AN ANALYSIS OF THE SUITABILITY OF PRESCRIBED GEOGRAPHY TEXTBOOKS FOR CISKEI PUPILS IN STANDARD 6

THESIS

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requirements of the Degree of Master of Education
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by

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DECLARATION

I declare that this thesis represents my own work, and has not been submitted for a degree at any other university.

ABSTRACT

Research has shown that in the South African school context textbooks are perceived as the most important guide to subject content. It is essential, therefore, that pupils and teachers should possess skills and strategies that they can use to interpret and understand the textbook. Equally, textbook writers ought to be aware of the cues pupils need to facilitate the learning process.

Problems that hinder the learning of geography subject content from textbooks may arise from, among other things, the style in which the text is written, the way in which concepts are developed, the presentation of visual materials and elements of bias and stereotyping.

This study scrutinises and analyses two standard 6 geography textbooks prescribed for Ciskei schools to assess the extent to which these textbooks consider the language competence of the pupils, explain and develop concepts, and in general promote the geographical education.

Interviews with Ciskei teachers revealed that Standard 6 pupils encounter difficulties in the geography textbooks which are attributed to the fact that they are second language learners and they lack the requisite skills for interpreting visual materials.

The analysis of the textbooks revealed that despite efforts made in recent years to rectify the most blatant aspects of bias and stereotyping and to improve the presentation of textbooks, a number of serious problems continue to exist particularly with regard to the Standard 6 learner of geography.

The study attempts to alert writers of texbooks and teachers to factors which need to be taken into consideration to assist second language speakers toward effective learning.

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DEDICATION

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CHAPTER 1

RESEARCH PERSPECTIVE

1.1 Background to the research

School textbooks are frequently viewed by teachers as an essential source of the syllabus content to be mastered by pupils. According to Maxwell (1985:68), 'more than 90% of what occurs in the classroom, particularly high school classrooms, is shaped by and centres around the textbook'. The important role played by textbooks in geography is emphasised by Diepeveen (1982) who reveals that 80% of geography teachers in the Cape Education Department use the textbook rather than the syllabus to select subject content. Textbooks in black education are similarly viewed as the most important guide to subject content (Mophiring, 1983). Pupils are, therefore, widely encouraged to accept the textbook as a source of knowledge to be mastered and even memorised for examination purposes (du Preez, 1982; Duminy, 1976).

A further aspect highlighted by Malie (1967) regarding the role of textbooks in black schools is the absence of suitable, organised library facilities. The majority of schools do not have library facilities at all. Therefore, teachers and pupils generally depend entirely on the prescribed textbooks. Furthermore there are few if any useful reference books readily available which may be consulted by either the pupil or the teacher.

The important role played by textbooks in geography teaching suggests that they ought to satisfy certain criteria in order to meet the educational requirements of the pupils. Research into the effectiveness of textbooks by Langhan (1989, 1990), Duminy (1976), Gilliland (1972), and Coltham (1970) has shown that

readability, the introduction and development of concepts and the development of the text in relation to the presentation of attitudes and values, are areas that have to be considered in assessing the suitability of a textbook for pupils. Rogers (1981) furthermore emphasises the need for textbooks to challenge the pupils' critical faculties, while Ballantyne (1986) stresses the need for textbooks to promote the development of geographical chauvinism, Richardson (1986) and Clark (1974) reveal that bias and stereotyping, partly as a result of a simplistic presentation of events and over-simplification of issues, are common in school textbooks. A study by du Preez (1982) of textbooks used in South African schools revealed the presence of distortions in the text caused by the so-called 'master symbols' which reflect the ideology of current state policy.

Langhan's research (1989, 1990) shows that effective learning of a subject by speakers of English as a second language is hampered by unfamiliarity with the language found in the text. His research (1990) revealed that the language used in geography textbooks for standard 3 in an English second-language situation is a barrier to the pupils' performance in the subject. Langhan focuses on standard 3 pupils since the language gap in the textbook between standard 2 and standard 3 for non-mother tongue speakers is particularly great, causing a learning setback from which pupils may not recover.

1.2 Statement of the problem

On entering high school, the standard 6 pupil is introduced to a geography syllabus which is concept-orientated and lays emphasis on the development of propositional knowledge, skills and values rather than the acquisition of mere facts (Department of Education and Training: syllabus for geography, standard 6, 1985). Furthermore, the standard 6 syllabus in terms of content is a more onerous syllabus than in any standard in the primary phase. This places a heavy burden on the standard 6 pupil, a burden which is exacerbated where pupils are taught through the

medium of their second language.

The Ciskei Education Department follows the JMB core syllabus for geography. Teachers and pupils are therefore dependent on general textbooks which have been written in accordance with the syllabus. Such textbooks are not developed specifically for second language pupils, nor are they designed to cater for the local environmental needs of specific groups. The problem is compounded by the high degree of graphicacy which is expected of even young readers by existing geography textbooks.

A further aspect of the problem in Ciskei schools concerns teachers' expertise both in terms of their subject knowledge and their skills in interpreting the text in order to make it accessible to the pupils. The shortage of qualified geography teachers results in the subject in the more junior standards of the secondary school being frequently allocated to teachers without suitable qualifications.

1.3 The goal of the research

This research will analyze two standard 6 geography textbooks prescribed for Ciskei schools to ascertain the extent to which these texts:

i) consider the language competence of the pupils,
ii) explain and develop concepts,
iii) consider graphicacy skills and
iv) promote positive attitudes towards the pupils' own region-

with a view to highlighting the sorts of considerations that are necessary for the development of the textbook for second-language pupils.

1.4 Research outline

Chapter 2 explores problems relating to text readability, the development of concepts, the role of illustrations in textbooks and the occurrence of bias and stereotyping.

Chapter 3 outlines the research methodology, focusing on data gathering techniques and research instruments used in the interviews with teachers and for the textbook analysis.

Chapter 4 presents the results of interviews conducted with ten selected geography teachers.

In chapter 5 the results of the analysis of the two selected textbooks used in standard 6 are presented with special emphasis on text readability, development of concepts, illustrations and the identification of bias and stereotyping.

Chapter 6 highlights the findings of the research and its limitations, and makes recommendations arising from the former.

CHAPTER 2

PROBLEMS RELATING TO THE USE OF THE TEXTBOOK

2.1 Introduction

The importance of the textbook as a teaching and learning medium has been emphasised. As stated earlier, the textbook serves as a source for self-study and a variety of classroom activities such as discussion, dramatisation etc. (Duminy, 1976). A variety of shortcomings, can, however, detract from the textbook's usefulness.

This chapter outlines the following four problem areas which Langhan (1990) has identified as being particularly relevant to the second-language speaker using textbooks:

i) textbook readability in terms of language complexity;
ii) the introduction and development of concepts;
iii) the use of illustrations in the textbook in terms of their suitability regarding the clarification of texts;
iv) bias and stereotyping in the text.

2.2 Problems relating to language complexity affecting textbook readability

Langhan's research of 1990 presents a definitive study on textbook readability in a South African context which is relevant to English second-language speakers. In considering textbook readability this study must of necessity rely heavily on Langhan's analysis.

Langhan's research revealed that the language used in geography textbooks for standard 3 pupils in an English second-language situation was a barrier to the pupils' performance in the

subject. Language factors in textbooks which present readability problems include vocabulary, syntax, cohesion, coherence and text structure. Each of these aspects will be addressed in order to form a foundation for the analysis of the standard 6 textbooks (chapter 5), although it is accepted that the older pupils will not necessarily experience with the same intensity the problems identified by Langhan.

2.2.1 Vocabulary

Before discussing vocabulary problems experienced in the textbook it is essential to clarify the terms 'content subject', 'subject content' and 'text content'. Geography is one of the so-called content subjects in the sense that it focuses on the development of propositional knowledge, skills and values using language as a vehicle of communication. Subject content, on the other hand, refers to the subject matter or learning material which is prescribed in a particular syllabus. The subject matter or content printed in the textbook is the text content that constitutes the theme(s) of the learning material (Duminy, 1976).

An inadequate vocabulary on the part of pupils hinders their understanding of the subject content. Williams and Dallas (as cited in Langhan, 1990) attribute this problem to:

i) the pupils' lack of an appropriate vocabulary for the subject content;
ii) the fact that vocabulary lists drawn up for second-language speakers may contain few words that are relevant in the language of the particular subject;
iii) that authors of textbooks relating to the so-called content subjects frequently pay little attention to the restrictions imposed upon pupils as a result of their limited vocabulary.

Langhan (1990) identifies a variety of ways in which the readability of English second-language textbooks may be enhanced with regard to the choice of vocabulary in the text. The

following examples are highlighted as key areas which may prove to be problematic to the standard 6 learner. Thus the second language learner may be aided through:

i) The use of words that are familiar to the reader; for example, 'maize/mealies' instead of 'corn' facilitates reading and enhances comprehension.

ii) Clarifying abstract concept words and phrases; such as 'air pressure', which is not readily understood and is easily confused with 'temperature', especially when air pressure is described as 'low' or 'high'.

iii) The use of shorter words which are more readable than their longer synonyms because they tend to be more familiar to the second-language reader, for example 'weather station' rather than 'meteorological station'.

iv) An awareness that words originally intended for a different readership may be unfamiliar to the average school pupil: for example, the term 'traffic island' would not readily be understood by a rural child.

v) Using homonyms sparingly to avoid confusing the young English second language speaker who finds it difficult to make use of contextual clues. Langhan (1990) highlights words such as 'lead', a verb meaning to guide or show the way, and 'lead', a blue-grey metal; a 'bare' garden (nothing grows in it) and a 'bear', a large hairy animal.

vi) Using specialist terminology such as 'condensation' 'abrasion' or 'semi-detached' with due regard for the pupils' level of comprehension.

When new vocabulary and terminology are introduced, the following considerations are particularly relevant to the standard 6 learner:

i) the reader's background must be taken into consideration;

ii) meaningful illustrations must be used;

iii) where possible, mother-tongue translation should be provided in brackets. The problem, however, is the absence of Xhosa equivalents for many geographical terms, particularly at standard 6 level.

2.2.2 Syntax

Syntax is an important factor in the reading process. The way in which sentences are constructed promotes effective communication, which in turn affects the readability of the text. Langhan (1990) citing Lanham (1986), suggests that the following aspects of syntax are likely to cause reading problems for the English second language pupil: ellipsis, non-equivalent syntactical structures, convoluted syntax and sentence structure overload. Thus pupils will experience problems with text readability when:

i) There is an omission of one or more words that are obviously understood in a sentence, for example, 'the climate for this crop' instead of 'the climate suitable for this crop'. Textbook writers should, therefore, be aware of the problems caused by ellipsis.

ii) Non-equivalent syntactical structure is problematic as it has no equivalent in Xhosa. The meaning which is dependent on context becomes less accessible to the English second language learner.

iii) Sometimes syntax structure becomes so complex that it renders itself obscure, as in the sentence 'to grow, the seed must die'.

iv) Sentence structure overload refers to a situation where a sentence is too long and thus becomes difficult for the English second-language reader to comprehend: for instance, 'drought had so ravaged the country-side that rural depopulation became the norm as able bodied inhabitants were compelled to seek employment in the industrial centres'.

2.2.3 Cohesion in written discourse

Different parts of a sentence combine to ensure correct propositional development. In order to comprehend the given text the reader must possess the ability to see the relationship between the cohesive elements or be able to supply any missing links (Langhan, 1990). Cohesive elements most likely to cause readability problems include obscure substitute terms, ellipsis and conjunctions.

i) Obscure substitute terms occur in a text where a word or phrase, not necessarily within a single sentence, is replaced by another word or phrase. Langhan (1990) stresses that such cohesive devices are confusing and are stumbling blocks to the English second-language reader. For example, in a sequence such as 'the visitor came from the equatorial region. He reported that the climate of the tropical zone was unbearable', there is the danger that the English second language reader may not realise that the second term refers to the same region as the first one.

ii) In the previous section ellipsis was dealt with as a syntactic element, whilst here it is being dealt with as a function of textual cohesion. Ellipsis in the text is foreign to the young black reader who expects the text to 'tell him/her everything' (Langhan, 1990: 79-81). The sentence 'the weather has been unkind to the farmers' could be meaningless to the young learner.

iii) Conjunctions such as 'similarly', 'therefore', 'nevertheless' pose comprehension problems for young readers. The formulation 'the misuse of drugs is one of the causes of untimely death; similarly, drunken driving is dangerous' illustrates the problem: young black readers will have difficulty in identifying the relationship between the first and the second clauses.

2.2.4 Coherence

Coherence in written discourse refers to logical consistency in speech and writing. Unfamiliarity with the discursive conventions may render language incoherent. Langhan (1990) cites Carell, who suggests that readers realise coherence in the text by relying on their background knowledge of the topic and their ability to reason and supply any links that may be missing in the text.

Langhan (1990), citing Lanham, identifies five problem areas of coherence that are likely to present difficulties for the young reader:

i) inaccessible background knowledge,
ii) missing propositions,
iii) illocutionary force,
iv) digression from the topic or the logical progression of ideas, and
v) implicit logical connection.

i) Since reading comprehension is influenced by the reader's background knowledge, it is not surprising that a young English second-language reader who has been exposed to different cultural experiences may not interpret the textual message as intended.

ii) 'Missing propositions' refers to information in the text which is not expressed by the writer on the assumption that the reader is capable of supplying it. Such information gaps can affect the readers' comprehension as the assumed information may not be accessible to them. To avoid this problem it is recommended that the text intended for second-language users make explicit what for first-language speakers might be regarded as obvious.

iii) In order for English second-language readers to comprehend the written text within the particular conventions of a specific language or register, they need to understand the writer's intent and style of discourse. Langhan (1990:76-

77) shows in the following example how a writer may intend to communicate more than he actually does: 'if you turn to page 10 you will find . . . .'

iv) The logical development of ideas in the text written for the second-language reader is seen to be crucial, since any digression from the topic line may disrupt the reader's understanding of the developing theme. Thus it is suggested that to assist the young unskilled reader to comprehend the text, successive sentences should express ideas that are 'logically stated and related '(Langhan, 1990:77).

v) Sometimes textbook writers omit logical connectors in a sentence on the assumption that their readers can infer the missing connectors. Such an omission may cause comprehension problems to second-language learners.

2.2.5 Text structure

Langhan (1990:78) defines text structure as 'the specific organisation used in written discourse which allows for differentiation between text types such as narrative and expository'. The expository text is further sub-divided into the following types:

* descriptive,
* comparative/contrastive and
* sequentially patterned.

Readers need to be made aware of these conventional methods of text organisation as their success in comprehending the text is seen to depend on their organisation skills (Langhan, 1990).

Young English second-language learners are furthermore affected by the following factors of text structure:

i) cultural factors,
ii) unprincipled paragraphing,
iii) inadequate stimulus to evoke recall of existing knowledge, and

iv) visual literacy. (This will be dealt with later when visual materials are considered.)

i) Pupils who come from a non-English speaking background may have difficulty in identifying the text organisation. Such pupils may not recognise the use of expository text on account of their greater familiarity with narrative textual forms.

ii) To promote readability, paragraphs need clarity and logically connected ideas. Langhan (1990), citing Lanham, identifies two paragraphing strategies which create problems for the second-language learner:

* Single sentence paragraphs lack logical presentation and omit important details. They are therefore wrongly conceived as a means of simplifying the text. Such oversimplification deprives the young reader of supportive textual ingredients necessary for comprehension;
* Paragraphing which breaks the thread of the topic gives the appearance of multiple topic generation and is therefore confusing.

iii) Titles, headings, photographs and diagrams in the text should serve as stimuli to evoke the readers' existing knowledge. However, misleading or non-revealing titles and headings will detract from the readability of the text for the young second-language learner. It is suggested, therefore, that in order to evoke accessible background knowledge headings should be both 'meaningful' and 'predictive' (Langhan, 1990:91). Lanham cited by Langhan (1990) argues that if illustrations in the text are meant to enhance the readers' understanding they should be of a fairly large size and clear enough to be easily interpreted.

According to Langhan (1990) the readability of the text is also affected by the following discourse properties:

i) avoiding obscure reference,

ii) establishing concepts before applying them as register (geography) terms,
iii) thematic coherence,
iv) propositional fullness,
v) logical relations and
vi) accessibility of background knowledge and supporting information.

i) Avoiding obscure reference involves ensuring that the reader can identify the referent, which could be in the text or part of a supporting diagram. Unless the reader can achieve this it is impossible to read with understanding.

ii) It is essential to establish terms conceptually in the mind of the reader before using them in the geography context. For example, if the term 'interior plateau' is to be used as a labelling term, 'plateau' should first be conceptually established.

iii) Conceptually, 'theme' is similar to 'topic', and the term 'coherence' applies to the logical progression of ideas. It is essential to adhere to the convention of thematic coherence to enable the reader to make full sense of the text.

iv) Propositional fullness refers to a text that 'tells the reader everything'. False assumptions about the reader's ability to infer and supply missing information should be avoided.

v) To maintain logical relations in expository discourse, it is crucial in establishing concepts to avoid the following:

a) the unprincipled use of different terms for the same referent, for example, 'raw materials' and 'minerals';
b) sequences of simple sentences such as 'Raw materials things to make objects';
c) single sentence paragraphs where information essential to the coherence of ideas is omitted.

vi) There are situations in which, if readers are confronted with misleading or non-revealing titles and headings and maps and diagrams which lack essential information, they are able to use their background knowledge to supply the missing information. It may happen, however, that young readers do not possess the necessary background knowledge.

The above discussion highlights the fact that readability measures an interactive process involving both the readers and the text. The readers' linguistic and cultural background, visual literacy, and the organisation of the textual material enable them to respond to the cues and stimuli that activate appropriate experience. The textbook analysis in chapter 5 will further elaborate on problems of readability encountered in Ciskei schools.

The following section, which considers problems pertaining to the development of concepts, must be seen to be closely related to the readability of the text. While it is dealt with as a separate problem, the researcher is conscious of the links between language, comprehension and the development of concepts. It should be pointed out here that the development of concepts is further considered in chapters 3 and 5.

2.3 Problems relating to the development of concepts

The ability of a child to recognise objects depends both on perception and on conceptualisation, that is, the use of concepts already acquired. 'Concept acquisition and growth are linked with the development of language and the pupils' experiences of the environment' (Graves, 1975:162). As geography entails the learning of concepts, this study will examine concept development as it affects the learner.

2.3.1 Concept definition and identification

Graves (1975:154) defines a concept as 'a way in which the mind structures particular experiences such that these experiences become classified and evoke a similar response'. Children soon learn to distinguish things found in their environment, initially without using language. As they grow and develop, their use of language plays an important role in conceptual development, particularly in the case of those concepts that represent ideas. Children become aware of things in their environment and classify them by making use of remembered experience.

2.3.2 Concept acquisition in geography

Learning geography implies the learning of certain concepts, principles, theories and skills through perception and conceptualisation. Children first become aware of their immediate environment by being helped by people around them, and then through the development of speech, which helps them to classify objects. As children develop physically and mentally, they acquire a large number of concepts which are initially undifferentiated. At this stage children are unaware that the concept 'weight' belongs to physics, 'tree' to botany, and 'rock' to geology (Graves, 1975).

Graves (1975) reports that Lunnon's study on concepts revealed that their acquisition occurred gradually, but was most rapid in children between the ages of five and eight, and was more related to chronological than mental age. Initially children can learn concepts such as 'river', 'farm', etc., but find it difficult to verbalise these concepts.

Concepts acquired in geography are perceived to form a cognitive hierarchy and are classified under:

i) concepts by observation; and
ii) concepts by definition.

i) Concepts by observation are divided into three groups:
   * The first group is made up of the simple descriptive concepts such as 'stream', 'river', etc., which are acquired in everyday life but re-enforced later in geography lessons.
   * The second group of concepts consists of those which are either difficult to experience directly, as in the case of 'continent' and 'tundra', or which are dependent on a prior understanding of two or three other concepts. In order to know the concept 'aquifer', for instance, one has to understand concepts such as 'rock', 'porosity', and 'water'.
   * The third group includes very complex descriptive concepts that require the understanding of a large number of related concepts, e.g. 'relief', 'drainage', 'urban hierarchy'.

ii) According to Graves (1975:169) concepts by definition include:
   * simple defined relationships between two variables such as 'density of population';
   * more complex defined relationships in which three or more variables are involved, as in the case of the concept 'geostrophic wind', which involves the relationship between the air movement, the pressure gradient and the Coriolis force.

