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A language assessment for preschool Zulu speaking children

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to use in rural communities were also investigated.

Standardisation of the ZERLA provided norms in the form of mean scores, standard deviations, standard scores and percentile ranks. Results of standardisation indicated that the ZERLA fit normal distributions. The standardised version of the ZERLA also demonstrated internal consistency, mark remark reliability and validity.

The study concludes with the description of the features and uses of the assessment. The manner in which the ZERLA should be administered in the future is discussed. Theoretical, epidemiological and clinical implications are provided.

Raw scores were converted to means and standard deviations. The results indicated that the majority of respondents had acquired their Zulu morphological, syntactic, and morphosyntactic structures, particularly noun classes. These findings paralleled studies of Zulu and Bantu language acquisition. Receptive language abilities predominated over expression. Respondents' knowledge of adjectives and relatives were influenced by semantic and cognitive complexities as well as sociolinguistic features. Qualitative analysis of observations and in-depth interviews indicated that sociolinguistic factors influenced research assistants' coding and analysis of data.

An 11% prevalence of disordered language was found in this sample. Possible etiologies were "at risk" factors such as ear infections, gastroenteritis and emotional trauma.

The ZERLA demonstrated good internal consistency (0.79) and mark remark reliability (0.73) but poor test-retest reliability (0.27). Thus an additional study, utilising a cross over design was implemented. This study indicated that the ZERLA was able to differentiate between non-language impaired and language impaired respondents, significantly.

Final modifications and analysis of ZERLA test items were undertaken prior to standardisation. Standardisation then took place utilising a sample of 303 Zulu speakers aged between three years and nine months and four years and three months, living in Soweto. Test administration was conducted by three dominant Zulu language speakers, coordinated by a speech-language therapist. During this phase the ZERLA was also translated into Tswana, Sotho, Venda and Shangaan and pilot tested on 101 children. Adaptations that needed to be made to the ZERLA prior

ABSTRACT

Early identification of a language disorder in a child's life is essential to prevent serious and long-term effects. One of the most effective methods currently available to speech-language therapists for identification of language impairment is the use of standardised language tests. However, at present no standardised language test exists in Zulu, despite this being the dominant language of the majority of the South African population.

Thus, the aims of this study were to develop, pilot test and standardise a linguistically and culturally appropriate receptive and expressive Zulu language assessment for preschool children. The research was divided into two phases, a pre-standardisation phase and a standardisation phase. Both phases of the research utilised two groups of subjects, respondents and research assistants.

The respondents in the pre-standardisation phase comprised 255 children aged between two years and six months and five years and five months. Twelve research assistants administered, coded and analysed the data. All subjects were dominant Zulu language speakers and resident in Soweto.

The Zulu Expressive Receptive Language Assessment (ZERLA) was developed using Lahey's (1988) universal developmental model of language and studies of Zulu language acquisition (Suzman, 1991). Zulu's characteristic linguistic components viz, noun classes, agreement and verb suffixes were assessed according to Soweto Zulu, an urban based variety. Parent and teacher reports were devised and administered to obtain biographical and sociolinguistic information as well as data on language acquisition.

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Ms J Clowes, Director African Self Help Association, principals, teachers and pupils of the educare centres. Without your cooperation this research would not have been possible. *Ngiya bonga.*

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My family, most especially my parents, for their succour and long-suffering tolerance.

My friends, Edana, Carol, The Seligmans, Riva and Jonathan. Thank you for listening but also allowing me to 'go away'

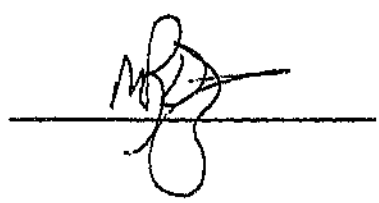
We enter into a covenant that we shall build
a society in which all South Africans,
both black and white will be able to walk tall,
without any fear in their hearts, assured of
their inalienable right to human dignity -
a rainbow nation at peace with itself and the world.

(Nelson Rolihlala Mandela, May 10, 1994)

To the subjects of the study
may your lives be blessed with this covenant.

DECLARATION

I declare that this dissertation is my own, unaided work. It is being submitted for the degree of Master of Arts (Speech Pathology) in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in any other University, nor has it been prepared under the aegis or with the assistance of any other body or organisation or person outside the University of the Witwatersrand, Johannesburg.



Seventh day of May, 1995.

A LANGUAGE ASSESSMENT FOR PRESCHOOL ZULU SPEAKING CHILDREN

MELISSA ANNE BORTZ

A DISSERTATION SUBMITTED TO THE FACULTY OF ARTS, UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG, FOR THE DEGREE OF MASTER OF ARTS (SPEECH PATHOLOGY)

JOHANNESBURG, 1995

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area to area. The arrival of Whites restricted this movement and the amount of land available to Blacks. This in turn further impoverished the land, as larger numbers of people had to live in smaller areas. Later, many people left rural areas for places such as the Witwatersrand, when gold was discovered in 1886 (Dubb, 1974). As Lee (1978, p. 17) describes it:

> The young black man of the veld (field) left his kraal (village of huts enclosed by a fence), his grass hut, his *umfazi* (wife) weaving a bead letter of farewell and moved to the mining camp of Johannesburg.

Most of these people settled in what became Soweto. A later reason for urbanisation, is its association with the acquisition of social prestige (Dubb, 1974). Soweto, in particular, is seen as "a sort of cultural Rome to which all rural paths lead" (Lee, 1978, p. 14).

Urbanisation is associated with many problems. In South Africa, historically, conditions related to urbanisation were particularly harsh. In the apartheid era, official policy regarding black people living in urban areas made them migrants or temporary residents who were expected to return to their homes in rural areas (Carr, 1990). Housing was thus based on the principle of impermanence and townships were not officially allowed to develop beyond the concept of dormitories, for example no infrastructure such as shops were allowed to develop (Motjuwadi and Bristow, 1990). Although this policy has been reversed, its effects are still felt.

In addition to political, social and economic problems that newly urbanised people have to face, they also have to deal with the differences between rural and urban areas. They are thus

Initially the Zulu people lived in a fertile area of Kwazulu/Natal, which is geographically located between the Indian ocean in the east and the Drakensberg mountains in the west, Swaziland and Mozambique in the north, and the Umtumvuma River in the south (Rowlstone, 1980; Wrinch-Schulz, 1975). From the seventeenth century the social structure of the Zulu was organised into independent clans (Elliott, 1936). In 1816 Shaka became king and united many of the different clans. At present there are 286 Zulu tribes (Wrinch-Schulz, 1975), many of them living in the rural areas of KwaZulu/Natal. More detailed information about the history of the Zulu people can be seen in Appendix B.

1.2.3 Urbanisation

> ... most Zulus still live in two worlds. They have one foot in 'heaven' kwaZulu and one foot in the white man's complex society (Wrinch-Schulz, 1975, p. 7).

Urbanisation[6] reflects a specific society's culture, economy, structure and history (World Health Organisation, 1988). In South Africa the main reasons for urbanisation are in some way, related to economic factors. This trend can be traced back to 1652 with the arrival of officials of the Dutch East India Company. Their arrival resulted in subsequent colonisation (Dubb, 1974). Prior to this White presence, Black people had a subsistence economy which largely depended on moving from

[6] This section broadly describes the process of urbanisation but relates specifically to the urbanisation of the Zulu people.

illustrate how the concepts of language, culture and urbanisation are related and interact on one another. (See Figure 1).

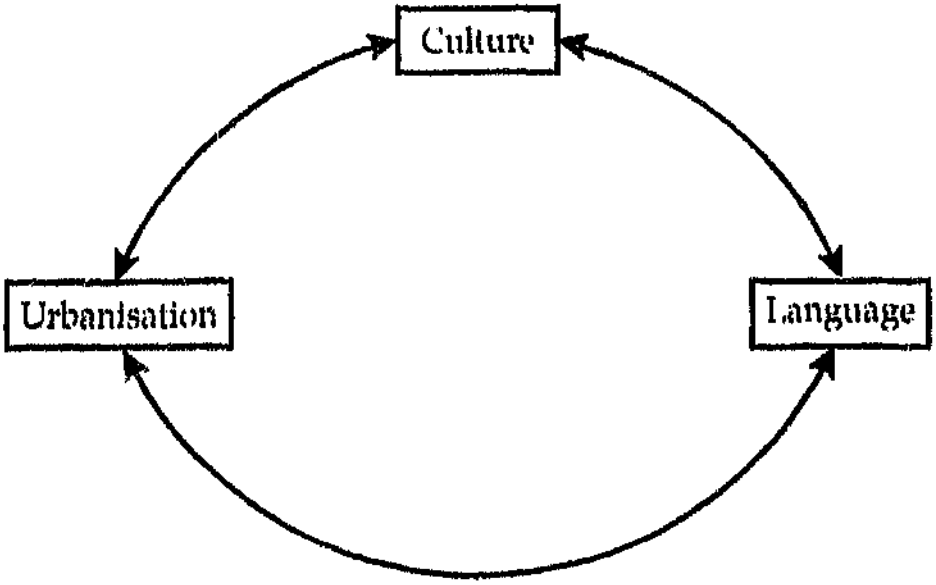


FIGURE 1 **Interaction of culture, urbanisation and language**

1.2.2 History of Zulu language and culture

The first archaeological evidence of Bantu languages in South Africa dates back to the 5th century A.D. (Lanham, 1978; Schuring, 1980; van Warmelo, 1974). A combination of Bantu oral history, the records of early travellers and additional archaeological indications signifies the presence of Nguni languages on the east coast of South Africa from the 16th century. Bryant (1929) postulates that the Bantu migrated from Nyanzaland, which corresponds approximately to modern day Uganda-Kenya.

structural prerequisite for human interaction. Nelde (1990) states that due to divergent cultural, historical, social, political and economic development of language each language occupies a different position in the national and regional hierarchy of a country. In South Africa much emphasis was and continues to be placed on recognition of language as an indicator of ethnic identity and often language is the only indicator of assignment to ethnic groups (Herbert, 1992; Walker, 1984). In a recent study conducted by the Institute for Democracy in South Africa it was found that the majority of South Africans identified strongly with racial and ethnic communities as well as their language and culture (Breir, 1994). At present, there are 11 official languages in South Africa. Until May 1994, English and Afrikaans were designated as the official languages with nine Bantu[5] languages receiving some de facto recognition for particular purposes, such as broadcasting.

The significance of the close relationship between language and culture is evident when considering the phenomenon of urbanisation. Dubb (1974) insists that urbanisation is "one of the most dramatic changes that have occurred in Africa" with "the large-scale migration of rural people to towns and the establishment of large permanent urban African populations" (p. 441). The fact that both language and culture are "in a continuous process of development" is nowhere more evident than in the process of urbanisation (von Humbolt, 1836, cited in Thipa, 1992, p. 83). The purpose of the following model is to

[5] For the purpose of this research the term Bantu will be restricted to linguistic reference and is used, as Demuth (1992, p. 557) describes "for lack of a viable universally agreed upon alternative". The negative connotations associated with the term being "an official policy designator for discriminatory policies and a racial epithet" (Herbert, 1992, p. 6) are acknowledged.

1.2 Sociocultural background

> South Africa:
> One people, many races, many languages, many clashing beliefs (Editorial, Sunday Times, April 24, 1994).
>
> Today marks the end of a long nightmare for South Africa and the beginning of a new future filled with hope and promise (August, The Sowetan, April 27, 1994).

In order to be comprehensive and representative, research must reflect conditions that exist at the time of the study. The conditions that existed in South Africa and their possible effects on the subjects of the study will be described. Despite the fact that South Africa is "free at last" (Nelson Mandela, 3 May, 1994), it is still a country in transition. At the time that this research was conducted (1992 - 1994), South Africa was a politically divergent society (Kowen, 1992) or as Barnard (1991) describes, 'a nation tearing itself apart'. This time of change, turmoil and violence formed the backdrop for this study and influenced it throughout.

1.2.1 Relationship of language, urbanisation and culture

Culture and language are interlinked and language exists in a cultural context and is thus an integral part of culture (Hunter, 1934; Nkabinde, 1968; Taylor and Payne, 1994; Thipa, 1992). In a similar vein, Herbert (1992, p. 1) claims that "language is one of the indispensable and universal features of the cultural systems of all societies". Further, the centrality of language in culture is such that it has come to be seen as an evolutionary and

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The ideas and concepts adopted from these disciplines are in themselves multifaceted and often controversial (Herbert, 1992; O' Malley and Tikofsky, 1972[4]; Trudgill, 1984). Efforts will be made to provide thorough explanations of these concepts when they pertain to the present research. An example is language, which is a multifarious concept encompassing amongst other aspects, historical linguistics, sociolinguistics as well as the structural properties of language (Bernstein and Tiegerman, 1993; Marge, 1972; Trudgill, 1984).

The broad-based definition of language given by the ASHA Committee on Language (1983, p. 44) will be adhered to in this research.

* Language is a complex and dynamic system of conventional symbols that is used in various modes for thought and communication.
* Language evolves within specific historical, social and cultural contexts;
* Language, as rule governed behaviour, is described by at least five parameters - phonologic, morphologic, syntactic, semantic and pragmatic;
* Language learning and use are determined by the interaction of biologic, cognitive, psychosocial, and environmental factors;
* Effective use of language for communication requires a broad based understanding of human interaction including such associated factors as nonverbal cues, motivation, and sociocultural roles.

Definitions of other terms used most frequently in this study are provided in a glossary in Appendix A.

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[4]References used in this research are derived from contemporary literature. However less recent texts are used when these are the only sources of information or if these present views which espoused the researcher's. Basic texts are used to provide definitional information.

As the roots of communication are embedded in culture, communication cannot be studied without reference to "the cultural, historical or societal basis of the language used by members of the culture" (Battle, 1993, p. xix). Language as a reflection of culture and cultural characteristics of groups have direct implications for assessment (Battle, 1993). Thus, the second aspect of context to be considered is the sociocultural background of the subjects. This information is furnished in the form of a historical perspective and the current situation, which 'sets the scene' for the study. Future implications are also described.

1.1 Professional context

Although speech-language therapy is a discipline recognised in its own right, the speech-language therapist is in the unique position of being able to interface with many disciplines and their respective theories. Indeed one of the doyens of the profession, Charles van Riper, advocated eclecticism (Van Riper and Emerick, 1990). As an example, he believed that speech-language therapists needed to use whatever learning strategy was most suitable for the client at a particular time.

The subdiscipline of language assessment exemplifies eclecticism. Consequently, this research reflects an integration of linguistics and speech-language pathology with input from epidemiology and psychology.

language assessment, effective diagnosis for a large section of the South African population cannot be performed. The reason for this is due to the composition of the different language groups of South Africa where Zulu is the most commonly spoken language (see Chapter 3, Section 2).

Such an assessment has definite preventive and clinical[3] implications. It would enable speech-language therapists to identify children with language problems at an opportune time. In so doing the repercussions of a more serious language delay could be prevented by devising the most suitable method of treatment (ASHA Committee on Prevention of Speech, Language and Hearing Problems, 1987). This would fulfil a secondary prevention function in an epidemiological framework. For the first time South African speech-language therapists would have a tool to assist them in identifying language problems among Zulu speakers and determining the prevalence of these problems. The need for the creation of such an assessment is especially urgent at present, due to the government's recommendation of providing free health care to children under six years of age (Zuma, cited in African National Congress, 1994, p. 84).

The clinical uses of a formal Zulu language assessment are related to the epidemiological functions, as clinically, such a test would be utilised to diagnose language disorders. If language impairments were ascertained, children could then receive the form of intervention required. Such an assessment could also be used to measure the success of intervention.

1 CONTEXT OF STUDY

The first section of this chapter will describe the interrelationship of the discipline of speech-language pathology to other disciplines.

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[3]In this research, epidemiology will subsume clinical aspects of speech-language pathology. The researcher conceptualises epidemiology as encompassing the diagnosis and the referral for treatment of communication problems.

CHAPTER 1

INTRODUCTORY PERSPECTIVE

One of the major problems facing the speech therapist in South Africa today is the absence or inadequacy of tests available for use with the black population. Factors such as educational, cultural, linguistic and environmental considerations mean that the tests that are available, generally standardized in England or the United States, are inappropriate. Tests cannot always be directly translated, and norms standardized on western white middle class populations are found to be inappropriate in the accurate evaluation of the black South African population. Therefore, new tests must be created so as to overcome the limitations of translated imported tests and to fill the need for assessment tools for the black population (Ballantine, Ballantine and Morgan, 1976, p. 5).[1]

In the two decades since this plea, little significant progress has occurred in the area of formal language testing in South Africa. The primary aim of this study, therefore, is to address the creation and standardisation of a receptive and expressive language assessment for Zulu speaking preschool[2] children. The process involved in the establishment of such an assessment commences with the development of the requisite components. These components should be able to determine the and expressive language abilities of the subjects. The assessment must therefore be standardised on a representative sample. Norm-referenced comparisons of a child's score to the performance of her/his peers can then be made. The test should also demonstrate reliability and validity.

