urban settlements - factors influencing location and form, urban morphology and land-use zones, models of urban structure, spheres of influence, urban hierarchies, urban expansion, urban problems, land-use mapping.</li> </ol>
ECOLOGY:	The concept of an ecosystem
REGIONAL STUDIES:	<ol style="list-style-type: none"> <li>1. Water resources and some general resource problems. Use and conservation of local water resources.</li> <li>2. Factors influencing the location and development of manufacturing industries.</li> </ol>

### 5.3.5 Geographical background of the study area

The schools surveyed are in the Victoria East district which is bounded by the Amatola mountains (part of the Great Escarpment) in the north, the Great Fish River in the south, the Tyume River in the east and the Katberg river in the west (Figure 5.4). This is an agricultural and pastoral area with the small town of Alice as the chief urban centre serving the rural villages scattered over the region. The town of Alice is about 75km by road and 90km by rail north west of East London. The physical characteristics of this area offer many opportunities for fieldwork activities to geography teachers and pupils as well.

Factors of high summer temperatures and evaporation cause a change of vegetation from the forest on the mountains to thorn trees, scrub and a sparse covering of grass in the rest of the region. Apart from the mountains in the north, the area is basin-like with hills interrupting the landscape. Geologically most of the area is composed of shales and sandstones of the Beaufort series which are intruded by sills and dykes of dolerite.

The town of Alice is situated on a terrace of the Tyume river on high ground away from possible flooding. Alice is an important route centre with one east-west railway line and good roads heading to the interior and to the coast. It is also a shopping centre of considerable importance with a wide sphere of influence. Like many other South African towns Alice sprawls out over a large area. The chief village in the area is Hogsback, a holiday resort with adequate facilities for recreation.

Arable farming is no longer considered important in the area probably because of uncertain rainfall and great heat in summer. It is in the upper Tyume area where crop cultivation, especially maize, is still largely practised. Pastoral farming is widely practised although the stock kept by many farmers is still of low quality. Farms which formerly belonged to Whites

are now occupied by Black farmers. Some are used as common grazing by Black farmers living in town. Large citrus farms are situated on the Katberg river valley and on the upper Tyume valley. These are irrigated from the Katriver dam and the Binfield dam respectively.

Possible fieldwork sites in the area are the Hogsback area, river valleys, hills, irrigation schemes, farms and the town of Alice. Fort Beaufort town can be used by schools closer to it.

#### 5.3.6 Field sites

The geography syllabus for each class has topics which are suitable for field activities. The suggested fieldwork sites for Alice schools is based on these topics (Table 5.13). Like all rural areas, Alice provides a rich field for geographical exploration within easy reach of any school. There are fieldwork sites suitable for all levels and ages, for both short lessons or for longer ones.

##### 5.3.6.1 The school grounds

The school premises provide a good site for rural schools in particular to avoid costs and possible waste of time incurred by namely long distances to record field sites. Mapping skills and the concepts of scale and directions can be introduced to standard 6 pupils. The concept of scale can be introduced by taking measurements in the school grounds with the aim of drawing the school yard on a piece of paper. Pupils will learn that they have to reduce the actual measurements before they draw on a piece of paper. The school ground is therefore used to promote the understanding of scale, direction and introduce fieldwork skills such as mapping, measurement and computation. Other topics that can be studied include making and recording weather observations and soil analysis. The school grounds can also be used to learn fieldwork techniques such as field sketching, collecting and classifying flora and rocks.

### 5.3.6.2 The local area

Immediately outside the school grounds fieldwork opportunities include studies of:

- (i) Local hills where pupils can study slope types and elements, microclimatology, gravity, erosion, weathering and erosion, vegetation differences and their relationship with soil types.
- (ii) Local landforms such as a valley, spurs, ridges and necks can be studied within a distance of 2 to 3 km. The Hogsback area is one of the valuable sites in the region for the study of rock types, structure and characteristics, soil studies and vegetational types, geomorphological features such as waterfalls and the Hogsback itself. Microclimatology can also be studied effectively in this area. The concept of an ecosystem in which pupils are not just told about the biotic and the abiotic components but are brought into contact with them can be made more meaningful and interesting in the Hogsback area. This site has opportunities for both geography and biology.
- (iii) The river closest to the school can be used to study drainage features. Pupils can learn that features described in the textbook may or may not be present on a given section of a river. By studying a local stream pupils are able to experience stream profiles, channel characteristics, flow patterns, the nature of bank and bed deposits, rock structures and their influence on gradient at first hand.
- (iv) Areas within easy travelling distance from Alice include the Binfield dam which can be studied by schools in the south, while Katberg is closer to the schools in the north. These irrigation schemes have potential for farm studies and can be used to obtain factual information about such schemes relating to their effect on human

activities and quality of life. Pupils' attention can be drawn to the importance of water conservation and environmental management within their home area.

(v) Settlement types such as rural and urban settlements can be easily understood when studied at first hand. The nearest village can be studied with a focus on the main human activities, problems related to communication, services, social life, and employment opportunities. The towns of Alice and Fort Beaufort can be used to study the following:

1. Buildings - functions, age and architectural style
2. provision of services - communication networks and transport problems.
3. physical expansion and related problems
4. siting and the location of the town.
5. sphere of influence

(vi) Farming - Alice still has relicts of white owned farms such as Woodstock, Mankazana and others where the type of survey proposed by Nicol (1985) can be applied with standard 7 pupils. The Fort Hare experimental farm can also provide a useful site with its diversity of farming activities. Traditional farming practised by most Blacks can also be used and compared with market orientated type of farming.

### 5.3.7 Conclusion

Field activities conducted by the researcher have shown that rural pupils can cope with the new geography syllabus when they are actively involved in their own learning. It has also been shown that fieldwork can be introduced with success in the senior secondary classes, however, teachers are advised to introduce it at junior secondary levels to allow for a gradual development of skills. Pupils' evaluation of the beach activity has shown that they enjoyed learning through first hand experience and they felt that their understanding had

improved, which was one of the main purposes of undertaking this field activity. The evaluation also revealed that there were aspects of the syllabus, the reality of which was questioned before making contact with the reality. This is a challenge to geography teachers to take pupils out to look and see particularly in schools where audio-visual aids are not available.

Some of the most important values discovered by the field activities undertaken are:

- \* the motivational effect of fieldwork;
- \* fieldwork ability to build up confidence in pupils;
- \* the promotion of interest in the subject;
- \* the promotion of social skills.