The cognitive hierarchy for all the concepts used in geography indicates that:

i) Concepts such as 'river mouth, 'source', and 'tributary' may be learnt 'in parallel' as they all refer back to earlier experience, that is, to 'river', in the context of which meaning is produced.

ii) Certain concepts are acquired 'in series' in the sense that one needs to understand prior concepts in order to acquire

new ones. To understand the concept of a 'river basin' requires the knowledge of small streams that feed water to the main river. Similarly, to get to know the concept 'antecedent drainage' requires prior knowledge of a drainage basin and mountain building (Graves, 1975).

The acquisition of concepts has attracted the attention of many researchers. Citing Piaget, van Jaarsveld (1988) argues that the assimilation of concepts depends on the child's mental development, a postulate which has found wide acceptance. Graves (1975), however, points out that a variety of emphases have emerged within this general framework, and cites the following:

i) Rhys, who suggests that to facilitate the learning of concepts variables should initially be few and then gradually increased as the child grows.
ii) Bruner shares these views but maintains that concept development does not need to wait until maturity.
iii) Gagne asserts that concept development depends on different learning conditions.
iv) Lunnon associates the learning of concepts with mental-chronological age as well as the socio-economic class to which the children's parents belong.

In the light of the above, an examination of the role of textbooks in concept development promises to be a worthwhile exercise.

2.3.3 The textbook and concept development

Concept development in textbooks was analysed by Tunmer and Macrae (1987), who adapted Coltham's (1970) method of considering approaches to concepts in the following manner:

Table 2.3.3

Tunmer & Macrae
Some implications of a concept test in History (1987:3)

Approaches towards concepts in the five texts

Book	Definition type A use but no definition	B Dictionary definition only	C Dictionary Definition with examples	D Contextual situation only	E Word not used	Total
1	2	7	2	3	6	20
2	4	1	3	5	7	20
3	11	1	1	2	5	20
4	8	6	1	3	2	20
5	8	-	2	3	7	20
Total	33	15	9	16	27	100

Five history textbooks were examined to evaluate the manner in which selected concepts were presented. Concepts that were presented without definition were in the majority. Of a selected twenty concepts considered to be essential to history, 33% were presented without any definition, thereby adversely affecting the reader's understanding. Twenty-seven percent of the selected concepts did not appear in any one of the five selected textbooks.

Concepts with dictionary definitions only and those whose meaning was to be derived solely from the contextual situation constituted 15% and 16% respectively. A dictionary definition without examples is not of much help to a young second-language learner. The same applies to reliance on context for the meaning of the text. The main problem here is the learner's low competence in the linguistic medium of instruction.

It is interesting to note in the findings of this research that concepts with definitions and examples were in the minority. Out of the 20 concepts selected, only 9% were presented with a definition and examples. Concepts with examples are perceived to be more meaningful to the reader and enhance his or her comprehension of the text.

In his discussion on concept acquisition in geography, Graves (1975) stresses that the more complex a concept the less likely it is to be understood at an early age. In view of these findings, surprisingly few textbooks used in geography education are graded according to the concepts they present to the pupils. Citing Milburn's report on the investigation of terms used in primary and secondary school geography textbooks, Graves (1975) revealed that half of the concepts introduced to pupils are not defined. Furthermore such concepts are not graded in terms of the pupils' stage of development. For example, authors are perceived to be unaware that the term 'river basin' is more complex than 'confluence'. Textbook writers are also known to include a variety of regional terms in their text, such as 'sudd', 'selvas', etc. While such terms may seem to add a picturesque element to the text, they are also a heavy burden on the learners' memory. It is, therefore, necessary for writers of geography textbooks to give careful consideration to the cognitive hierarchy within the subject.

To conclude this section, it is worth reiterating that concepts that are learned in geography vary considerably in difficulty. The simplest are those that describe features or processes which can be observed at first hand and are within the learners' experience of the environment they live in. The most difficult are those that express relationships of an abstract nature. The former may be learnt by a process of discovery, but the latter must of necessity be taught in a less direct manner.

The understanding of higher level concepts in geography is a slow process and is related to mental maturity and the development of sophisticated language. While some concepts may be acquired without language, the more refined and abstract concepts are dependent on the use of language. The whole process of conceptual development needs to be tackled with the help of all relevant forms of communication.

2.4 Problems relating to illustrations in the text

Competence in the reading of visual material is often taken for granted because its acquisition is thought to be an informal process: people are constantly exposed to visuals in one or other form.

Graves (1975) discusses Long's studies (1953 and 1961) of what children at the primary and secondary school levels see in photographs. In the first study primary school pupils were asked to indicate what they saw in a set of three rural landscape photographs. No attempts were made to assist or guide the pupils. The children's comments were recorded and analysed. The result revealed the following:

i) photographs were perceived as individual features,
ii) the height and size of landscape features were not suggested,
iii) scale was incorrect, and
iv) photographs were described in terms of their shape rather than according to size.

In the second study secondary school students were presented with the same photographs as the primary school pupils and instructed to look for landscape features. Initially the students' search was not directed, while in the second phase they were given some guidance by way of questions asked. The undirected search revealed that students' observations were no different from the primary school pupils'. Nonetheless secondary school pupils did recognise significant geographical features, particularly those that were man-made.

The conclusion drawn from these studies was that if pupils are to know how to interpret pictorial representation they need to undergo some training to develop visual literacy skills.

Citing Fugelsang in this regard, Langhan (1990:86) reports that:

> In social environments with no pictorial tradition or very few pictorial representations, the informal process of learning to read visuals simply does not occur. It should, therefore, be recognised that people's ability to read pictures is related to the amount of pictorial simulation to which they have been exposed in their social environment.

The environment in which one grows determines one's visual literacy. A population's exposure to visual messages helps in the development of pictorial literacy skills and such people become more pictorially sophisticated than others. Lack of exposure to visual images, particularly in rural areas, places the young black learner at a disadvantage as far as the interpretation of visual representations is concerned. This implies that textbooks written and illustrated for a visually sophisticated urban readership may, in respect of illustrations, be unsuitable for many black learners.

According to Langhan (1990) the visuals that accompany the text have three functions:

i) visuals provide meaning, particularly to a reader of an unfamiliar language;
ii) visuals combined with language re-enforce the learning process;
iii) if particular attention is paid to visuals they encourage and motivate the learner.

For illustrations to be of use in clarifying the text, certain requirements have to be met. Quoting Benjamin, Langhan (1990) provides the following criteria for effective educational illustrations:

i) Illustrations should include essential information only as distracting cues may cause important details to be missed.
ii) Too much detail can be unnecessarily time-consuming, as more time is spent on reading.

iii) The teacher should direct the learner where complex photographs are used.

Citing Lanham, Langhan (1990) expresses concern about photographs or diagrams which the child cannot interpret, thus nullifying their impact on the reader's comprehension of the text. Photograph illustration errors are likely to occur where the young reader is unfamiliar with picture conventions which include depth, drawing attention to specific detail, creation of the illusion of motion, and an indication of the unseen.

Maps are another problematic area in so far as text illustrations are concerned (Burton 1986, Boardman 1983, Graves 1975). Burton pursues this problem and lists the difficulties presented by maps as the selection of data, inability to co-ordinate different perspectives on the part of the pupils, confusion with conventional symbols, contour depiction of relief, scale, spacing of objects and the difficulty presented by the profile.

In this section problems associated with illustrations in the text have been highlighted. Since many of these problems arise in the context of a culture which makes no provision for special training in the art of reading and interpreting visual representations, teachers are advised to guide their pupils in the interpretation of visuals and refrain from taking it for granted that pupils can of their own accord interpret the data offered by photographs and other visuals.

2.5 Problems relating to bias and stereotyping in the text

The textbooks used in Ciskei schools are not developed specifically for second-language pupils, nor are they designed for the local environmental needs of specific groups. The dependence of Ciskei pupils on these textbooks places them in a vulnerable position in terms of bias and stereotyping (Langhan, 1990). In her research, du Preez (1982) revealed that

internationally, textbooks have been found to contain prejudices to which pupils are exposed: for example, deliberate distortions are made, historical facts juggled, in order that war stories should focus on national successes and ignore or gloss over failures. Materials that could help cultivate a positive self-image among children of non-governing groups are absent. Bias and stereotyping are universal phenomena, and examples both from South Africa and other parts of the world will be cited.

2.5.1 Bias and stereotyping in South African school textbooks

Research relating to bias and stereotyping in South African school textbooks has been conducted by Clark (1974) and du Preez (1982). Clark (1974) reveals that contemporary political, social and economic developments are hardly given adequate treatment in the textbooks. The focus is on positive geographical concepts such as industrial development, agricultural output and economic progress, while negative systems such as migratory labour are not emphasised to the same extent. The contrast between white privilege and black deprivation in respect of housing, education, health and welfare is glossed over, and the living conditions of black South Africans are falsified or justified, i.e. presented as better than in the rest of Africa or better than they used to be. Another aspect of such bias is the portrayal of the 'pass' system as a justifiable means of controlling population movement. As can be deduced from the above, bias tends to conceal, underplay or distort problems.

Du Preez (1982) investigated bias and stereotyping in Afrikaner history and literature books, in particular, and in textbooks used in other parts of the world. Du Preez shows how key aspects of symbolic systems from the past continue to be transmitted to the younger generation, even though the younger generation may look upon such systems as non-rational and irrelevant. Thus traditionally blacks were regarded as a source of manual labour,

the English-speaking whites and immigrants were looked upon as a threat, and the political order placed undue importance on the powers of the state president. Obviously, ideas of this kind are at odds with the spirit of reconciliation currently abroad. Other features noted by du Preez included the following:

i) It was customary in the past for outstanding persons in society to be upheld as role models to be emulated. Afrikaans literature, it was found, did not cater for such models among South African blacks, Coloureds, Asians or even among women, who all played a passive role in the textbooks and were depicted as wholly dependent on Afrikaner menfolk.

ii) Afrikaner literature tended to classify people in terms of their skin colour, as either inferior or a threat to the Afrikaner existence.

iii) The great respect accorded authority, the glorification of Afrikaner leaders and the supposedly philanthropic righteousness of the government in literature and certain textbooks, were all intended to strengthen the status quo and foster racialism. Any criticism of the status quo coming either from internal or external sources was ignored, glossed over or interpreted as enmity and treachery.

iv) The master symbols found in school textbooks derived from the institutional orders of politics and religion. The implication of the attributed superiority of whites over blacks is that South Africa rightfully belongs to the Afrikaner, which in turn reflects the political order. Religious master symbols are embodied in the views that South Africa is a blessed country, and that the Afrikaners have a mission in Africa and are God's chosen people.

More recent textbooks and the mass media reflect changes in the Afrikaner outlook, which include a more conciliatory tone, greater consideration for the welfare of other population groups, and the disappearance of the notion of 'the chosen people'.

2.5.2 Bias and stereotyping in other parts of the world

As was stated above, bias and stereotyping in textbooks is not unique to South Africa. It is a world-wide phenomenon. With reference to Europe and the United States of America Richardson (1986) and du Preez (1982) report that extensive analysis to establish the extent of bias and stereotyping in these areas has been undertaken.

i) **THE UNITED STATES OF AMERICA**

Textbooks used still reflect the white man's view of the country's past and present. Claims that America was 'discovered' by Columbus smack of Eurocentrism since the country had been inhabited by the indigenous people (the so-called Indians) before the arrival of the white man (du Preez, 1982). Both indigenous Americans and black Americans are given a low profile in school textbooks.

A series of studies directed by Wilson (1946) and Klineberg (1950) reveal that the foreign national and American minority groups are either placed in an unfavourable light or treated inadequately. In secondary school textbooks local leaders are portrayed as honourable and their soldiers noble and courageous, while the enemy is labelled as being treacherous and cowardly. Since these studies were undertaken very little change has taken place.

ii) **CHILDREN'S IMAGES OF THE THIRD WORLD**

A series of studies on the development of stereotyping among British children show that children see other countries and peoples as being different from themselves. This state of affairs is attributed to the influence of geography lessons and other media (Bale, 1973; Klineberg, 1950; Hibberd, 1983).

The survey of British children by Carnie (Hibberd, 1983) reveals that negative attitudes towards the Third World

show marked features of stereotyping in children's assessment of other nationalities. The result of another survey conducted by Binns (Hibberd, 1983) among twelve-year-old children includes a list of words that were perceived to best describe southern Africa. This result, a flagrant example of stereotyping, is shown below in terms of percentages.

TABLE 2.5.2 (ii) a

7th Grade (roughly 12 years) % which choose the word			
Wild animals	87%	Witch doctors	84%
Daktari	85%	Jungles	79%
Elephants	84%		
12th Grade (roughly 17 years and after a course on the Third World)			
Witch doctors	92%	Wild animals	91%
Drums	91%	Daktari	90%
Black	89%		

(Hibberd, Children's Images of the Third World [1983:68])

A Merseyside school survey in Britain examined the children's linguistic images of the Third World (Hibberd, 1983). Children were required to choose words (from the given list) which best described a developing country. The words used were a random selection derived from commonly used textbooks. The participants were secondary school pupils ranging between 12 and 15 years of age. To ensure that the results reflected images rather than comprehension of the language, children of similar abilities were used in the sample. The results of the survey are shown in table 2.5.2 (ii) b below:

TABLE 2.5.2. (ii) b

Images of Developing Countries

Survey Sheet
Read through this list of words and phrases and underline 10 which you think best describe a developing country

		Total Sample %	12-13 years %	13-14 years %	14-15 years %
STARVING PEOPLE	Starving people	79.3	87.0	58.6	92.5
POVERTY	Poverty	87.3	87.0	79.3	96.2
UNEQUAL DISTRIBUTION OF WEALTH	Unequal distribution of wealth	36.7	48.3	31.0	29.6
OXFAM	Oxfam	20.6	16.1	34.4	11.1
FOOD AID	Food aid	55.1	35.4	82.7	48.1
SUBSISTENCE FARMING	Subsistence Farming	21.8	6.4	31.0	29.4
COMMERCIAL FARMING	Commerical farming	5.7	9.6	6.8	0
FACTORIES AND INDUSTRIES	Factories and industries	5.7	6.4	10.3	0
EXPLOINTED BY RICH COUNTRIES	Supplying raw materials to rich countries	18.3	16.1	31.0	7.4
SUPPLYING RAW MATERIALS TO RICH COUNTRIES	Exploited by rich countries	27.5	9.6	13.7	62.9
MOST PEOPLE LIVE IN THE COUNTRYSIDE	Most people live in the countryside 11.4	3.2	24.1	7.4	
SHANTY TOWNS	Shanty towns	51.7	51.6	48.2	55.5
UNEMPLOYED PEOPLE	Unemployed people	28.7	32.2	3.4	51.8
TOO MANY PEOPLE	Too many people	74.7	77.4	72.4	74.0
LOW LIFE EXPECTANCY	Low life expectancy	74.7	74.1	68.9	81.4
MALARIA	Malaria	51.7	67.7	62.0	22.2
WITCH DOCTORS	Witch doctors	6.8	16.1	3.4	0
LACK OF EDUCATION	Lack of education	79.3	61.2	89.6	88.8
DROUGHT	Drought	54.0	84.5	51.7	44.4
FLOODS	Floods	18.3	12.9	17.2	25.9
MUD HUTS	Mud huts	19.5	38.7	10.3	7.4
HOT CLIMATE	Hot climate	62.0	74.1	62.0	48.1
TOURISM	Tourism	2.2	6.4	0	0
UNCIVILISED	Uncivilised	12.6	16.1	10.3	11.1
WILD ANIMALS	Wild animals	6.8	12.9	3.4	3.4
MALNUTRITION	Malnutrition	82.7	67.7	86.2	96.2

(Hibberd, Children's Images of the Third World [1983:69])

The results of the above survey were as follows: 'Poverty' was the most popular image of the developing countries and was selected by 87,3 percent of the total sample. The scores of the three age groups showed very little variation. Malnutrition scored 82,7 percent for the whole sample. In this case a marked variation between age groups was observed: second years (67,7 percent); third years (86,2 percent); and fourth years (96,2 percent). The probability is that the variation was due to the difficulty of the word. The third-ranking image, 'lack of education', shows a similar pattern between age groups as that for malnutrition. The variation in this case is perceived to be due to an increasing understanding of the problems of the Third World in the older children.

The following words/phrases present a more revealing view of the children's images of the Third World: 'Unequal distribution of wealth' was mentioned by 37,6 percent of the children; 'exploited by rich countries' was cited by 27,5 percent of the total sample, but only 9,6 percent of the second-years selected this, 13,7 percent of the third-years, and 62,9 percent of the fourth-year pupils.

The survey reports that among the more gross images of developing countries the results show a marked decline in percentages: 'mud huts' scored 19,5 percent, but mention of this feature decreases with age: 38,7 percent for second-years, down to 7,4 percent for the fourth-years. 'Uncivilised' was chosen by only 12,6 percent of the pupils and this percentage also declined with age. 'Witch doctors' declined from 16,1 percent amongst the second years to none for the fourth years. A 'hot climate' also declined from 74 percent to 48 percent.

The above results are encouraging compared to some of the published results on this topic (Hibberd, 1983). Another encouraging aspect is the fact that the children sampled had not done a course of study focusing on the developing countries.

While the above survey may contain some valuable information concerning the children's images of the Third World, the surveyor's random selection, though claimed to be random, is suspect. The present researcher cannot help thinking that the unfavourable connotation of all the words chosen points to some deliberate ulterior motive. Richardson (1986) reveals that some geography books in Britain associate developing countries with negative connotations and such reading material is bound to influence the thinking of the reading public.

iii) **BRITISH TEXTBOOKS**

Richardson (1986) reports that studies of reading schemes in Britain revealed, among other things, a lack of black characters in half the schemes, and the token appearance of black characters

in the illustrations but not in the text. Black characters playing a positive role were rare. The study concluded that black children and their community were denied a voice in their education.

In another study, Richardson (1986) observed that the geography books Man and His World (1975) and Elements of Human Geography (1979) lay stress on the division of human beings into separate races and unconsciously present the white people as superior to other groups. Whites are described with positive connotations (fine, straight, fair), while words for non-whites have negative connotations (coarse, woolly, flat, thick).

iv) **SOVIET UNION**

According to du Preez (1982), textbooks in Soviet Russia were used as instruments for political education and emphasised the following: Lenin and the people's revolution, positive reference to national heroes and patriotism, and negative portrayal of the Western way of life, particularly of capitalism. Current media reports, however, indicate that with the dissolution of the Soviet Union, attitudes towards the West have softened and to a certain extent pro-Western sentiments have developed.

v) **WEST GERMANY**

German history textbooks used during the Second World War highlighted the achievements of national heroes, hero-worshipped military leaders and glorified the Aryan race. After the war the powers of occupation forbade the propagation of such master symbols, and today German history books project more acceptable human values.

v) **THE PEOPLE'S REPUBLIC OF CHINA**

Du Preez (1982) reports that in the People's Republic of China textbooks have tended to moralise and instil such master symbols as respect for labour and agriculture, striving for economic independence and preference for collective ownership rather than individual comfort. But this bias, too, is presumably changing,

as the 'modernisation' of China continues apace.

The evaluation of bias and stereotyping in school textbooks cannot be a completely objective exercise. While some people would take a critical view of the text examined, others would regard the bias detected as allowable statements of fact. However, if school textbooks are to serve as agents for reconciliation and harmony among the various population groups, they should avoid bias in relation to the internal and external policies of the country, and strive to observe the principle of rational discourse motivated by a concern for humanity.

SUMMARY

Since textbooks are still the main source of knowledge for young learners, authors should facilitate the transmission of such knowledge by ensuring that texts intended for young readers observe factors that aid readability. The introduction of new vocabulary and concepts should take into consideration the age level and mental development of the pupils, and illustrations should take into account the visual literacy and graphicacy skills of the pupils. Finally, for the sake of reconciliation and harmonious co-existence, bias and stereotyping which might kindle racial or inter-group animosity should be eliminated from textbooks.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The goal of this study is to ascertain the extent to which two standard 6 textbooks prescribed for Ciskei schools meet the language competence and graphicacy skills of the pupils, explain and develop geographical concepts, and promote positive attitudes towards the pupils' own region, with a view to highlighting the sorts of considerations that are necessary for the development of textbooks for second-language pupils.