The researcher views the creation of such a test as fundamental to fulfilling her obligations as a speech-language therapist as, like Cole, Mills and Kelley (1994, p. 25), she views "diagnosis of communication disorders and determination of appropriate intervention" as two key responsibilities of the profession. Without a formal Zulu

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[1] Ballantine et al., (1976), derive part of this statement from Scheepers (1974).

[2] Preschool refers to children aged from two years and six months to five years and five months.

21 Mean percentage scores for subtests assessing verbs ..... ANNEXURE

22 Mean percentage scores for subtests according to age ..... ANNEXURE

23 Mean percentage scores for subtests according to gender ... ANNEXURE

24 Respondents use of basic colour terms and their equivalence classes on the ZERLA 160

25 Continuum of responses for colour 169

26 Cluster of scores attained on the ZERLA ..... ANNEXURE

27 'Are you worried about how your child understands things?' 178

28 'Can your child understand everything...?' 178

29 'Are you worried about your child's speaking?' 180

30 'Is your child speaking nearly like an adult?' 180

31 Cross-over design 197

32 Range of responses 213

33a Mean percentage scores of standardised ZERLA subtests ... ANNEXURE

33b Mean subtest scores compared to total subtest scores ..... ANNEXURE

34 Frequency histogram of ZERLA scores ..... ANNEXURE

35 Frequency histogram of receptive scores ..... ANNEXURE

36 Frequency histogram of expressive scores ..... ANNEXURE

37 Aspects of validity examined on the ZERLA 270

38 Use of the ZERLA for prevention of language disorders 275

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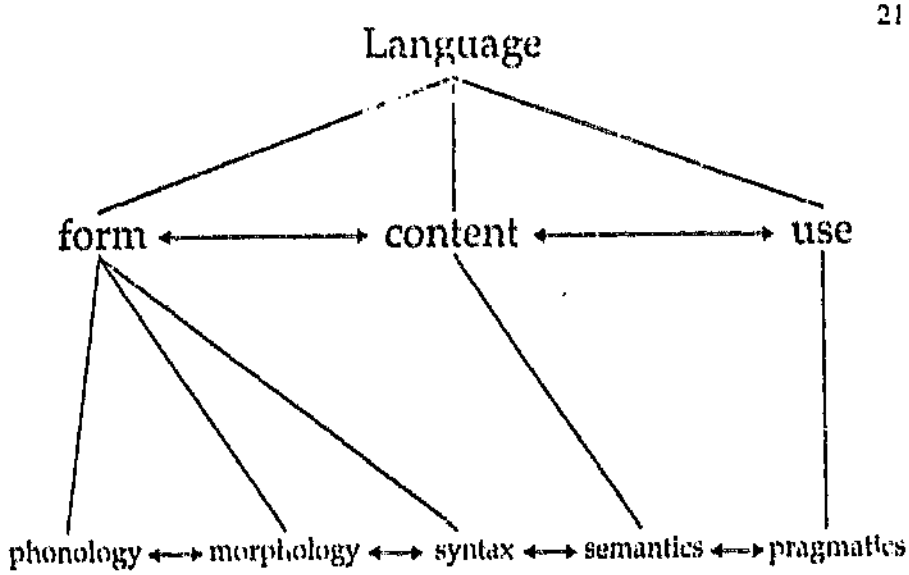


FIGURE 4 **Components of language**

1.3.1 Form

Form is comprised of the structural aspects of language, viz: phonology, morphology and syntax.

1.3.1.1 Phonology

This is the subfield of linguistics which studies the structure and systematic patterning of sounds in human language (Berntha' and Bankson, 1988; Ingram, 1989). Bernstein and Tiegerman (1993) state that each language has specific sounds or phonemes that are characteristic of that language and these phonemes are combined in specific ways to form linguistic units or words. Thus clicks such as / *ngc* / and / *ch* / are considered to be characteristic of Zulu (Raubenheimer, 1983;

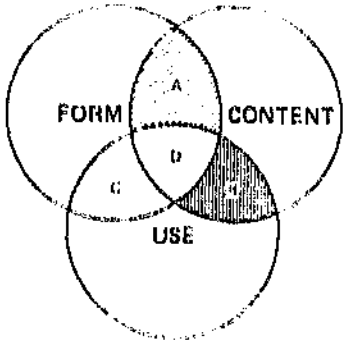


FIGURE 3 **Interaction of form, content and use (Lahey, 1988; Bloom and Lahey, 1978).**

1.3 Components of language

> The components of language are sounds which are arranged in ordered sequence to form words, with rules for combining these words into sequences or strings that express thoughts, intentions, experiences, and feelings (Marge, 1972, p. 84).

The manner in which linguistic components relate to Lahey (1988) and Bloom and Lahey's (1978)[8] model of language can be seen in Figure 4. Zulu examples are provided where appropriate.

[8] For the sake of convenience, only the most recent reference will be listed.

1 LANGUAGE

1.1 Function of language

Despite language being a concept that has been studied for centuries, little absolute and clear-cut information is available about its reception, production or acquisition (O' Malley and Tikofsky, 1972; Van Riper and Emerick, 1990). A fact that does emerge is that the most important function of language is communication and interaction with other people (Callagher, 1991; Lahey, 1988). Language has a cognitive function, stores and transmits culture, enables people to attain their needs in an efficient and expeditious manner and provides a mechanism by which one enters and maintains membership in society. It also plays a significant role in the development of emotional maturity and appropriate social behaviour (Marge, 1972; Rice, 1980).

1.2 Linguistic model

Lahey (1988) and Bloom and Lahey (1978) present a comprehensive model of language which is based on linguistic theory. In this model, language consists of three separate but interrelated components; form, content and use. These components operate together and need to be regarded as such when assessing language (Bernstein and Tiegerman, 1993; Bloom and Lahey, 1978; Lahey, 1988). The way in which the authors conceptualise their model may be seen in Figure 3.

CHAPTER 2

LANGUAGE ASSESSMENT: DEFINITIONS, COMPONENTS AND CONSIDERATIONS

> Language about language...
> Diversity, difference, dialects;
> Disorders, disability, deviance.
> Words, all words. To be trusted or
> Distrusted? (Butler, 1983, p. vii).

This chapter will consider various features of language that are relevant when establishing a formal language assessment. Because language assessments are used to identify language disorders it is necessary to provide a definition of disordered language. In order to understand language impairment, the speech-language therapist has to understand and recognise what 'normal' language comprises. Hence, this chapter will begin with a description of language, it's components and it's acquisition.

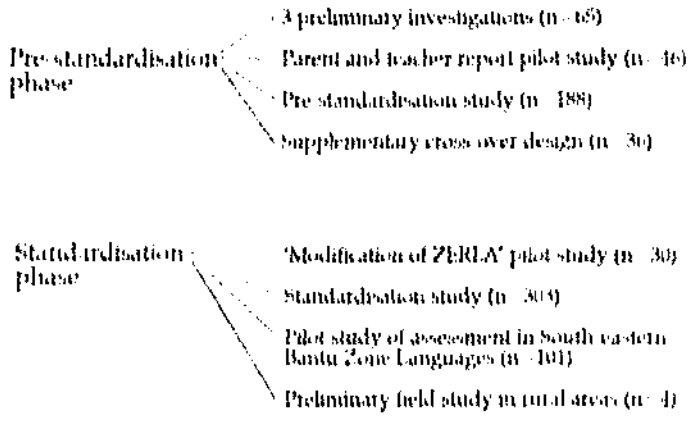
The chapter will then focus on the uses and other aspects of formal language assessment. The current situation regarding standardised language testing in South Africa extends the rationale for the study, described in the previous chapter.

analysing data more effectively.

Chapter 6 describes the methods utilised in the standardisation of the research. Prior to implementing standardisation procedures, suggestions for changes to the ZERLA were effected. Specific details of standardisation, such as sample size, methods of test administration, deriving norms and measures of reliability and validity are provided in this chapter. The chapter concludes with a description of pilot studies that were conducted to determine whether the ZERLA could be translated into other South-eastern Zone Bantu languages.

Chapter 7 reports on the results of the standardisation study. The norms are described in terms of means, standard deviations, standard scores and percentile ranks. Results reflect that the ZERLA scores were representative of a normal distribution. Internal consistency and mark remark reliability indicated that the ZERLA was a reliable test. The ZERLA also demonstrated face validity and content validity.

Chapter 8 provides the conclusions of the study, depicts the pertinent findings and relates these to the initial aims. Recommendations for future research are provided, followed by epidemiological and clinical implications.



* n = number of subjects in each investigation

FIGURE 2 **Various investigations undertaken during the research**

Chapter 3 describes the aspects of Zulu to be included in the proposed assessment, from both a linguistic and a sociolinguistic perspective. The classification of Zulu as well as typological features are provided. The sociolinguistic data portray facets of change occurring in Zulu, such as code-switching. An emphasis of this section is Soweto Zulu, the urban variety spoken in Soweto. The acquisition of Zulu is described in terms of its linguistic structure. The chapter concludes with a discussion on the use and acquisition of colour terminology in Zulu.

This study was implemented in two consecutive phases, a pre-standardisation phase and a standardisation phase. The language assessment was devised and operationalised during the pre-standardisation phase. The methodology for doing so is described in Chapter 4, while the results of this phase are portrayed in Chapter 5. Standardisation of the Zulu Expressive Language Assessment (ZERLA) then took place. Chapter 6 delineates the standardisation procedure and Chapter 7, the outcome of standardisation. Both phases of the study required that different investigations be undertaken. These are diagrammatically illustrated in Figure 2.

Chapter 4 describes the methodology of the pre-standardisation phase in terms of its aims, the subjects used and the methods and procedures involved in developing and pilot testing a formal language test in Zulu. The procedures for administering and scoring the test are delineated. The chapter concludes with a description of how results are analysed statistically and qualitatively.

Chapter 5 presents the results and discussion of the pre-standardisation phase. The initial section of this chapter provides scores achieved on subtests of the devised language assessment and related inferences. The prevalence of language problems in this sample was derived from the composite score and this will be discussed in relation to parent and teacher reports. This is followed by issues pertaining to reliability and validity and ways of improving these aspects. The discussion suggests methods of dealing with scoring and

2 NOTATIONS

Standard English and Zulu spelling is used throughout this research. Zulu words will be represented in *italics* and glossed in English. A morpheme-by-morpheme translation will be provided to illustrate the format of Zulu utterances, when necessary according to recognised conventions. Abbreviations used comply with conventional standards. Individualised abbreviations are defined within the body of the text. The format for references complies with the Publications Manual of the American Psychological Association (1994).

3 DESCRIPTION OF CHAPTERS

Chapters 1, 2 nd 3 serve as background to the study. This literature review provides an orientation and perspective to the present research and forms the foundation for the interpretation of the results and the discussion. In addition, these three chapters contain facts that are pertinent to devising and standardising the proposed language assessment.

Chapter 1 forms the basis for the rationale of the study. It depicts the context of the study: Soweto, the largest urban township in South Africa. This chapter explores the interrelationship between language, culture and urbanisation.

Chapter 2 defines and describes various aspects of typical language such as language universals. Disordered language and implications thereof are discussed. The chapter focuses on features of formal language testing, including an historical perspective. The rationale for devising a formal language test in South Africa is also considered.

population (Morris, 1980; Shueyane, et al., 1977).

Soweto originally became ethnically divided due to Government policy regarding allocation of housing in the 1950s. This policy stated that people had to live in ethnic areas (Gulombic and Gibson, 1994). Areas set aside for Nguni speakers were in Deep Soweto, Jabulani, Zola, Zondi and Diamini. Appendix C shows that in 1970, at least 90% of these areas were settled by people of Nguni origin (Morris, 1980). Zulu speakers continue to be the largest ethnic group in Soweto, comprising 42,4% of the Soweto population (Jogianna, 1994).

The major problems facing Soweto at present are unemployment, increasing numbers of squatters and an education crisis. High levels of violence are found due to rivalries among political parties and house and hostel dwellers, as well as high incidences of thuggery (Gulombic and Gibson, 1994; Illustrated History of South Africa, 1992).

In summary, Soweto shares the features of urbanised environments in Africa, that is, high population density, ethnic, linguistic and cultural diversity and increasing economic and social differentiation, particularly in comparison with rural communities (Agheyisi, 1977; Cooper and Horvath, 1973). Specifically, children are growing up in a culture of violence, against a backdrop of deprivation and poverty (Lab, 1987; Shmukler, 1989; Simpson, 1991). Additional details about Soweto may be seen in Appendix D.

1.2.5 Soweto

> Soweto - that is not even a name. It is an acronym for south western townships[7].... Soweto happened almost by default, an eyesore that had not been planned; it just grew in a higgledy-piggledy fashion, with row upon monotonous row of so-called 'matchbox' houses crowding into unpaved dusty streets that were badly lit. Hardly any of the amenities that are taken for granted in the more affluent well-planned white suburbs - public libraries and swimming pools, cinemas, parks and playgrounds - may be found in Soweto. No, it was a typical depressed ghetto with the usual squalor and deprivation (Archbishop Desmond Tutu, cited in Motjuwadi and Bristow, 1990, foreword).

Soweto typifies both the process of urbanisation and an urbanised environment, previously discussed. Soweto is the largest urban black community in South Africa situated south-west of Johannesburg and is spread over 85 square kilometres (Lee, 1978; Morris, 1980; Motjuwadi and Bristow, 1990). Soweto is referred to as a dormitory (Lee, 1978) as 96% of its employed population is forced to commute into Johannesburg daily.

It is difficult to gauge the current population of Soweto but Baragwanath Hospital estimates it to be 4.5 million people with 55% of this population not having any income (Jogianna, 1994). In contrast, the so called 'White area' of Johannesburg houses approximately 1, 5 million people in an area five times bigger than Soweto (Motjuwadi and Bristow, 1990). In 1977 the childhood population of Soweto represented 43% of the total

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[7] The township that developed near Johannesburg from 1886 was not officially acknowledged and did not have a name for nearly 80 years. In 1959 the Non-European Affairs Department offered a 10 pound prize to anyone who could suggest an appropriate name. No suitable suggestions were found, until in 1963 the Rand Daily Mail coined the term South Western Townships (Lee, 1978, Motjuwadi and Bristow, 1990).

impaired. Early research (Gerber and Hertel, 1969; Raph 1967) which studied the language of 'culturally disadvantaged' children proclaimed that "conspicuous deficits existed in the lower-class group" (Raph, 1967, p. 203). In addition, Raph (1967) found "poverty of vocabulary" in the language of children from "low socioeconomic families" (p. 205). What was of concern was that these impairments were found to be cumulative, so the older the child the greater the deficit (Gerber and Hertel, 1969; Raph, 1967).

Certain authors ascribed poor language performance in children from 'deprived backgrounds' to mothers being so occupied with survival that they were "too exhausted to speak to their children" (Baratz, 1968; p. 90). Aspersions were also cast on mothers' abilities to stimulate their children's language.

Later research has concurred that socio-economic status influences aspects of language development such as comprehension (Silva and Ferguson, 1979). Taylor and Payne (1994) report on studies which have found that mothers from a lower socio-economic class talk less to their infants and give them more instructions. However, most of the research in relation to parent-child communication and language development has focused on middle class families (Adler, 1979; Anderson and Battle 1993; Edwards 1989). It has resulted in the 'difference theory of disadvantage'. This theory holds that differences do exist between classes, but that the difference should not be regarded as a deficit (Adler, 1979; Edwards, 1989).

particularly prone to these diseases (World Health Organisation, 1988).

Urban environments are detrimental to preschool children especially those with lower socio-economic backgrounds (World Health Organisation, 1988). These children are affected by large-scale rural-to-urban migration breaking down the importance and cohesiveness of the family unit. Urbanisation results in imbalanced age ratios and few older people living in cities. This causes changes in child-care and child-rearing practices as in rural areas, the extended family plays an important role (Dubb, 1974, Morris, 1980; World Health Organisation, 1988).

In addition to the above mentioned factors there is a lack of space for children's play and recreation (World Health Organisation, 1988). Children in Lab's (1987) study were found to draw pictures illustrating the starkness and bareness of urban areas.