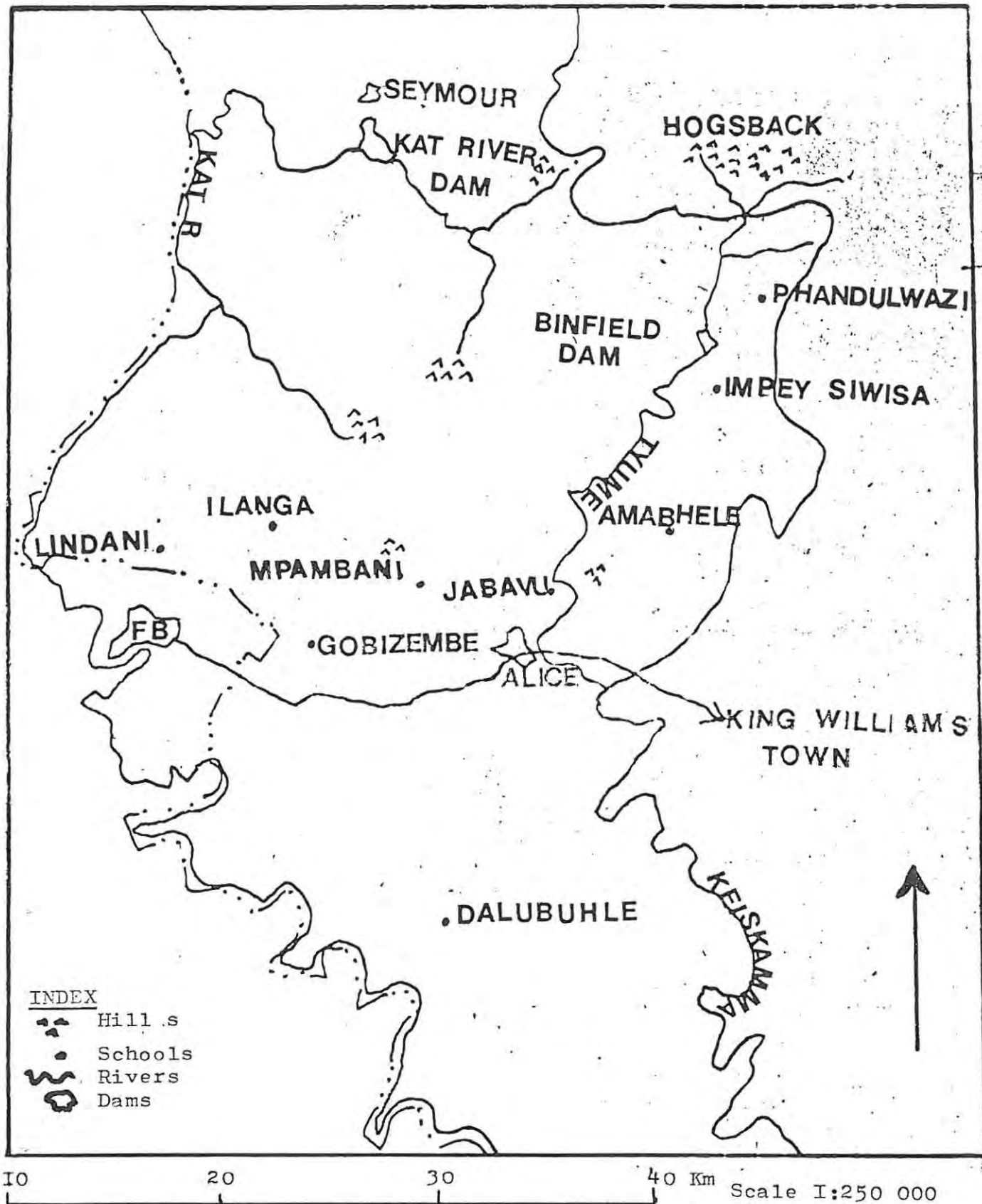


FIGURE 5.4  
ALICE DISTRICT AND POTENTIAL FIELDWORK SITES

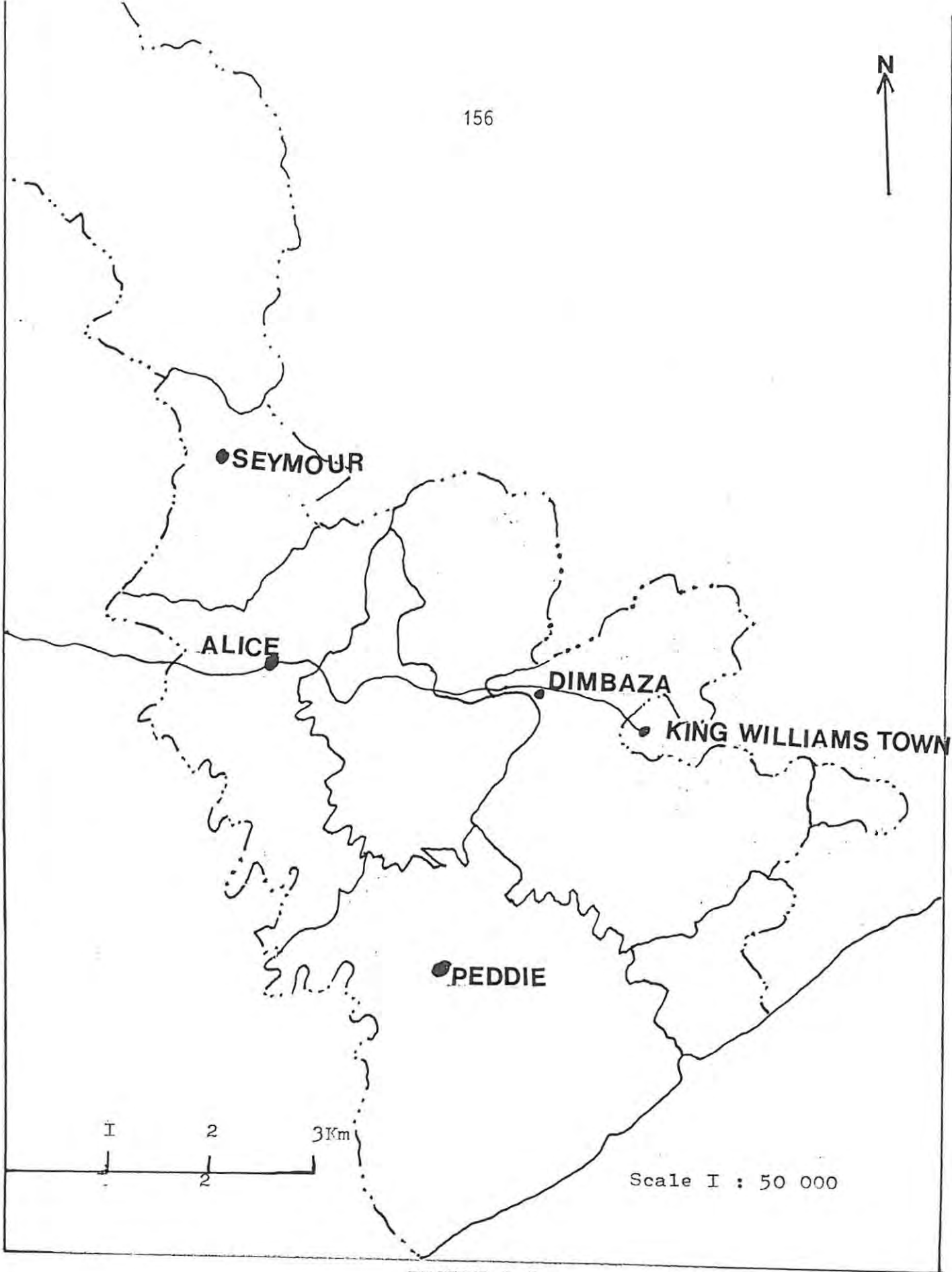


FIGURE 5.5  
MAP OF CISKEI

## CHAPTER 6

## CONCLUSION AND RECOMMENDATIONS

## 6.1 INTRODUCTION

This study attempted to investigate the effectiveness of fieldwork as a teaching strategy suitable for the needs of rural secondary pupils. The focus was mainly on the value of fieldwork when first introduced to senior secondary pupils who cannot transcend their rural environment. In order to do this the researcher had to consider:

1. the demands of the new syllabus;
2. learning problems affecting geography pupils in rural schools and pupils' attitude towards geography;
3. attitudes of geography teachers towards the use of learner-centred strategies particularly fieldwork.

## 6.2 SYLLABUS DEMANDS

The current geography syllabus for secondary school geography demands an array of skills such as analysis, interpretation, identification and graphicacy which are vehicles for the development of concepts which dominate the content of geography. The new geography which is no longer concerned with establishing facts is tested on the basis of skills and problem-solving which demand clarity of thought. The problem of irrelevance adds to these stringent demands, for example some of the topics included in the geography syllabus (economic geography, marine action and urban settlement studies) are outside the experience of the rural child who is confined to his local environment. These problems can be solved, however, when geography teachers employ a variety of interaction strategies such as the use of models, slides, pictures, worksheets, discussion and fieldwork to develop pupils' skills and conceptual understanding.

Fieldwork which should be introduced as early as standard 6 can be conducted within easy reach of any rural school with a

minimum loss of time and cost. It is regrettable that while the syllabus recommends a systematic use of fieldwork from standard 6 upwards it fails to provide guidelines for teachers who have no experience in this technique. Textbooks on the other hand only give the essential aspects and techniques of fieldwork with no practical examples of fieldwork units for use by teachers. As a result teachers who have no fieldwork experience shy away from it.

### 6.3 PUPILS' AND TEACHERS' PERCEPTIONS OF GEOGRAPHY AND RELATED PROBLEMS

The research revealed that pupils perceive geography to be difficult but interesting. They revealed a negative attitude towards mapwork and regional geography. The research revealed a number of reasons contributing to these problems. Pupils in the rural schools have very limited access to mass media and are confined to their rural environment through their socio-economic circumstances. Exclusively rural communities provide pupils with very limited resources for considerable areas of the present geography syllabus.