In order to achieve this goal the study incorporated the following two phases: a series of interviews with geography teachers to ascertain their perceptions of the effectiveness of the textbooks they use; and an analysis of the two most widely used textbooks in Ciskei schools for standard 6.

The interviews with teachers were conducted in the Alice district and involved the use of informal and semi-structured interviews. The text analysis focused on four aspects; language competence of the pupils; the introduction and development of concepts; the effectiveness of illustrations; and bias and stereotyping in the texts.

The enquiry is primarily theoretical and falls within the interpretative or descriptive primary research paradigm; it can be described as being illuminative in outlook (Cohen and Manion, 1985). The enquiry is primary research in the sense that data is collected from primary sources in the form of geography textbooks. It is descriptive in that it describes events and processes as they occur, practices that prevail and the effects that are observed. Furthermore, primary research is illuminative in the sense that it exposes an educational situation to intelligent criticism; it investigates or observes and attempts

to explain (Hamilton, 1976:39).

This chapter examines the research procedures in the following sequence:

i) the organisation and administration of the interviews,
ii) the textbook analysis in relation to:
    * text readability,
    * introduction and development of concepts,
    * effective use of illustrations and
    * identification of bias and stereotyping in the text.

3.2 The interviews

The research interview is a two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information (Kerlinger, 1986; Cohen and Manion, 1985). The interview may either be structured or unstructured. In a structured interview the questions, sequence and wording are fixed but the interviewer is allowed some liberty in the choice of questions. The unstructured interview is flexible and open. The semi-structured interview makes use of elements from both the structured and unstructured interviews. The interview is not confined to the prepared sequence of questions but allows the interviewer some liberty to probe any relevant issues that may arise in the course of the interview.

In this study interviews are used rather than questionnaires because they allow direct interaction and provide greater flexibility. Furthermore the interview technique promotes more intensive study of perceptions, attitudes and motivations than a standardised questionnaire permits. The interviewer is free to explore reasons and motives more deeply. However, the interview technique is not without limitations as it is prone to subjectivity and bias on the part of the interviewer. The present researcher was keenly aware of this problem and attempted

to reduce the effects of bias and subjectivity as much as possible both in the structuring of the interview schedule and in the administration of the interviews.

3.2.1 The interview format

The interview format used in this study consisted of two parts. The first employed an informal or non-directive method while the second part used a semi-structured format. In the non-directive section the respondent was free to initiate and direct the course of the encounter while the function of the interviewer was simply to encourage the respondent in such a way as to leave him or her free from interviewer bias. To achieve this result the interviewer must create a relaxed atmosphere in which the subjects are free to express themselves without fear, disapproval or advice from the interviewer (Kidder and Judd, 1986). The informal interview format allowed the respondents to express their feelings and share experiences gathered in their teaching careers.

The semi-structured interview originated from the need to introduce more interview control into the informal format. This means that while the informant is encouraged to talk freely about the subject under investigation his subjective responses focus on the known situation in which he has been involved and which has been analysed by the interviewer prior to the interview. The interviewer knows in advance what specific topics or aspects of an experience he wishes to have the respondent cover in their discussion. He is, therefore, able to focus the interview without undue pressure being placed on the interviewee.

Notwithstanding the vital role the interview played in gathering valid research data in terms of attitude assessment, the primary problems the researcher had to contend with were those of validity and reliability. Validity in research is defined as 'the extent to which the results can be generalised to population and conditions' (Wiersma, 1986:4). Reliability in research

'refers to consistency of the research and the extent to which studies can be replaced' (ibid. 6).

3.2.2 The selection and composition of the respondents

The researcher visited secondary schools in the Alice district to explain the purpose of the research to the standard 6 geography teachers, i.e. to investigate aspects which either facilitate or hamper the learning process in the subject. The Alice district teachers were selected for convenience since it would be easy to contact them. As all the teachers contacted indicated willingness to participate in the research activity, ten were randomly selected as a representative group to avoid 'self-selection' by the more motivated prospective respondents (Langhan, 1990:104).

The selection of the ten teachers was made on the basis of their teaching experiences, gender and easy access to their schools. It was hoped that the basis upon which the selection was made would help to produce a relatively balanced research sample and thereby reduce some of the problems related to validity and reliability.

All the respondents had experience in teaching geography through the medium of English, and therefore had personal exposure to the difficulties encountered in the first year of English medium instruction in the secondary school. Background information on the teachers who took part in the research was obtained by sending them forms which they completed and returned anonymously in an enclosed addressed envelope. The composition of the sample is to be found in appendix 4.1.

3.2.3 The structure and administration of the interviews

3.2.3.1 The non-formal interview

It was made clear to the respondents beforehand that the interview would be a general discussion on the teaching of geography at standard 6 level. The respondents were free to raise any issues they deemed relevant in the course of the interview and the interviewer was to record the research data in a note book. Tape recording was not used as teachers perceived this as a threat.

Teachers were interviewed individually after school hours. Group interviews were avoided on the grounds they might intimidate shy respondents. During the interview, the researcher attempted as far as possible to display a friendly and courteous manner in order to put the respondents at ease. The conversation involved, among other things, the following:

i) the experience of the respondents in teaching geography,
ii) sections of the syllabus that were considered difficult,
iii) the selection of prescribed books,
iv) teaching/learning facilities available at school,
v) subject allocations to teachers.

3.2.3.2 The semi-structured interview

Prior to the interview a range of questions was prepared which included attention to:

i) the pupils' competence in English,
ii) the suitability of the textbooks used and
iii) the teaching/learning methods employed.

As in the case of the informal interview, the teachers were interviewed individually after school hours.

At each meeting the interviewer briefed the respondent about the purpose of the interview and attempted to make him or her feel at ease. The manner of recording the responses (which was note taking) was explained to the respondents and an appeal made to them to answer questions as best they could. While the interviewer attempted not to deviate from the set questions, he was free to modify the sequence of questions, change the wording and explain them.

3.3 Analysis of interview data

The informal interview provided information regarding the nature of problems experienced in the teaching/learning of geography from the teacher's point of view. The responses collected from the interviews were translated into specific categories and plotted in a table for the purpose of analysis (Cohen and Manion, 1985). Through the method of response counting the data were analysed according to the research objectives.

The semi-structured responses were transcribed and analysed according to the format of the semi-structured interview schedule. The teachers' perceptions of problems in each of the three categories (competence in English, textbook suitability, and learning /teaching strategies) of the semi-structured interview were listed and analysed in relation to their frequency and through the use of percentages.

3.4 Textbook analysis

On the basis of the interviews and a general, but informal, survey of schools in the Alice district the following two textbooks were selected as being the two most commonly used:

1. Rix, D. and Earle, J. (1985). Geography in Action, Standard 6. Cape Town, Juta & Co.

2. Podesta, B. (1985). Active Geography, Standard 6. Pretoria, De Jager Haum.

The selected textbooks were analysed in terms of demands they make on standard 6 pupils in their first year of English-medium instruction in the secondary school using the following broad headings:

i) readability of texts,
ii) learning strategies with particular reference to introduction and development of concepts,
iii) effectiveness of illustrations and
iv) identification of bias and stereotyping (in textbooks).

3.4.1 Readability

Langhan (1990) revealed that certain properties of expository discourse are the cause of reading and comprehension difficulties in young readers. His research on readability concentrated on vocabulary, syntax, cohesion, coherence and text structure (chapter 2). For the purpose of this study the following aspects were incorporated in the analysis of the selected textbooks following Langhan's (1990) method of textbook analysis, because they were considered to be vital in the comprehension of the text;

i) obscure reference,
ii) key register terms,
iii) thematic incoherence,
iv) propositional fullness,
v) logical relations.

Langhan's method provides an appropriate model for this research as it too is concerned with the analysis of expository texts.

The list of relevant aspects does not include an analysis of illustrations in relation to readability because this aspect is dealt with separately in this study.

The sixth aspect used by Langhan in the analysis of textbooks, i.e. the accessibility of background knowledge, has been omitted from the above list because it is incorporated in such aspects as obscure reference and propositional fullness which demand that the reader should resort to his/her background knowledge when a text presents incomplete information or illustrations that lack clarity.

In applying Langhan's (1990) discourse analysis in this study the following procedures were used. One chapter in each of the selected textbooks was chosen for assessing readability. The chapter on mapwork was selected in Geography in Action while the chapter on astronomical geography was selected in Active Geography. Mapwork was selected because maps are important in the understanding of fundamental aspects of geography, including the distribution of natural and cultural phenomena over the surface of the earth and mapwork should enjoy priority status in the geography syllabus. For these reasons it is the aim of this study to highlight any factors that might frustrate pupils' efforts to understand mapwork.

Astronomical geography was chosen because it is a completely new field of geography study in standard 6 and is by its nature concerned with what is for the pupils highly abstract detail. It should therefore receive special attention to enable pupils to grasp its content.

Different chapters were selected in each of the textbooks rather than doing a comparison of the same chapters for considered reasons: Chapters on map work in the two textbooks deal with the same aspects and, although this research is restricted in terms of half-thesis rules, the researcher wished to analyse as many problem areas as possible in the standard 6 syllabus in the light

of the interviews with the standard 6 teachers.

The entire chapter selected in each textbook was scrutinised and, wherever examples occurred in relation to the five criteria selected, they were noted. The frequencies were tabulated (chapter 5). The discussion and analysis of the results pertaining to readability was done by highlighting specific examples, since attention to every instance was beyond the scope of this research.

Langhan's research on readability is very comprehensive. Although the research was specifically undertaken to identify problems of readability in standard 3, it is equally relevant to a standard 6 class where the medium of instruction is also a second language. The analysis used by Langhan is complex, time-consuming to apply and requires a comprehensive knowledge of English to be fully understood. Thus, as a method for the selection of textbooks by teachers, Langhan's methodology may be difficult to implement.

3.4.2 Concept analysis

Tunmer and Macrae (1987) adapted concept analysis from Coltham's (1970) method of evaluating terminology in history textbooks. Coltham evaluated concepts in history textbooks by considering the frequency with which concepts were introduced into the text by selecting three pages at random from a particular textbook thus:

0 - 1 indicated a low frequency,
1 - 3 indicated a medium frequency,
3 - 5 indicated a high frequency

The weakness of this method is the subjective nature of the frequency rating.

Tunmer and Macrae improved upon Coltham's method by considering approaches to concepts with regard to the following:

i) concepts that were used but for which no definition was given,
ii) concepts with dictionary definition only,
iii) concepts with definition and examples,
iv) concepts used in a contextual situation only, and
v) concepts mentioned but not used in the text.

For this study the Tunmer and Macrae and Coltham method has been adapted. It was felt that the random selection of three pages in the two selected textbooks would not serve present purposes. Therefore three chapters from the two textbooks were chosen. Each chapter was scrutinised in its entirety and 20 concepts were randomly selected. Each concept was analysed in relation to the above criteria. In addition a further criterion was included, that of concepts pupils ought previously to have acquired at primary school. This criterion was added as a means to assess the extent to which the authors of the texts had taken into consideration the pupils' prior knowledge.

The 60 selected concepts were tabulated according to their respective criteria. The discussion and analysis of the results pertaining to concepts considered the frequency of selected concepts in terms of the criteria in the table.

3.4.3 The use of illustrations

Coltham (1970) identified three aspects in his ratings of illustrations: type, function and positioning of illustrations according to type.

i) Coltham's analysis refers to the illustration as a construction of reality, and while it makes no mention of specific types it may be inferred that he is referring to maps, diagrams and other statistic representations.

ii) As regards function, illustrations should be complementary to the text. If they add nothing substantial to the understanding of the text, they are regarded as merely decorative.

iii) Illustrations should be positioned in such a way that they form part of the text intended for explication. To be effective illustrations should be attached to the text.

Instead of Coltham's four random page samplings this study chose one chapter in each of the two selected textbooks. The entire chapter was read and illustrations identified according to type. Each type was analysed in relation to the following criteria:

i) the types: sketch maps, photographs, diagrams and graphs,
ii) nearness to the text,
iii) the presence of captions, labelling or a key,
iv) their suitability in terms of the pupils' age and graphicacy skills.

The types of illustrations selected are the most commonly used in the texts and are considered to be most effective as learning aids where pupils possess adequate graphicacy skills.

3.4.4 Identification of bias and stereotyping

In chapter 2 it was revealed that bias and stereotyping still occur in South African school textbooks though presently attempts are being made to avoid gross bias (Clark, 1974). To identify bias and stereotyping this study has adopted:

i) the Garcia-Armstrong matrix system (1979) and
ii) the notion of master symbols as a basis for evaluating schools textbooks (du Preez, 1982) and Clark's (1974) critique of geography books.

3.4.4.1 The Garcia-Armstrong matrix system

This system adopts the following procedure:

a) a target population group and the textbook designed for the course are selected;

b) the relevant pages on which the material relating to the target group occurs are identified in the text;

c) sentences which make specific mention of the target group, the name of a member of the group or a pronoun whose antecedent clearly refers to the target group or its member, are identified;

d) each sentence is examined individually and assigned to a relevant category or cell of the matrix, firstly in terms of whether the target group is assigned a status equal to or higher or lower than that of other named groups, and secondly in terms of whether the target group acts on or reacts to its environment.

e) the total number of sentences is examined and the total frequency in each category is divided to find a percentage that will indicate the total sentences examined that were assigned to each category;

f) a comparative analysis can then be made of percentages in each cell between and among the textbooks that have been examined.

The matrix system can be used to collect data as well as to render comparative judgements related to the authors' treatment of any group in the textbooks by focusing on the information available in the text. The system, however, is not without limitations.

Its entire dependence on individual sentences as units of analysis, and on locating sentences by exclusive reliance on topical headings in the index, is based on the assumption that indexing has been professionally done and that complete thought in the individual sentence is the appropriate unit for passing judgements on a particular group's treatment.

There is no doubt that other units of analysis such as photographs, might provide general impressions different from analysis based on sentences.

In this research the Garcia-Armstrong procedure was adopted to identify bias in terms of status allocated the target group as well as its activity or passivity in its environment. Instead of analyzing individual sentences the researcher based his assessment on full paragraphs or units of more than one sentence in order to get the full context of the utterance.

Analysis of individual sentences was found to be time-consuming and liable to give a faulty assessment of the text as a single sentence may have been quoted out of context. Each text unit was assigned to a relevant status category which was allocated marks and these were compared in terms of percentages. Finally a comparative analysis was made between the status categories of each textbook used and between the two selected textbooks. This was done by analysing the number of occasions when the target group was mentioned to determine whether the group was being shown as having a status equal to or higher/lower than that of other groups mentioned, and also whether the group was shown to be active/passive in terms of being in control/not in control of its environment.

3.4.4.2 Master symbols as the basis for evaluation South African schools textbooks

Du Preez's (1982) research on identification of bias and stereotyping in school textbooks is discussed in chapter 2. The

investigation was conducted by analysing 53 South African high schools textbooks and setworks. Subjects that would best serve the purpose of the investigation (history, geography, social studies and English and Afrikaans literature) were chosen because of their concern with man, society and its affairs and the fact that they reveal values and underlying symbols.

Du Preez's master symbols research was adopted in this study. The initial analysis relating to master symbols attempted to follow du Preez's method of analysing selected paragraphs in order to identify the master symbols which du Preez's research developed. This method, however, proved to be extremely problematic for the following reasons:

i) The whole exercise became extremely contrived and artificial, primarily because few of the master symbols identified by du Preez could be reasonably and rationally identified in the geography textbooks selected.

ii) On the basis of fairness to the textbook writers, it was felt that the analysis of individual paragraphs tended to decontextualise the passages, thus giving a skewed view of the theme under discussion.

Therefore the following procedure was adapted for this section of the study:

i) The sections relating to South Africa's population, its main products and the homeland areas of Ciskei and Transkei were scrutinised in their entirety in both of the selected textbooks.

ii) Where master symbols occurred in these sections, they were identified and analysed in relation to the theme.

iii) The text was furthermore scrutinised in relation to Clark's (1974) criticism of geography textbooks as this was found

to have greater relevance than du Preez's method did. Clark's method was applied by focusing on the author's tendencies to gloss over controversial issues as well as to conceal, underplay or distort problems.

Notwithstanding the important role the respondents and other research instruments can play in providing research information, their function is not infallible. The researcher is conscious of the problems that may emerge in the course of a study of this nature. Both the researcher and the respondents are not immune to bias and subjectivity. Furthermore the researcher is not unaware of the problems related to the validity of the results produced by the research instruments employed as well as the reliability of the research. The foregoing problems, together with the half-thesis rules, impose limitations on this study.

All the same it is anticipated that the research instruments discussed above will highlight the problems that are responsible for poor performance in standard 6 geography with respect to the learners' comprehension of the text, unsuitable textbooks and ineffective teaching and learning methods.

CHAPTER 4

INTERVIEW RESULTS

This chapter deals with the following:

i) the composition of the ten respondents

ii) the informal interview results and

iii) the semi-structured results

4.1 The composition of the respondents (see appendix 4.1)

The ten respondents that were interviewed consisted of four male teachers between the ages of 28 and 42, and six female teachers. Five of the females were between 24 and 28 years of age whilst the sixth one was 42 years old. Judging from the gender division it would appear that the standard 6 class was allocated mostly to female teachers. One respondent claimed that female teachers have the reputation of handling the young learners better that the menfolk.

Of the ten respondents one, a female, held the position of deputy principal at her school. Five were assistant teachers who were delegated special administrative duties in addition to their teaching loads. Two of these were male teachers and three were female teachers. The remaining four respondents were post level one teachers, two males and two females.

The qualifications of the respondents were as follows: three teachers, all females, possessed university degrees. One of the three was the deputy principal.

Their professional qualifications were varied. Two female teachers had university diplomas. The first one, the deputy principal, had obtained a University Education Diploma (UED)

whilst the second female respondent had a Bachelor of Pedagogics (BPed) degree. Two males and two females possessed Secondary Teachers' Diploma certificates (STD). Two males and one female had Junior Secondary Teachers' Certificates (JSTC). The last female teacher had a Secondary Education Certificate (SEC). All the respondents were therefore qualified to teach at secondary school level.

The respondents had all taught geography in standard 6 for periods ranging between one year and eight years. Four male teachers and one female teacher had four to eight years' experience teaching standard 6 geography. Five females had teaching experience at this level ranging between one year and three years.

The number of years teaching geography at other levels ranged between nil and sixteen years. Two males and one female had taught geography at other levels for eight to sixteen years. Four females and one male's experience ranged between one year and four years. Two teachers, a male and a female, had never taught geography at other levels in the secondary school.

The number of years of general teaching experience ranged between one year and eighteen years. Three teachers' general teaching experience (one of whom was a female teacher) ranged between eight and eighteen years; two males and two females had four to six years teaching experience, and three female respondents had one year to two years general teaching experience. On the basis of the respondents' teaching experience it was not unreasonable to expect sound judgements in their perceptions of the subject and pupils they taught.

Each respondent had received formal training in two teaching subjects as follows: Four teachers had received formal training in English, four in Geography; two in History; one in Afrikaans; one in Biology; one in Biblical Studies and one in Agriculture. Thus only four teachers were trained formally to teach geography,

the rest having received training on the job.