South African urban children may be further exposed to a culture of violence where extreme levels of brutality exist (Gibson, 1991; Sideris, 1990; Simpson, 1991). A task in Lab's (1987) study was for children to pictorially represent their environments. The majority of their pictures were found to contain specific incidents of violence.

1.2.4 Language of deprivation

Environment impacts on language (Bates, Bretherton and Snyder, 1988) and researchers have questioned whether children who come from deprived backgrounds are "at risk" for developing language impairment, or are indeed language

considered to be in a state of 'cultural transition', as the culture based on tribal custom is being transformed by the impact of Westernisation and urbanisation (Dubb, 1974). As Masekela (cited in Wilhelm, 1994, p. 17) describes "back in the 40s we were a township family. We had deep rural roots but we were city people".

Currently more than half of all South Africans live in densely populated urban environments (Birth to Ten Seminar, 1993; Mandy, 1984). The rate of urbanisation is rapidly increasing so that it is estimated in the year 2000 over 20 million black people will be living in urban areas. This compares with 6.5 million in 1985 (Birth to Ten mission statement, Hlophe, 1993).

The rapid growth of cities is associated with poverty, amongst other conditions. In large cities poverty is a constantly worsening condition as incomes are often either inadequate or unstable. Results of a study conducted by Lab (1987) on the psychological effects of the unrest conditions on children growing up in South African townships, showed that on sentence completion tasks, urban children's main worry pertained to financial matters. They indicated a wish for material possessions and to convert their poverty situation to riches. Urban environments consist of increasing numbers of people living in overcrowded accommodation with little, if any, provision for sanitation and health care (World Health Organisation, 1988).

Diseases are common in underdeveloped urbanised populations. These include infectious and gastrointestinal diseases, malnutrition, chronic and social diseases. Children are

detail in Section 3.2 and 3.3 of this chapter.

In addition to the psychometric criteria described above, are those which McCauley and Swisher (1984a) assert should be mandatory for all standardised language assessments. Other psychometric criteria which McCauley and Swisher (1984a) assert should be incorporated into test manuals are:

* item analysis. Item analysis is a method used to identify the best items within a pool of potential items (Hresko et al., 1991). Establishing the best items is done by analysing each item in terms of its difficulty and discriminating power (Anastasi, 1990; Hresko et al., 1991; McCauley and Swisher, 1984a). Anastasi (1990, p. 202) states that performing item analysis is an alternative indication of validity and reliability and that "high reliability and validity can be built into a test in advance through item analysis".

* a description of tester qualifications. The general background and training required for the people who are to administer and score the test should be delineated.

Despite the fact that language tests should be based on the abovementioned psychometric criteria, few test authors report on this information. McCauley and Swisher (1984a) conducted a review of 30 language and articulation tests according to the 10 psychometric criteria shown in Appendix G. They found that only 20% of tests met at least half of the criteria, while most tests met only two. The Test of Language Development [TOLD] (Newcomer and Hammill, 1977; 1982) was the only test to meet eight criteria. Plante and Vance (1994) repeated this review a decade later, after many new tests had been published and old

* a specific set of standards for scoring and interpreting the elicited behaviour (ASHA, 1989; Bernstein and Tiegerman, 1993). Traditionally language tests such as the Reynell Developmental Language Scales-Revised [Reynell] (Reynell, 1977) and the Test of Early Language Development-Second edition [TELD-2] (Hresko et al., 1981) score responses as correct or incorrect. McCartney (1993, p. 41) reports that 'yes-no' or 'right-wrong' answers are not representative of "normally developing child language".

  McCauley and Swisher (1984a) believe that it is necessary for test administration be described in sufficient detail to ensure replication of the administration and scoring procedures upon which the test norms are based.

* means and standard deviations derived from raw scores (McCauley and Swisher, 1984a).

* a sample test population, encompassing a general geographical area and standardised for a broad range of social class, intelligence and dialect (Emerick and Hatten, 1979). Details regarding samples and how these relate to standardisation will be provided in Chapter 6.

* a reliable and valid measure of language. Reliability and validity are dependent on each other, in that making judgements on whether an assessment is valid depends on whether the assessment is reliable. The opposite also holds true (Beech, Harding with Hilton-Jones, 1993; Plante and Vance, 1994). In the present study, reliability and validity will be determined both statistically and qualitatively. These aspects will be described in

Language may be evaluated in different ways viz: formal standardised assessment and non standardised, naturalistic or informal assessment (ASHA, 1989; Bernstein and Tiegerman, 1993: Leonard, 1994; Peterson and Marquardt, 1990). The advantages and disadvantages of formal and informal assessments are provided in Appendix F. Standardised language assessments are one of the most effective methods currently available to the speech-language therapist for identification of language problems. According to Wolfram (1983, p. 21):

> the use of formal testing instruments in speech and language pathology derives from a simple concern within the profession - to provide an orderly, systematic, and convenient basis for tapping the language capabilities of a population of speakers.

Formal language testing is based on the premise that children's knowledge of language is testable and quantifiable (Lund and Duchan, 1993).

3.1 Features and psychometric criteria of standardised language tests[12]

When using a formal test the speech-language therapist should ensure that it provides the following:

* a consideration of cultural factors as:

  > there are varying communi .ation rules among different cultural groups... and diagnosis of a person with a communication disorder is more likely to be effective if one uses instruments, interpersonal interaction, testing and interpretation of findings that are consistent with the communication rules of the group from which the person comes (Taylor and Payne, 1994, p. 164).

* a specific set of instructions and stimuli to elicit the required behaviour (Bernstein and Tiegerman, 1989).

---

[12] These features are to be incorporated into the present research.

Some children may develop language more slowly than others, resulting in a language delay. The term language delay is defined as "children whose language acquisition is below levels attained by their age peers in their speech community" (Marge, 1972, p. 86). A language delay implies an "even pattern of language development" but is characterised by some delay in expected milestones according to Price (1989, p. 4). Results of research indicate that children who have language delays and relatively high cognitive abilities have a better prognosis for remediation than children with deviant language (Cole et al., 1994).

Classifications of language impairment can be seen in Figure 5.

Linguistic components		**Language impairment**
Phonology, Morphology Syntax (Form)	Receptive language	Delayed Deviant
Content	Expressive language	Delayed Deviant
Use		

FIGURE 5 **Relationship between linguistic components and language impairment** (Adapted from Bishop and Rosenblum, 1987).

3 FORMAL LANGUAGE ASSESSMENT

Weiss, Gordon and Lillywhite (1987) state that the most important aspect of clinical management is assessment. However, this is not an easy task as "language is complicated and does not lend itself to easy assessments" (McCartney, 1993, p. 17).

2 LANGUAGE IMPAIRMENT

> Failure to acquire language, or a disruption of the language acquisition process, is one of the most devastating and isolating events which can occur to a human being (O' Malley and Tikofsky, 1972, p. 3).

Terms such as disordered, impaired, deficient, deviant, handicapped or delayed are often used synonymously in relation to language problems (Price, 1989; Wickstrom, Goldstein and Johnson, 1985). This study will use the terms language impairment, language disorder and deviant language interchangeably. These terms will, in turn, subsume language delay.

For the purposes of this research, the American Speech and Hearing Association's (1980, p. 317) definition of disordered language will be utilised. They define a **language disorder** as the

abnormal acquisition, comprehension or expression of spoken or written language. The disorder may involve all, one or some of the phonologic, semantic, syntactic or pragmatic components of the language system.

In addition, a language disorder may be the inability or limited ability to utilise linguistic symbols for communication. Implied in this definition is the fact that language impairment may present as either a specific language impairment or as a developmental disability, such as autism (McCauley and Demetras, 1990). ASHA (1989) views language disorders as more complex than simply an impairment of language. Language impairments have the potential to impinge on and extend to potential perceptual, cognitive and social deficits.

Morphology tends to develop after syntax, even in languages such as Zulu, which has "an extremely rich morphology" (Suzman, 1991, abstract). MacWhinney (1976) contends that in morphologically rich languages, children develop their morphology earlier than in languages where this is more limited. Slobin (1992) attributes this early acquisition of morphology to young children's ability to learn language-specific features.

From the time they have acquired their first one and two word utterances, children's utterances become longer and more complex. From a syntactic perspective, children begin to elaborate language specific word structure. Semantically, vocabulary increases and ideas are expressed in sentences. Among the first categories of words that children learn are their body parts (Clark, 1981). This is a universal phenomenon as "our bodies are so integrated with everything we do, the human body is a semantic domain which every language necessarily lexicalises" (Hawkins, 1988, p. 221).

Three year old children recognise adjectives and understand and produce plurals. They are able to repeat up to three digits (Muma, 1978). Gesell (1978) posits that the fundamentals of communication are acquired by children between three and four years. By four years of age syntax is almost 'adultlike' and children then focus on learning discourse skills (Bernstein and Tiegerman, 1993).

This section describes preschool language development broadly[11], while Appendix E provides specific details of children's receptive and expressive language abilities. Attempts have been made to provide this acquisition data from a universal cross-linguistic perspective. However, much of the information is based on English as "English language has attracted more attention than virtually any other" (de Villiers and de Villiers, 1985, p. 27). The use of this English acquisitional data is recognised as a limitation of this study. It is hoped, however that the present study will contribute additional information on aspects of Zulu assessed in the proposed test.

Corsaro (1981) and Ochs and Schieffelin (1979) contend that language is acquired and used in social, cultural and interpersonal contexts. Language acquisition is a natural process which consists of both individual variability and general trends (Lees, 1993; Miller, 1984; Slobin, 1985).

Development of language occurs as a gradual yet changing process with children initially learning about the communicative aspects of interaction, viz pragmatics and semantics, followed by syntax and morphology (Bernstein and Tiegerman, 1993; Slobin, 1992). Receptive language is acquired initially, a fact which Ingram (1974) proposes as a linguistic universal. When beginning to use expressive language, children develop short and simple utterances which lack some grammatical morphemes. Thereafter, complex structures develop (Slobin, 1992).

---

[11] Zulu and South-eastern Zone Bantu acquisition is described in detail in Chapter 3.

"influential claims" was that children had innate knowledge of linguistic universals. Therefore, at birth a child has the possibility to acquire any language.

Despite claims that the "Greenbergian approach" and the "Chomskyan approach" are "diametrically opposed to each other" (Croft, 1990, p. 3) both approaches presume the existence of the linguistic universal. Thus according to Hawkins (1988), all languages conform to universal phonologic, syntactic, semantic and pragmatic features.

In addition to the universals of their language, children have to acquire the specific rules of their dominant language[10]. They may rely on universal cognitive abilities which give rise to specific linguistic abilities (Levelt, 1975). Slobin (1985) asserts that children utilise the basic components of form, content and use to construct a foundation for their specific language. More details about acquisition of language universals will be provided in the section that follows.

1.4.2 Process of language acquisition

> The child is born into the world with no language at all. Through exposure to a speech community the child begins to speak at some time during the second year, and in five or six years can be said to know language quite well, if not completely (Culicover, 1987, p. 1).

[10] Dominant language refers to the most influential language in an individual's environment (Nicolosi et al., 1989). In this study it subsumes other terms such as first language, home language or mother tongue.

while Bloom (1974, p. 308) asserted that the relationship between reception and production "is probably never a static one, but rather, shifts and varies according to the experience of the individual child and his developing linguistic and cognitive capacities."

1.4 Language acquisition

1.4.1 Linguistic universals*

> Amid infinite diversity, all languages are, as it were, cut from the same pattern (Greenberg, Osgood and Jenkins, 1963, p. xv)

Crystal (1997) explains that linguistic universals refer to properties which are claimed to be common for all languages. Two major theories pertaining to linguistic universals exist (Comrie, 1981). The first approach is referred to as 'absolute universals' and was proposed by Greenberg (1963). This approach defines properties found in all languages, such as that all languages are comprised of vowels. This approach is concerned with the typology of language.

The second theory, espoused by Chomsky (1965), is concerned with 'formal and substantive universals'. Formal universals determine grammatical components and rule types, while substantive components relate to the contents of these rules. Bowerman (1981, p. 94) reports that one of Chomsky's most

* It is not within the context of this study to deal with language universals in detail. Their influence and effect will, however, be borne in mind throughout the study.

1989; Lahey, 1988; McTear and Conti-Ramsden, 1992). Bankson (1990, p. 2) contends that "sentences derive their meaning from the contexts in which they occur."

The previous discussion has described the components of Lahey's (1988) framework for defining language. A further dimension along which language may be assessed is that of reception and expression.

1.3.4 Receptive and expressive language

Language is an interrelation of reception, integration and expression of information (Bernstein and Tiegerman, 1993). Receptive language refers to the understanding of language [listener role] while expressive language refers to productive aspects of language [speaker role] (Hresko, Reid and Hammill, 198 , Nicolosi et al, 1989). Both roles are based on developmental sequences, with receptive language involving the awareness, discrimination and understanding of auditory stimuli. Expression is observed through verbal responsive and initiating behaviours which develop from early sounds through to production of complex utterances and sentences (Rieke and Thompson, 1978).

Development of reception precedes expression, with the child understanding forms that they cannot necessarily produce (Clark, Hutcheson and van Buren, 1973; Ingram, 1974). Taylor and Swinney (1972, p. 46) state that "comprehension is thought to remain superior to production throughout life." This theory that reception is an antecedent to production was traditionally held, but it has been questioned by various researchers. Chapman (1974) theorised that production developed before expression,

1.3.2 Semantics

> Language without meaning is meaningless (Roman Jacobson, cited in Fromkin and Rodman, 1993, p. 106).

Semantics involves both word meanings (lexicon) and sentence meanings. Lexical semantics pertains to specific word knowledge, knowledge of conceptual categories and interpretation of meaning in different contexts. The lexicon is synonymous with vocabulary (Crystal, 1991; Stowell and Wehrli, 1992). Lexical knowledge is derived from experiences in cognitive development (Bernstein and Tiegerman, 1993) or, as Hawkins (1988, p. 221) so aptly states, "the structure of semantic domains acts as the link between our conceptual system and the outside world". The development of vocabulary plays an important role in a child's cognitive, social, syntactic and metalinguistic abilities (Buitendach, 1991).

Semantic rules operate on syntactic structures, thus constituting sentences, which are the basic units of semantics (Nicolosi et al., 1989; O' Malley and Tikofsky, 1972).

1.3.3 Pragmatics

Language use has been studied since the 1970s and as such forms the newest domain of language related-studies (Launer and Lahey, 1981; Lund and Duchan, 1993). Pragmatics refers to the purpose for which language is used as well as the rules controlling its use in social contexts (Bernstein and Tiegerman,

Urquhart, 1967; van Wyk, 1978).

From a phonological perspective, Zulu is considered to be a tonal language. Tone serves a grammatical function, a lexical function and, suprasegmentally, maintains syllable prominence (Khumalo, 1988). Zulu consists of two tones, high and low (Ladefoged, 1975).

1.3.1.2 Morphology

Zulu is a morphologically-orientated language (Suzman, 1991) with many bound prefixal or suffixal morphemes (Akmajian, Demers and Harnish, 1984; Anisfeld, 1984). Zulu relies on inflectional morphology to modulate the grammatical structure of the word, for example, with indicators of tense as the suffix *-a* in *hamb-a* 'go' or *-ile* in *hamb-ile* 'went'. In these examples it can be seen that the stem remains constant while the suffix changes (Akmajian et al., 1984).
Morphology provides a bridge between phonology and syntax, as it generates the formations of words (Nicolosi, Harryman and Kresheck, 1989).

1.3.1.3 Syntax

Syntax is the rule system that regulates the structure of phrases and sentences (Akmajian et al., 1984). Zulu has a SVO word order, which is unlikely to change (A. van der Spuy, 1993; personal communication September 26, 1994).

3.5.1 Translation

> One who wishes to translate from one language to another, and tries to translate word by word, maintaining the order of both the subject and the words, will find his work very difficult and will ultimately end up with a translation that is highly questionable and confusing. Rather, one who translates from one language to another must first understand the concept (Maimonides, 1135 - 1234; Letter to Sh'muel ibn Tibbon, cited in Kaplan, 1981).

Speech-language therapists have attempted to address the absence of standardised tests by translating existing standardised tests into one or more of the Bantu languages. Masiloane (1983) performed a literal translation of the Reynell (Reynell, 1977) into Zulu.

The problem with literal translation is that although it ensures that the basic meaning is retained, it results in a structure which differs in syntactic complexity, semantic form and pragmatic implications from the original (Paltiel, 1990). Literal translation also ignores linguistic and cultural differences (Hartley, 1986). The results of Masiloane's (1983) study concur with the previous statements as she found literal translation to be unsuitable.