Pupils' negative attitudes towards certain sections of the syllabus is a reflection of the teacher-dominated strategies used by rural teachers. The research revealed that teachers rely mostly on the textbook, "chalk and talk" and the writing of notes as teaching techniques. These techniques do not provide pupils with appropriate learning experiences which can facilitate the development of geographic concepts and skills. The demotivating strategies used encourage pupils to memorise a mass of facts for examination purposes. Furthermore teachers' limited theoretical background of geography reduces their awareness of the wealth of resources that are available in even the most economically deprived areas. Thus, while they have no access to films, videos, overhead projectors and the like, they ignore the use of diagrams, worksheets, pictures and fieldwork which give pupils the opportunity to gain their education through their own efforts and experience. Unless geography teachers realise the importance of interaction

strategies and diminish their role as agents of data input, geography will remain difficult to pupils. Rural schools can of course not provide visual aids dependent on a use of the supply of electricity but they have ample opportunities for field activities which can be located both in the school and the immediate environment.

#### 6.4 TEACHERS' ATTITUDE TOWARDS FIELDWORK

Opie (1986) describes fieldwork as an "orphan" and an unfamiliar tool to geography teachers. Teachers' ignorance of fieldwork is supported by Nightingale's (1984) research which revealed that local universities and training colleges have only recently introduced fieldwork as an important part of the geography teacher training courses. There is a particularly pressing need for guidelines as revealed by teachers' reasons for not conducting fieldwork. These include the following:

1. time, which was regarded as a major constraint as teachers thought that they had to take long trips;
2. financial constraints;
3. lack of field experience.

These attitudes are a reflection of teachers' lack of knowledge about fieldwork. This is particularly problematic for teachers whose training predated its implementation in the syllabus. The problem is intensified by the absence of suitable references for teachers whose knowledge of fieldwork is doubtful.

#### 6.5 PUPILS' RESPONSES TO FIELDWORK : THE VALUE OF FIELDWORK

The objectives of undertaking fieldwork and its educational value were considered in detail. It was shown that fieldwork is an indispensable part of geographical education as it strengthens the pupils' knowledge of geographic facts, principles and theories by exposing them to reality. The literature reviewed emphasizes the effective role of fieldwork in developing intellectual skills, graphic skills and

concepts, as pupils are provided with first-hand experience.

This study revealed that when pupils are exposed to fieldwork even at a late stage in their school career their response to and perceptions of fieldwork are positive. The value of fieldwork was demonstrated by the pupils' ability to observe, record and to relate theoretical aspects to the real world situation. Thus reinforcing conceptual understanding and stimulating interest in the subject. The research also revealed that pupils learn best when motivated, interested and directly involved.

## 6.6 RECOMMENDATIONS

Teachers need to be aware of the value of fieldwork as a teaching strategy. This awareness can be fostered through:

1. The formation of geography associations at circuit level so that specialist geography teachers share their expertise with their disadvantaged colleagues.
2. In-depth training in fieldwork so that teachers' attitudes are changed and their confidence built up. This can be done by involving the department of geography at Fort Hare in conducting fieldwork for Alice teachers. Proven worksheets can be used and a group of pupils from the surrounding schools participate while teachers observe how the activity is conducted.
3. In-service training centres which should organise courses for teachers where training in field activities is given in the field.
4. Incorporation of more fieldwork units in geography textbooks for all levels to give teachers some guidelines on fieldwork.
5. The inclusion of fieldwork in external examinations so that teachers do not neglect it.

Research should also be done not only to identify local fieldwork sites but also to work out fieldwork units for teachers who have no knowledge of this technique.

## 6.7 CONCLUSION

Many factors contribute to pupils' lack of skills and conceptualisation in geography. Amongst these are teachers' reliance on teacher directed methods which generate boredom, pupils' lack of experience of other environments, lack of essential teaching/learning resources at school and the medium of the second language, English, through which geography is communicated to the pupils. Nevertheless, the implementation of learner-centred approaches, particularly fieldwork, which requires pupils to obtain their education through their own efforts and experience, reinforces concepts obtained in the classroom and emphasizes the reality of geography. There is a pressing need for geography pupils to be regularly exposed to geographical reality particularly in the junior secondary phase. This contact with reality narrows the gap resulting from the absence of audio-visual aids at school and the limited access to media at home.

Language constraints are very important and challenge teachers to employ innovative teaching strategies which involve pupils as early as possible in the school curriculum. Pupils who are actively involved in the learning situation use language to think and understand, hence the emphasis on interaction to build up their conceptual understanding.

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## APPENDIX 2A

## INTRODUCING SETTLEMENT STUDIES THROUGH FIELDWORK

(Raw, 1982)

**1. Where do you live?**

Otley	Elsewhere	If elsewhere, name the settlement
-------	-----------	--------------------------------------

---

 1  
 2  
 3  
 4
 

---

**2. What type of transport have you used to travel to Otley?**

Walk	Bus	Car	Cycle
------	-----	-----	-------

---

 1  
 2  
 3  
 4
 

---

**3. What type of goods have you purchased/do you intend to purchase today?**

Convenience	Comparison	Both
-------------	------------	------

---

 1  
 2  
 3  
 4
 

---

**4. Where would you normally shop in order to purchase the following items?**

Bread	Meat	Shoes	Carpets/Furniture
-------	------	-------	-------------------

---

 1  
 2  
 3  
 4
 

---

**5. How often do you shop in Otley?**

Several times a week	Once-a-week	Once-a-week to once-a-month	Less than once-a- month
----------------------------	-------------	-----------------------------------	-------------------------------

---

 1  
 2  
 3  
 4
 

---

Figure 1. Recording schedule: shopping behaviour in Otley.

## APPENDIX 2B

FIELDWORK ON INDUSTRIAL LOCATION : THE QUESTIONNAIRE  
(Grenyer, 1985)

Location Factors	Pupil's Name:											Total Number of ticks showing importance	Rank Order of importance according to group					
	H. Biddle	V. Friedman	F. Carter	M. Daniels	E. Stevens	N. Clare	H. Jones	C. Howarth	S. Norris	B. Dent	V. Houseman			P. Cross	A. Smith	B. Carlyle	A. Evans	D. Small
1. Close to market																	10	2
2. Close to raw materials																	5	5
3. Links with local industry																	2	6=
4. Suitable labour available																	8	3=
5. Land available																	8	3=
6. Leasehold premises available																	0	9=
7. Pleasant surroundings																	2	6=
8. Personal reasons																	0	9=
9. Central location for distribution																	0	9=
10. Room to expand																	11	1
11. Availability of housing																	2	6=
12. Other (please specify)																	0	9=

Figure 9. Order of importance of the various location factors as perceived by students (Pupil names are fictitious)

<b>Firm's Name</b>
Products
Location
Main factory or branch?
Number employed
Original site or moved?
Original location
<b>Reasons for location decision (tick three most important):</b>
1. Proximity to raw materials
2. Proximity to markets
3. Accessibility
4. Wage rates
5. Development Area Concessions
6. Low rent
7. Social facilities
8. Room to expand
9. Local Business Connections
10. Others (please specify)
<b>Order of Importance of Development Area Concessions (Tick three most important)</b>
1. Building grants
2. Tax allowances
3. Low interest loans
4. Removal grants
5. Training grants
6. Regional employment premium
7. Advance factories
8. Operational grants

Figure 10. Questionnaire for firms in South Wales

## APPENDIX 2C

## FIELDWORK ON INDUSTRIAL LOCATION : HYPOTHESIS TESTING

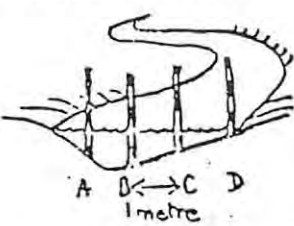
Location factor	Students' expected order of importance	Firms actual order	Difference in rank (d)	d <sup>2</sup>
1. Close to market	2	7.5	5.5	30.25
2. Close to raw materials	5	11	7.0	49.0
3. Links with local industry	7	11	5.0	25.0
4. Suitable labour available	3.5	4	0.5	0.25
5. Land available	3.5	2	1.5	2.25
6. Leasehold premises available	10.5	4	6.5	42.25
7. Pleasant surroundings	7	11	5.0	25.0
8. Personal reasons	10.5	7.5	3.0	9.0
9. Central location for distribution	10.5	7.5	3.0	9.0
10. Room to expand	1	1	0	0
11. Availability of housing	7	4	3.0	9.0
12. Other	10.5	7.5	3.0	9.0
Total differences squared (d <sup>2</sup> ) =				210.0

$$R = 1 - \frac{6 \times \sum d^2}{n^3 - n} = 1 - \frac{6 \times 210}{1716} = 1 - 0.734 = 0.265$$

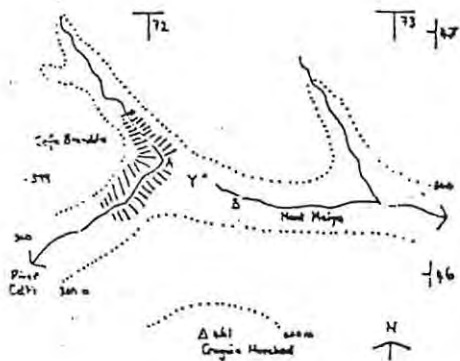
(R = Spearman's rank correlation coefficient d is the difference in rank n is the number of factors) In this example a value of 0.5 would be required at least if the correlation was to be statistically significant at the 5% level so the students' predictions were not very accurate. Student predictions are usually better than this; in this example, they have overestimated the importance of raw materials as a location factor for light industry, while underestimating the difficulties many small firms have in finding suitable leasehold premises.