4.2 The informal interview results

The ten selected teachers were interviewed individually to enable each one to give his/her perceptions without any fear of contradiction. The respondents were encouraged to express themselves freely and to raise any issues they deemed relevant concerning the teaching of geography. The main points of discussion were:

i) facilities for teaching geography at the respondents' schools.
ii) the allocation of subjects,
iii) the selection of textbooks,
iv) the geography syllabus and
v) the pupils' attitudes towards geography.

i) FACILITIES FOR TEACHING GEOGRAPHY

Geography is a subject which requires a special teaching venue, specialised equipment for practical work and opportunities for class excursions to enable pupils to make observations of features studies in class. In the interviews conducted all the respondents indicated the absence of geography rooms in their schools due to shortage of classroom accommodation. Lack of funds deprived the schools of the opportunity of acquiring vital teaching and learning equipment such as maps and weather observation instruments. The only outings that could be undertaken were those to places within walking distance of the school. The respondents expressed fears that the lack of these vital facilitates encouraged the theoretical study of geography.

ii) THE ALLOCATION OF SUBJECTS

The allocation of subjects ought to take into consideration the teachers' background knowledge in their subjects. The respondents indicated that this was not always the case. This is confirmed by the fact that 60 per cent of the teachers interviewed had no formal training in geography. They were nonetheless required to teach the subject because no qualified teachers were available. Initially such teachers had to make a special effort to learn the subject so that they could impart the knowledge. The allocation of subjects to people who are not qualified to teach them affects both the pupils' performance as well as the teachers' morale.

iii) SELECTION OF TEXTBOOKS

Each year schools are supplied with book lists prescribed by the Department of Education. From a limited choice of two or three books the school principal is instructed to indicate the schools' requirements for the following year based on the projected admissions of students. The requisition forms are completed and submitted to the education office to enable the Department to supply the requisitioned equipment at the beginning of the following year. The respondents indicated that there was no guarantee that the textbooks would be delivered on time in the new year. Furthermore it was not uncommon to experience shortages of textbooks either caused by late deliveries or by the admission of more students than were requisitioned for. The respondents stressed that subject teachers are never consulted to advise on the prescription of textbooks. In consequence prescribed textbooks have in many cases been found wanting and unsuitable.

iv) **THE GEOGRAPHY SYLLABUS**

The respondents pointed out that some sections of the syllabus, such as mapwork, astronomy and climatology posed learning problems for the pupils. Pupils did not seem to grasp the three dimension aspect and other mapwork skills necessary for the reading and interpretation of relief maps. Astronomy is a completely new field of study and tended to be abstract. The same was true of climatology. The low level of competence in English amongst pupils also hindered comprehension. A feeling of dissatisfaction with the syllabus content was expressed by some respondents. For example, the teachers felt that the geography of the local region should be included in the standard 6 syllabus as its basic knowledge could serve as a starting point for the study of the regional geography of South Africa. Issues such as pollution of the environment and the conservation of the surroundings deserved to be part of the syllabus as their knowledge would help to promote a healthy and safe environment.

v) **ATTITUDES TOWARDS GEOGRAPHY**

According to the respondents the attitudes of the pupils towards geography differed. Some pupils seemed to harbour negative attitudes towards the subject. The impression one gathered was that such pupils did geography because it was compulsory at standard 6 level. Assignments and written tasks were poorly done. The respondents felt that the pupils' family members at home were not sufficiently supportive. There was a group of pupils, however, who were keen and always produced work of a high standard. It was stressed that pupils' attitudes were influenced by a number of factors such as the subject, the presence or absence of the culture of learning, conditions at home, etc.

4.3 The semi-structured interview

The informal discussions held with the ten selected teachers threw light on some pertinent information concerning sources of difficulty in the teaching and learning of geography in the first year at secondary school:

1) the low English competence of the pupils
2) unsuitable textbooks
3) inappropriate teaching/learning methods, and
4) the general shortage of qualified geography teachers.

These problem areas were listed for the semi-structured interview with the ten respondents. The content and procedures of the interview were organised in advance. This means that the sequence of questions was pre-determined, but in keeping with the semi-structured interview technique the researcher was free to revise and explain questions. The responses of the respondents were entered in a table and compared through percentages.

1. THE PUPILS' LOW LEVEL OF COMPETENCE IN ENGLISH

The respondents confirmed Macdonald's (1986) claims that the standard 6 children who had moved up from the primary school faced an enormous language problem for which they were virtually unprepared. Each teacher interviewed emphasised that the pupils' exposure to English from standard 3 to standard 5 was inadequate and did not prepare them for English-medium instruction in content subjects at the secondary level. This untenable situation was ascribed to a lack of consistent English medium instruction between standard 3 and standard 5. There was a tendency on the part of the content subject teacher to use both English and Xhosa in order to assist pupils whose English competence was too low for them to understand a subject such as geography.

On entering the secondary school, the pupils' problem was further exacerbated where they were expected to study the textbooks on their own. Lanham (1986) revealed that the absence of spoken English in the pupils' environment outside the school put English not in the category of a second-language but that of a foreign language. This was confirmed by the respondents. Furthermore, the pupils' development of the language at secondary school was adversely affected by limited exposure to English both inside and outside the classroom. This was attributed to the fact that teachers were themselves English second language speakers who often lacked confidence in their ability to communicate in English. In the circumstances the tendency for content subject teachers to resort to mother-tongue explanation of concepts was not uncommon. It is not surprising, therefore, that standard 6 pupils, like their standard 3 counterparts, experience serious language problems in their first year of English medium instruction in the secondary school.

TABLE 4.3.1

indicates yes x indicates no

Item	Teachers										Total	
Competence in English	1	2	3	4	5	6	7	8	9	10	Yes	No
1. Stds 3-5 Eng+Xhosa medium											10	0
2. Std 6 pupils not ready for Eng medium instruction											10	0
3. Std 6 instruction Eng+ Xhosa											10	0
4. Exposure to Eng limited											10	0
5. No Eng after school											10	0
6. All Geo. teachers fluent in Eng.				x		x	x	x		x	5	5
											55	5
											91,7%	8,3%

Pupils' Competence in English

2. UNSUITABLE TEXTBOOKS

All the respondents indicated that geography textbooks were one of the major sources of difficulty for their pupils. For the first time in their school career the standard 6 pupils were compelled to use textbooks extensively for the content subjects. The teachers claimed that on entering standard 6 the pupils were not familiar with textbooks and the experience of being issued with one for each content subject was indeed overwhelming. All ten respondents agreed that the standard 6 pupil was unable to read the English textbooks with understanding or to comprehend the terminology employed.

Because of these kinds of problems the respondents reported that to expect pupils to make full use of their textbooks was a waste of time and frustrating. Consequently, teachers resorted to giving notes which in most cases were memorised without understanding. This had serious implications for classroom teaching and learning procedures. In Table 4.3.2 below the respondents' responses are indicated:

TABLE 4.3.2

indicates yes x indicates no

Item	Teachers										Total	
Textbook suitability	1	2	3	4	5	6	7	8	9	10	Yes	No
1. Texbooks not fully used											10	0
2. Pupils rely on teacher's notes											10	0
3. Notes are memorised		x				x	x			x	6	4
4. Concepts present difficulty											10	0
5. Visuals not fully used						x					9	1
6. Textbooks unsuitable					x			x			8	2
											53	7
											88,3%	11,7%

Textbook Suitability

All respondents concurred that standard 6 pupils did not fully utilise geography textbooks but relied heavily on the teachers' notes. There was 100% agreement on the fact that terminology presented difficulty.

Of the ten teachers six agreed that most pupils memorised the teachers' notes whilst four maintained that only a small number of pupils committed notes to memory. One respondent expressed a feeling that teachers were to blame for the pupils' inability to use visuals because their importance was not stressed.

Eight teachers (88,3%) supported the view that the prescribed textbooks were unsuitable for second-language pupils whose English language competence was low.

3. TEACHING/LEARNING APPROACHES

The consensus on the teaching/learning approaches was that the teaching and learning methods that were popular were those that were least effective, e.g. the lecture method. These methods were believed to promote quick completion of the syllabus. The most educationally sound teaching methods such as self-activity were overlooked on the grounds that they were time-consuming. Table 4.3.3, below, shows the responses of the interviewees:

TABLE 4.3.3

indicates yes x indicates no

Item	Teachers										Total	
Teaching/learning approaches	1	2	3	4	5	6	7	8	9	10	Yes	No
1. Lecture method dominates											10	0
2. Other teaching methods nil				x						x	8	2
3. Rote learning prevalent					x		x	x		x	6	4
4. Evaluation tests memory						x	x				8	2
											32	8
											80%	20%

Teaching/Learning Approaches

The lecture method and rote learning were identified by most respondents as the most commonly used in Ciskei schools. Similarly, memory testing received the support of 8 teachers out of ten. The responses confirmed beyond any shadow of doubt that pupil-centred learning approaches were ignored.

The results of the interviews throw light on a number of factors which are responsible for the poor performance of black pupils in geography. The majority of the respondents share the view that the learning and teaching of geography in Ciskei schools is far from satisfactory. Low competence in English, the medium of instruction, is the root cause because it is the main factor that determines the learners' comprehension of the text. Pupils who have communication problems in English are the principal victims of a situation which is exacerbated by the fact that the teachers are also English second-language speakers. Problems caused by unsuitable textbooks and the general shortage of suitably qualified teachers were highlighted, and they need to be addressed.

All ten respondents had at least a standard ten school-leaving certificate with a secondary school teacher's diploma. With a few exceptions the respondents had been in service for a reasonable number of years. On the basis of these credentials the teachers qualified as a reasonably representative sample. Their perception of the stumbling blocks in the teaching of geography highlighted the pupils' low competence in English, educationally discredited teaching and learning strategies, and unsuitable textbooks. These factors are acknowledged and accepted as the major factors responsible for pupils' poor performance in geography in black schools.

CHAPTER 5

RESULTS OF THE TEXTBOOK ANALYSIS

This chapter presents the results of the textbook analysis in the following order:

1) Analysis of the readability of the textbooks, conducted by means of an adaptation of Langhan's (1990) discourse analysis in the assessment of primary school texts.

2) Concepts analysis, undertaken by means of an adaptation of the assessment schedule used by Coltham (1970) and further developed by Tunmer and Macrae (1987) for the analysis of history textbooks.

3) Analysis of the use of illustrations, based on Coltham's (1970) assessment schedule for textbooks.

4) Identification of bias and stereotyping, using:
   i) a content analysis based on a thematic evaluation using the Garcia-Armstrong matrix system (1979) and
   ii) the master symbols analysis for textbooks developed by du Preez (1982), and Clark's 1974 critique of geography textbooks.

5.1 The readability of the textbook

In his discussion of readability, Langhan (1990) suggests that a text intended for English second-language readers should consider the following discourse properties: avoiding obscure reference, establishing concepts before applying them as register (geography) terms, thematic coherence, propositional fullness and logical relations (chapter 2).

For textbook analysis in terms of readability the chapters on mapwork in Geography in Action and astronomical geography in Active Geography have been selected.

Mapwork is a problematic section in the syllabus: pupils require specific training before they can read and interpret a map. According to Burton (1986), the pupils' inability to visualise the third dimension from a two-dimensional map is the cause of poor performance in this aspect of work in South African secondary schools. Through the analysis of the text this study will attempt to identify problem areas as stated in chapter 3. Astronomical geography is a completely new field of study in standard 6 and is by virtue of its abstract nature problematic for pupils.

5.1.1 Mapwork analysis: Geography in Action 6, pp 9-24 (appendix 5.1.1)

The first part of the chapter deals with finding direction in the map. The second part focuses on measurement of distances on maps, i.e. scale. The third section looks at finding positions on maps and the fourth deals with map reading. The entire chapter consisting of 16 pages was scrutinised and analysed to identify instances of obscure reference, inadequately explained register terms, thematic incoherence, and deficiencies in propositional fullness and logical relations in accordance with Langhan's (1990) method of textbook analysis (chapter 3).

Table 5.1.1

Factors that affect readability

Sections	Obscure Reference	Register Terms	Thematic incoherence	Propositional fullness	Logical relation
1 Finding directions	(4)	(7)	(3)	(3)	(1)
2 Scale	(2)	(1)	(1)	(1)	(1)
3 Position	(1)	(3)	(1)		
4 Map reading	(1)				
Total	8	11	5	4	2

Each of the aspects that appear in Table 5.1.1 above is analysed in more detail to highlight specific examples.

1. OBSCURE REFERENCES

The sub-heading 'finding direction on a map' p.9, immediately followed by a paragraph describing the functions of maps, is misplaced and is therefore confusing to the young reader. 'The uses or functions of maps' would have been a more appropriate sub-heading for the text. Similarly, the text refers to maps as being important 'tools' in geography. This is another example of obscure referencing, for the word 'tool' is readily interpreted to mean 'machine tool'.

The following diagram, Fig. 5.1.1.1 which is meant to illustrate bearing, is inaccurate in terms of angles. Angles B and C should read 45 degrees and 315 degrees respectively and not 47 degrees and 313 degrees as indicated on the diagram. The error is bound to hamper the pupils' comprehension.

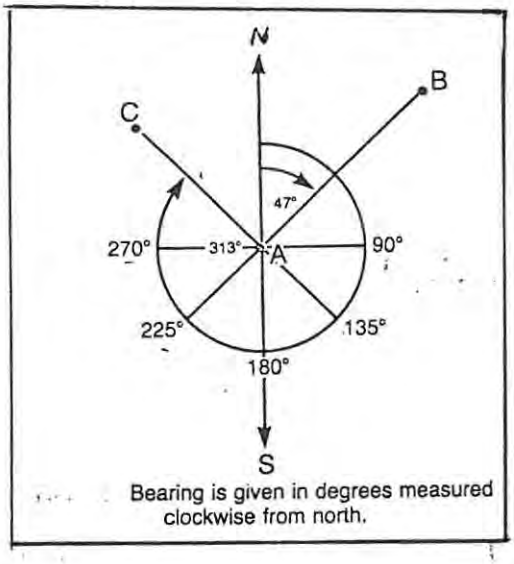


Fig. 5.1.1.1 Direction and bearing,
Geography in Action p.9.

Another example of obscure referencing is the diagram Fig. 5.1.1.2, below. The height of the highest point B may not be understood by the reader who cannot make the necessary inferences because there is no accompanying text.

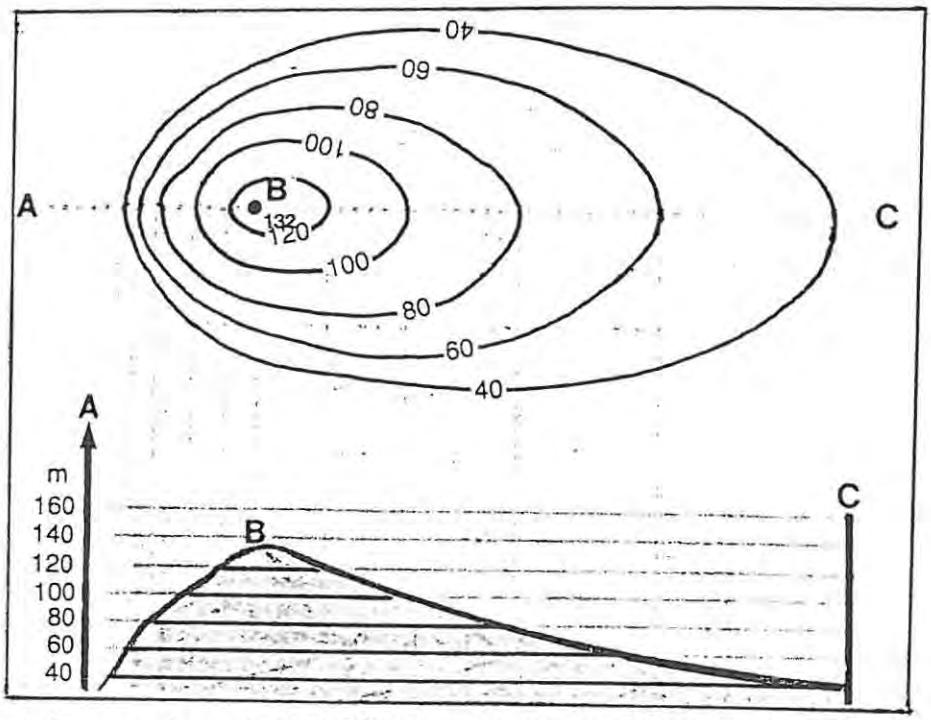


Fig. 5.1.1.2 Reading contour patterns on maps, Geography in Action, p.21.

The aim of testing pupils after a lesson is to find out if they have grasped what they have learnt. In the task that follows the text on scale (Geography in Action p.13), the learner is tested in mm instead of on the cm scale in which case the pupil is compelled either to make a conversion or activate his background knowledge which may be lacking.

Lack of background knowledge, particularly of graphicacy skills, affects the understanding of diagrams that have no supporting text. Lack of accompanying text renders illustrations meaningless and this discourages pupils from paying attention to visuals. Furthermore, if children are constantly given the cue that diagrams have no relevance to the text they stop looking at them, so that even when diagrams become crucial no significance is attached to them and important information is consequently

overlooked. Diagrams require explanatory test, or else their reference remains obscure.

2. Key register terms

The terms 'distribution', 'topographic map', 'bearing', 'electro-magnetic-field', to mention but a few, are not explained in any way and as such their meanings are not established. This omission is bound to affect the pupils' understanding of the text, resulting in a demotivating effect.

3. Thematic incoherence

The diagram Fig. 5.1.1.3 (p.9) showing the points of the compass, has no bearing on the paragraph dealing with the uses of maps and should have been provided with the caption 'compass directions' to enable the learner to make sense of it. The effectiveness of such a diagram depends upon supportive text, the absence of which requires the reader to make inferences in order to achieve thematic coherence.

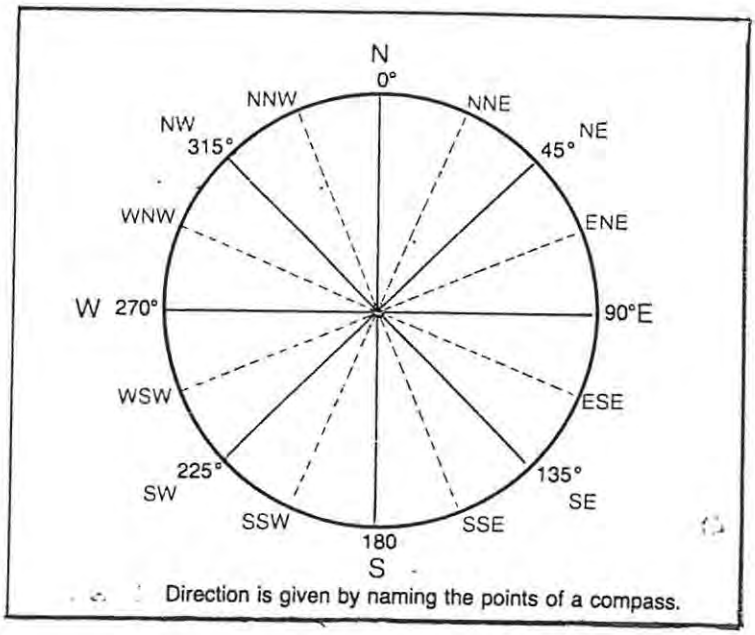
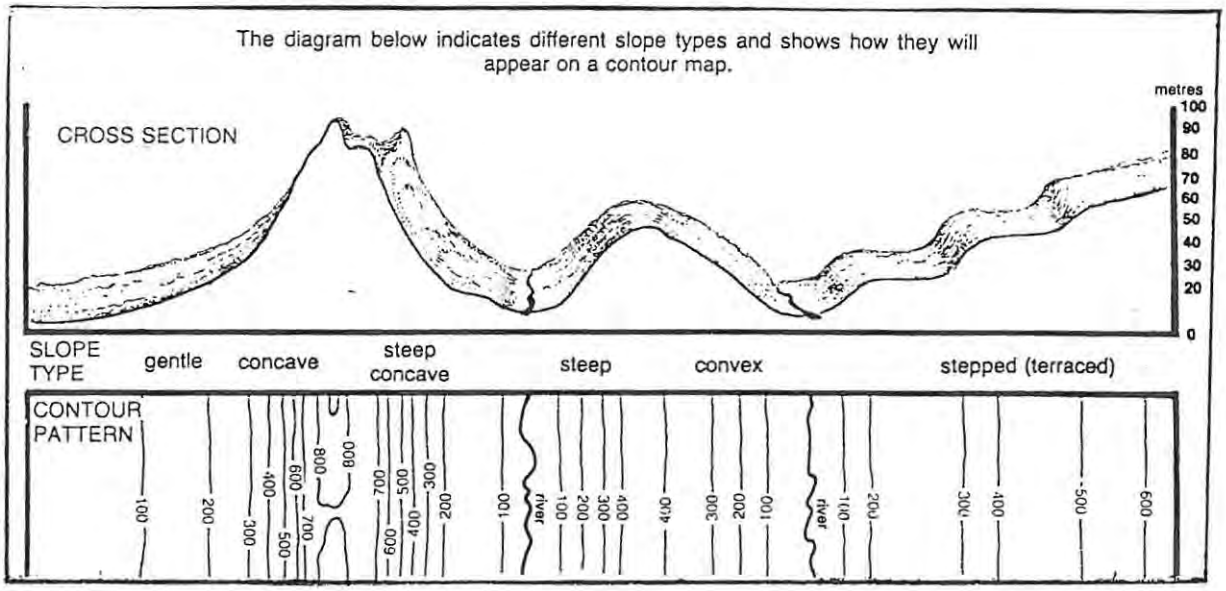


Figure 5.1.1.3
Finding direction on a map. Geography in Action, p.9

4. Propositional fullness

Propositional deficiency has been detected in some areas of the selected chapter. The meanings of such terms as "distribution" and others cited under key register terms, above, are not furnished, the assumption being that the pupils already know these or alternatively that the teacher will supply the meanings. Another propositional error occurs in the cross-section diagram (Fig. 5.1.1.4, below), where the height of the slope is shown to be 0 - 800+ metres and not 0 - 100 metres as indicated in the diagram. Incorrectly labelled diagrams deprive pupils of vital information and the confusion they are thrown into is bound to have adverse effects on their confidence in diagrams.