Another reason associated with the difficulty in literally translating tests from English to Zulu, is that many concepts that are syntactically expressed in English are morphologically represented in Zulu (Hartley, 1986; Suzman, 1991). From the above it can be seen that the use of standardised tests developed in one language are not appropriate for use in another, unless substantial modification takes place. This should include linguistic and cultural modification and restandardisation on

Vocabulary Test (Buitendach, 1991) and the Test for Oral Language Production [TOLP] (Vorster, 1980).

No formal language assessment exists for African language speakers (Lewis and Penn, 1989). Therefore, speech-language therapists have to resort to using formal tests devised and sampled on other populations when assessing South African children. Hartley (1986) believes that the use of tests in such instances is almost totally inappropriate. Thus

> the current need is for a standardized, normed test for the Zulu population which has been developed for and by clinicians familiar with the language (Stephen, 1988, p. 27).

Although no formal Zulu language test exists, some research into the acquisition of Zulu speaking children has been undertaken. Suzman (1991), in her doctoral thesis used longitudinal naturalistic data to study language acquisition of children between two and three years. Details are to be provided in the next chapter.

Based on her research, fourth year speech-language pathology students at the University of the Witwatersrand devised assessments for evaluating aspects of the Zulu language. A list of these is provided in Appendix H. The results of these studies conclude that there is a pressing need to devise formal language tests in Zulu. Oberstein (1987) suggests that these be devised, not according to a model of English grammar, but rather utilising a Zulu based framework. Simon's (1988) conclusion is a slight digression from the former, but equally as important. She calls for "investigation into emerging dialectal variations" and their "effect on language acquisition" (p. 36).

Other studies conducted on language abilities of Zulu speakers include a checklist to determine 18 month old Zulu speakers' communication abilities (Bortz, 1992).

1992).

In the 1980s "standardized and normed tests based on generative multidimensional views of language become more available" (Dale and Henderson, 1987, p. 179). However, McTear and Conti Ramsden (1992) continue to express a need for the development of multifaceted tests.

3.4.5 Multilingual and multicultural assessment

Taylor (1986) asserts that people from culturally and linguistically diverse backgrounds should undergo culturally valid assessment and diagnosis. Such assessment is necessary as languages vary linguistically and culturally. Thus, language assessment cannot effectively be translated cross-culturally.

In the United States prior to 1968, speech-language therapists did not address the clinical needs of communicatively impaired individuals from culturally and linguistically diverse populations (Taylor, 1986). However, from the 1970s sociocultural and sociolinguistic aspects were considered, when devising language tests.

In South Africa the situation is more dire. The majority of the population is multilingual and multicultural, yet few formal language test exists. The need to address this gap is a major reason for this research.

3.5 Issues relevant to language testing in South Africa

Some language tests have been standardised for the South African English and/or Afrikaans population. Examples include The Afrikaans

take cultural difference or varieties into consideration (Lund and Duchan, 1988). This omission resulted in the establishment of inappropriate norms.

3.4.3 1970s

Linguistic theory remained the basis for assessment in this decade, but there was a shift in emphasis from syntax to content (Peterson and Marquardt, 1990). Cognitive psychology, used to explain communicative breakdown, was another direction of research in this decade (Cole et al., 1994; Slobin, 1973; Wirz, 1993). In this realm, speech-language therapists relied on information about children's cognitive development to make diagnostic decisions about the presence of language delays (Lahey, 1990).

In the late 1970s there was an increased interest in the use of language. This was the beginning of the pragmatics revolution (Lund and Duchan, 1993; Wirz, 1993). The basic units of assessment used in this domain were derived from the 'speech act' theory of Austin (1962).

3.4.4 1980s

The pragmatics revolution continued in the 1980s. Initially, pragmatic assessments were based on language samples. However, these were extended to include the context of the interaction, for example, the manner in which interactants cooperated in conversation. Although a number of pragmatic profiles have been devised (Penn, 1988, Prutting and Kirchner, 1987), a need exists to develop additional profiles and tests of pragmatics skills (Gallagher, 1991; McTear and Conti Ramsden,

assessment of language (Lund and Duchan, 1993). The first was referred to as the normative approach and was originally described by Johnson, Darley and Spriestersbach (1952). This approach took the form of obtaining spontaneous language samples in order to determine measures such as mean sentence length (Launer and Lahey, 1981).

The pathology approach, based on the medical model, was the second approach. Here the goal of assessment was to perform differential diagnosis, that is the identification of the underlying etiologies of disordered language (Launer and Lahey, 1981; Lund and Duchan, 1993; Wirz, 1993).

Thus language assessment in the 1950s focused on assessment of form and content. Formal tests of form in this decade included the Peabody Picture Test of Vocabulary (Dunn, 1959).

3.4.2 1960s

Two theories of language predominated in this era. These were learning theory based on behaviourist psychology and Chomsky's (1965) transformational generative theory which is a linguistic theory. Formal language tests, such as the ITPA (Kirk et al., 1961) exemplified these theories. Behaviourist assessments of language were based on the theory that language behaviour developed out of an interaction between the current behaviour of the organism and the environmental antecedents. Language response was viewed as under the control of both stimulus and reinforcement (Lund and Duchan, 1988).

A problem associated with these tests was that norms were derived according to the standardisation samples which did not

TABLE 1: **Historical development of language assessment** (Launer and Lahey, 1981; Lund and Duchan, 1988; Wirz, 1993).

Year	Theory of language	Method of testing and examples of tests
1950s	Normative approach	Spontaneous speech samples
	Pathology approach	Differential diagnosis - identify etiologies
1960s	Behaviourist approach	Illinois Test of Psycholinguistic Ability [ITPA] (Kirk, McCarthy and Kirk, 1961)
	Linguistic model [grammar] (Chomsky)	Development Sentence Types [DSS] (Lee, 1960)
1970s	Semantic approach	No formal tests are dedicated to semantics, semantics are assessed as subtests of formal tests such as Test for Auditory Comprehension of Language [TACL] (Carrow, 1973)
	Cognitive approach	First standardised test based on multidimensional views of language [TOLD] (Newcomer and Hammill, 1977)
	Speech act approach ↓ Pragmatic approach	No tests available
1980s	Interactional approach	No tests available
	Event focus approach	No tests available

3.4.1 1950s

During the 1950s two main approaches were used for the

3.3.3.1 Convergent and discriminant validity

Two attributes of validity relating to construct validity are convergent and discriminant validity. When establishing construct validity, Anastasi (1990) believes that a test should correspond highly with other variables with "which it should theoretically correlate" (p. 156). This correlation is referred to as convergent validity. Convergent validity will not be examined in this research. Discriminant validity, on the other hand, indicates that the test "does not correlate significantly with variables from which it should differ" (Anastasi, 1990, p. 156). It is thus equally as important to attain measurements of discriminant validity, when establishing construct validity. These measures of validity are obtained empirically, as can be seen in Chapter 4, Section 5.3.3(b).

3.4 History of formal language testing

Speech-language therapists have been using formal language assessments since the 1950s. Formal language testing has undergone a number of changes over the last decades. These changes have been concurrent with changes in theoretical perspectives of language. Table 1 is a description and classification of the manner of language assessment, based on changing linguistic theory.

3.3.2.2 Predictive validity

This subtype of criterion validity refers to the correlation of the new measure with future ability, for example, a language assessment administered to a child at age three, may attempt to predict reading development when the child begins school (Hresko et al, 1991; McCartney, 1993). Thus, predictive validity refers to "prediction from the test to any criterion situation" (Anastasi, 1990, p. 146).

3.3.3 Construct validity

Construct validity is the extent to which the test measures certain psychological constructs, such as the developmental nature of language abilities (Anastasi, 1990; Hresko et al., 1981). In the case of a standardised test, an important construct is that the assessment should identify children with language problems. Additional constructs are that the test should relate strongly to other tests of intelligence, reading and school readiness as these are constructs related to cognition and language (Hresko et al., 1981). McCauley and Swisher (1984a, p. 35) claim that "the evaluation of construct validity is difficult and somewhat subjective".

interpretation of content validity is "highly subjective" (Hresko et al., 1991, p. 50). Content validity is a theoretical phenomenon which refers to the degree to which items of a test investigate the subject matter that the authors intended it to measure (Hresko et al., 1991). Wiig, Secord and Semel (1992) explain that content validity can be determined by judging whether or not a test adequately measures a child's ability to understand language and express her/himself in comparison to age-level peers. Item selection, extent of sampling, choice of format, item difficulty and item discrimination are important criteria to consider in the establishment of content validity.

3.3.2.1 Criterion-related validity

Criterion validity is a subtype of content validity (Plante and Vance, 1994). It, in turn, consists of concurrent validity and predictive validity. Criterion validity is measured by the "correlation of a test with other tests purporting to measure the same variable" (Neale and Liebert, 1986, p. 46). Concurrent validity is a correlation of the new measure with existing measures (Hresko et al., 1991). This measure of validity will be difficult to attain in the current research, as the proposed test cannot be compared to any other formal language test, as the measure to be devised is the first standardised assessment of Zulu.

One of the most important characteristics of valid assessments is that they be reliable (McCartney, 1993; McCauley and Swisher, 1984a). Several aspects of validity exist and these are described in the following section. A diagrammatic representation of the different aspects of validity can be seen in Chapter 8, Figure 37.

3.3.1 Face validity

Face validity relates to what a test plans to measure (Beech et al., 1993). Anastasi (1990, p. 144) maintains that "face validity is not validity in the technical sense; it refers, not to what the test actually measures, but what it appears to superficially measure". Thus, face validity "concerns rapport and public relations" as it "pertains to whether the test looks valid" to the testees or to people administering the test (Anastasi, 1990, p. 144). Further Anastasi (1990, p. 144) believes that "face validity is a desirable attribute of tests". McCauley and Swisher (1948a, p. 35) concur with this and state that face validity is an "important attribute of a test". McCartney (1993, p. 39) however, disputes this fact, claiming that face validity "is the least important aspect of validity".

3.3.2 Content validity

Content validity is often the major attribute of validity to be examined on standardised tests (Plante and Vance, 1994). Despite the importance of this characteristic of validity, the

"the total test score itself" (p. 155).

3.2.2 Test-retest reliability

Reliability of a test over time is referred to as test-retest reliability (Kline, 1986). This refers to tests administered to the same population within a period of two weeks. Test-retest reliability is determined by correlating the scores obtained by the same people on the two administrations of the test (Anastasi, 1990; Kline, 1986).

3.2.3 Inter-rater reliability

Inter-rater reliability is achieved by more than one examiner administering a test (Lund and Duchan, 1988). McCartney (1993, p. 39) believes that examiners achieving "the same conclusion about the same set of responses" is one of the most important features of a reliable test. In addition inter-rater reliability requires that "any one scorer would agree with himself or herself over time" (McCartney, 1993, p. 39).

3.3 Validity

Validity refers to whether the test measures what it purports to measure (Anastasi, 1990; Bell, 1993) "and does so accurately" (McCauley and Swisher, 1984a, p. 34). Snow and Lehrman (1989) contend that validity is a process for developing sounder interpretations of observations.

tests had been revised. They found that 38% of tests met at least half the criteria, while the modal number of criteria met, rose to four. Plante and Vance (1994) therefore conclude that "it does not appear that substantial gains have been made in the basic psychometric reporting for these tests" (p. 17). Both McCauley and Swisher (1984a) and Plante and Vance (1994) suggest that in order to improve reliability and validity scores, empirical measures, such as discriminant validity should be performed.

3.2 Reliability

The function of reliability in standardised language assessments is to determine whether these measures are replicable (McCartney, 1993) and consistent (Anastasi, 1990). Reliable tests should produce "similar results under constant conditions on all occasions" (Bell, 1987, pp 50 - 51). The researcher believes that Bell uses the term 'similar results' deliberately, as slight variations do occur each time a test is readministered. When determining reliability it is important to know the size of these variations, which are referred to as the standard error of measurement (McCartney, 1993). Different measures of reliability will now be discussed in detail.

3.2.1 Internal consistency

This type of reliability is concerned with the degree to which different test items measure the same trait or dimension (Feldt and Brennan, 1989; Sturner et al., 1994). Anastasi (1990) states that the essential criterion in determining internal consistency is

1988). Zulu is therefore spoken by ten to twelve million people in South Africa. At least three dialectal forms of Zulu have been identified, these are standard Zulu of KwaZulu/Natal, Transvaal Zulu and Zimbabwean Ndebele (Nkabinda, 1968; Reagan, 1992). Appendix J shows the areas where these dialects are spoken. Appendix J1 reflects the change that has taken place in the areas where Zulu was spoken between the 1980 and 1991 census (van der Merwe, 1994). It can be seen that one of the areas where the greatest change took place is the Johannesburg - Soweto area. This change supports the findings of the Birth to Ten mission statement (1994) which describes the rapidly increasing urbanisation rates.

3 STRUCTURE OF ZULU

Zulu is typified as being a partially agglutinating synthetic language where words typically consist of more than one morpheme, for example, *a-ngi-m-bon-anga* negative-I-him-see-negative past tense 'I didn't see him'. This example shows that although various morphemes combine to form a complex word, elements maintain a distinct and fixed meaning. Typologically, Zulu and Bantu languages are characterised by noun class systems, extensive agreement and a suffixal system of verbal derivatives (Doke, 1990). A description of these characteristic features as well as other morphosyntactic structures which have a high functional load in Zulu and which are investigated in this study follows. Although Zulu structure will be described, this may be applied to other South-eastern Bantu Zone languages. This is because the South-eastern Bantu Zone languages permit insights from one language structure to be transferred onto others.

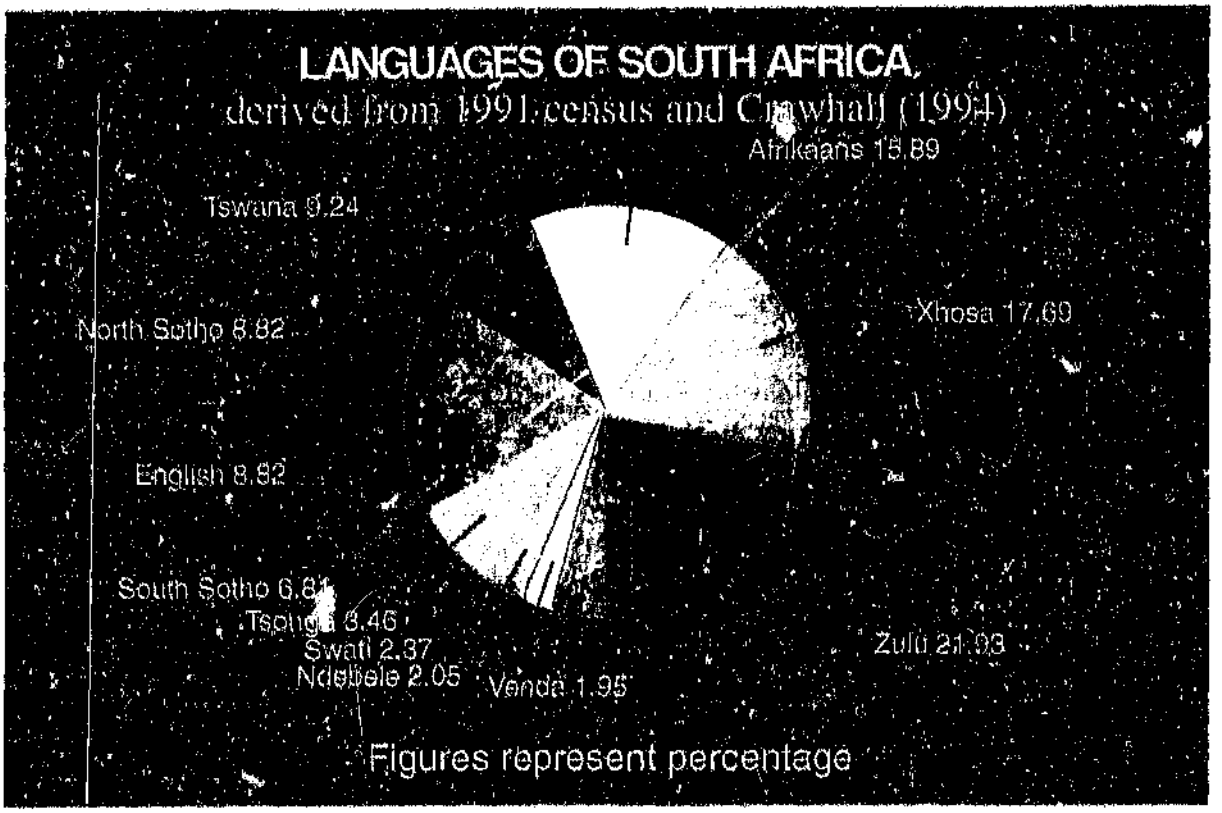


FIGURE 7 Dominant language groups in South Africa[15]

Zulu is the home language to 8 554 470 people living in Kwazulu/Natal and the South Eastern Transvaal (Central Statistical Services, 1992; Raubenheimer, 1983). It is also the lingua franca of cities, such as Soweto in the Pretoria-

[15] This figure is derived from the 1991 census and post census data. Crawhall (1994) considers this data to be the most accurate currently available. Herbert's (1992, p. 4) statement that "the problems of interpreting census data involving language are notorious ... and language statistics relating to home language are particularly misleading within South Africa..." must be considered when examining this figure.