APPENDIX 2D  
RIVER STUDIES  
(Rawling, 1971)

Example of Data Recording Sheet

Feature for study	Study point 1 Grid reference:	Study point 2 Grid reference:	Study point 3 Grid reference:
<p><b>The river channel</b> Channel pattern: Describe the channel pattern, e.g. is it straight, sinuous, meandering etc. Channel profile: [i.e. the width, depth and shape] At three different points along the rivers course make a detailed survey of the channel profile [as below].</p>  <p>Take depth readings at A, B, C, D. Note distances AB, BC, CD.</p> <p>One person must wade into the river and measure the depth at regular [e.g. 1 metre] intervals, using the ranging rod. The intervals of measurement and suitability of the river for wading must be determined at each study point.</p>			

Worksheet: River Studies



**Problem:**

Why does the Afon Cothi turn a right-angled bend in its course at A in Figure 5? Why is there a gap at Y?

Find the area concerned on your 1:50,000 OS map [grid lines are given]. Find grid reference 724463. From this point we shall walk up the track which runs up the north east side of the Cothi valley. On reaching the hillside up above point A, we shall stop to examine the valleys of the Cothi and the Nant Melyn.

Whilst at this point:

- make detailed descriptive notes about the shape of the Cothi valley and its distinctive characteristics.
- estimate the height of the valley sides in metres.
- estimate the width of the valley both at the valley bottom and at the top in metres.
- draw an annotated sketch section of the Cothi valley, noting carefully any change in slope of the valley sides.
- estimate how far away the headwaters of the Nant Melyn are, i.e. how wide is the gap at Y.
- describe the shape and character of the Nant Melyn valley, e.g. V-shaped, wide and flat etc.
- using the map find out the height of land at the gap Y, the height of land in the bottom of the Cothi valley at A, the height of land in the bottom of the Nant Melyn valley at B.

Try to suggest a theory about the relationship between the two rivers.

*N.B.* If possible on the evening before visiting this study point: [1] Draw cross profiles of the Cothi and the Nant Melyn at points A and B, using the 1:50,000 or 1:25,000 O.S. map. [2] Draw long profiles of the upper courses of both rivers.

APPENDIX 2E  
RIVER STUDIES  
(Graves, 1980)

crossed and at the eleventh stop, the size of the valley is compared with the thin trickle of water now occupying the valley bottom. The last and twelfth stop is at Hosey Hill where the coach is waiting to pick up the party. At this point a recapitulation of the day's work can occur by judicious questioning. The afternoon session is deliberately shorter than the morning session since there is no point in attempting to teach beyond the pupils' saturation point. The questionnaire to be completed is given below.

FIELD WORK—BRASTED AREA

*Hawley Corner to Silverstead*

1. In what direction is the land sloping downwards? (Northwards.)
2. With what soil or rock is the ground covered? (Clay with flints.)
3. What use is made of local materials? (Older farm houses are made of flints.)
4. What do you notice is happening to many older properties? (They are being renovated.)

*Silverstead to the Pilgrims Way*

5. What happens to the land as you look south? (It slopes steeply downwards.)
6. Estimate the gradient of the slope (1 : 6.)
7. What physical features do you notice in the middle and far distance? (A valley and a ridge.)
8. What type of woodland covers the east side of the road? (Coppice.)
9. For what possible reason is this left as woodland? (Steep slope; poor soil; need for woodland in former days.)
10. What do you notice about land use at the foot of the slope? (More arable land than permanent pasture.)
11. What type of rock is found near the bottom of the slope? (Chalk.)
12. What name is given to such a steep slope? (Scarp.)

*At the bottom of the steep slope*

13. Why was there no water on the top of the hill? (Chalk is porous and pervious.)
14. Why does the spring come out of the base of the hill? (Probably because there is an impermeable layer beneath the chalk.)
15. For what purpose is the spring water used? (Watercress beds.)

16. What name would you give to the gently sloping land to the north of the spring? (A bench or platform.)
17. What use is made of this land? (Arable land—kale for feeding to animals.)

*In the vale*

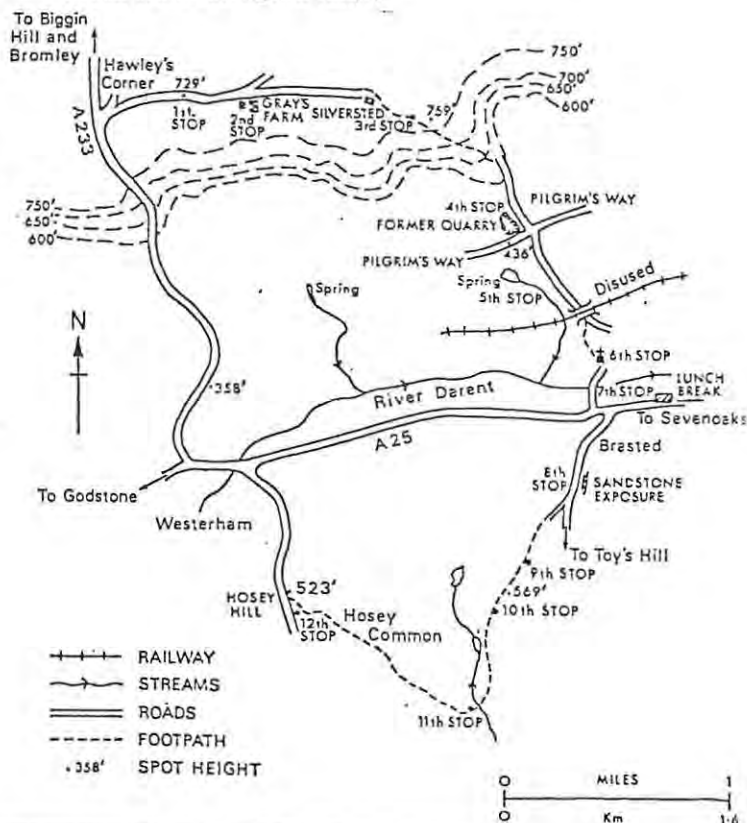
18. What type of farming is found in this area? (Pastoral farming.)
19. What is the nature of the soil? (Clay.)

*In Brasted*

20. Describe the shape of Brasted village? (It is a long narrow village mainly along the A25 road.)
21. Make a quick count of the type of shops found on the north side of the main road (using the classification: food shops, antiques and others). (Two food shops, 4 antique shops, 4 miscellaneous.)

*On the ridge*

22. What sort of slope are you walking up along the footpath? (Dip or back slope.)
23. What do you notice about the rocks and soil in this area? (The rocks and soil are sandy.)
24. Make a note of the main types of trees and bushes which grow on this hill (Sweet chestnut, beech, rhododendrons, larches.)
25. Do you see much farm land in this area? (Little farmland.)  
Suggest a reason for your answer. (Possibly infertile soils, possibly left as parkland for large estates.)
26. Make a note of the physical features you notice on this ridge (The back slope of the Lower Greensand ridge is dissected by a number of north-flowing river valleys.)



APPENDIX 2F  
STUDYING RIVER SYSTEMS  
(Nightingale, 1983)

**APPENDIX RIVER STUDY - PARADISE VALLEY NATURE RESERVE**

This study illustrates the traditional field work approach; it has been prepared for Standard VII pupils.

Preparatory work should include a discussion of changing base levels, and the resulting rejuvenation of streams. With able pupils the concept of nick-point could be included.