Fig. 5.1.1.4



Contour patterns, <u>Geography in Action</u>, p.23

5. Logical relations

There are instances where the propositional flow disregards normal conventions of logical relations. For example, the link between direction and bearing in part 1 (p.9) is not stressed, i.e. the fact that direction focuses on cardinal points while bearing measures the distances of the cardinal points in degrees

from north in a clockwise direction.

There are also cases where the logical sequencing of topics has been overlooked. A better arrangement of the topics indicated by 'Reading map signs, contours, contour patterns on maps' in the mapwork chapter (pp.17 - 20) could be as follows: 'what are contours?, contour patterns, map signs or symbols, map reading and interpretation'. The logical relationship whereby the understanding of one aspect facilitates the comprehension of the next has been shown to be an important strategy for the learning process, and must never be overlooked (Langhan, 1990).

5.1.2 Astronomical geography analysis: Active Geography 6 pp. 39 - 67 (appendix 5.1.2)

The theme covered in this chapter includes the solar system - planets, stars and asteroids; the earth - shape, movements, latitude, longitude and time; and the earth-moon-sun relationships. The entire chapter, consisting of 30 pages, has been analysed for obscure referencing, key register terms, thematic incoherence, propositional fullness and logical relations as shown in Table 5.1.2 below. The chapter on astronomy was selected for reasons stated in chapter 3.

Table 5.1.2
Factors that affect readability

Sections	Obscure reference	Register terms	Thematic incoherence	Propositional fullness	Logical relations
1 Solar System	XX (2)	XX (2)	XX (2)	-	-
2 Earth	XXX (3)	XXX (3)	X (1)	X (1)	XXXXX (5)
3 Earth Moon-Sun Relationship	X (1)	XXXXX (5)	-	XXX (3)	-
Total	= 6	= 10	= 3	= 4	= 5

1. Obscure referencing

The heading 'solar system' (p.39) sets the theme for the first part of the selected chapter. To avoid obscure reference and to promote better understanding of the text the following topics would have been more appropriate:

i) the position of the sun in relation to the planets or the position of the planets in relation to the sun;
ii) the stars

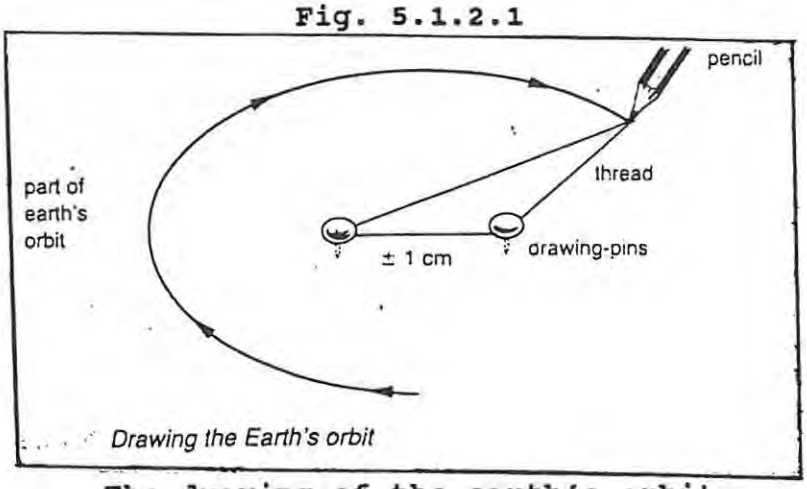
The suggested arrangement would ensure clarity and avoid confusion in the pupil's mind (Langhan, 1990).

The sub-heading 'the shape and size of the earth' (p.42) has no accompanying text to explain the two aspects. It is assumed that pupils in standard 6 are aware that the earth is shaped like a tennis ball, and also that they know the earth's diameter and circumference. The text relating to the movements of the earth (p.44) is likely to confuse the young reader as the two movements - rotation and revolution - are dealt with simultaneously. The fact that the term 'rotation' is replaced by the 'earth spins like a top' further exacerbates the problem as there is no link made between the two ways of referring to this rotation movement.

Readability in the foregoing is hampered by the fact that the text writer takes the readers' background knowledge for granted. Sometimes children do not have any background knowledge on the topic presented, in which case the writer has to motivate them and stimulate their interest. Any readability problems that arise tend to affect the learner's interest.

The diagram (Fig. 5.1.2.1, below), intended to clarify the orbit of the earth around the sun, is misleading, as it suggests a clockwise, instead of an anti-clockwise, direction of the revolution of the earth around the sun.

Fig. 5.1.2.1



The drawing of the earth's orbit

Active Geography, p.44

2. Key register terms

The meanings of terms such as 'galaxy', 'milky way', 'eclipse', 'centrifugal force' are not explained. The use of unfamiliar terms without establishing their conceptual meaning in the reader's mind hampers the comprehension of the text.

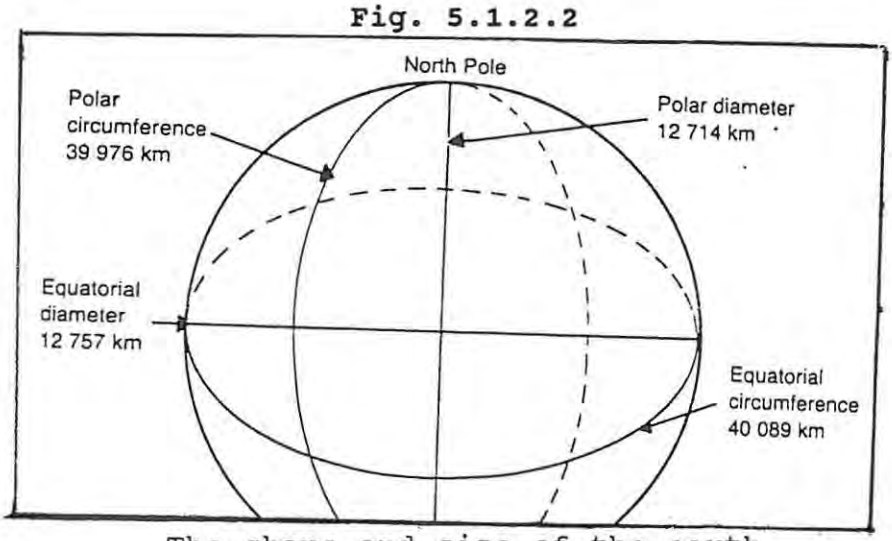
3. Thematic incoherence

The topics presented in the chapter on astronomical geography do not sufficiently establish the theme of what is to follow. For example, the heading 'solar system' (p.39) covers the whole unit on astronomy and needs more revealing sub-headings. Similarly, the topic 'the earth' (p.42) is not explicit and could be more appropriately replaced by 'the earth as a planet' in order to evoke interest. The sub-theme 'the movements of the earth' (p.44) can best be studied under such sub-headings as 'the earth's rotation and day and night'; and 'the revolution of the earth and seasons' in order to establish the theme in the reader's mind.

4. Propositional fullness

The unit 'astronomical geography' has the following examples of propositional deficiency: the topic 'the shape and size of the earth' is devoid of any accompanying text apart from a question whether the shape of the earth is similar to a tennis ball or a rugby ball. A similar case is presented in diagram Fig. 5.1.2.2, below where the learner is expected to know the size of the earth by merely studying the diagram. It should be borne in mine that most rural-based black pupils have a poor visual literacy background and the diagram referred to may not mean much to them.

Fig. 5.1.2.2

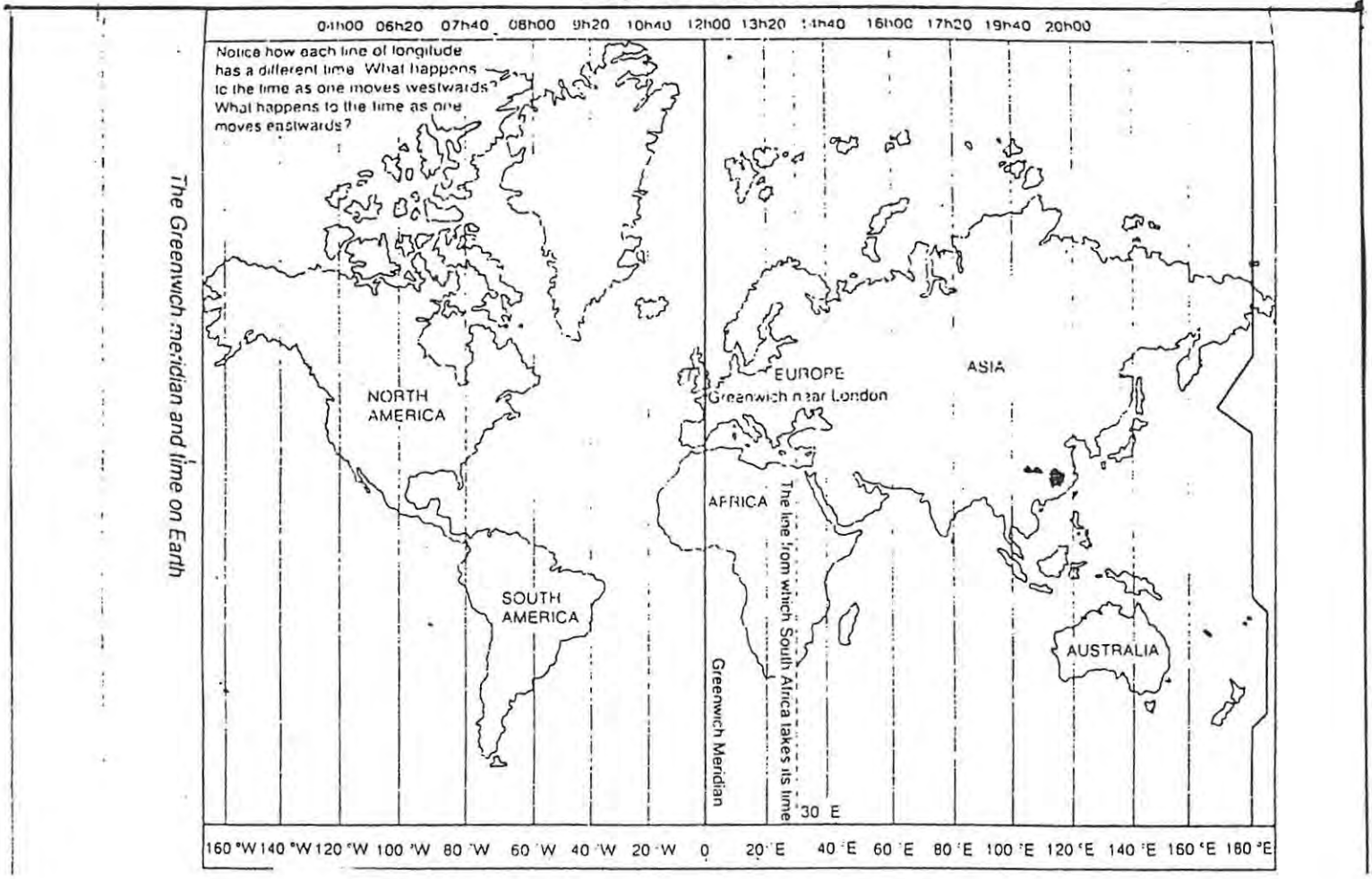


The shape and size of the earth

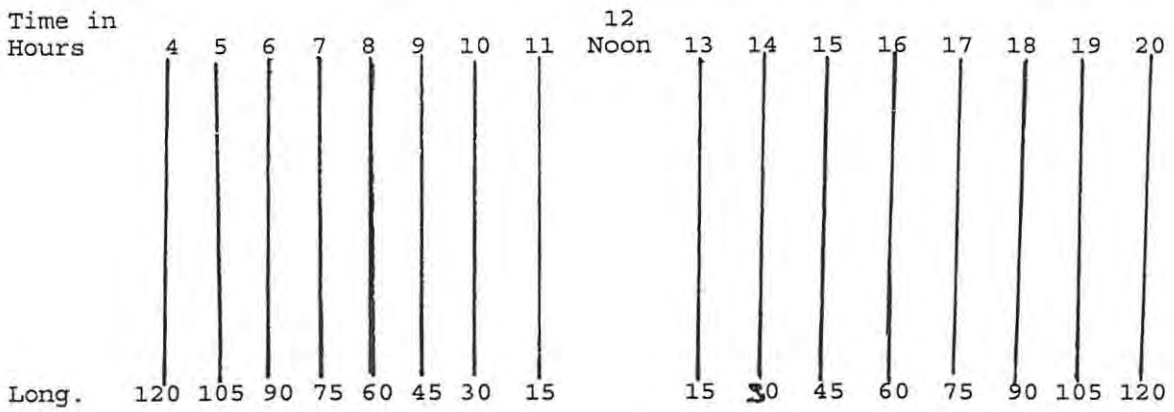
Active Geography, p.43

Finally, the following sketch map (Fig. 5.1.2.3(a)), illustrating longitude and time is very complicated for the Standard 6 child, in that normal conventions of logical relations have not been observed. If the sketch was based on the premise that to cover one degree of longitude the rotating earth takes four minutes, and therefore, 15 degrees of longitude are covered in 60 minutes (1 hour), the illustration would have been much easier to understand. The times are, initially, better given at intervals of 15 degrees as in the diagram Fig. 5.1.2.3(b), below.

Fig. 5.1.2.3



(a) The Greenwich Meridian and time on earth, Active Geography p53



(b) The Greenwich Meridian and time on earth, Active Geography p53

5. Logical relations

The sequence of facts following the heading 'the movements of the earth' (p.44) lacks coherence. The facts on rotation and revolution of the earth are dealt with in a haphazard manner. To assist understanding the text should focus on rotation as the cause of day and night, and thereafter revolution of the earth and seasons, as follows:

i) Rotation of the earth:
   - spinning of the earth on its own axis
   - axis is tilted
   - direction of movement from west to east
   - one complete rotation takes 24 hours
   - rotation causes day and night.

ii) Revolution of the earth:
   - the movement of the earth around the sun
   - the earth's path (orbit) is elliptical
   - one complete rotation takes 365 and a quarter days (one year)
   - revolution also causes seasons

Overview of readability analysis in the two selected textbooks

Having looked at two chapters in two separate textbooks for reasons stated in chapter 3 it has been found that certain aspects of readability are more problematic than others and present particular obstacles in the way of text comprehension. This is particularly the case with key register terms. Out of 58 occasions where discourse properties were detected to be problematic, key register terms accounted for 42%. Geographical terms were not explained and thus not established conceptually in the learner's mind. Obscure referencing accounts for 28%, which indicates the extent to which the writer expected the readers to identify referents in the text and supporting diagrams.

The text plays an important role in facilitating readability. The absence of supporting text requires referencing skills which most pupils in Standard 6 do not possess. Topics that are insufficiently supported by text are conceptually inadequate to assist understanding. This is particularly true where the complex relationship between scale and the size of the map is not correctly portrayed, or where the sequence of topics is incorrect.

Some diagrams in the selected textbooks were found to lack captions and were either not labelled or incorrectly labelled. Diagrams with no accompanying text render illustrations meaningless and affect the child's motivation and interest in the subject.

5.2 Concept analysis

The analysis of concepts has been adapted from the assessment schedule by Coltham (1970) and Tunmer and Macrae (1987).

It was stated in chapter 3 that 20 concepts were randomly selected from each of the four chapters on mapwork and astronomical geography in Geography in Action. The chapter on climatology from Active Geography was incorporated in the concept analysis because climatology is a relatively abstract topic and concepts such as 'relative humidity', etc., are known to present learning difficulties to pupils (chapters 2 and 3). A random selection of 20 concepts from the climatology chapter was also made (chapter 3).

The analysis of concepts was based on the following criteria:

i) previously acquired concepts, i.e. those concepts included in the geography syllabus for standards 3-5 which children ought to have mastered;
ii) concepts that were used without any definition;
iii) concepts used with definition and examples;

iv) concepts that rely on contextual situation for their meaning;

v) concepts mentioned but not used in the text.

The criterion 'concepts with dictionary definition only' considered in the assessment schedule by Tunmer and Macrae (1987) has been omitted from this analysis (Table 5.2), as no evidence of such concepts was detected in the selected chapters.

Table 5.2 shows 60 concepts taken from the two selected textbooks. The three chapters were scrutinised in their entirety and a random selection of 20 concepts from each was made for the sake of uniformity.

Concepts contained in Table 5.2 are discussed below as follows:

Table 5.2
Concepts selected from Geography in Action 6

Chapters	Previously acquired concepts	Concepts used with no definition	Concepts with definition and examples	Concepts that rely on contextual situation for meaning	Concepts mentioned but not used
1 Mapwork No. 20	direction scale latitude longitude	cross-section distribution topographical symbols orienting true North physical features artificial features	co-ordinates relief interpolation cliff	bearing clockwise magnetic declination contour interval	
Sub-totals	4 20%	8 40%	4 20%	4 20%	- -
2 Astronomy No. 20		Universe galaxy solar system parabolic ecliptical anti-clockwise spherical	Milky Way planets orbit satellites asteroids inclined midnight sun	circumference rotation revolution solstice	astro- nomical
Sub-totals	- -	7 35%	7 35%	5 25%	1 5%

Concepts Selected from Active Geography

3 Climatology No. 20	Weather temperature dew frost mist climate	Evaporation pressure cells windward leeward convectional cyclonic frontal relative humidity synoptic	Altitude ocean currents	Atmospheric pressure Snow	Precipi- tation
Sub-totals	6 30%	9 45%	2 10%	2 10%	1 5%
TOTALS No. 60	10 16,7%	24 40%	13 21,7%	11 18,3%	2=60 3,3%

1. Concepts previously acquired

As has been stated above, these concepts ought to have been mastered in the primary school phase. With the exception of latitude and longitude, which are abstract by nature, these concepts describe things which can either be observed in everyday life or felt e.g. frost, dew, or temperature - and therefore pose no comprehension problem to the pupils (Graves, 1975). This category of concepts, however, constitutes only 16,7% of the 60 selected concepts.

2. Concepts used in the textbooks without definition

Out of 60 concepts analysed, 40% were presented without any definition in the text. This is by far the greatest problem in the text because, as has been shown in chapter 2, these are by nature abstract concepts and their meanings can be expressed only by definition and re-enforcement in the text. The pupils' interpretation of the text is influenced by their previous experiences, that is by the kind of concepts they have acquired.

3. Concepts with definition and examples

Concepts such as co-ordinates, interpolation and orbit are abstract; without examples they would create learning problems. This is particularly so in the case of complex concepts such as geostrophic wind which involves an understanding of the

relationship between air movement, the pressure gradient and Coriolis force. This method of presenting concepts constitutes 21,7% of the 60 analysed concepts.

4. Concepts that rely on contextual situation for meaning

These concepts form 18,3% of the total analysed. Young English second language pupils may not understand the cues promoting the inference of meanings of concepts contextually. In addition, because of their cultural background and lack of background knowledge, they may not interpret the concept as intended.

5. Terms mentioned but not used in the text

The terms 'astronomical' and 'precipitation' serve as headings and do not appear in the text. In such cases the teacher would have to supply the meanings of these concepts.

The random sample of 60 concepts selected from the 52 pages of the two textbooks indicates a considerable load of concepts for the second-language learner, resulting in poor understanding of the text.

An attempt is made in Active Geography to assist the learner in concept development by listing and defining new concepts at the beginning of each unit. At the end of the book a glossary of difficult words found in the text is provided. Such facilities are not provided in Geography in Action. Furthermore, from 29 pages of the chapters 'mapwork' and 'astronomical geography' in Geography in Action, 36 new concepts were identified, whereas 14 new concepts were introduced in 23 pages of the 'climatology' chapter in Active Geography. Active Geography therefore presents a lighter load of concepts for learners than Geography in Action does.