The Niger-Kordofanian languages are spoken by approximately 180 million people, half of the total African population (Finegan and Besnier, 1989). The Bantu subdivision consists of almost 400 languages which represent 60 million speakers. Most of the languages of Sub-Saharan Africa belong to this family (O'Grady, Dobrovolsky and Aronoff, 1989; Welmers, 1973). (See Appendix I for a map showing the locations of the language groups of Africa).

The Bantu languages which are spoken in South Africa belong to the South-eastern Bantu Zone (Doke, Malcolm, Sikakana and Vilakazi, 1990). These consist of the Nguni which is the largest group, the Sotho, Venda and Tsonga groups. The different languages belonging to each group can be seen in Figure 6. These South-eastern Bantu Zone languages are structurally closely related. This relationship has implications for translation of the Zulu language assessment into other Bantu languages, an issue to be discussed further in Chapter 6.

The Nguni languages are generally mutually intelligible. This is despite the fact that they are divided into two sub-groups, the Zunda and the Tekela Nguni. Zulu, Xhosa and Ndebele belong to the Zunda sub-group (Schuring, 1990; Taljaard and Bosch, 1988). The Tekela sub-group comprises Swati and Northern Ndebele. Approximately 20 million people speak one of the Bantu languages in South Africa. Zulu is the most commonly spoken first and second language (Central Statistical Services personal communication, December 1992; Crawhall, 1994) as can be seen in Figure 7. It is spoken by 21,93% of the population (Crawhall, 1994).

2 CLASSIFICATION OF ZULU

Zulu is a major Bantu language of South Africa (Schuring, 1990). It belongs to the Bantu subdivision of the Benue-Kongo family which is a subgroup of the Niger-Kordofanian phylum (Greenberg, 1963; Gregersen, 1977). Figure 6, below depicts the classification of Zulu.

PHYLUM	Niger-Kordofanian
FAMILY	Benue-Kongo
SUBDIVISION	Bantu
(LANGUAGE)	*ZULU*

BANTU SUBDIVISION
South-eastern Bantu Zone

NGUNI	SOTHO	VENDA	TSONGA/ SHANGAAN
Zulu	South Sotho		
Xhosa	North Sotho		
Swati	Tswana		
Ndebele			

(Greenberg, 1963; Gregersen 1977)

FIGURE 6 **Classification of Zulu**[4]

[4] When referring to African languages in English, a debate exists concerning whether the noun class prefix of the African language should be included in the English form, for example isiZulu or Zulu. Standard usage, based on principles of the International Institute of African Languages and Culture prescribes that "all names are used in their uninflected form" (Herbert, 1992, p. 6). This research will follow these principles. Inflected forms will be provided when specific authors utilise these, for example, when Demuth (1988, 1992) utilises the form Sesotho.

CHAPTER 3

ASPECTS OF ZULU STRUCTURE, SOCIOLINGUISTICS AND ACQUISITION

Thus far, the literature review has considered the context of the study, as well as issues pertaining to formal language assessment. Chapter 3 will complete the review by providing information about aspects of the Zulu language that will be included in the proposed language assessment. The focus will be on fundamental features that are found early in Zulu children's language. These features will be described in terms of linguistic, sociolinguistic and developmental perspectives.

Zulu noun class, agreement, relatives and certain verbal structures will be described in the first section of the chapter. Linguistic changes, such as code-switching, which have affected Zulu will then be depicted. Soweto Zulu, of particular relevance to this research, will also be elucidated upon. The final section of the chapter reports on the acquisition of Zulu and, to a lesser extent, other languages belonging to the South-eastern Bantu Zone. The semantic categories of number and colour will also be portrayed.

1 ETYMOLOGY

The word Zulu means 'sky' or 'heaven' and was first noted in the 1620s. It was the name given to the son of Malandela and Nozinja who were members of a clan, living in what is today KwaZulu/Natal (Elliott, 1986). The term Zulu and its plural amaZulu[11] are controversial as van Warmelo (1974, p. 63) claims they have been "adopted for ethnographic convenience". Further, van Warmelo (1974) explains that, in fact, Zulu people refer to their language as *isiNtu* which means 'human speech'.

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[11] The plural form, *amaZulu* means 'people from heaven'.

and disadvantages were highlighted. The urgent need for such assessments for the multilingual and multicultural population of South Africa was described. This chapter concluded by depicting how formal language assessments may be used from an epidemiological perspective.

population" (p. 90). Reasons attributed to difficulty in obtaining prevalence figures include discrepancies in defining language disabilities and what constitutes these, for example, there is no established criteria for what constitutes a language delay at specific ages (Marge, 1972; Randall, Reynell and Curwen, 1974). The use of differing methodologies and small population sizes also make it difficult to determine prevalence. Population sizes tend to be small due to the time involved in assessing each child. An additional reason is that few prevalence studies have been conducted world wide.

Despite these problems, some prevalence figures do exist. In the United Kingdom the prevalence rate for language impairment is 3 - 15% of the population, with a median of 6 - 8% (Silva, 1987). Van Riper and Emerick (1990) report that 3 - 5% of the population in the United States have language disorders.

To date, no prevalence studies have been conducted in South Africa. In 1978 Penn estimated that the incidence of language disorders to be 1 - 2%, based on world incidence figures. Her definition of language disorders included developmental delays such as mental retardation. At that time Penn (1978) commented that this figure appeared to be increasing.

4 CONCLUDING COMMENT

This chapter has demonstrated various features that need to be considered when devising a language assessment. Thus the interrelated components of both typical and disordered language were described. Attention was paid to the universal nature of language components and their acquisition in preschool children. In order to have a clear idea of the value and effectiveness of language tests, features of formal language assessment and their advantages

have a high rate of immediate and longer-lasting behaviour problems.

In order to identify language problems and the above-mentioned repercussions of these, formal language tests can be utilised in two different ways. Firstly, they can be used as diagnostic tests which will assist in determining the language disorder. Formal language assessments are thus useful at a tertiary level of prevention (Marge, 1991). Their use in this context is to detect the nature of the language disorder in order to devise appropriate therapy programmes for the language impaired child. The diagnostic test can then be readministered at regular intervals during therapy in order to assess the progress of the child (Lahey, 1988; Dale and Henderson, 1987).

The second way in which formal language tests can be used to identify language problems is as a screening measure (Gerber, 1990). Screening or survey tests are designed to provide a sample of broad-based language behaviour for the purpose of selecting children who need further language assessment, or for identifying areas of deficit in which further assessment is indicated (Lund and Duchan, 1988; McCauley and Demetras, 1990). The purpose of a screening test is to detect children with a communication problem, rather than to delineate the problem in detail. Therefore screening tests are required to be swift, yet discerning, in order to "identify quickly those who are performing at a level which is significantly below their peers" (Dale and Henderson, 1987, p. 180). Screening tests could also be utilised to determine prevalence of language problems.

Marge (1972) notes that "there are noticeably few studies of the incidence and prevalence of language disabilities in the total

can lead to communication disorders.

3.8.1 Secondary prevention

Secondary prevention is the early detection and treatment of a communication problem and aims at reducing the prevalence of communication disorder (Butler, 1989; Gerber, 1990; M. Marge, personal communication, April 20, 1992). Tertiary prevention relates to rehabilitation of disorders, the traditional focus of attention for speech, language and hearing therapists (Gerber, 1990; Marge, 1991). A definition of rehabilitation is provided in Appendix A

From both an epidemiological and clinical perspective it is imperative to identify language problems as early in a child's life as possible so that the child will receive therapy opportunely, and thereby obtain maximal benefit from therapy (Wetherby, 1985 in Wetherby, Yonclas and Bryan, 1989). If communication problems are not treated during the critical language learning period (Lenneberg, 1967) then "the deficiencies in communication skills result in academic failure, social maladjustment, and the need for special care programs, often at considerable cost to society" (Ehrlich, Shapiro, Kimball and Huttner, 1973, p. 522).

In addition, early identification could prevent more serious and long term repercussions of language delay such as problems with education, social or vocational opportunities (Aram and Nation 1980; Bernstein and Tiegerman, 1993; O' Malley and Tikofsky, 1972; Wetherby et al., 1989). Language problems can be a major correlate of learning disabilities and may require specific remedial techniques (Illerbrun, Haines and Greenough, 1985). Silva (1987) reports that children with early language delay may

In addition, critics state that formal tests are often poorly standardised, or standardised on one population group. They are then used on populations which are sociolinguistically and economically different to those used in the standardisation sample (Bailey and Harbin, 1980; Irwin, Moore and Rampp, 1972; Terrell and Terrell, 1983). Test results then provide false information which may be detrimental to children as they may be compared to norms which are not accurate reflections of themselves (Stokes and Duncan, 1989).

Despite these limitations, however, the formal language test remains a powerful tool in the speech-language therapist's repertoire for identifying language problems.

3.8 Epidemiology of language problems

The field of epidemiology according to Sackett, Haines and Tugwell (1988) has been concerned with prevention of disease and is used to study relationships between people, their diseases and the agents that cause, prevent or cure their disease in the environment. From a speech-language therapist's perspective, prevention is defined as "the elimination of factors which interfere with the normal acquisition and development of communication skills" (ASHA, 1982, p. 425). Prevention occurs at primary, secondary and tertiary levels (Gerber, 1990).

Primary prevention is aimed at the promotion of good health by reducing the incidence of disease or where the occurrence of a communicative disorder can be eliminated, for example, by mass public education. The ASHA committee on Prevention (1982), strongly recommends that increased development and implementation of primary prevention strategies should be undertaken, particularly for low-income populations who are at the greatest risk for conditions that

Bloom and Lahey, 1978; Dale and Henderson, 1987). The use of formal language tests for this function is controversial as some researchers contend that there are more effective methods for providing guidelines for intervention (Lund and Duchan, 1993; McCartney, 1993; McCauley and Swisher, 1984b).

3.7 Disadvantages of formal testing

Despite the fact that formal tests have many uses, they also have limitations, as Appendix F indicates. These include the limited amount of information they provide about the nature of the problem (McCartney, 1993; Stokes and Duncan, 1989). "Formal tests present a constrained context and their use of decontextualised language by their very nature and purpose present language removed from ordinary intentionality" (Lund and Duchan, 1988, p. 24). The use of decontextuallsed language may cause children to perform on a lower level than they would in a naturalistic setting (Leonard, Prutting, Penozzi and Berkeley, 1978; Lund and Duchan, 1993; Stokes and Duncan, 1989). However, this limitation can be overcome by developing tests which are presented in more natural and broader contexts (Launer and Lahey, 1981). This is to be a basic principle followed in the proposed language test.

A further disadvantage of formal language tests is that they are often psychometrically inadequate, particularly as regards reliability and validity (McCartney, 1993). McCauley and Swisher's (1984a) survey found that most formal language tests used by speech-language therapists lacked either predictive validity or adequate inter-rater reliability. As an extension to this, Plante and Vance (1994, p. 21) believe that even tests which have been devised according to strict psychometric criteria often have "limited utility for the accurate identification of developmental language impairments".

appropriate samples (College of Speech Therapists, 1990; Stokes and Duncan, 1989).

A more effective solution to address the shortage of adequate standard tests for the majority South African population seems to be to develop new tests that can provide a more appropriate assessment. The benefits of such tests are described in the next section.

3.6 Uses of formal language assessment

Formal language assessments are one of the most effective methods currently available for diagnosis of language disorders (Lund and Duchan, 1993; McCartney 1993). They form part of the "descriptive tapestry" that clinicians assemble in order to understand a child's problem (Siegel, 1974, p. 214). The function of formal language tests is to provide a sample of behaviour for analysis and compare this to a norm in order to diagnose the presence or absence of a language problem (Bernstein and Tiegerman, 1993; McCartney, 1993; Siegel, 1974). Stokes and Duncan (1989, p. 121) concur, stating that a "standard test separates the normal population from the disordered population and provides information on the child's strengths and weaknesses according to her peers".

Utilising a formal language test to identify the presence of a language problem assists in preventing the permanent and long term effects of these (Gerber, 1990). Thus formal language tests have epidemiological functions, which will be elaborated on in a later section.

Additional functions of formal tests are to design appropriate therapy programmes for language impaired children and to assess the progress of children receiving language therapy (Bernstein and Tiegerman, 1993;

4.5.1 Standard variety

It is a trend in Africa that the people who speak the standard[22] variety and "protect and preserve the purity and virility of the languages" tend to live in the rural areas (Agheyisi, 1977, p. 109). Standard Zulu is spoken in the rural areas of KwaZulu/Natal (Doke and Vilakazi, 1958). G. K. Schuring (personal communication, April 1, 1993) states that standard varieties tend to be based on a form of language that was spoken approximately fifty years ago, as Zulu speakers in rural areas are slower in accepting innovations. However, even in these areas the standard variety is influenced by English and Afrikaans.

A problem associated with using standard varieties as the medium of teaching, is that pupils may not speak standard varieties. Thus, teachers in the PWV/Gauteng Province report that teaching Zulu in the classroom is often like "teaching a foreign language" (Herbert, 1992, p. 4).

The written form of Zulu is derived from a standard variety. The first evidence of written Zulu occurred in the 1850s, when Posselt (1850) published a Zulu language glossary for use by 'Natal colonists'. J.W. Colenso, Bishop of Natal then translated the New Testament in 1857. He also published a grammatical text for the benefit of missionaries, entitled "An elementary grammar of the Zulu-Kafir language' (Colenso, 1855).

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[22] Standard refers to a standard dialect, which children are exposed to in schools (C. Myers-Scotton, personal communication September, 23, 1993). No "monolithic" standard variety exists (Herbert, 1992, p. 3) rather, more than one standard variety can occur.

4.4 Multilingualism

> Monolingualism is a minority phenomenon in terms of the total world's population; bi- or multilingualism is found in most countries in the world (Walker, 1984, p. 159).

The form that multilingualism takes, varies in different parts of the world, however. In the United States 25% of the population consisted of 'linguistic and cultural minorities', according to the 1990 census (Battle, 1993; Taylor, 1993). Similarly, in European contexts, the majority of the population is monolingual (Gupta and Chandler, 1993; Walker, 1984).

The situation is different in Africa as "bilingualism is the norm" (Nwokah, 1988, p. 357) and in South Africa "monolingualism is rare" (Herbert, 1992 p. 2). South Africa has a very complex and very complicated sociolinguistic reality (Reagan, 1992). Bi- and multilingualism are not associated with being a member of a minority group, as in the abovementioned countries. Instead, habitual use of multiple languages and code-switching are all part of regular linguistic behaviour for many in the population (Gupta and Chandler, 1993).

4.5 Varieties of Zulu

Urbanisation, immigration and migration have all been cited as causes of the emergence of urban varieties of Zulu. Because of these processes, much contact between Zulu speakers and English and Afrikaans has occurred (Calteaux, 1992; Mzamane; 1962; Gabouret-Keller, 1971; Thipa, 1992). Similar processes have occurred with other Nguni and Sotho languages.

4.3.3 Syntactic change

Syntactic change does not occur frequently in Zulu. However, examples of morphosyntactic change are nouns that originally corresponded with noun class 5 prefixes, for example, *ikamu lami lide* 'my comb i. long' now use prefixes from noun class 9 as in *ikamu yami inde* (von Staden, 1976).

4.3.4 Semantic change

Semantic changes in languages are mostly due to the adoption of loan words. In Zulu this mostly occurs in noun classes, contributing to the loss of the original semantic homogeneity of the classes. The reason for this loss is that loan words are designated to classes on the basis of phonological similarity. Despite this, the 'loan word classes' borrow new words such as items of food as in class 1a, *ubhanana* 'banana' and class 2a *obhanana* 'bananas'. Class 5 and 6 are also classes which take borrowed forms. Noun class 5 is often used for singular borrowed forms, such as *i-thibothi* NC5-tea pot 'tea pot'. Plural forms belong to noun class 6, for example, *ama-thibothi* NC6-tea pot 'tea pots' (Beekman, 1987; Louw, 1983). Noun class 9 contains common objects, many of which are loan words from English or Afrikaans, such as *in-jini* NC9-engine 'engine'. Noun class 14 *u(bu)-* usually does not adopt any new forms.