These exercises involve pupils in a first hand study of a short stretch of the Umbilo River. This lies in the Paradise Valley Nature Reserve, which is readily accessible to a large number of schools in the Durban area. Commence the study at the main waterfall just below the National road viaduct, then work upstream to the picnic area at the main entrance to the reserve. The fieldwork could be completed in a single afternoon.

*Note:* No exercises have been included which involve pupils in entering or touching the river water, due to the danger of bilharzia.

1. **Main Waterfall** (below the viaduct)
  - 1.1 Draw and annotated field sketch of the main waterfall. Show clearly and label the following features: rock strata, bedding planes (indicate different angles of dip), joints, cliff face, nick-point.
  - 1.2 How has this waterfall been formed?  
What evidence is there that the waterfall is advancing upstream?  
You should be able to find at least three separate pieces of evidence. Consider: The profile of the waterfall; the contrast between the valley immediately above and below the waterfall; and the debris at its foot.
  - 1.3 Why is there no plunge pool at the foot of this waterfall?
  - 1.4 What evidence is there that at times large volumes of water flow over the waterfall?
  - 1.5 Identify the rock-type in this area. How was it formed?
  - 1.6 How was the sand at the foot of the waterfall formed?
  - 1.7 What forms of weathering and erosion, other than running water, are at work in this area? Draw sketches to illustrate your answer.
  - 1.8 How is the plant life on the rock face close to the waterfall adapted to the wet conditions?
2. **Immediately above the Main Waterfall**
  - 2.1 Explain why the waterfall descends in steps.
  - 2.2 Draw labelled sketches to illustrate: bedding planes, cross bedding, dip (of strata), pot-holes.
  - 2.3 Distinguish between bedding planes, joints and faults.
  - 2.4 In what ways has the angle of dip of the strata affected the pattern of erosion close to the lip of the waterfall?
  - 2.5 In what ways have the bedding planes and jointing of the rock influenced weathering and erosion?
  - 2.6 Why is the gorge downstream of this waterfall more pronounced than the gorge above the waterfall?
  - 2.7 Explain the formation of the pot-holes and their role in the erosion of the river-bed.

3. *In the vicinity of the large Concrete Reservoir*
  - 3.1 This valley was one of the first major sources of water for Durban. During the early part of this century dams, storage reservoirs and settling tanks were located in this area, and parts of the valley were under water. Locate as many features associated with the old water-works as possible, and try to explain their function.
  - 3.2 A major flood breached the dam in this valley. Why would this valley be subject to sudden and severe floods?
  - 3.3 Look for evidence of high floods. Try to ascertain what height above present water levels the floods have reached.
  - 3.4 Choose a large rock which forms a natural dam and study the deposition of material both above and below the obstruction. Relate the depositional features to the current flow characteristics. Consider such things as the nature of the load (is it pebbles, sand, mud, etc.), deposition features (the shapes of sand banks, etc.), and their relation to areas of turbulence and thalwegs (a *thalweg* is that part of a river where current velocity is highest).
  - 3.5 In what ways does the rapid 30 metres above the large concrete cylinder differ from a waterfall?
  - 3.6 Explain why the rocks in the river bed are not rounded.
4. *In the Vicinity of the Concrete Causeway*
  - 4.1 Explain why the large sheets of rock in the region downstream of the causeway have no soil on them. Is it likely that soil will ever form on these rocks?
  - 4.2 What forms of weathering are taking place on these rock surfaces?
  - 4.3 Show how the jointing of the rocks is influencing the vegetation.
  - 4.4 Contrast the vegetation on the rocks with that of the surrounding area. Explain why these plant communities are xerophytic (drought resistant).
  - 4.5 Choose four xerophytic plants and show how they are adapted to drought conditions.
  - 4.6 Walk into the forest upslope from the causeway and draw labelled sketches to show how certain plants are adapted to reach sunlight.
  - 4.7 What evidence is there that animals inhabit this part of the reserve?
  - 4.8 Pick up some humus from the forest floor. Examine it carefully and contrast it with the river sand. In what ways were these different types of soil formed?
5. *Upstream of the Causeway*
  - 5.1 Name four species of exotic vegetation which are growing in this area.
  - 5.2 Which of these plants are pests? Why do you consider them to be a threat to the area?
  - 5.3 Do you consider that the exotics should be cleared from this nature reserve? Justify your answer.
  - 5.4 The path which is following this stretch of the river runs along a natural feature. What is it? How was it formed?
6. *On the River Bend, near the Picnic Area*
  - 6.1 Compare the speed of the flow of the river near the outer and the inner banks of a small meander in the river. Relate this to the shape of the cross profile.
  - 6.2 Draw a sketch section across the valley. Label such features as a slip-off-slope, river cliff, and the river bed.
  - 6.3 Contrast the two sides of the valley noting and attempting to explain differences in slope features, soil, and vegetation.
  - 6.4 Estimate, and then calculate the height of one of the very tall trees in this area. Why are there so many tall trees in this valley?
  - 6.5 This nature reserve can be divided into two distinct areas. What is the role of each area? How do they complement each other?
7. *General*
  - 7.1 Why was this area proclaimed as a nature reserve? Do you consider that more such reserves should be set aside in the Durban area? What is their role?
  - 7.2 Do you consider that this nature reserve should be developed further? If your answer is 'yes', state what proposals you would put forward for the development of the area. If your answer is 'no', justify your stand. Debate the question with other members of your class.
  - 7.3 What problems have valleys such as this posed to the development of communication links in Durban? What steps have been taken through the years, to overcome these problems in the case of this particular valley?

## APPENDIX 2G

STUDYING RIVER SYSTEMS : EXERCISES BASED  
ON MAPS AND PHOTOGRAPHS**-EXERCISES BASED ON MAPS AND PHOTOS**

Trace river and tributaries, mark boundaries of the hydrographic and the physiographic basins.

*Calculate:* stream order, lengths, gradients.

*Calculate:* area of basins, drainage density, stream frequency.

*Measure:* meander wavelengths (relate to size of river), index of sinuosity (See Gregory & Walling, 1973: 49-57). Seek meander scars on aerial photo, measure wavelength — relate to possible changes in the volume of the river.

*Measure:* distance between riffles (using photos), relate to meander wavelength and width of river.

*Profiles:* Draw transverse profiles at significant points. Analyse valley characteristics.

Draw longitudinal profile — identify nick-points. Account for deviations from the profile of equilibrium. Identify graded reaches.

*Measure:* width of valley, flood-plains.

*Identify:* drainage patterns — account for these; deflection of river by tributaries.

*Calculate:* rainfall and run-off in the drainage basin.

*Identify:* features resulting from fluvial action large enough to appear on map or aerial photograph,

## APPENDIX 2H

## A TRANSECT SURVEY OF GRAHAMSTOWN

(Burton, unpublished)

## A TRANSECT STUDY OF GRAHAMSTOWN

INTRODUCTION :A transect study is a method of sampling by moving in a straight line through a field of study in such a way as to cover as many contrasting zones as possible and thereby obtain a representation of the whole. It is a section along a straight line.

COLLECTING DATA

- 1 The transect is as close to a straight line as possible and cuts through most of the contrasting functional zones in Grahamstown. It starts on the urban fringe in Somerset Heights and moves down Milner street and Hill street through the C.B.D. and up to the Webbs ' Avenue.
- 2 In the study you will record data on :
  - a. landuse or function
  - b. age of buildings
  - c. land values and functions
  - d. landuse and physical environment.
 (See table)
- 3 Make a rough plan of the route marking in the streets and blocks leaving sufficient space on either side to record your observations.
- 4 You will be divided into four groups . Each group will record data for the 4 sub divisions in 2 above. All data will later be pooled in class.
 

N.B. each of you will prepare an individual transect study that will be handed in to be marked.

ANALYSIS

Now that you have collected the data it has to be analysed and interpreted.