Concept development is an integral part of the learning process. In order for concepts to be mastered it is essential that their

definitions should be accompanied with examples and possibly pictorial representation. Furthermore, the introduction of new terms should be well spaced to avoid too heavy a load on the learner's memory, and should take into account the pupil's age.

5.3 Analysis of illustrations

The interpretation of illustrations requires pupils to have graphicacy skills. Unfortunately, such skills are generally taken for granted, even when pupils are confronted with a host of sophisticated visual materials.

Graphicacy skills entail analysing visual material, identifying and interpretating its salient features. In order to analyse visual material, readers have to be able to relate the caption or the heading of the diagram to the visual labels, or the map key to the map itself.

Some visual materials are known to take definite shapes, such as the triangles used for population pyramids, and the circles, rectangles and graph curves also used for illustration in geography. Pupils should also be able to interpret the colours used to show relief regions in maps, symbols used for the representation of data in survey maps, and the relationship between features such as mountains and rivers, industrial sites and sources of power.

In chapter 2 the value of visual materials was discussed. These teaching and learning aids enhance meaning for the readers. Illustrations also help to re-enforce the learning process and to motivate the readers to delve deeper into the subject. Criteria to ensure effectiveness of illustrations were also discussed in chapter 2.

The following chapters were selected for the analysis of illustrations:

i) 'South Africa' in Geography in Action 6, pp. 83-118,

ii) 'Republic of South Africa' in Active Geography 6, pp. 104-126.

Population Geography is an important section in the study of regional geography, and focusing on such issues as population distribution, movements and development. For better understanding of human resources and their development, graphic representation is essential.

Illustrations such as sketch maps, photographs, diagrams and graphs have been analysed in terms of the following criteria: positioning of the illustration in relation to the text; adequacy of the caption or key, and the suitability in relation to the pupils' age and graphicacy skills (chapter 3).

5.3.1 Political and physical maps have been presented in both textbooks to show:

i) the position of South Africa in relation to the continent of Africa;
ii) the position of South Africa in relation to its neighbouring states;
iii) the four provinces of South Africa (this map is not provided in Active Geography);
iv) the 'independent' and self-governing homelands.

The maps have been strategically placed near the text intended for illustration, and help to condense information which could have taken pages to describe. Thus the information can be learnt in a shorter time. Captions and labels are clear. The relief map shows the distribution of physical features and the relationship between such phenomena as mountains and rivers.

The maps are relevant but the assumption that standard 6 pupils are competent to read and interpret maps is questionable. At their stage of development standard 6 pupils have no background knowledge of mapwork and therefore cannot make full use of the

maps presented.

5.3.2 Photographs have not been used extensively in the textbook Active Geography. In contrast, Geography in Action relies heavily on photographs for illustration. The types of photographs used include:

i) Relief photographs of the South African plateau (p.88) are used in Geography in Action, but the lack of labelling to show features of special interest diminishes the value of these photographs.

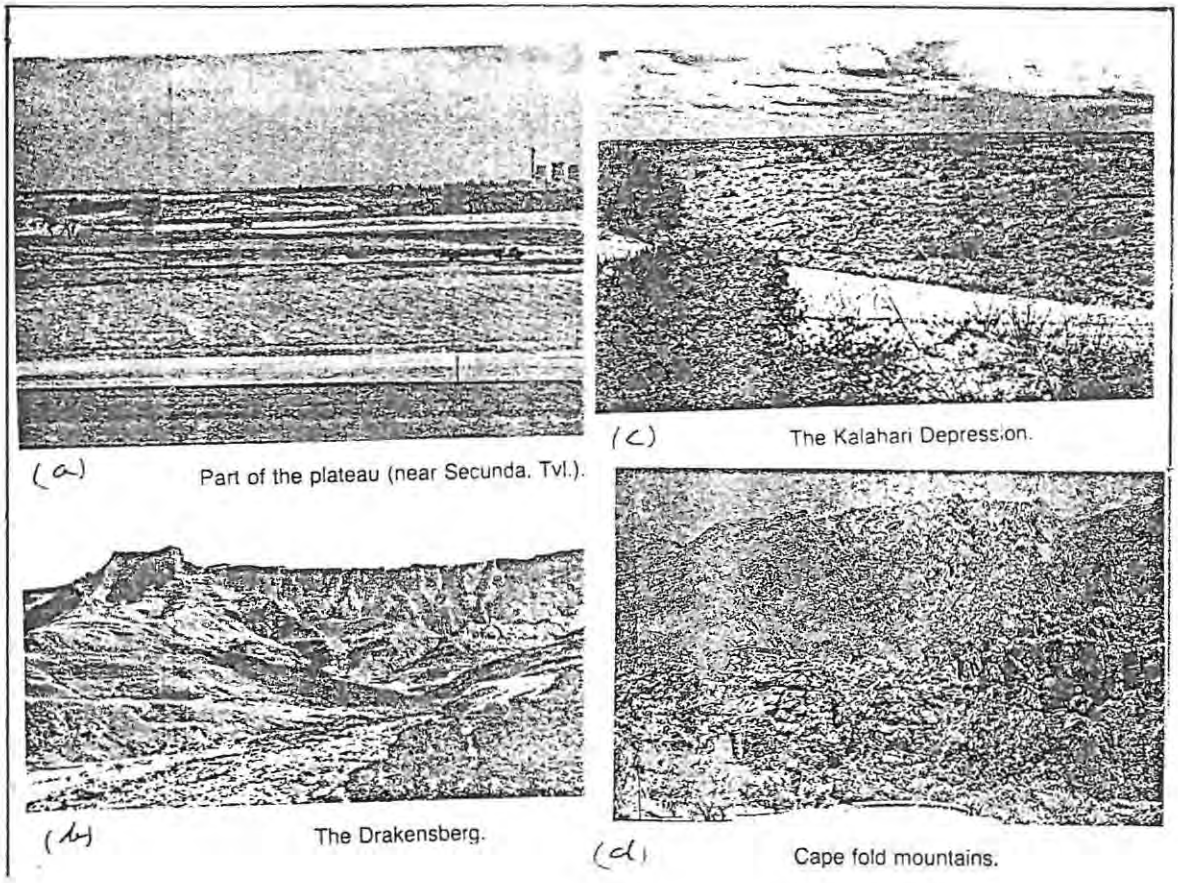


Fig. 5.3.2.1 The Plateau and the Cape fold mountains, Geography in Action, p88

ii) Photographs of contrasted scenes appear in Geography in Action. One of these photographs shows the capital town Phuthaditjaba of Qwaqwa homeland (p.85) placed next to a rural scene in Lebowa homeland. Apart from the fact that the two photographs have been placed next to a sketch map of the homelands, they bear no relevance to the text, and since they provide nothing of substance they are merely decorative.

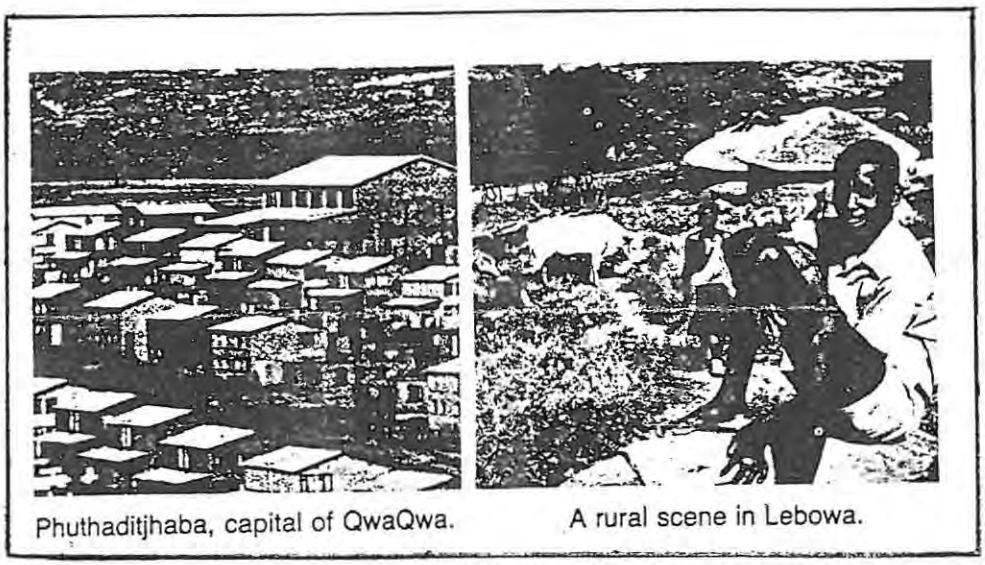
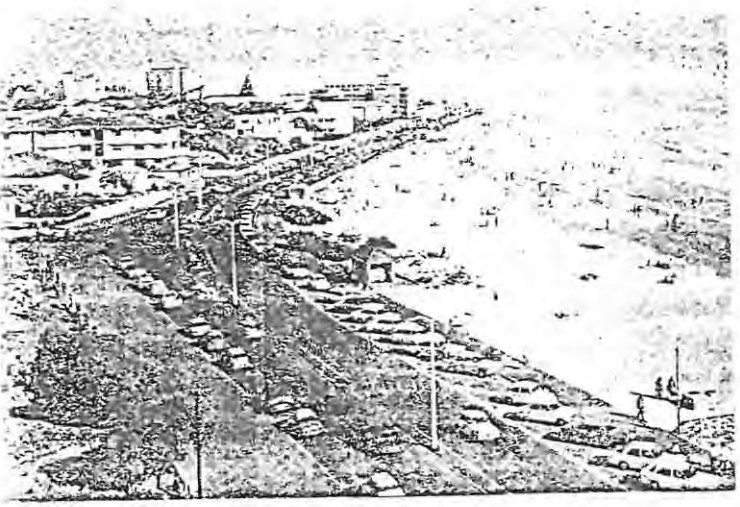


Fig. 5.3.2.2
Homelands, self-governing and independent States
Geography in Action, p.85

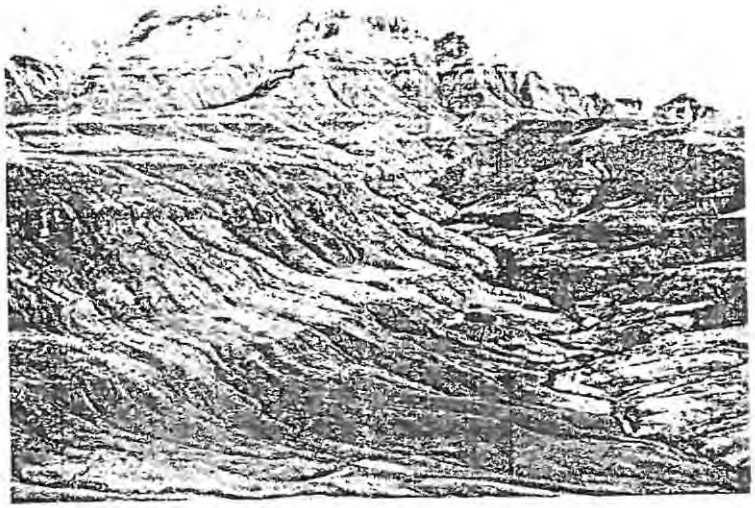
On p.93 (Geography in Action) a photograph of a sea-side scene in summer on the South West Cape Coast is contrasted with a cold winter's day in the Natal Drakensberg. Similarly, a dry Namib desert and the wet forest of the Cape South Coast are placed side by side. Whilst vegetation and other physical features provide some clues in terms of the nature of the landscapes, the photographs are not very helpful, particularly to those young readers who come from the backgrounds where visual literacy is virtually non-existent. It would be to the reader's advantage if temperature and rainfall graphs relating to these areas were placed next to the relevant photographs.

Fig. 5.3.2.3

These places differ in temperature:

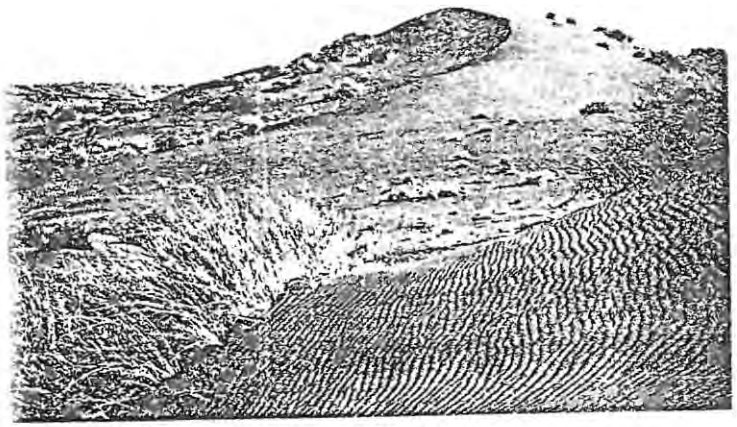


(a) **Hot:** A summer's day on the S.W. Cape coast.



(b) **Cold:** Winter in the Drakensberg in Natal.

These places differ in the amount of rain they receive:



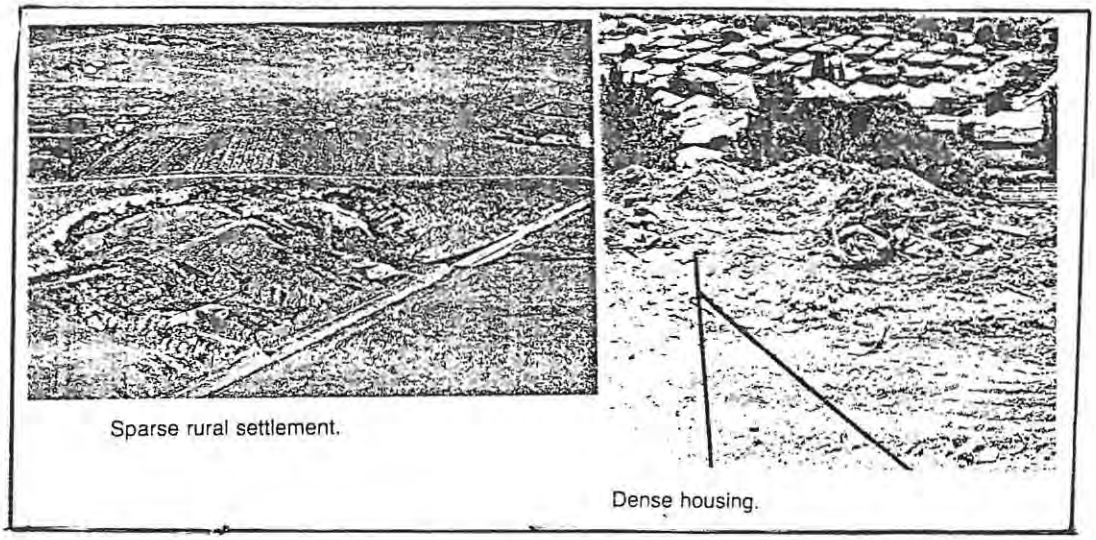
(c) **Dry:** The Namib Desert.

(d) **Wet:** The forest area of the Cape south coast.

Climatic regions, Geography in Action p93

The photographs below from Geography in Action (p.104) display an urban settlement and rural settlement side-by-side. The rural settlement shows sparse housing, while the urban setting displays dense housing. Other than that these photographs offer nothing substantial. Lack of supporting text exacerbates their ineffectiveness.

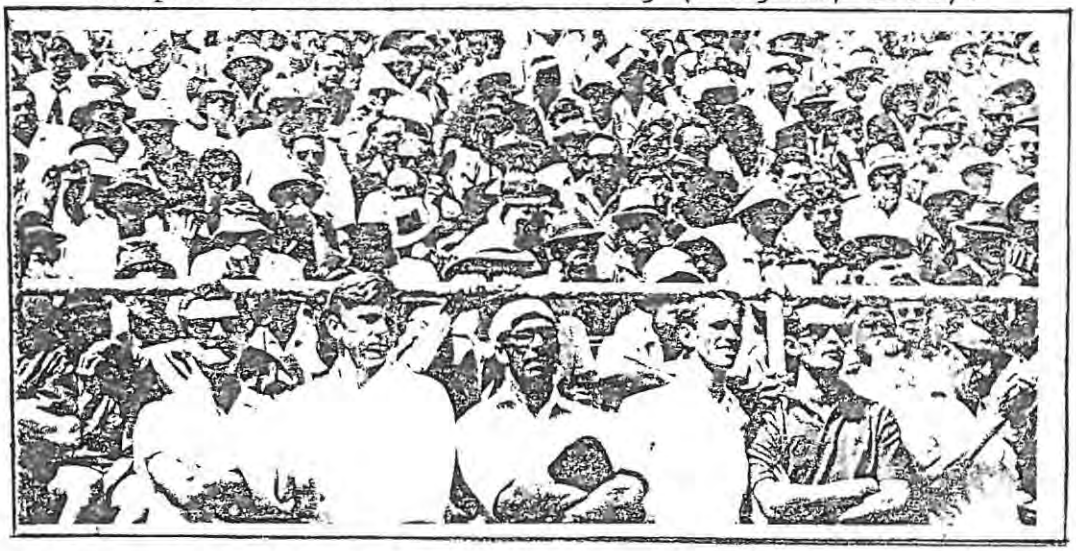
Fig. 5.3.2.4



Where the people of South Africa live, Geography in Action p104

On p.97 (Geography in Action) a photograph of people presumably watching a football match, with the caption 'a crowd scene' bears no relation to the text and can be justifiably classified as decorative material. In the event, this photograph was meant to depict population explosion since it is placed next to a text dealing with population growth, so is in addition an example of obscure referencing (Langhan, 1990).

Fig. 5.3.2.5



South Africa's growing population, Geography in Action p97

The text on pp. 99, 102, 103 in Geography in Action deals with different population groups of South Africa: Blacks, Coloureds, Asians, Chinese, Malays. The photographs of these people are not linked to any particular section of the text, nor do they have captions, labels or explanatory notes. Thus once again the photographs are mainly decorative.

5.3.3 Diagrams are used in Geography in Action but not in Active Geography. On p.87 two cross-sections of the South African plateau have been drawn to provide more detailed information on relief features and for clarity. Cross-section techniques are not taught until standard 7 at the very earliest, as they are regarded as a complicated method of representation which may not mean much to the child (Graves, 1975).

5.3.4 A variety of graphs has been used in the two selected textbooks. In Geography in Action (p.94) a combination of a temperature line graph and a rainfall bar graph has been placed near the text intended for illustration. While rainfall information in the text is concrete (350mm to 700mm per annum), temperature is generalised as being hot in summer and mild in winter. Active Geography uses colour and a key to illustrate temperature and rainfall in South Africa. Such graphs are complicated and unsuitable for the standard 6 child who lacks graphicacy skills.

On p.96 Geography in Action depicts population growth in South Africa for different population groups from 1900 to 1980 by means of a bar graph. The location of the graph on the same page as the text intended for clarification increases its value in terms of illustration. However, the combination of four population groups in one graph, most probably for comparison's sake has made it very complicated and

difficult for the standard 6 child, who may not grasp the variables of the different population groups. The graph curve in Active Geography is much simpler and comparatively easier to understand (p.119).

Fig.5.3.2.6 The people of South Africa, Geography in Action p 96.