Zulu also tends to borrow many verbs, for example, *bhaka* 'bake' and *kamu* 'comb'. The stems are then conjugated according to Zulu grammar.

4.3.1 Phonological change

Historically in Zulu, phonological changes can be seen with the introduction of consonant sounds which did not initially exist in the language, for example, clicks adopted from Khoisan. These clicks were probably absorbed into Zulu when the Nguni people migrated to South Africa and came into contact with the Khoisan people, who originally occupied this country. The click sounds / *c* /, / *q* /, / *x* / are today considered an identifying aspect of Nguni languages (Hammond-Tooke, 1993; Raubenheimer, 1983; van Wyk, 1978).

Other examples of phonological changes which have taken place in Zulu are either an /l/ or trilled r being used for the /r/ phoneme, for example, in loan words such as *i-layisi* 'rice' as /r/ does not exist in Zulu. These alternates have been adopted from English (Koopman, 1992; Mzamane, 1962).

4.3.2 Morphological change

Morphological changes in Zulu can be seen in the singular and plural correspondence of Zulu nouns with both English and Afrikaans words. In English and Afrikaans the singular form of the noun is unmarked, while the plural is marked with a suffix, while in Zulu both the singular and plural are marked with a noun class prefix. When a plural stem is borrowed from English into Zulu, such as in the stem *sokisi* 'socks', the English plural marker /s/ is retained in the suffix *isi*. The Zulu plural marker in the form of the prefix *ama* is also used. This results in the plural form showing both a Zulu and an English plural, for example *ama-sokisi* 'socks' (Koopman, 1992).

In Zulu, code-switching occurs when the stem of a word is borrowed from an embedded language such as English, for example *kofi* 'coffee'. This stem is then prefixed to the matrix language, Zulu, for example *i* as in the loan word *ikofi* (Myers-Scotton, 1993a; G.K. Schuring, personal communication, April 1, 1993). Historically, embedded languages which Zulu has borrowed from include the Khoisan languages, English, Afrikaans, Portuguese and Greek (Mzamane, 1962; Raubenheimer, 1983; von Sta'den 1976). Figure 8 illustrates how embedded and matrix languages operate with regard to code-switching and loan words.

4.2 Loan words

Loan words are lexical items which have come to be used in a language or dialect other than the one in which they originated (Crystal, 1991). They provide information regarding cultural history, cultural change and change in social life and are an integral part of social development and enrichment (Nkabinda, 1968).

Loan words and code-switching filled linguistic gaps for concepts and institutions unknown in traditional society. An example is the Zulu word *isikole* 'school' (Epstein, 1959; Kamwangamalu 1989; Richardson, 1963; von Sladen, 1976).

4.3 Change to linguistic structure

Coulmas (1985) asserts that the structural and lexical make-up of a language does not prevent changes from being made. The nature of these changes are usually due to the introduction of new sounds [phonology], new grammatical features [morphology and syntax], and lexical changes [semantics] (Beekman, 1987; Kamwangamalu, 1989; von Sladen, 1976).

communicative functions" (Coulmas, 1985, abstract). Thus, in order to remain viable, linguistic varieties must be dynamic and meet the needs of their speakers. Languages are therefore constantly required to change and should be functionally suitable for use in new or extended environments. They should meet the educational, social, economic and technical development needs of societies (Coulmas, 1985; Kamwangamalu, 1989).

These changes and adaptations of language are usually gradual and continuous processes. Changes occur both diachronically and synchronically and are reflected in linguistic processes such as code-switching and loan words[20] which occur in all bi-or multilingual environments (Kamwangamalu, 1989). Speakers of a language are usualy not aware that items in their language may have their origin in another language (Ansre, 1971).

The ensuing discussion will describe the changes that take place in languages with specific examples of changes in Zulu, provided. Historical changes will be portrayed as well as contemporary changes. A description of Soweto Zulu then follows.

4.1 Code-switching[21]

Code-switching is defined as the alternating use of linguistic units from two or more distinct languages (Lipski, 1978). Code-switching subsumes code-mixing (Myers-Scotton, 1992; 1993a and b). [See Appendix A for additional definitions].

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[20] It should be noted that there is a great deal of overlap between the definitions of the terms code-switching and loan words. The researcher regards the creation of loan words occurring through the process of code-switching.

[21] Myers-Scotton (1993) states that this term can either be written as one word or hyphenated.

and
-e/ile in the past tense (Doke, 1990) as Table 4 indicates. In addition to these markers, verbal constructions consist of the subject prefix/pronoun, which functions with the radical (Brokensha and Wood, 1989). Table 4 contains examples of the construction of tenses.

3.2.3 Passives

Passivisation is a productive grammatical category in Bantu languages and Zulu favours the passive voice (Doke, 1990). The verb is marked with a passive extension *-w* (Doke, 1990). (See Table 4).

3.2.4 Adverbs

The present research investigated children's knowledge of adverbs of manner, *kanjani* 'how'; time, *nini* 'when' and place *kuphi* 'where' (Doke, 1990; Taljaard and Bosch, 1988). In Zulu, most adverbs are derived from nouns (Doke, 1990). The nature of adverbs is still a controversial issue. Cope (1983) regards the interrogatives *kanjani* 'how' and *kuphi* 'where' as irregular adjectives.

4 SOCIOLINGUISTIC VARIABLES[9]

The preceding section has provided information about Zulu structure. However, "at certain points in their historical development, languages are not adequately equipped to serve their societies and do not offer certain

[9] Much controversy exists regarding the terminology relating to aspects of sociolinguistics.

tense, aspect, concordial and derivational affixes occur with the basic verb stem (See Table 4). The meaning of the verb is carried in the radical (Doke, 1990). Verbs can be distinguished from nouns, in that their stems end in a consonant and that the final vowel is an inflection, for example in *uku-hamb-a* 'leave', *b* is the final consonant of the stem and *u-ya-hamb-a* SP1-tense-go-present tense 'he travels' *-a* is the inflection, as Table 4 shows (Cope, 1983).

TABLE 4: **Aspects of Zulu verbal morphology**

	Example	Verb Marker
Present tense	*u-ya-hamb-a* SP1-tense-go-present tense 'he travels'	*-a*
Past tense	*ba-hamb-ile* SP2-go-past tense 'they went'	*-e/ile*
Future tense	*u-za-hamb-a* SP1-future tense-go-tense suffix 'she will travel'	*za*
Negative (Present)	*a-ka-sebenz-i* negative-SP1-work-present tense negative 'he doesn't work'	*a- -i*
Passive verbal extension	*ku-phek-iwe* SP-cook-passive extension 'it has been cooked'	*-w-*

3.2.1 Negatives

The identifying features of present tense negative forms are prefixal *a-* and suffixal *-i*. An example is provided in Table 4.

3.2.2 Tenses

Tenses are marked with verbal affixes, which are prefixal *ya-* or *za-* in the future tense, and suffixal *-a* in the present tense

1988, p. 37). An example is *ba-ya-wu-thand-a u-shukela* SP3-tense-OP3-like-present tense marker NC1a-sugar 'they like the sugar'.

3.1.3 Adjectives and relatives

Adjectives are composed of stems and adjectival concordial prefixes, and can only be used when there is agreement between the stem and the concord. The adjective follows the noun in the sentence, for example *in-gubo en-khulu* NC9-blanket AP9-large 'the big blanket'. Adjectival stems describe appearance such as *-khulu* 'big' and *-ncane* 'small', as well as numbers, such as *-bili* 'two'. Table 3 provides a list of adjectival concords. Adjectives are not common in Zulu and Bantu languages, their function being served by relative stems as represented in colours (Doke, 1990).

Relative stems are used "to fill the gap left by the dearth of adjectives" (Suzman, 1991, p. 21). Like adjectives, relatives consist of stems *-hlope* 'white' to which the relative prefix *am-* is added, for example in *ama-sokisi am-hlope* NC6-sock RP6-white 'white socks'. A list of relative concordial prefixes is included in Table 3. Relatives are productively formed on relatives stems and on verb stems as in the example, *uku-dla oku-mnandi* NC15-food RP15-tasty 'the food that is tasty' and *o-bhemay-o* RP1-smoking-tense marker 'the one who is smoking'. From the abovementioned descriptions, it can be seen that relatives are a tructure that is used often in Zulu.

3.2 Verb morphology

Verbs in Zulu may be of a very complex structure as a range of

illustrates aspects of the agreement system in Zulu relevant to this study.

TABLE 3: **Aspects of Zulu agreement**

Noun Class (NC)	NC Prefix	Subject Prefix (SP)	Object Prefix (OP)	Adjective Prefix (AP)	Relative Prefix (RP)
1 2	*o* *aba*	*u* *ba*	*m* *ba*	*o* *aba*	*o(mu)* *aba*
1a 2a	*u:* *o:*	same as 1 and 2 same as 1 and 2			
3 4	*um(u)* *imi*	*u* *i*	*wu* *yi*	*o(mu)* *emi*	*o(mu)* *e*
5 6	*i:* *ama*	*li* *a*	*li* *wa*	*eli* *ama*	*eli* *a*
7 8	*isi* *izi*	*si* *zi*	*si* *zi*	*esi* *ezi*	*esi* *ezi*
9 10	*in* *izin*	*i* *zi*	*yi* *zi*	*en* *ezin*	*e* *ezi*
11	*u:*	*lu*	*lu*	*olu*	*olu*
14	*ubu*	*bu*	*bu*	*obu*	*obu*
15	*uku*	*ku*	*ku*	*oku*	*oku*

3.1.2 Subject and object prefixes

Taljaard and Bosch (1988, p. 30) state that "the subject concord always bears a close relationship to the class prefix of the noun which is the subject of the clause". Examples of the noun class prefixes and subject prefixes are provided in Table 3 above. Object concord has a similar structure to subject concord, that is "the object concord bears a close resemblance to the class prefix from which it derives" (Taljaard and Bosch,

3.1.1 Semantic origin

Historically, Bantu noun classes were assumed to be semantically based (Kunene, 1979; Taljaard and Bosch, 1988; Welmers, 1973) although this is a moot point (Herbert, 1985). The term, semantically based, refers to similar nouns being categorised into corresponding meaning classes.

Thus, contemporary noun classes 1 and 2 are the so called 'human classes', as in *umu-fana* 'boy'. In addition to these noun classes, there are subclasses of nouns, noun class 1a and 2a, which maintain the same grammatical connections as the main classes 1 and 2, but whose prefixes differ (Cope, 1983). Class 1a and 2a primarily consist of personal names and kinship terms such as *u:-gogo* NC1a-grandmother 'grandmother' and *o:-gogo* NC2a grandmother 'grandmothers'. Noun Class 1a also indicates some items of food, such as *u-anyanisi* 'onion'. Originally Doke (1990, p. 52) considered noun class 9 to be the "Animal Class", although this is now a semantically heterogenous class.

3.1.2 Agreement[18]

The noun class system determines variably alliterative agreement and links the noun to other words in the sentence (Taljaard and Bosch, 1988). The sentence *aba-fana aba-khulu ba-ya-gigim-a* NC2-boy AP2-big SP2-tense-run-present tense marker 'the big boys run' exemplifies alliterative agreement. Pronouns, adjectives, relatives, possessives and verbs are inflected to agree with the head noun (Doke, 1990). Table 3

[18] The term agreement is used interchangeably with that of concord.

3.1 Noun classes and agreement[16]

> Bantu languages are typically characterised by a set of singular/plural noun class prefixes, where the nominal stem is invariant (Demuth, 1992; p. 560).

Nouns are composed of two formatives, a prefix and a stem, as in *umntwana* > *um* + *ntwana* 'child'. Prefixes vary to express number and the noun class (NC) to which the noun belongs, while the stem remains constant (Taljaard and Bosch, 1988), for example, *um-ntwana* NC1-child 'child' and *aba-ntwana* NC2-child 'children'. In Zulu, there are six singular/plural noun classes, with two noun classes unmarked for number (Cope, 1983). A list of these noun classes and their prefixes may be seen in Table 2. Noun class prefixes determine the semantic content of noun classes as well as control extensive concordial agreement (Cope, 1983; Taljaard, and Bosch, 1988).

TABLE 2: Zulu noun class and agreement system[17]

Noun Class Number	Noun Prefix	Class Concord	Examples	Gloss
1 sg	*um (m)*	*u*	*umntwana*	*'child'*
2 pl	*aba*	*ba*	*abantwana*	*'children'*
1a sg	*u*	*u*	*umkhulu*	*'grandfather'*
2a pl	*o*	*o*	*omkhulu*	*'grandfathers'*
3 sg	*um (m)*	*u*	*-mu*	*'mouth'*
4 pl	*imi*	*i*	*-mi*	*'fingers'*
5 sg	*i*	*i*	*ikhala*	*'nose'*
6 pl	*ama*	*a*	*amaso*	*'eyes'*
7 sg	*isi*	*si*	*isisu*	*'stomach'*
8 pl	*izi*	*zi*	*izandla*	*'hands'*
9 sg	*in*	*i*	*indlebe*	*'ear'*
10 pl	*izin*	*zi*	*izinyawo*	*'feet'*
11 sg	*u-ulu*	*lu*	*uhlwa*	*'milk'*
14	*ubu*	*bu*	*ubuhlalu*	*'bush'*
15	*uku*	*ku*	*ukudla*	*'food'*

[16] The idea of classification of noun classes was devised by Bleek (cited in Guthrie, 1948, p. 41).

[17] The noun class system is categorised differently by different authorities. The classification system used in this research is consistent with Cope (1983) and Taljaard and Bosch (1988).

5.2.4 Errors in acquisition

Suzman (1991) found that the subjects of her study had relatively errorless acquisition. Difficulties that occurred included constructions that were restricted to certain examples of the form, rather than representing a full range within the construction type. This is illustrated in the instance of noun class prefixes, where children younger than two years primarily used singular forms of noun classes 1a, 5 and 9. Suzman (1991) attributes these restricted constructions to language being learned in highly contextualised situations. Between the age of two years to two and a half years, the number and range of prefixes expanded to wider ranges of concordial prefixes and singular and plural forms of noun phrases.

Generally children acquired their language by a gradual refining of speech that resembled adult input, as described in the previous section. Errors that were noted in the acquisition of Zulu tended to be those of omission as opposed to overgeneralisation of structures. However, overgeneralisation did occur, especially with pronominal forms and noun classes 1 and 9. Possible accidental gaps with syntax indicated that passives and relatives used were a subset of adults forms, with passives being transitive and tending to be used in the negative form.

The fact that few errors were noted in children's acquisition could also be attributed to restricted adult input. Suzman (1991, p. 188) reported that this input defined aspects of structure and "virtually prime(d) children for learning linguistic structures". The children also displayed an ability to

understanding of the passive increased from age three to age four. Children were also able to deal more effectively with non reversible sentences, while transitive and adverse sentences had no apparent effect on performance.

5.2.3 Child-adult communication

In Suzman's (1991) naturalistic study, parents and older siblings appeared to enjoy interacting with young children. Adults did not seem to speak about subjects that were of unique interest to the child, rather children were "participants in matter-of-fact conversations about daily activities" (Suzman, 1991, p. 31). Zulu adults encouraged children to engage in conversation.

Demuth (1984) observed similar interactions. In addition, she found that adults use question and prompting routines. Tsonope (1987) also found prompting routines where children were instructed *ere* 'say' and the child was to repeat either parts of or the entire adult's utterance. Prompts were prominent in object-labelling routines and to instruct children in politeness.

Parents were found to use restricted input in the form of short grammatical sentences when speaking to children but they generally did not simplify complicated Zulu morphology (Suzman, 1991). Adult's speech did not contain baby-talk features, possibly because they viewed children as conversational partners. Motherese did occur on a discourse level, with adults using "short grammatical input sentences" (Suzman, 1991, p. 31) as observed generally in child language.

and the remote past tense marker *á* as in *i-kat-i la-phuz-á u-bisi* SP5remote past tense-drink-final vowel-NC11-milk 'the cat drank the milk'. Results indicated that all the three and five year old subjects were able to produce the past tense inflections *-be, ile/e* and *a*. However, the five year olds were able to do so more consistently than the three year olds.