- 1 By visual inspection. Study the transect diagram on which you have recorded your data. Look for patterns of landuse type and delimit the different functional zones . Explain why the different zones are where they are and look for relationships between function, age of buildings , land values and physical environment.
- 2 Profiles and sections :You will now use information gained on your transect to construct graphs which will give you greater insight into relationships you discovered by visual inspection. Separate graphs must be drawn for landuse and age of buildings .(two graphs for each from High street to Somerset Heights and from High street to the Port Alfred Road) . Use the following tables

<u>Land Use</u>	<u>Land Value</u>
High class residential - 1	High class residential - 3
Residential - 2	Residential - 2
Transitional - 3	Transitional - 2
Commercial - 5	Commercial - 5
Institutional - 4	Institutional - 4

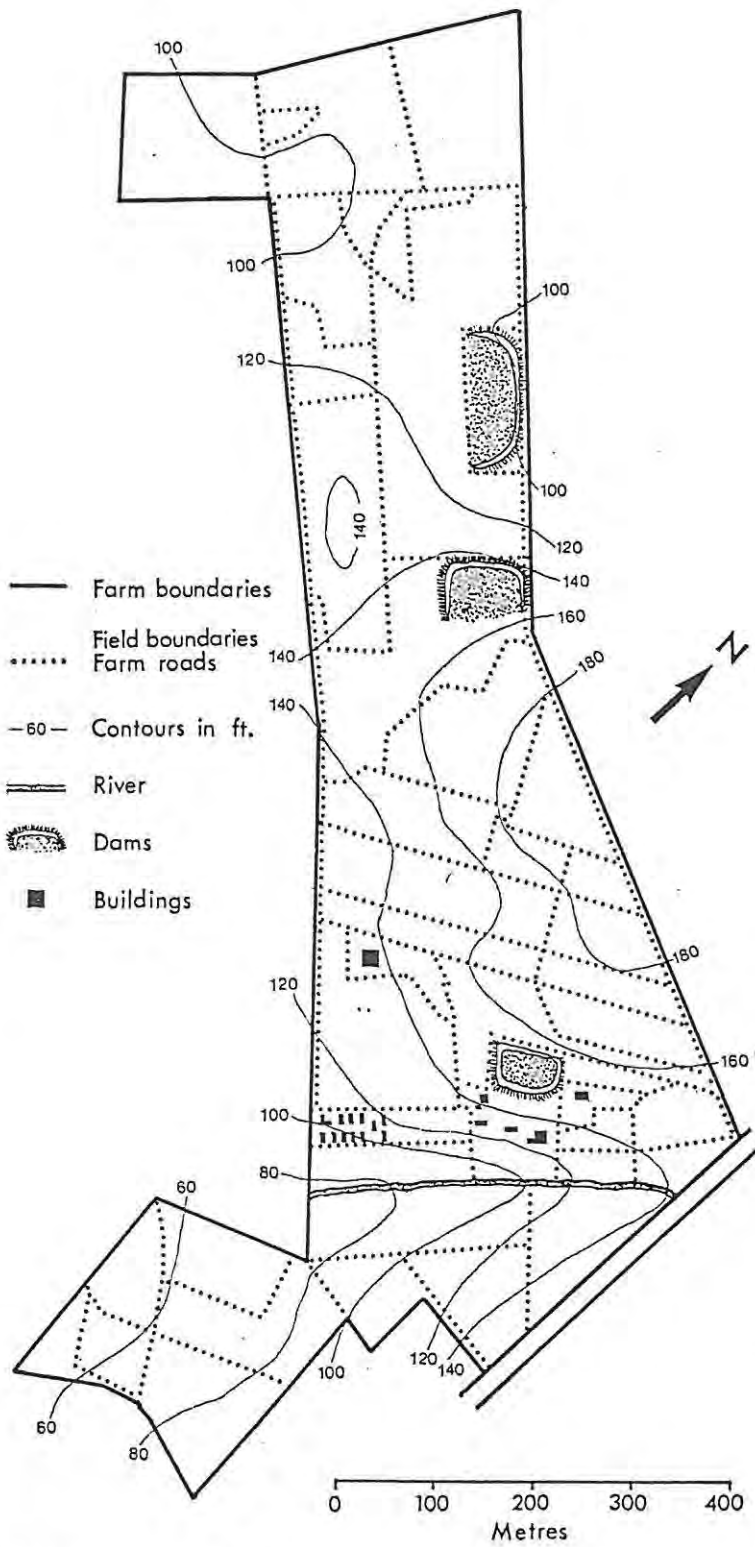
Compare graphs and look for correlations

- 3 Write a report on your transect pointing out all correlations and patterns you have observed.

APPENDIX 2I  
 FARM STUDY  
 (Nicol, 1975)

FARM STUDY QUESTIONNAIRE

- (a) Area of the farm ?
- (b) Types of fence ? Why ?
- (c) What is the average annual precipitation ? Convectional ? Cyclonic ?  
 When does it occur ? Droughts ? Is wind a problem ? If so what can be done ?
- (d) Diurnal or annual temperature range ?
- (e) Does frost occur in winter ? If so ,over the whole farm or just in some parts ? Why ?
- (f) Soils and fertilizers ? Is soil erosion a problem ? What can be done to prevent or repair it ?
- (g) What is the natural vegetation of the farm ? How much has been cleared to make way for cultivation ?
- (h) What additional water is available ? Irrigation scheme ? River ? Boreholes ? Natural springs ? Dams ?
- (i) If irrigation water is available , how is it stored and used on the farm ? Flood irrigation ? Overhead spray ?  
 What are the relative merits of both methods ?
- (j) What proportion of the farm is arable ? Why ?
- (k) What crops are grown ? In different seasons ? What varieties of the same crop ? Is crop rotation practised ? If so ,why?
- (l) Plant pests and their control ?
- (m) Farm machinery - types ?
- (n) Farm buildings -dwelling house,outhouses -buildingmaterial ?
- (o) Special buildings ? e.g. tobacco curing sheds, silos etc.
- (p) Livestock on the farm ? What type ? Where and how are they sheltered and cared for ?
- (q) Animal diseases and pests : control measures ?
- (r) Animal products ?
- (s) Labour on the farm ? Permanent or seasonal ? Housingand welfare ?
- (t) Harvesting methods ? mechanical ? Why or why not ? Hand - why or why not ?
- (u) Transport on the farm ? From the farm to the nearest town or railway station or bus depot ?
- (v) Markets-location ? distance from the farm ?



## APPENDIX 2J

THE WYNBERG VILLAGE TRAIL  
(Ballantyne & Atwell, 1985)

Refer to the Map of Wynberg Village (Figure 1)

1. Waterloo Green. Of the original village green, little remains except this small piece of land between tarred streets. The buildings bordering this green are some of the oldest in Wynberg. Oak Cottage, for instance, was built in 1830. These buildings provided residences and services to the soldiers.
  - (1) What was the original usage of two of these cottages?
  - (2) Find any other buildings down Durban Road, of which the original usage is evident from its present name.
2. While features are Georgian, building materials used indicate Cape vernacular influences.
  - (1) Fanlights were sometimes the only decorative feature in a Georgian facade. Sketch a fanlight you find attractive.
  - (2) What other features of these houses do you consider to be Georgian?
  - (3) What is particularly apt in the plaster ornamentation of Number 14-16 Durban Road?
  - (4) A traveller to Wynberg in the early 19th century remarked that (the houses) "... were well-thatched with very thick sedges, peculiar to the country and well calculated to keep off the violent winds and rain". (Lewcock, 1963)
    - What forms of roof covering predominate today and why?
    - Examine 18-20 Durban Road. What effect has the roofing had on the character of the house?
- 3 Durban Road Flats, Durban Road. What modifications have taken place in this building over the years?
- 4 Sheep's Head Square, intersection Wolfe Street and Durban Road. How successful is this area as an open space? Give reasons.
- 5 49-51 Durban Road. These dwellings have been badly restored. See if you can identify what has caused them to lose their authenticity.
- 6 The Foresters Inn and the Cat and Fiddle. Wynberg possesses a number of interesting small iron gates and fences dating from the late 19th century. See if you can identify which were wrought and which were cast.
7. Adjacent is Long Cottage. This, by way of contrast, is one of the finest and most authentic cottages in Wynberg. The present facade was added to the house in about 1822. The back section is a little older.
- 8 Pause at the corner of Durban Road and Victoria Street. What are the predominant sounds?
- 9 Corner of Durban Road and Lonsdale Road. A number of buildings, eg. the block of flats on the corner of these roads, which have no architectural or historical merits at all, have been declared National Monuments.
  - (1) Why do you think this was done?
  - (2) Do you think it was a good idea? Give reasons.
- 10 Proceed up Lonsdale Road. Numbers 7-17 Lonsdale Road are cottages dating from 1880-1890.
  - (1) What is unusual about Numbers 11-17 Lonsdale Road?
  - (2) Examine the scale of these cottages. What contribution do you think they make to the environmental quality of the street?
- 11 Corner Wolfe and Lonsdale streets. This corner shop is considered something of a landmark at the entrance to Wynberg Village. It has two ornamental griffins on the roofline. One recently fell off and was damaged. Stand for a moment at this corner and then see if you can provide an explanation as to why this happened.
- 12 Do you think there is any change in the nature of the townscape between Wolfe Street and Lonsdale Road? If so, can you identify it?
- 13 What improvements would you make to improve the safety of pedestrians in this area?
- 14 The Lutheran Parsonage. If you were requested to adapt or re-use this large piece of land, what suggestions would you make?
- 15 As you proceed down Wolfe Street, list some of the types of shops to be found. Do you feel such usages are compatible with the area? If not, give reasons.
- 16 Why does the area around the Wolfe Street/Durban Road intersection have particular traffic problems?
- 17 The Chelsea Arms.
  - (1) What do you think the effect of a pub in this area would be?
  - (2) Cruise Lane. What kind of vehicle is likely to frequent this lane?
- 18 Standard Lane. Why do you think some cottages in Standard Lane have such high walls?
- 19 David and Salkow Bottling Company. What effects are the activities of this company likely to have on the environmental quality of this area?
- 20 Listen for the predominant sounds. Are they any different to those experienced in Durban Road?
- 21 Carr Hill and Wolfe Street intersection. As you look up the hill and then away towards Wynberg Main Road, two buildings dominate the skyline, the Dutch Reform Church and the Wynberg Magistrate's Court. Why do they dominate and what effect does this have on the character of the village?
- 22 What effect does Maynardville have on the quality of the environment here?
- 23 Return to Durban Road via Carr Hill Road, and summarise your observations by answering four final questions:
  - (1) What kind of people do you think live in Wynberg Village?
  - (2) What kind of people visit Wynberg Village?
  - (3) What do you think the inhabitants of Wynberg Village are trying to conserve?
  - (4) What in your opinion constitutes the character of the area?