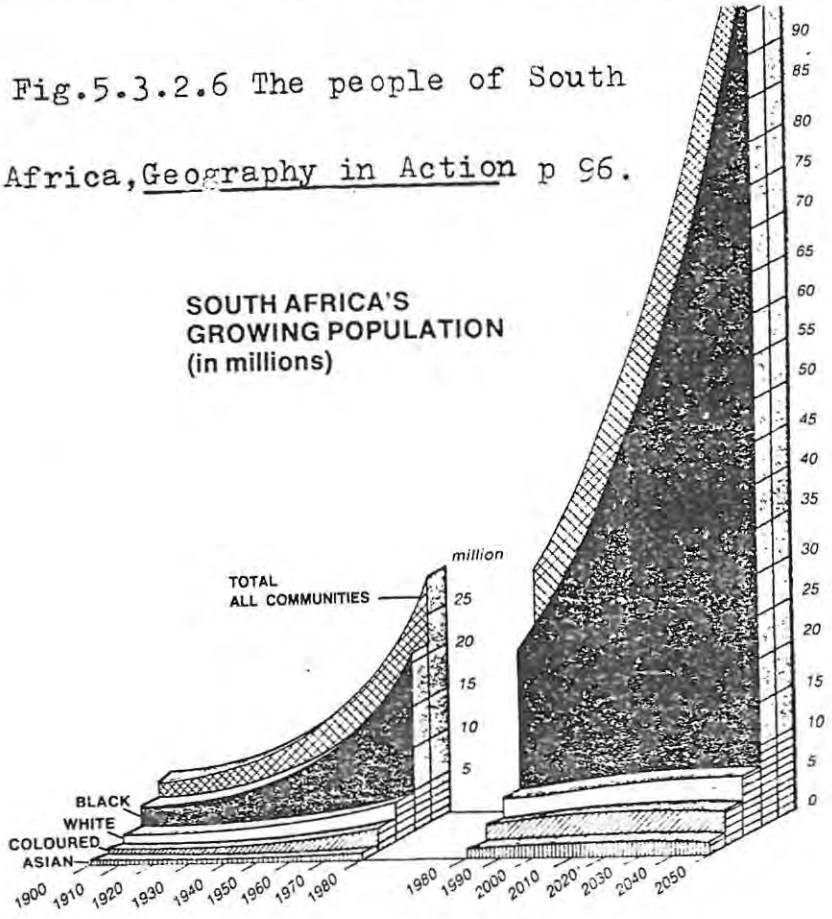
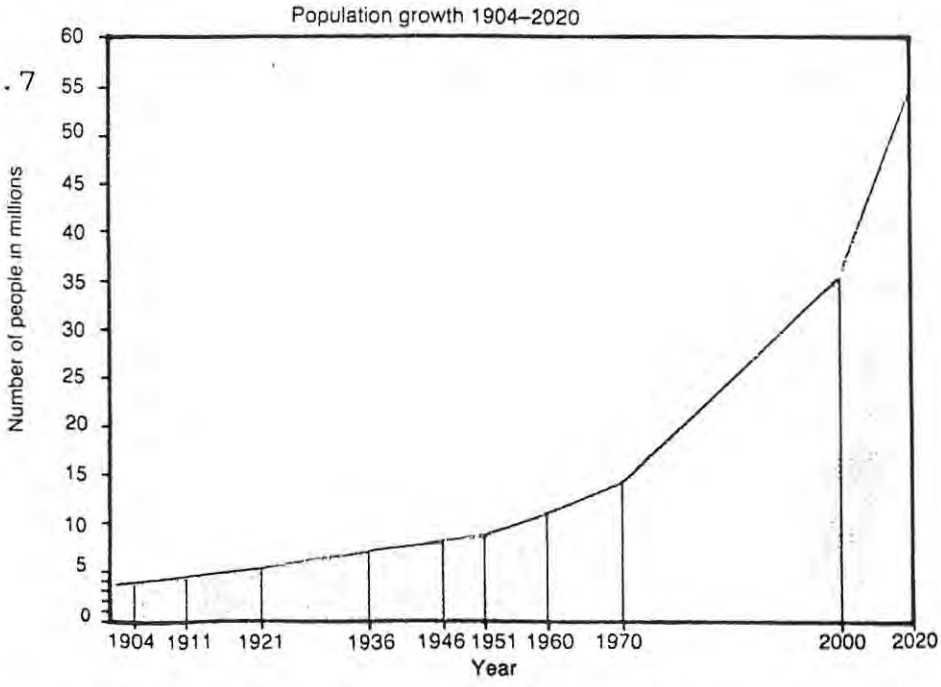


Fig. 5.3.2.7



Population growth in South Africa from 1904 to 2020
Active Geography p119

Geography in Action (pp. 106, 107) displays three types of graph:

i) a curve showing rural depopulation and increase of urban population in percentages between the years 1900 and 1980;
ii) a pie graph illustrating the concentration of people in the cities and
iii) a unit graph showing the increase of people who moved to the cities between 1900 and 1980. The graph techniques may be too sophisticated and beyond the scope of a standard 6 child.

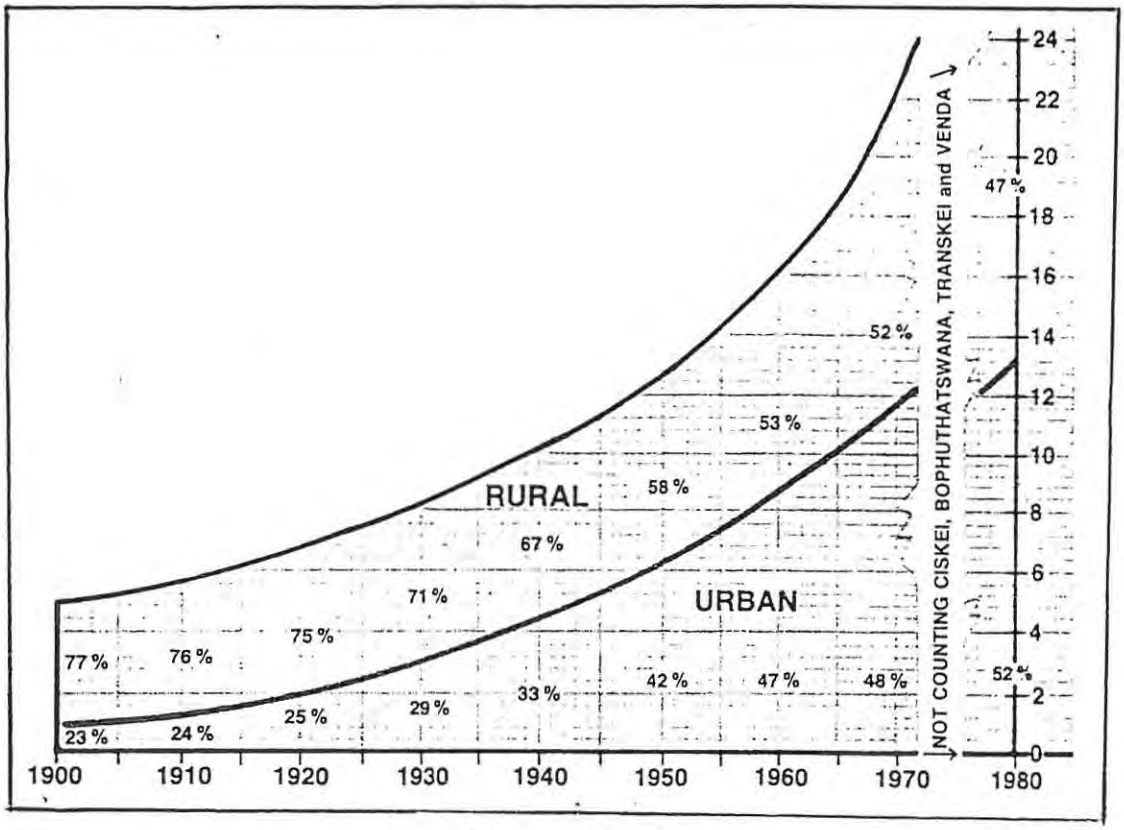
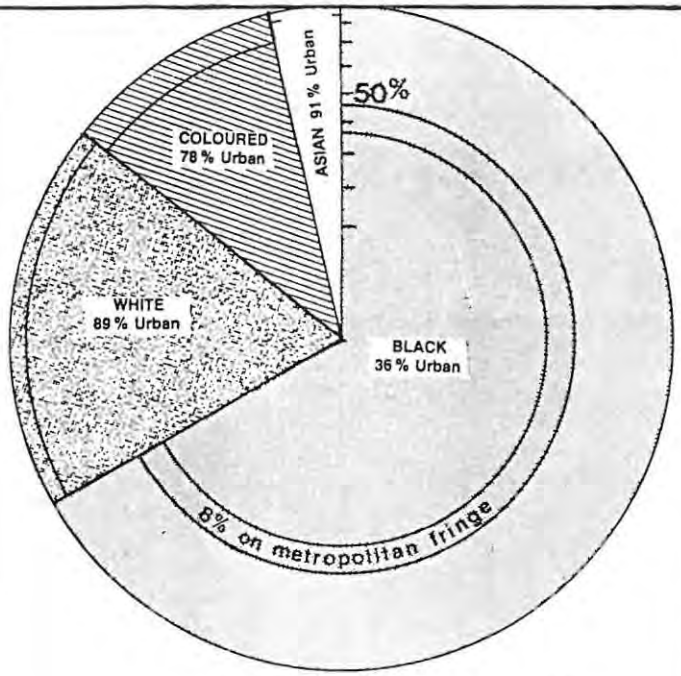


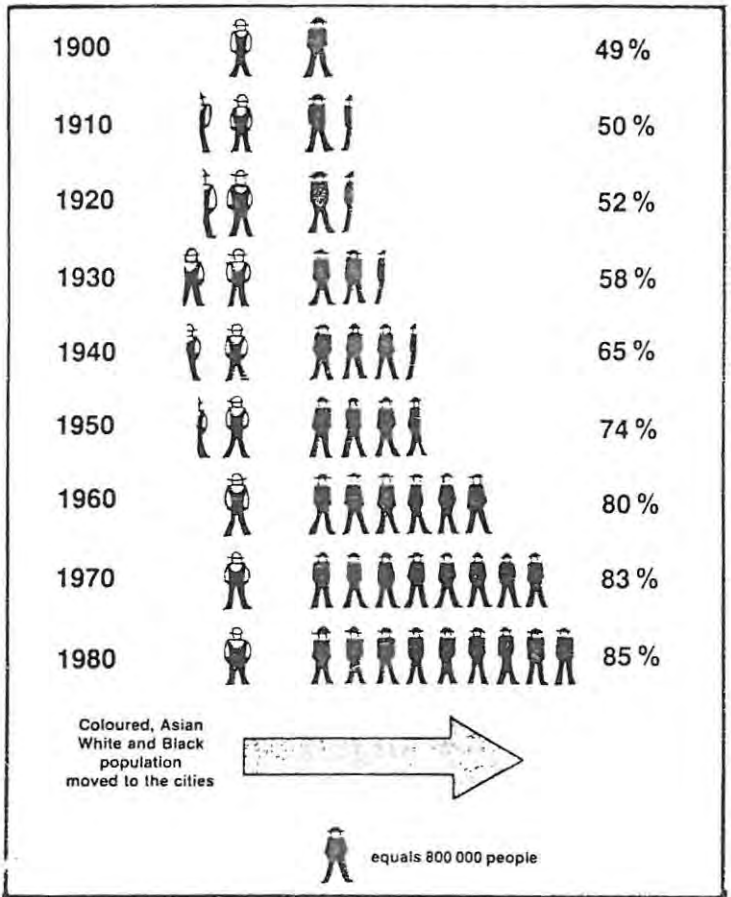
Fig. 5.3.2.8

Permanent migration to the cities, Geography in Action p106



The concentration of people in the cities.

Fig.5.3.2.9
Geography in Action p 106

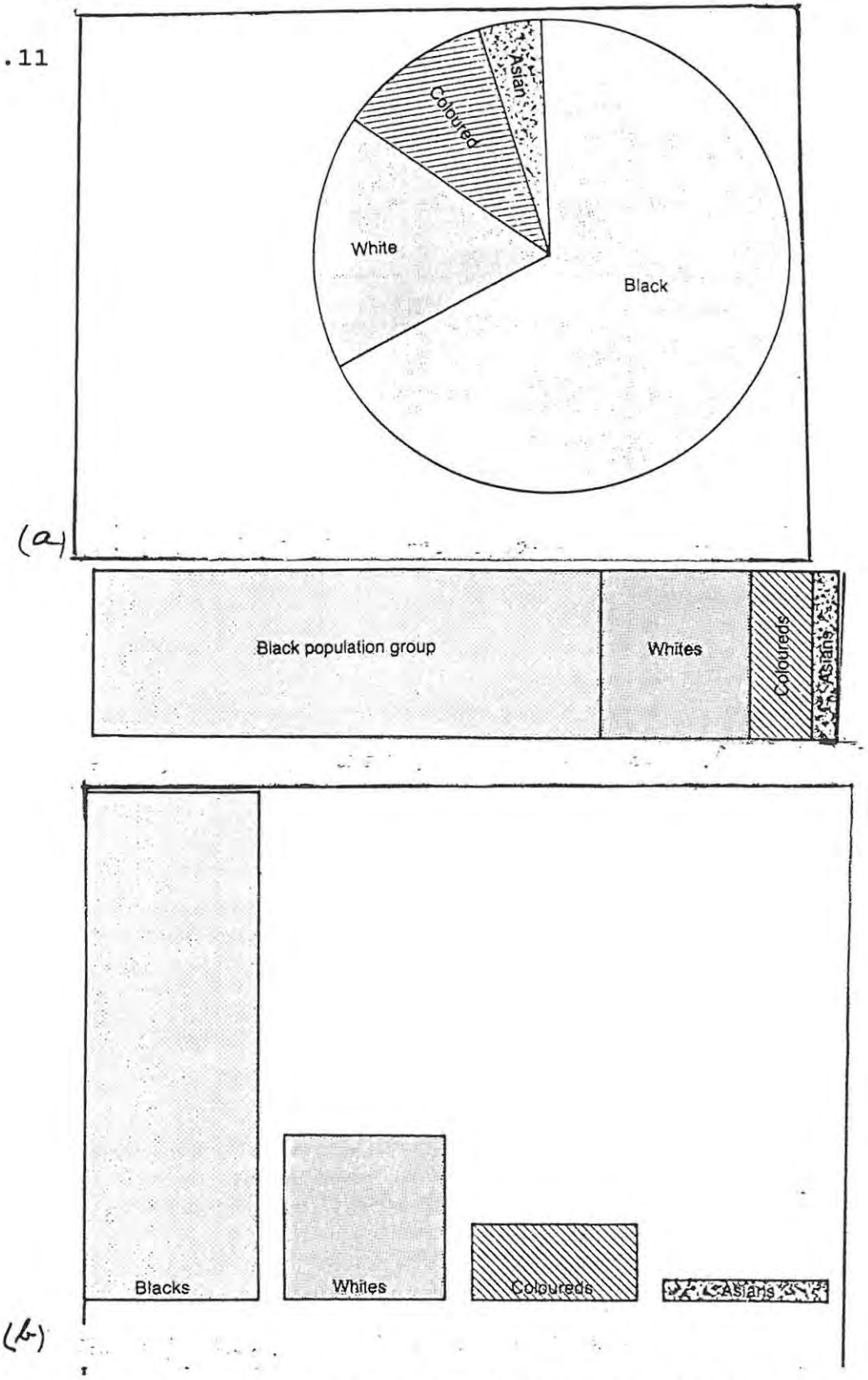


This graph shows how people moved to cities.

Fig.5.3.2.10 Geography in Action, p 107

Active Geography (pp. 120, 121) employs a pie graph, a rectangle and bar graph to show the population composition of South Africa. These are much easier to understand than those in Geography in Action.

Fig. 5.3.2.11



The composition and structure of the population of South Africa, Active Geography p120-121

Overview of illustration analysis

Textbooks employ a variety of graphic representations for the purpose of clarifying texts for the benefit of learners. The irony of the situation is that the young learners who are confronted with sophisticated illustrations may lack the requisite graphicacy skills, either because they come from a cultural background with few opportunities to develop visual literacy or because they have not been taught the skills in the primary classes. Furthermore, the technique of interpreting graphic representations is not taught before standard 8, if it is taught at all.

As has been seen in the two selected textbooks, illustrations are presented with the aim of enhancing understanding of the text, but probably fail to do this on account of the pupils' lack of graphicacy skills. The problem is exacerbated by the text's failure to aid the reader's understanding of the visual material. There are few if any specific references to the graphic representations, such as: 'if one looks at graph Fig.20, one will find the following things ...' There are no exercises which attract the attention of the child to the graph by posing appropriate problems for the child to solve. The text makes few attempts to explain the graph or diagram, nor does it incorporate the graphs into a meaningful and logical understanding of how to read and interpret graphs. In short, the texts do not help the child to understand the graph, diagram or photograph, but assume the reverse: the visual is 'simply there'.

5.4 Identification of bias and stereotyping

Bias is unreasoned distortion of judgement or prejudice by an individual or group against another person or group (Clark, 1974). For example, bias may appear through unfair allocation of space in the textbook to the treatment of a group, or as lack of sensitivity in the treatment of delicate issues such as boundary problems. Bias tends to conceal, underplay or distort

problems. Stereotyping, on the other hand, is an oversimplification of issues to suit and satisfy a group's ego. The purpose of stereotyping is to strengthen cultural values (du Preez, 1982). According to du Preez, every group of people is entitled to their own stereotypes, provided that these stereotypes are not negative and do not discriminate against other groups.

To assess bias and stereotyping in the two textbooks this study has used:

i) the Garcia-Armstrong matrix system (1979), and
ii) the application of du Preez's (1982) master symbols and Clark's (1974) critique of geography textbooks (chapter 3).

5.4.1 The Garcia-Armstrong Matrix System

As stated in chapter 3, this system was chosen because it is flexible in that it can be used to collect data as well as to render comparisons relating to the author's treatment of any group in the textbook.

The chapter dealing with the homelands and the products of South Africa was selected in each of the two textbooks and analysed to detect bias and stereotyping. The analysis selected the black people of South Africa as the target group, since a common criticism of South African geography textbooks is their Eurocentric bias (Mphaphuli, 1992).

Table 5.4.1.1

The people of South Africa and the homelands
Geography in Action pp 96-233

ACTIVITY/ PASSITIVITY	1 No reference to status vis a vis other named groups	2 Indication of status equal to or higher than that of other named groups	3 Indication of status lower than that of other named groups	
No reference to activity or passitivity of target group	X X X X X X X X X X X X X X X X X X X X X X X X X 25 (40 %)			A
Activity characterizes target group	X X X X X X X X X 9 (14 %)	X X X 3 (5 %)	X X X X X X X X X X X X X X X X X X 18 (29 %)	B
Passivity characterizes target group	X 1 (2 %)	X X 2 (3 %)	X X X X X 5 (8 %)	C

MATRIX FOR USE IN THE GARCIA-ARMSTRONG MATRIX SYSTEM FOR TEXTBOOK ANALYSIS

Textbook evaluation: A simple procedure for identifying treatment of selected groups, The Social Studies p35

The analysis of Geography in Action revealed that in 29% of the times when the target group was mentioned they were shown as having a lower status than that of the white group but at the same time shown to be active in terms of being in control of their environment. However, on 8% of the occasions the same group was shown as being of low status and passive.

In a closer analysis of the text it was noted that in relation to the homelands the black agriculturalist is seen as having a lower level of productivity than the white farmer, but is however in control of his environment. But in the case of the migrant labourers, the target group is shown as being both of low status and passive: the migrant labourer is depicted as a person who is forced into certain situations and is no longer in control of his own destiny.

The target group is identified as being equal to or higher than the white group in the text analysis on three occasions, a total of 5%.

Of the 63 occasions when the target group was mentioned in this chapter, 40% contained no reference to the status or activity/passivity of the target group. The implication here is that in 40% of references to the target group there was complete neutrality. However, in 14% of citations the same group was portrayed as having no status although in control of their environment.

The foregoing analysis indicates clearly that, at the most, black South Africans are either assigned a low status (29% of occurrences when they were mentioned) or no reference is made to them in respect of status and activity/passivity (40% of occasions). It is interesting to note, however, that in spite of their low profile in the textbook, they are generally depicted as active and in control of their environment.

Table 5.4.1.2

The Republic of South Africa - population and the homelands: Active Geography 6 (pp 119-216).

ACTIVITY/ PASSITIVITY	1 No reference to status vis a vis other named groups	2 Indication of status equal to or higher than that of other named groups	3 Indication of status lower than that of other named groups	
No reference to activity or passitivity of target group	X X X X X X 6 (24 %)			A
Activity characterizes target group		X X 2 (8 %)	X X X X X X X X X X X X X X 14 (56 %)	B
Passivity characterizes target group	X 1 (4 %)		X X 2 (8 %)	C

MATRIX FOR USE IN THE GARCIA-ARMSTRONG MATRIX SYSTEM FOR TEXTBOOK ANALYSIS

Textbook evaluation: A simple procedure for identifying treatment of selected groups, The Social Studies p35

The chapter on the population of the Republic of South Africa including the homelands in Active Geography was analysed to identify the status and activity/passivity accorded the target group. The following was revealed: Of the 25 occasions on which the target group was mentioned, 56% portrayed the target group as having a lower status than any other group mentioned in the text, but as active in respect of being able to control their environment. On 12% of the occasions that it was mentioned, the same target group was shown to be of low status and passive in terms of their inability to control their environment.