5.2.2.2 **Passive**

Suzman (1985; 1987) found that adults were using passive forms in who-subject questions when speaking to children of as young an age as one year and ten months. This finding indicates that passives develop earlier in Zulu than in English, where these forms have been found to emerge at three and a half years (Crystal, Fletcher and Garman, 1989). In addition, passive forms appear to be used productively in Zulu (E. Rassman, personal communication, October, 21, 1991).

Stephen (1988) investigated developmental trends in the acquisition of the passive voice in three to four year old Zulu speaking chi'dren. She specifically assessed comprehension and production of their ability with transitive, adverse[26] and reversible sentences. Results indicated that subjects' reception of the passive was superior to their production. Their

[26] semantic feature of a verb where the recipient of an action is adversely affected by the action.

In Zulu, plurals though not frequent, were first found at between 2 - 2.6 years. This is at a similar age to the subjects on Cazden's longitudinal study on three English speaking subjects (Anisfeld, 1984).
When Zulu errors did occur, they took the form of overgeneralisation of the more productive singular noun classes, such as noun class 9, rather than omission of the plural (Oberstein, 1987).

5.2.2 Acquisition of verbal[24] morphology

By age three children used highly inflected verb forms, employing tense, agreement and negatives (Suzman, 1991). They also utilised extensions in the form of causative and passives. These are discussed below.

5.2.2.1 Past tense

van Reenen (1989) investigated the use of the morphological inflections associated with past tense forms in six Zulu children. The children were aged between three years and five months and five years and three months. She examined the prefix *-be* when it was used in the past continuous, such as *u-baba u-be sebenz-a* NC1a-SP1-past continuous 'father was working'; the simple past *-ile/e* marker which denotes completion in a sentence such as *in-ja i-khonkoth-ile* NC9-dog SP9-bark-past tense 'the dog barked'

[24] Verbal, in this context refers to verbs and not to oral production or expression.

Adult-child conversations indicated that Zulu speaking children used their noun class system selectively using a majority of nouns in NC1a, 5 and 9. Suzman (1991) postulates that the uneven productivity of noun classes could have been partly developmental and partly reflective of the adult-child interaction.

By age three, Zulu speaking children were using agreement, for example, with object concords *-m* in structures such as *u-zo-m-gez-a* SP1-future tense-OP1-wash-final vowel 'she will wash her'. They were also able to use agreement to relate to the following structures: object phrases, relatives, adjectives, positives and negatives.

5.2.1.1 Acquisition of singular and plural

Obersteln (1987) studied the acquisition of the singular and plural noun class prefix and subject-verb agreement in two to five year old Zulu speakers. She found that singular class 1, plural class 2, singular class 1a and singular class 9 were the first to be acquired. This finding concurs with Connelly (1984) and Suzman (1991) who determined that singular forms of each noun predominated over plurals within the same noun class. This predominance is not unique to Bantu languages, but rather, is a widely observed phenomenon in child language (Anisfeld, 1984; Berman, 1986).

three overlapping stages but were fully acquired by age three (Demuth, 1992; Tsonope, 1987). Kunene's (1979) findings, that her subjects had not fully acquired their noun classes by age six, contradict the other studies. Suzman (1993) found that adult prefixes appeared earlier in Zulu than in other languages. She attributes this to the fact that noun class prefixes are more perceptually salient in Zulu than in the Sotho languages.

5.2 Zulu language acquisition

The seminal work describing Zulu language acquisition is that of Suzman (1991). Her research into noun class and concordial morphology and complex syntax was based on in-depth longitudinal naturalistic data of three primary subjects' language acquisition between the ages of one year and ten months and three and a half years.

In addition, there are studies which focus on development of individual aspects of Zulu structure, mentioned in the previous chapter. These studies utilised experimental methodologies where subtests were constructed to examine specific structures such as noun classes. (See Appendix II).

5.2.1 Acquisition of noun classes

The first noun classes to develop were 1 and 2 (Oberstein, 1987). Zulu speaking children had acquired noun classes, 1, 1a, 2, 5, 6, 7, 8, 9, 10 by three years (Oberstein, 1987; Suzman, 1991). The above implies the acquisition of both stems and their prefixes. Noun classes 1a, 5 and 6 were the most commonly used classes Suzman (1991), while noun classes 3, 4, 11, 14 and 15 were poorly represented. The final noun class to develop was noun class 11 which was still not correctly used at age four years and five months (Oberstein, 1987).

acquiring the noun and its affixes" (p. iv). Connelly (1984) also wished to determine the order of acquisition of noun stems, prefixes and suffixes. He found that the acquisition of noun classes and prefixes of the four children he studied occurred in stages. He also found this acquisition to be generally 'error free'.

5.1.3 Tswana

Tsonope's (1987) research investigated acquisition of Setswana noun class and agreement morphology. He also found that children developed their noun class morphology in stages. In addition Tsonope (1987, p. 54) reported that children's early linguistic structures did not always resemble that of the adult's models. Instead, he describes children's early acquisition as being based on a 'dissyllabic template'. This template "serves to constrain the structure of the forms the child produces to two syllables" (Tsonope, 1987, abstract).

5.1.4 Trends

Demuth (1992, p. 588) summarises the findings of the abovementioned studies by stating that "the acquisition phenomena for these different languages have been remarkably similar". This similarity exists despite the Nguni noun class systems differing from Sesotho (Demuth, 1992). Nguni noun class systems include pre-prefixes, for example *u-mu-ntu* NC1-person 'person' while Sotho languages do not, for example *mo-tho* NC1-person.

Researchers in these studies observed that generally noun class prefixes did not cause problems in acquisition, despite their apparent complexity. Noun classes were found to develop in

group, between four and a half years and six years. She found that when learning nouns, her subjects acquired the "nominal stem before the nominal prefix" (Kunene, 1979, p. 75). Kunene (1979) explains these findings crosslinguistically, by comparing them to English speaking children, who during the 'telegraphic speech' stage, use content words and not function words. Thus she hypothesises that Siswati speakers acquire their noun stems before their prefixes because these stems are content morphemes.

Although the subjects of Kunene's (1979) study had acquired their agreement markers by age six, they had not fully acquired their noun classes. These children tended to overgeneralise their noun classes, using morphological rather than semantic overgeneralisation.

5.1.2 Sotho

Sotho consists of seven singular and plural noun classes with corresponding prefixes (Doke and Mofokeng, 1957). Both Connelly (1984) and Demuth (1988) explored Sesotho children's acquisition of this noun morphology. Demuth (1988) found that her subject's developed their noun classes in stages. The first stage resembled Kunene's (1979) findings, that is, that subjects acquired their noun stems before their prefixes. This occurred at age two years. The earliest forms of prefixes occurred as vowels, but by age three Demuth's (1988) subjects produced all their singular and plural prefixes. Demuth (1992) also studied other aspects of Sesotho acquisition, such as relative clauses and passives.

The specific aim of Connelly's (1984) research was to "establish whether children used holistic or morphemic strategies in

The previous two sections of this chapter have described the typology of Zulu and linguistic changes that have occurred. Of relevance to the current study, is how these characteristic features of Zulu are acquired. Thus, the following section describes the development of Zulu. Sociolinguistic changes that have been found to influence this acquisition are also discussed.

5 BANTU LANGUAGE ACQUISITION

5.1 South-eastern Bantu Zone language acquisition

It is only fairly recently that a corpus of research into the South-eastern Bantu language acquisition has developed and to date no studies have been conducted in Venda and Tsonga. Languages that have been studied are from the Nguni and Sotho groups and include Zulu, Swati, Sotho and Tswana. The methods used in these studies were naturalistic investigation of the subject's language development either longitudinally or quasilongtitudinally. Much of the research has focused on the development of the morphological system, specifically on the acquisition of noun classes and agreement (Demuth, 1992; Suzman, 1991). Suzman's (1991) study on Zulu acquisition will be discussed in the following section, while brief summaries of the remainder of the studies are provided below.

5.1.1 Swati

Kunene (1979) executed a morphological study with special reference to noun prefixes, noun classes and some agreement markers (possessives and demonstratives) in five first language Siswati children. She used two groups of subjects, the first group aged between 25 - 42 months and the second

Standard Zulu, at the base of the pillar, is understood by the majority of Zulu speakers. Colloquial Zulu is understood and spoken by different groups of people and is not exclusive to these people, for example other Zulu speakers in Soweto. However, colloquial Zulu may be exclusive to people in different areas. Thus, for example, Zulu speakers in Pietermaritzburg may not understand the Zulu spoken in Soweto. *Tsotsitaal* or *isicamtho* are names given to fairly restricted codes although their use for communication is growing steadily (Childs, 1992; Ngwenya, 1992; Slabbert, 1993).

The matrix language of colloquial Zulu is "the main language" in code-switched utterances (Myer-Scotton, 1993a, p. 3). The embedded language refers to other languages, such as English or Afrikaans which also fulfil a role in code-switched Zulu, but in a lesser form.

The form of Soweto Zulu spoken depends on factors such as whether it is the person's home language, the number of years the person has lived in the city, the influence of other languages and inter-ethnic marriages. The children of inter-ethnic marriages often "have weak mother-tongue identification" (Gupta and Chandler, 1993, p. 312) and do not use either of their parents' dialects, but rather the dominant koine of the township (Gupta and Chandler, 1993; Reagan, 1992; Schuring, 1988).

Zulu and English are Soweto's lingua franca. English is becoming more widely spoken due to changes in the education system (G.K. Schuring, personal communication, April 1, 1993). It is also viewed as a prestige language. Thus code-switching is prevalent in Soweto Zulu.



FIGURE 8 **Continuum of varieties of Zulu spoken in Soweto**

The second model views Soweto Zulu as a pyramidal structure as Figure 9 shows (Myers-Scotton, 1993a; G.K. Schuring, personal communication, April 1, 1993).

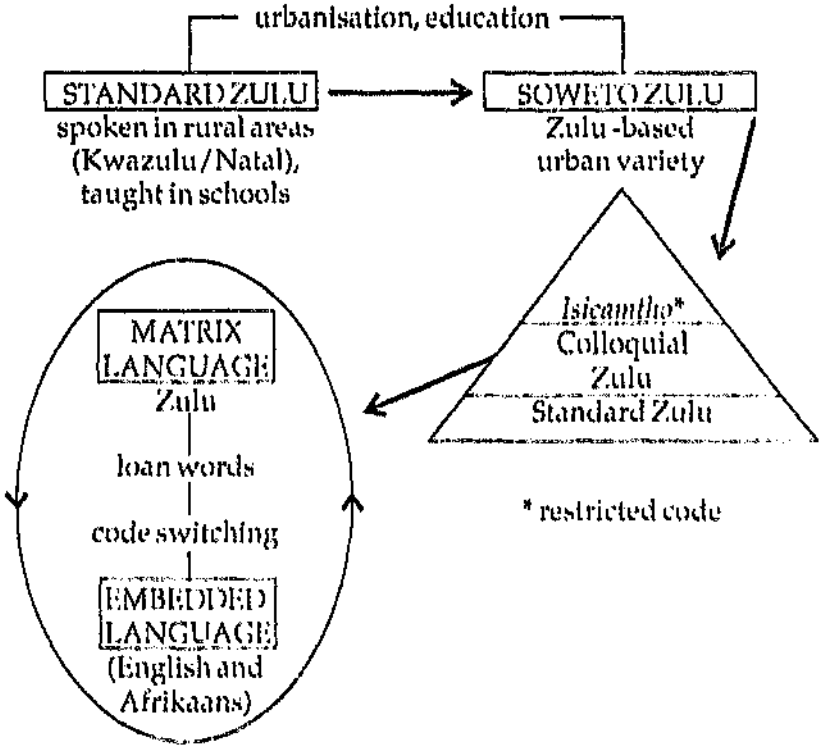


FIGURE 9 **Formation of Soweto Zulu**

According to Schuring (1990) there has been much change in the orthography of Zulu. At present written Zulu is regulated by the Zulu Language Board of KwaZulu (Schuring, 1990).

4.5.2 Soweto Zulu[23]

Different varieties of Zulu are spoken by Sowetans. The name of the urban based variety spoken in Soweto also varies. The different names attributed to this variety include Zulu B, Soweto Zulu, Township Zulu or Colloquial-Zulu (Schuring, 1988; G. K. Schuring, personal communication, April 1, 1993).

Inconsistencies also occur in the terminology referring to this variety. Schuring (1988) considers Soweto Zulu to be a koine (see definition in Appendix A), as the form of this variety shows a great deal of variation. However, C. Myers-Scotton (personal communication, 22 October 1993) regards the Zulu spoken in Soweto as an urban-based variety. Her reasons for this categorisation is that Soweto Zulu has loans from other languages and is characterised by code-switching to English, with Zulu operating as the matrix language.

The variations in Soweto Zulu can be conceptualised according to the two different models, below. The first model considers the varieties as belonging to a continuum, as can be seen in Figure 8.

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[23] Little research has been conducted into the Zulu spoken in Soweto. Thus, much of the information provided in this section is based on results of research undertaken in townships similar to Soweto such as those surrounding Pretoria (G. K. Schuring, personal communication, 1 April 1993).

2) Respondents were to be living in Soweto, to ensure homogeneity in environment. Soweto is characteristic of urbanised environments in Africa, as it is ethnically and culturally diverse, suffers economic and social deprivation and is overcrowded (Agheyisi, 1977; Cooper and Horvath, 1973). (See Chapter 1).

3) Respondents were to be attending dominant language Zulu nursery schools in Soweto. Randall, Reynell and Curwen (1974, p. 16) claim that language development "is better when children attend nursery school" (p. 16). In addition, children who attend preschool are better achievers while those who do not attend experience more problems with schooling (African Self Help Association, Director's Report, 1992).

4) The role of a constant and close caregiver[28] in achieving good language development has been well documented (Bernstein and Tiegerman, 1993; Van Riper and Emerick, 1990). Parent-child interactions form the basis from which children's early language develops (McTear and Conti Ramsden, 1992). In addition, cultural norms are transmitted from mother to child (Schlossman, 1982) Respondents were therefore to be living in an environment where either a mother or a constant caregiver lived.

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[28]The term caregiver refers to either of the parents or any person who is responsible for looking after the child. The term parent and caregiver will be used interchangeably.

2 SUBJECTS

Two groups of subjects were used in this phase of the study. The first group were the children whose language was assessed. This group was referred to as the respondents. Other terms used for this group were the children or the subjects.

The second group of subjects were the research assistants. Their functions consisted of administering, scoring, coding and analysing the language assessment.

2.1 Respondents

2.1.1 Criteria for selection of respondents

The following criteria for respondent subject selection were applied:

1) Respondents were to have both parents, or in the case of single parent families, the parent, as dominant Zulu speakers. As described in Chapter 3, because of the different varieties of Zulu that exist and are spoken in Soweto, the respondents may have been exposed to other languages. They therefore may have been either bilingual or multilingual. Previous studies, for example Suzman (1991), have found that it was not possible to eliminate the influence of other languages on the child who was learning Zulu. The children may also have been multidialectal (C. Myers-Scotton, personal communication, 24 September, 1993).

CHAPTER 4

METHOD FOR DEVISING AND PILOT TESTING OF ASSESSMENT

This chapter describes the methodology used in the pre-standardisation phase of this study. A cross-sectional, descriptive-group design (Best, 1970) was utilised. The criteria for subject selection and description of subjects are discussed, followed by the principles for devising the language assessment and the formulation of the assessment based upon these principles. The chapter concludes with a description of the administration of the assessment as well as data analysis procedures.

1 AIMS

The aim of this phase of the study was to devise and pilot test a receptive and expressive Zulu language assessment for preschool children.

The subaims were :

1) to establish the necessary components of a language assessment in Zulu.

2) to determine the receptive and expressive language ability of preschool Zulu children living in Soweto as measured on the language assessment.

3) to determine the appropriateness of the assessment tool devised, using quantitative and qualitative analysis.

locale for the present study. The acquisition of Zulu and to a lesser extent the other South-eastern Bantu Zone languages is extremely pertinent to the methodology. It was also necessary to describe the concepts of number and colour in Zulu as they are central to this study.

acquisition of colour lexicons has also been found in other societies where colour has a low salience, such as in the New Hebrides (Davies et al., 1992). The Xhosa subjects of Reynolds' (1989) study were found to have limited colour lexicons.

6.2.1.3 Summary

Despite the fact that the above discussion has shown Zulu and the Bantu languages to have limited basic colour terms it is acknowledged that they have a rich colour terminology, especially for describing common items in the environment such as cattle or trees (Maphumulo, 1993). With respect to cattle, Davies et al., (1992) describe Setswana as having "a highly developed colour vocabulary" (p. 1067) and Hunter (1934) recorded 57 terms used to name colours of cattle in Xhosa. In conclusion, the concept of colour in Bantu languages could be thought of as "rather different from and less salient" than in other languages (Davies et al., 1992, p. 1095).