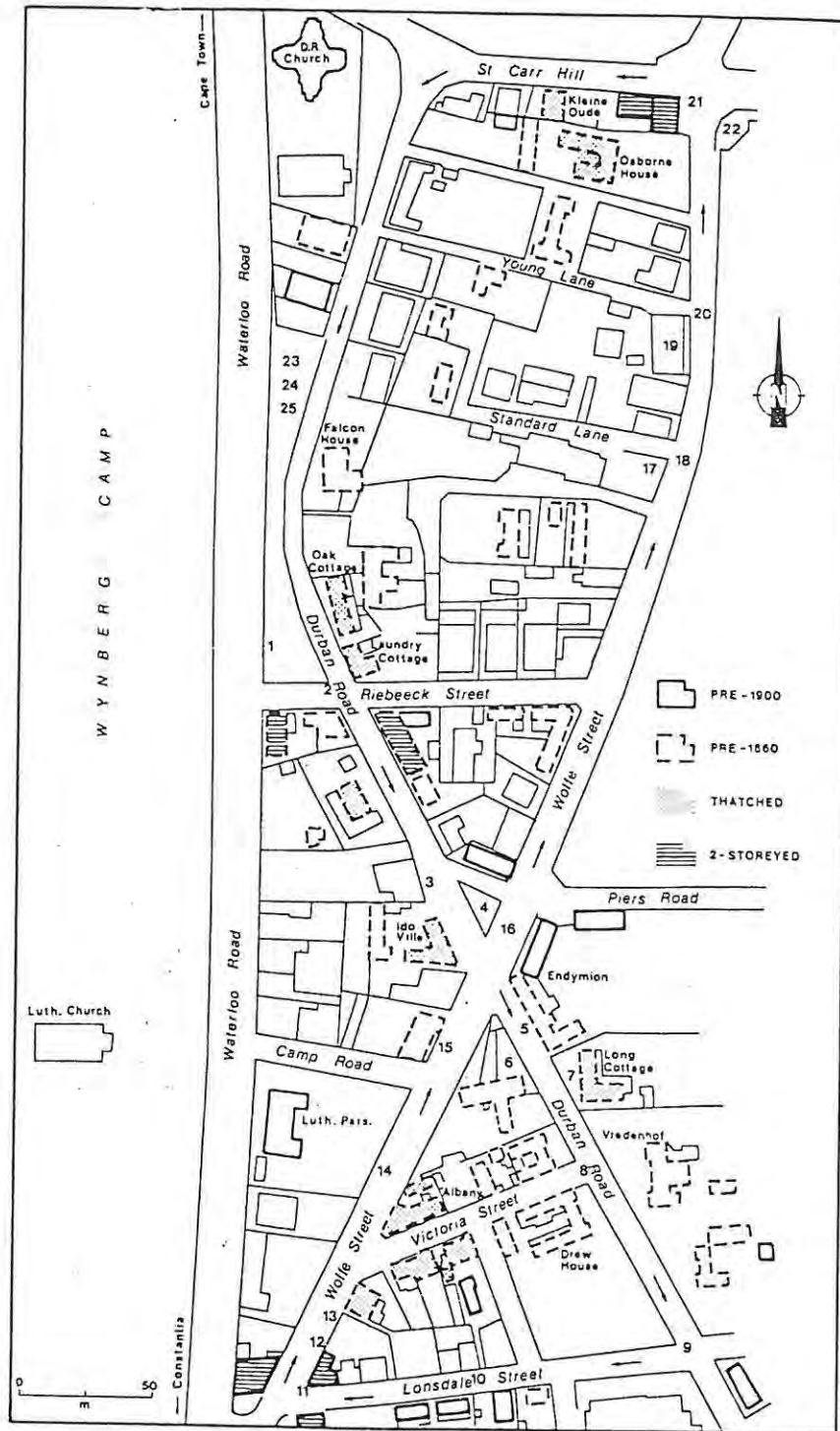


Figure 1:  
Wynberg Village. (From Fransen and Cook, 1980; by permission,  
A A Balkema, Cape Town)

## APPENDIX 3A

## GEOGRAPHY TEACHER SUREVEY : ALICE SCHOOL

RHODES UNIVERSITY  
DEPARTMENT OF EDUCATION

Dear Geography Colleague,

As part of my half-thesis for an M.Ed. I have designed a survey which needs to be administered to all Geography teachers in the Alice Directorate. Please could you assist me by ensuring that all teachers in your school who teach geography from Std 8 to 10 complete the enclosed survey and return them to you. I will collect them from your school during the last week of October.

The aim of the research being undertaken is to investigate the effectiveness of fieldwork in expanding the horizons of geography pupils in rural schools, and reinforcing their geographical knowledge and understanding.

As such it is essential that geography teachers are canvassed for their views and attitudes towards the use of fieldwork as a teaching strategy. The success of this survey will largely depend on your co-operation. Your assistance in this regard will be greatly appreciated.

Yours sincerely,

E.P. BOQWANA

## GEOGRAPHY TEACHER SURVEY ; ALICE SCHOOLS

The purpose of this survey is to gain information about the attitude of geography teachers towards the use of innovative teaching strategies e.g. fieldwork. When answering questions please state your own feelings. Please tick the appropriate response e.g.  
 Male            Female

PERSONAL INFORMATION

1.    Male            Female
  
2.    University courses in Geography
 

Course I	Course II	Course III	Honours	Masters
College				
  
3.    Institution attended
 

College of Education	University
----------------------	------------
  
4.    Present post.
 

First year teacher	Teacher	H.O.D.	Deputy Principal
Principal			
  
5.    Highest geography standard usually taught
 

Std 6	Std 7	Std 8	Std 9	Std 10
-------	-------	-------	-------	--------
  
6.    Other subjects and classes taught
 

(a)	.....
(b)	.....
(c)	.....
(d)	.....
  