On two occasions, which add up to 8% of the times when members of the target group were mentioned, they were shown as being equal to the other main groups in terms of the presence of mineral wealth in some target group areas, but if the amount and level of exploitation of the minerals in these areas is compared to that of the other groups the level of equality is questionable.

Finally, on 24% of occasions when the target group was mentioned they were neither allocated a status nor were they referred to as being active in terms of being in control of their environment; that is, they were perceived neutrally.

Overview of the treatment of the selected target group analysis

As regards the treatment of the target group in the two selected textbooks the following observations have been made:

i) The members of the target group (the Blacks) are generally placed in a neutral category in that the information presented about them makes no reference to issues relating to activity/passivity or to status. For example, it is not uncommon to come across statements such as 'in 1980 there were 20 million black people in South Africa' (Rix 1985:98), with no information of substance preceding or following the statement.

ii) On a number of occasions the target group seems to be seen as more controlled by events than controlling events. This is particularly so in the case of migrant labourers in the homelands who seem to have no control over their own destiny. It should be stated that the situation in which the black people find themselves is no fault of theirs but a reflection of the policy of the rulers at the time when the books in question were written.

iii) Very often the target group is portrayed as consisting of people who have a low status relative to other named groups. There seems to be uncertainty about the group in terms of their activity in and passivity to their environment. On one hand no particular references are included that relate to the members of the target group either acting upon their environment or reacting to it. On the other hand, the target group is characterised as actively seeking to influence events.

It is clear from the foregoing that the target group has a lower profile in the two selected textbooks than the other population groups.

5.4.2 Identification of bias and stereotyping through the application of du Preez's (1982) master symbols and Clark's (1974) critique of geography textbooks

In this section, coverage of South Africa's population, its main products and the homeland areas of Ciskei and Transkei was scrutinised and analysed in relation to du Preez's master symbols and Clark's criticism of geography textbooks (chapter 3). In the analysis the following emerged: population divisions, the main products and the homelands - all arguably, political constructs - were reported uncritically, the legality unchallenged. No argument was ever raised for or against their existence and the inconvenience they caused black South Africans. The absence of master symbols in the texts selected does not however mean that

these textbooks are completely free of problems related to bias and stereotyping. The examples below highlight the type of bias and stereotyping identified by Clark in 1974 which are present in the textbooks analysed in the study:

i) The introductions to 'The people of South Africa' in both Geography in Action, p.96 and Active Geography, p.119 adopted a neutral and factual stance. While attention is drawn to the urgent need for housing, schools, hospitals and other services following the rapid increase of population, this issue is glossed over (Clark, 1974) and no specific mention is made that it is the black population which is most in need of such services.

ii) The second part of the chapter (Geography in Action) looks at diversity of population. Here it is interesting that the writers conceded that there was a variety of ways to analyse a population's composition. However, by using the criterion of race the authors continue to accept the status quo of South Africa's method of analysing population composition, thus by implication reproducing the master symbol of legality. The division of population groups in terms of race is not discussed in Active Geography, but the graph that shows population composition supports the separation of races as enshrined in the laws of the land.

iii) The next part of the chapter provides a short analysis of each of the population groups. Geography in Action's handling of the four groups (Blacks, Coloureds, Asians, Whites) is neutral and somewhat clinical, but the authors overtly acknowledge that their approach accepts as fait accompli the policy of segregation. In discussing the black peoples of South Africa Geography in Action has progressed to the point of acceptance that the blacks have rights to the land, as they settled in the Transvaal and Eastern Cape as early as the 5th and 7th century respectively. Active Geography avoided any reference to

the early settlement of the black people in South Africa.

iv) The two textbooks are mainly concerned with a description of the economy of the white areas and vary in the importance which they attach to the black homelands. Mineral products such as gold and diamonds and farm products such as maize and wool receive special treatment. The emphasis is on the commonly-held view that South Africa is a mining and agricultural country.

v) The criterion of neutrality is used in dealing with the political status of the black homelands. Any description of this status is brief and factual. Political comment is avoided (Clark, 1974) and authors by inference accept the status quo of South Africa's policy of separate ethnic states.

vi) The section on the economy of the Ciskei homeland is dominated by emphasis on a subsistence economy and the migrant labour system. As far as the agricultural economy is concerned, the authors adopt an optimistic tone about the possibilities for development and make no reference to the shortage of land and other factors that militate against meaningful development (Clark, 1974). The migrant labour system is justified as a source of millions of Rands for the homelands while its negative effects on family life are overlooked. The per capita income of the Transkei homeland (Geography in Action, p.218) is shown to be higher than that of most African states. The comparison implies that all is well in relation to black homelands.

This section of the study reveals the extent to which textbook writers can overlook or gloss over the inequalities created by the segregationist policies of the state. The status quo in relation to the homelands is accepted in terms of legality considerations. The authors' neutrality in the prevailing state of affairs is displayed by their lack of comment on such

practices as race division, the migrant labour system and the political status of black South Africans. The fact that the homelands are not economically viable and were created for the political and economic convenience of white South Africans is overlooked. The inhabitants of the homelands play no significant role in the political and economic life of the country.

Summary

The textbook analysis has highlighted areas where change is required to make the learning of geography meaningful:

1) Texts intended for English second-language learners should take into account the language competence of the pupils so as to enhance the pupil's comprehension of the text.

2) Concepts used in the text should be accompanied by definitions and examples to make learning meaningful.

3) Visual representations used in the textbooks should consider the pupils' graphicacy skills; pupils should be shown how to make full use of illustrations in the text.

4) Bias and stereotyping, while no longer blatantly obvious, occur in more subtle ways through the assumption of a neutral stance. Problematic issues such as race, class, colour and gender are avoided. These issues should not be glossed over in a subject like geography, which attempts to aid pupils in understanding their world.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This research set out to investigate the suitability of prescribed textbooks for Ciskei pupils in standard 6. Since the introduction of formal education in South Africa textbooks have been used as a means of interpreting the geography syllabus content. Research reveals that the majority of teachers rely so heavily on the textbook for subject content that few if any other sources of information are ever consulted (Chapter 1). Furthermore, because of the shortage of funds in education, schools generally rely on one textbook per subject, a practice which tends to aggravate the possible problems presented by a particular textbook.

At some schools the prescribed syllabus is rarely consulted, on the premise that prescribed textbooks are written in accordance with the syllabus requirements. The reliance on the textbooks to the exclusion of other sources of information encourages rote learning, a method which is educationally condemned as a learning strategy. The role of the textbook cannot be over-emphasised and pupils and teachers alike need to be guided in its use and interpretation.

6.2 Highlights of the research findings

The learning of standard 6 geography is hampered by a variety of factors, such as a lack of equipment in the form of maps, weather measuring instruments, etc., the absence of which affects the effective learning of the subject. As a practical subject geography benefits by being taught in a specialised venue, i.e. a geography room where learning media can be displayed and used as the need arises. A geography room creates an atmosphere which

is conducive to effective learning and generates interest in the subject.

During the informal interview respondents expressed dissatisfaction with the procedure followed in prescribing textbooks. This is the prerogative of the Department of Education and subject teachers are not consulted. Consequently, teachers felt that prescribed textbooks are often lacking in appropriate content substance, either too simplistic or too difficult for the age group for which the books are meant. Teachers also emphasised the fact that factors such as the second language as medium of instruction and the pupils' cultural background influence the way in which pupils interpret the text (Chapter 4).

In any learning situation supplementary reading is needed to enrich the pupils' knowledge of the subject matter. The lack of library facilities in most black schools deprives pupils of an opportunity to read widely on subject topics.

The research findings highlighted the ineffective teaching approaches used in some Ciskei schools, which include the lecture method, rote learning and the absence of pupil activity. The judicious use of stimulus materials such as maps, photographs and models is not fully exploited. Similarly, strategies such as fieldwork excursions and practical work are rarely used as they are considered to be too time-consuming (Chapter 4). It is important to note that effective teaching is not measured in terms of the number of topics covered but rather in terms of the strategies which enhance motivation, interest, optimum learning activity as well as the integration of subjects (Chapters 4 and 5).

The analysis of textbooks focused on four aspects: readability of the text, introduction and development of concepts, use of illustrations and bias and stereotyping. The major results of

the analysis are as follows:

1. The selected textbooks were written in accordance with the JMB syllabus and were not intended specifically for second-language pupils. In addition aspects of the discourse employed are problematic and hamper the comprehension of the text. There are instances where the reader is required to identify missing referents in the text or the supporting diagram. Terms are often used in the text without first being established conceptually in the learner's mind. Vital information in the text or diagram is occasionally omitted as being obvious, and it is not uncommon to find links between topics and logical sequencing being overlooked (Chapters 2 and 5).

2. Concept development relies on the language competence of the pupils and visual materials used in the text. This is particularly so where difficult concepts express relationships of an abstract nature. In the chapters that were scrutinised some concepts lacked definitions of examples. Consequently such concepts cannot be conceptually established in the pupil's mind. Furthermore the chapters that were analysed exacerbate the problem by introducing a large number of new terms which are not explained, thus overloading the young learner's memory (Chapter 5).

3. On the whole visual materials are appropriately positioned in relation to the text, but their value if diminished by a lack of captions and inaccurate labelling, among other things. Some visual materials are too sophisticated for standard 6 pupils and thus do not lend themselves to easy interpretation.

4. The black people of South Africa do not play any positive role in the selected textbooks. Their position in terms of status, activity/passivity is questionable. Further, the

inequalities and injustices that blacks have to endure in terms of political status, confinement to ethnic homelands and inadequate social services are glossed over and not commented on.

6.3 Limitations of the research

The limitations imposed by the half-thesis compelled the researcher to narrow the scope of the study, for instance, to confine textual analysis to two textbooks used in standard 6. Class observation of teaching strategies employed in Ciskei schools was excluded, and in this respect the researcher had to rely on information gathered in the informal interview as well as his own experience.

6.4 Recommendations

This study has highlighted problem areas which hinder text comprehension in standard 6 geography in Ciskei schools in particular and black schools in general. In order to eliminate these problems there is an urgent need to focus on the geography text, the learner and the teacher, with a view to improving the learner's performance in the subject. In the light of the above discussion recommendations are made regarding the kind of textbook and learning strategies which can help facilitate comprehension of the text:

1. Textbooks

The selection of the textbooks should involve all concerned: administrators, subject advisers and subject teachers. Geography teachers are in a good position to advise on the selection of suitable textbooks by virtue of their experience in the teaching of the subject. They are also better informed about the pupils' abilities. Prescribed books should satisfy the following

criteria:

i) The language of the text should be fairly easy so that it can be understood by an average child with relative ease. At the same time the text should challenge the thinking abilities of the pupils.

ii) Linked to the language aspect is the introduction and development of geography concepts. In the standard 6 phase there is a move away from factually based study to concepts-oriented study. It is essential, therefore, that special attention be given to the introduction and development of concepts to facilitate the comprehension of the text.

New concepts need to be defined and accompanied with suitable examples. Further, explanation can be enhanced with the aid of meaningful visual materials. Since some of the concepts and values used in geography have been developed in other related disciplines, geography textbooks should move away from compartmentalisation and encourage interdisciplinary work in order to enrich the study of geography and also to emphasise the fact that the problems encountered in the study of geography are not exclusive but interdisciplinary. To make provision for pupils' supplementary reading library facilities should be provided (Chapters 2 and 4).

iii) To clarify concepts textbook writers use maps, diagrams and photographs. Pictorial representations contribute to effective learning and help pupils to get clearer insight into the subject matter. To achieve these objectives textbooks should present pictorial representations which are meaningful and at the same time present something close to reality.

If properly developed and used, visual materials are the best attention-holding techniques. To be effective pictorial representations should consider the following criteria: captions, clarity, legibility, labelling or a key, and possibly some footnotes. In addition, only important information should appear on the map, diagram or photograph to avoid over-crowding and confusion. It is helpful, however, to formulate a set of guide questions to focus pupils' attention on important points. Furthermore pupils may be required to fill in some data on the map or indicate certain facts. Captions should be meaningful in the sense that they focus on the purpose of the accompanying pictorial representation. Where necessary a footnote may complement the caption. Textbook illustrations should be attractive to capture the learners' imagination and arouse their interest (Chapter 5).

2. The child

The learning of geography is to a large extent based on the pupils' direct experience of their environment (Graves, 1975). In the light of this consideration the pupils' perception of the environment should be taken into account before efforts to enlarge it are made. The extent of the pupils' perceptions depends upon their age and experience. The nature of the text presented to standard 6 pupils must be guided by these considerations if learning is to be meaningful.

Research has shown that pupils in standard 6 in particular do not make full use of the visual materials found in geography textbooks (Chapter 5). This is attributed to the fact that the pupils' perception of photographs, etc., is not yet developed. The pupils' graphicacy skills need to be developed in order to enable them to read and interpret visual materials. There is a need to expose children to pictorial materials as early as the primary school phase in order to develop the graphicacy skills

they will need at secondary school.

There is the danger that textbook writers will often assume that pupils even at standard 6 level do possess graphicacy skills and are therefore able to interpret pictorial representations. Textbook authors could assist learners to understand learning materials by making constant reference to the relevant parts of the illustration in order to stress the point that maps or diagrams are integral parts of the text. Pupils may be required to do exercises based on visuals, to indicate features of the photograph they can recognise or to describe the photography. In this way pupils' interest in visual materials will develop to the extent that they can become creative and start drawing their own diagrams. Constant practice in drawing diagrams will help re-enforce the learning activity.

It is a fact that pupils learn best when they are personally involved in the learning experience. Therefore, whatever is done in class should be pupil-centred and aimed at involving pupils actively (Chapters 4 and 5). Pupils should be afforded opportunities to handle learning aids and participate in building models and drawing maps and diagrams. In this regard textbook writers could assist by making provision for these activities. At the end of sections and chapters exercises of this nature should be formulated for the pupils.

Furthermore the learning activity in class could be supplemented by fieldwork and outings, to allow pupils to engage in observation and measurement in the field and give them practice in the recording and processing of data and the interpretation of written and graphical information. The practical importance of fieldwork consists in the opportunities afforded to pupils to identify landscape features that are dealt with in the geography textbook. Group work, discussions, play activities and other child-centred learning approaches should be employed. For example, weather studies can best be taught by allowing pupils to observe the weather in groups or read the weather instruments

daily, record the weather conditions and learn to interpret the recorded information (Chapter 3).

3. Geography teachers

In Chapter 4 it was indicated that some teachers who handle geography in Ciskei schools are not suitably qualified to each this subject. Such teachers may improve their qualification and the art of teaching geography by attending in-service training, joining societies or enroling with a correspondence college. Teacher training colleges and universities should also train more geography teachers.

The appointment of teachers should consider the needs of the school. Similarly, the allocation of subjects should as far as possible take into account the teachers' background knowledge of the subject. Some teachers may find the interpretation of the text and pictorial representations problematic. To solve this problem teachers could be supplied with a teachers' guide which gives suggestions about the interpretation of the text and visual materials. The teachers' guide could also suggest effective learning and teaching methods that might be used for different sections of the syllabus to ensure that pupils master the text.

In this study the focus has been on the interaction between the readers, the text, the writer and the teacher. The text provides the readers with clues to help them understand the text. The writer assumes that the reader is capable of inferring meaning from the text. The teacher's role is to interpret the text for the benefit of the young readers. Without this interactive process learning would not be possible.

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Appendix 4.1

3.2.2 Letter to the school principals

Lovedale College

16-10-1992

Dear Principal

Composition of the respondents: Research forms

Kindly request your standard 6 geography teachers to complete the attached forms for an inquiry into the factors which affect the teaching and learning of geography in the first year at secondary school.

The form is completed anonymously and placed in a sealed envelope which should be returned to you for collection by the researcher. Please let me know where I can contact your standard 6 geography teachers after school hours.

Thank you

Yours faithfully

_____

T. M. Rulashe.

SAMPLE: FORM TO BE COMPLETED

1. Please complete this form as honestly as you can.

2. Do not write your name on the form.

3. Place the completed form in a sealed envelope and give it to the principal from whom it will be collected.

4. Thank you

T. M. RULASHE

16/10/1992

Teachers:

Age:

Sex:

Position: _____

T - Teacher

AT - Ass. Teacher

HOD - Head of Dept.

DP - Dep. principal

P - Principal

Highest School

leaving

qualification

Std/Degree (d) _____

Teachers' Qualification _____

S - SEC

J - JSTC

ST - STD

U - UED

B - BPed

Other

Number of years teaching geography in std 6 _____

Number of years teaching geography at other levels _____

Number of years general teaching experience _____

Subjects for which you received formal training _____

COMPOSITION OF THE RESPONDENTS:

Teachers:	1	2	3	4	5	6	7	8	9	10
Age:	42	42	32	31	28	28	28	27	26	24
Sex:	M	F	M	M	M	F	F	F	F	F
Position:	AT	DP	AT	T	T	T	T	AT	AT	AT

T - Teacher

AT - Ass. Teacher

HOD - Head of dept.

DP - Dep. Principal

P - Principal

Highest school leaving qualification: Std/Degree (D)	10	D	10	10	10	10	D	10	D	10

Teaching qualification:	JSTC	U	JSTC	STD	STD	STD	JSTC	STD	B	SEC

S - SEC

J - JSTC

ST - STD

U - UED

B - BPed

Other

Number of years teaching geography in std. 6	8	3	8	5	4	1	1	4	1	2
Number of years teaching geography at other levels:	10	16	8	nil	4	1	1	4	1	nil
Number of years general teaching experience:	18	16	8	6	4	1	6	4	1	2
Subjects for which you received formal training:	HG	EG	EX	EH	XB	XG	AG	X	GA	SBX	EX

Eng = E, Afr = A, Xh = X, Geo = G, Bio = B, Agr = AG, His = H, B Studs = BS

Appendix 5.1.1

5.1.1 Mapwork analysis: Geography in Action pp 9 - 24

1. Obscure references

Finding direction on a map p. 9

- 'maps are very important tools in geography'
- 'maps can be used to show land height ..... on the earth's surface' - no relation to heading
- diagram p.9 'bearing is given ..... clockwise from the north' - incorrect labelling,
- diagram p.21 - the cross section - confusing

2. Register terms

Bearing p.9 distribution p.9 electro-magneticfield p.11

magnetic north p.11 orienting p.12

topographic maps p.17 tools p.9

3. Thematic incoherence

- diagrams p.9 'direction' and 'bearing' - not complementary
- finding direction p.9 - no relation to the following paragraph: 1maps are used by geographers .... ' p.9

- 'how scale affects maps' pp 14,15 - too complicated for standard 6 pupil
- degrees may be divided into small units called minutes p.16 - Not explained

4. Propositional fulness

terms: distribution, tools p.9, elecro-magnetic field p.11, cross section diagram p.23 - Not conceptually established,

5. Logical relations

- p.9 relationship between 'direction' and 'bearing' Not stressed

topics 'reading map signs, contours, contour patterns on maps pp 17 - 20 - Not logically arranged.

- 'Rotation of the earth' p.44 - text illogical,
- 'revolution of the earth' p.44 - text lacks logical arrangement
- diagram 'the orbit of the earth around the sun' p.45 - No indication of direction of movement, diagram 'day and night on earth' p.47 - direction of rotation and effect of illustration questionable.

Appendix 5.1.2

5.1.2 Astronomical geography: Active Geography pp 39 - 67

1. Obscure reference

- The solar system p.39 - No revealing sub-headings
- diagram, 'view of our galaxy' p.41 - complicated and confusing
- 'the shape and size of the earth' p.42 - No complementary text
- 'the earth has a shape similar to a: tennis ball, rugby ball' p.42 - not explained
- diagram 'drawing the earth's orbit' p.44 - misleading p.46 rotation and revolution of the earth dealt with simultaneously - confusing

2. Register terms

Galaxy p.41,	milky way p.41	eclipse p.62
imaginary	centrifugal	tilted
axis p.46	force p.67	axis p.46
phases (of the moon) p.56		tides p.64
solar eclipse p.62		lunar eclipse p.60

3. Thematic incoherence

- Headings: 'solar system' p.39 and'the earth' p.42 - theme not established,