7.    Number of teaching periods per week

ATTITUDE TOWARDS TEACHING METHODS

Indicate the frequency with which you use the following teaching techniques:-

Tech- nique	Never	Very Seldom	Seldom	Often	Very Often
8. Photo- graphs					
9. Pic- tures					
10. Map- work					
11. Field- trips					
12. Work- sheet					
13. Overhead- headpro- jector					
14. Textbook					
15. Films					
16. Slides					
17. Talk & chalk					
18. Sound tapes					
19. Video films					
20. Roneod notes					
21. News- paper articles					
Others (Please add)					

Indicate the frequency with which you feel the following teaching techniques should be used

Technique	Never	Very Seldom	Seldom	Often	Very Often
22. Photographs					
23. Pictures					
24. Map-work					
25. Field-trips					
26. Worksheet					
27. Overhead-headprojector					
28. Textbook					
29. Films					
30. Slides					
31. Talk & chalk					
32. Sound tapes					
33. Video films					
34. Discussion and reading of roneod material					
35. Newspaper articles					

ATTITUDE TOWARDS THE USE OF FIELDWORK

Fieldwork involves placing the pupil in contact with the real world beyond the confines of the classroom and away from second-hand experience of verbal description by the teacher, however vivid and accurate that may be.

36. In your opinion the role of fieldwork in geography is

Essential    highly desirable    of moderate value  
of little value            a waste of time

37. Do you ever take your classes out for fieldwork?

Yes                      No

38. If YES specify in which standards

Std 6    Std 7    Std 8    Std 9    Std 10

39. Indicate the number of times per year each class goes out into the field to conduct fieldwork.

Once                      3-4                      5 and more

40. Do you consider most of your pupils enjoy fieldwork?

definitely                      to a reasonable extent                      a few only  
no, hardly at all.

41. Use the following to rate the importance of fieldwork for each of the following sections in geography:-

1.    essential
2.    highly desirable
3.    of moderate value
4.    of little value
- 5    a waste of time

- (a) Climatology
- (b) Geomorphology
- (c) Urban settlements
- (d) Mapwork
- (e) Regional geography e.g. South Africa
- (f) Other please specify.....

42. If you have never undertaken fieldwork, what are your reasons for not undertaking it?

- (a).....
- (b).....
- (c).....
- (d).....

I would appreciate the opportunity of discussing further the place of fieldwork in schools. Would you be willing to discuss this with me?

Thank you for your co-operation.

APPENDIX 3B  
GEOGRAPHY QUESTIONNAIRE FOR STD 9 & 10  
PUPILS IN ALICE

INSTRUCTIONS TO PUPILS

1. Kindly tick the chosen answer, e.g.
2. Choose ONE answer per question
3. Please raise your hand when there is anything you do not understand.
4. Do not ask your desk mate or friend to help you. What you think is more important than what they will advise you to say.
5. N.B. your name is not required, therefore feel free to answer all the questions asked with sincerity.

HOME BACKGROUND

Please tick  
this block

- |  |   |
|--|---|
| 1 Place of birth                                     | 1. Township (ilokishi)<br>2. Village (elalini)<br>3. Farm   |
| 2 How long have you stayed in your place of birth?   | 1. Less than 3 years<br>2. 4 to 7 years<br>3. 8 to 11 years<br>4. 12 to 15 years<br>5. 16 years and above |
| 3 Present home                                       | 1. Township (ilokishi)<br>2. Village (elalini)<br>3. Farm   |
| 4 For how long have you stayed at your present home? | 1. Less than 3 years<br>2. 4 to 7 years<br>3. 8 to 11 years<br>4. 12 to 15 years<br>5. 16 years and above |
| 5 Where did you pass Std 5                           | 1. Urban school(ilokishi)<br>2. Village school (elalini)<br>3. Farm school                                |

- |   |  |
|---|--|
| 6 For how long have you been at the present school?             | 1. Less than 3 years<br>2. 3 to 5 years<br>3. 6 to 8 years                 |
| 7 How often do you watch TV?                                    | 1. Regularly<br>2. Sometimes<br>3. Seldom<br>4. Never                      |
| 8 How often do you listen to the radio news?                    | 1. Regularly<br>2. Sometimes<br>3. Seldom<br>4. Never                      |
| 9 How often do you read newspapers?                             | 1. Daily<br>2. Once a week<br>3. Seldom<br>4. Never                        |
| 10 Do you ever get help from your parents with your schoolwork? | 1. Yes<br>2. No  |
| 11 How far is your home from school?                            | 1. less than 1 km<br>2. 2 to 4 km<br>3. 6 to 7 km<br>4. More than 8 km     |
| 12 How do you usually travel to school?                         | 1. On foot<br>2. By bus<br>3. By taxi<br>4. By bicycle<br>5. By family car |
| 13 Head of family   | 1. Mother<br>2. Father   |
| 14 Level of education   | 1. No formal education<br>2. Primary education                             |

4. Teacher's course (PTC)
5. Matric or school leavers
6. University education

PUPILS' ATTITUDE TOWARDS GEOGRAPHY.

Rate the following Geography sections, ticking the one you think best describes your feelings.

SECTIONS

TICK THIS  
BLOCK

15 Mapwork

1. Very interesting
2. Uninteresting
3. Easy to understand
4. Difficult to understand
5. Boring

16 Climatology

1. Very interesting
2. Uninteresting
3. Easy to understand
4. Difficult to understand
5. Boring

17 Geomorphology

1. Very interesting
2. Uninteresting
3. Easy to understand
4. Difficult to understand
5. Boring

18 Economic Geography

1. Very interesting
2. Uninteresting
3. Easy to understand
4. Difficult to understand
5. Boring

- 19 Settlement Geography
1. Very interesting
  2. Uninteresting
  3. Easy to understand
  4. Difficult to understand
  5. Boring
- 20 Regional Geography  
(South Africa)
1. Very interesting
  2. Uninteresting
  3. Easy to understand
  4. Difficult to understand
  5. Boring
- 21 Regional Geography  
(rest of Africa)
1. Very interesting
  2. Uninteresting
  3. Easy to understand
  4. Difficult to understand
  5. Boring
- 22 World outside Africa
1. Very interesting
  2. Uninteresting
  3. Easy to understand
  4. Difficult to understand
  5. Boring

PART II

Please tick  
this block

1. Did you at any time in the past five years spend your holiday away from home?
 

Yes
No
2. If Yes, in which places have you spent your holidays?
 

(a)
(b)
(c)
(d)
3. Which are your favourite T.V. programmes?
 

(a)
(b)
(c)
(d)

4. Which radio programmes do you like best? (a)  
(b)  
(c)  
(d)
5. Which newspapers do you have access to? Imvo  
Daily Despatch  
Herald  
City Press  
Sunday Times  
Weekly Mail  
New Nation  
Other
6. Where do you get a newspaper? School library  
Home  
Friend's home  
Other (xela)
7. Have you ever been to the beach? Yes  
No
8. If Yes, which beach have you been to? (a)  
(b)  
(c)  
(d)
9. Which towns, other than Alice have you been to? (a)  
(b)  
(c)  
(d)
10. For what purpose did you go to the towns mentioned above? For shopping  
Visiting friends relatives  
Other (Please state)
11. What jobs do your parents do? (a) Mother  
(b) Father

12. Where does your family do shopping?

Bisho  
 Alice  
 Fort Beaufort  
 King William's Town  
 Village Store  
 East London  
 Other (xela)

13. Which means of transport does your family use?

Bus  
 Taxi  
 Family car  
 On foot  
 Other

14. The following are some of the subjects you study at school. Tick the appropriate box in each case. N.B only three subjects apply to you.

SUBJECT	RATING		
	Very interesting	Interesting but difficult	Uninteresting
Biology			
History			
Mathematics			
Physical Sci.			
Agriculture			
Geography			

15. In your study of geography, which other source(s) do you use as well as your textbook and teacher's notes?

- (a) Library books
- (b) Educational TV programmes
- (c) Newspapers
- (d) Study aids
- (e) Group discussion
- (f) Nothing

THANK YOU FOR YOUR TIME

## APPENDIX 3C

## INTERVIEW SCHEDULE : JUNIOR SECONDARY GEOGRAPHY TEACHERS

1. Which geography classes do you teach?
  - (a) Std 6
  - (b) Std 7
  - (c) Std 6 and 7
  
2. What is your teaching experience in Geography
  
3. How many courses do you have in geography?
  
4. Which teaching methods do you use?
  - (a) Textbook
  - (b) Talk and chalk
  - (c) Writing notes
  - (d) Pictures
  - (e) Diagrams
  - (f) Fieldwork
  
5. How often do you use maps in the teaching of geography?
  - (a) very often
  - (b) often
  - (c) seldom
  - (d) very seldom
  - (e) never
  
6. Which textbooks do you use?
  
7. Which other subject(s) and class(es) do you teach?