7 CONCLUDING COMMENTS

As the purpose of this study is to devise a Zulu language assessment, it was essential that the literature review include a discussion about Zulu. Thus, information pertaining to the structure of Zulu was provided. Because languages are constantly changing and different dialects exist, it was necessary to portray the changes that have occurred in Zulu. The urban based variety of Soweto Zulu was also described, as Soweto was the

The reason for this phenomenon is because a wide range of colour terms did not previously exist in Bantu languages. Thus "in a society which is undergoing rapid change a newly imported colour term gains frequent usage as a result of its high relevance to a new situation" (Louwrens, 1993, p. 44).

In colour lexicons the form of the loan word varies, for example, the colour 'blue' in Chichewa. This has two forms, either the standard form, *obiriwira* or a code-switched form, from English, *-buluu*. This form is considered an adjective and has an associative marker *-a*, which will agree with the prefixes corresponding to the preceding noun, for example *duwa la-buluu* 'blue flower' (M. MacKenzie, personal communication, Marc' ., 1994).

6.2.1.2 Acquisition of colour terms

Berlin and Kay (1969, p. 108) comment on a dearth of literature concerning the development of "colour nomenclature". Recently, however, Davies et al., (1992) found that five year old Setswana speaking children did not understand colour concepts, whereas four year old American children were able to understand and name the 11 basic colours. Hurlock (1978) reports that American children should know four primary colours by age four. However they would learn others depending on exposure to them. Later

Stage					
I	II	III	IV	V	VI
-mhlope 'white'		*-luhlaza* 'green'			*-mpunga* 'grey'
>	*-bomvu*> 'red'	>	*-luhlaza* > 'blue'	*-nsundu* > 'brown'	
-nnyama 'black'		*-phuzi* 'yellow'			

FIGURE 11 **Zulu basic colour terms and their equivalence classes**

Bantu languages such as Shona and Swahili have been found to be Stage II languages, according to Berlin and Kay (1969). As regards the other South-eastern Bantu Zone languages, Louwrens (1993) reports that Northern Sotho has four basic colour terms while Davies et al., (1992) state that Setswana has six. Louwrens (1993) disputes the finding of Davies et al., (1992) as he believes that it contradicts the requirement that colours are not permitted to be the names of objects (Berlin and Kay, 1969). Thus although Davies et al. (1992) consider *selonlo* 'purple' to be a basic colour term, it is the name of a purple berry tree.

6.2.1.1 Loan words

It has been found that loan words and code-switched terms commonly occur when naming colours in the Bantu languages, for example *-pinki* 'pink' in Xhosa and *-phêphuru* 'purple' in Northern Sotho (Louwrens, 1993; Reynolds 1989).

Zulu possesses only three non referential colour terms; *-mnyama* 'black', *-mhlope* 'white' and *-bomvu* 'red'[27]. All other colours are derived from birds animals, plants and familiar natural objects.

MacLaurey (1991) investigated the use of Zulu colour terms using Berlin and Kay's (1969) model. His informant was a 32 year old female. Data obtained from her led McLaurey (1991) to surmise that Zulu was a Stage III language, although moving to the direction of Stage V. McLaurey (1991) also found the early acquisition of purple. Loan words were prevalent in this data. A. Koopman (personal communication, August 30, 1994) hypothesises that Zulu belongs to the Stage 1 group of languages, which have *-mnyama* 'black' and *-mhlope* 'white' as their basic colour terms. However Koopman (1994) suggests that additional basic colour terms exist in Zulu, if the relative stems referring to colour have lost their noun status. In such instances, the relative stem would not be the name of an object. Therefore Zulu would have basic colour terms for *-bomvu* 'red'; *-phuzi* 'yellow'; *-luhlaza* 'grue'; *-nsundu* 'brown' and *-mpunga* 'grey'. It would thus be a language with a fully developed colour terminology as it has six equivalence classes, as can be seen in Figure 11.

[27] Maphumulo's inclusion of *bomvu* 'red' as a basic colour term is controversial, as this is a term which refers to the name of an object, such as red ochre (A. Koopman, personal communication, August 30, 1994).

Stage					
I	II	III	IV	V	VI
White		Green			Purple
>	Red	>	Blue >	Brown >	Pink
Black		Yellow			Orange
					Grey

FIGURE 10 **Universal basic colour terms and their equivalence classes**

Further, Berlin and Kay (1969) stipulated certain requirements in order that a colour be regarded as basic. Of relevance to this discussion, is that the colour term had to have a "stability of reference across informants and across occasions of use" (Berlin and Kay, 1969, p. 6). In Zulu, despite the geographic distribution of speakers of the language (depicted in Appendix J), most basic meanings of colours were thought to be "fairly consistent" (Maphumulo, 1993, p. 21). Berlin and Kay (1969) also stipulated that colour terms should not be the name of an object which characteristically had that colour, for example *-bomvu* 'red' which refers to red clay. Basic colour terms should not be a loan word as "recent foreign loan words may be suspect" (p. 6). Based on these criteria Berlin and Kay (1969, p. 16) concluded that the basic colour lexicons of language spoken by peoples "possessing relatively simple technologies tend to be smaller than those of highly complex societies".

6.2.1 Basic Zulu colour terms

When applying Berlin and Kay's (1969) requirements to Zulu, Maphumulo (1993, p. 21) states that :

6.2 Colour

> The perception of colour by human beings is an intricate subject (Louwrens, 1993, p. 121).

This subject is further complicated in Zulu because of the controversy surrounding it. Samuelson (1923) stated that "the Zulu language is weak with regard to colours" (p. 574). His solution was therefore to identify "...birds and other things which have colours" when a colour term that existed in English had no Zulu equivalent. He hoped that in so doing he would lay "the foundation on which those who follow the writer will build in the future."

A more universal approach to the study of the psycholinguistic aspects of colour was derived by Berlin and Kay (1969). After studying 98 unrelated languages these authors concluded that 11 basic colour terms, organised according to six equivalence classes or stages, existed universally. These universal set of colours included white, black, red, green, yellow, blue, brown, purple, pink, orange and grey as Figure 10 shows.

Berlin and Kay (1969) believed there to be a fixed evolutionary stage through which a language was required to pass if it were to increase its colour vocabulary. This began with white and black which belong to Stage 1 and culminated in Stage 6 which contained the terms for purple, pink, orange and grey as Figure 10 shows.

1991).

6 SEMANTIC CONCEPTS

Zulu speaking children's knowledge of number and colour will be among the semantic concepts to be assessed in the proposed language test. Therefore, these will be discussed in some detail, below.

6.1 Number

The numeral system in Zulu[26] comprises of stems for the numbers up to nine. From ten, the Proto-Bantu reflex stem *-shumi* 'ten' is used, for example *yishumi nesikhombisa* 'it is ten with seven'. Louw (1983, pp. 387 - 388) describes this as a "cumbersome" numeral system and because of this reports that "most Zulu and Xhosa prefer to count in English".

English speaking children begin understanding and naming adjectives, such as numbers at age three. (Refer to Chapter 2, Section 1.4.2). They have been found to count by rote by age three and with one-to-one correspondence by four years (Illingworth, 1983). By age six, children are expected to count with meaning (Hurlock, 1978). However, this skill varies universally because counting is a culturally learned skill (Reynolds, 1989). Reynolds (1989) performed an ethnographic study with seven year old children in Crossroads squatter settlement, which is a predominantly Xhosa culture. The subjects of this study, after their first year of schooling were still unable to count or conserve number consistently (Reynolds, 1989).

[26]The same system applies to Xhosa.

monitor and correct their own speech in terms of the adult input (Suzman, 1991).

Suzman (1991) reported that the subjects were able to acquire the complex morphology and syntax because they were integral structures of Zulu. As such, they were used by adults and therefore children acquired them early.

5.2.5 Dialectal variation

Certain of the studies in Zulu acquisition found dialectal variations of standard dialects in urban Zulu. Oberstein (1987), for example, found that children substituted *aba* (noun class 2) for *o* (noun class 2a). Initially she judged this to be a developmental error. However, after 'a small field study' in the Alexandra Zulu speaking community she found the speakers all used *aba* and not *o* as Doke (1990) observed to be the correct form. She attributed this to linguistic change or different Zulu speaking communities having their own dialects, in this case an urban variety (Oberstein, 1987).

Simon (1988) and Suzman (1991) found a colloquial form of the possessive, rather than use of standard Zulu. Subjects prefixed a vowel on to the possessor, for example *awakhe* 'his/her, agreement with noun class 1'. Simon (1988, p. 32) reported that informal conversation with urban Zulu speakers revealed this prefixing of vowels to be a common phenomenon with adult speakers".

In summary, Zulu children appear to acquire their noun classes, concordial morphology and passive and relatives by age three. This acquisition was basically errorless (Suzman,

3) Research assistants were to be university students or graduates, with a minimum of a two year post matriculation qualification. In addition, research assistants required expert knowledge either in the discipline of speech-language therapy or African languages, specialising in Zulu.

2.2.2 Description of research assistants

Twelve research assistants participated in this study. Eight of the twelve were dominant language Zulu speakers and the remaining four rated their knowledge of Zulu as being good. These four spoke Zulu at home, at work and in social situations. All the research assistants lived or had lived in Soweto.

Three of the research assistants were qualified speech and hearing therapists and four were community speech and hearing workers. The remaining five research assistants were BA graduates with a major in Zulu.

Research assistants' tasks included administering, scoring, coding and analysing data. An additional research assistant, who had an honours in linguistics, assisted the researcher in devising the Zulu Receptive Expressive Language Assessment [ZERLA].

3 PROCEDURE

The section that follows describes the process that occurred in devising and pilot testing the ZERLA[20]. The most crucial aspect of this pre-standardisation

[20] The term ZERLA will be used interchangeably with language assessment or test.

Research assistants therefore assessed these respondents. M. Greyling (personal communication, 1 June 1993) advised that their scores be included, as these would strengthen the results. The criterion for age was thus changed from 3.6 - 4.6 years to include all preschool children.

2.2 Research assistants

2.2.1 Criteria for selection of research assistants

Tester bias is a strong influence on a child's language ability[32] (Labov, 1979; Taylor and Payne, 1983). Hence the research assistants were chosen according to the following criteria :

1) Research assistants were either to be dominant language Zulu speakers or proficient in their knowledge of Zulu. In order to determine their level of proficiency, research assistants were required to complete a 'history of bilingualism questionnaire' (Paradis, 1987). This questionnaire can be seen in Appendix O.

2) Research assistants were to be living in Soweto, to ensure that their sociolinguistic environment was consistent with that of the respondents.

[32] As the researcher does not fit these criteria and, due to a possible difference in the results obtained when a person from a different culture is present, she did not take an active part in testing (Taylor and Payne, 1983).

exposed to the high levels of violence that exist in Soweto, as according to Chikane (1986, cited in Sideris, 1990, p. 2) "nursery school children are no exception" to this phenomenon.

2.1.3.3 Age

The age of the respondents was between 2.6 and 5.5 years. Respondent subjects were divided into three age groups as Table 6 shows.

TABLE 6: **Age groups of respondents**

Age	Number	Percent	Description
2.6 - 3.5 years	n = 30	15	Youngest group
3.6 - 4.5 years	n = 122	65	Intermediate group
4.6 - 5.5 years	n = 36	19	Oldest group

Both Table 6 above and Appendix N show the age distribution of the sample, which was mostly comprised of children in the age range 3.6 to 4.6 years. The reason for this unequal distribution is that initially the selection criterion for age was that respondents be in the 3.6 - 4.6 age range. The researcher and the research assistants requested from both the principals and teachers at the nursery schools that respondents be in this range.

Despite these requests, teachers provided respondents who did not match these age ranges.

2.1.3.2 Schooling

> "A happy healthy environment is the right of every child" (Motto - African Self Help Association Annual Report, 1991 - 1992, p. 2).

All the respondents attended dominant language Zulu speaking nursery schools belonging to the African Self Help Association. J. Clowes (personal communication, 6 October 1992) explained that dominant language in this instance refers to 'Sowetan'. She describes this language as a mixture of the language spoken at home with Zulu, which was the language spoken at nursery school.

The African Self Help Association administers 40 full-day "educare" centres in Soweto. These nursery schools aim to provide educare through a comprehensive programme of education to children between ages two to six years.

Sideris (1990, p. 29) claims that children in Soweto whose parents can afford to send them to day care "constitute an elite group within township society". However, the majority of children who attend the African Self Help Association nursery schools "are of working class parents and the preschool services a cross section of the Soweto population" (African Self Help Association Annual Report 1991 - 1992, p. 2). In addition, the respondents may have been

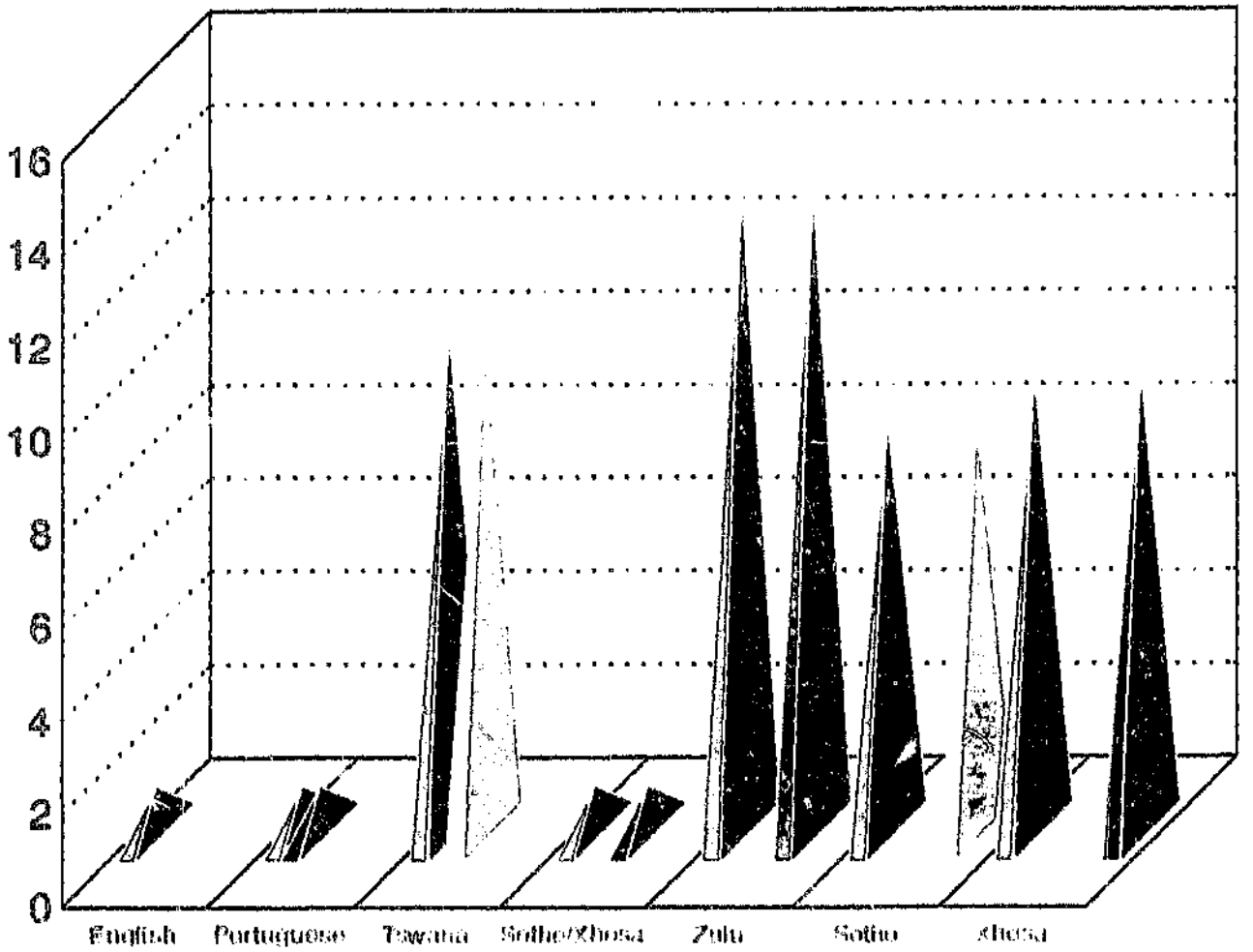


Figure 13: Ratios of non-dominant language

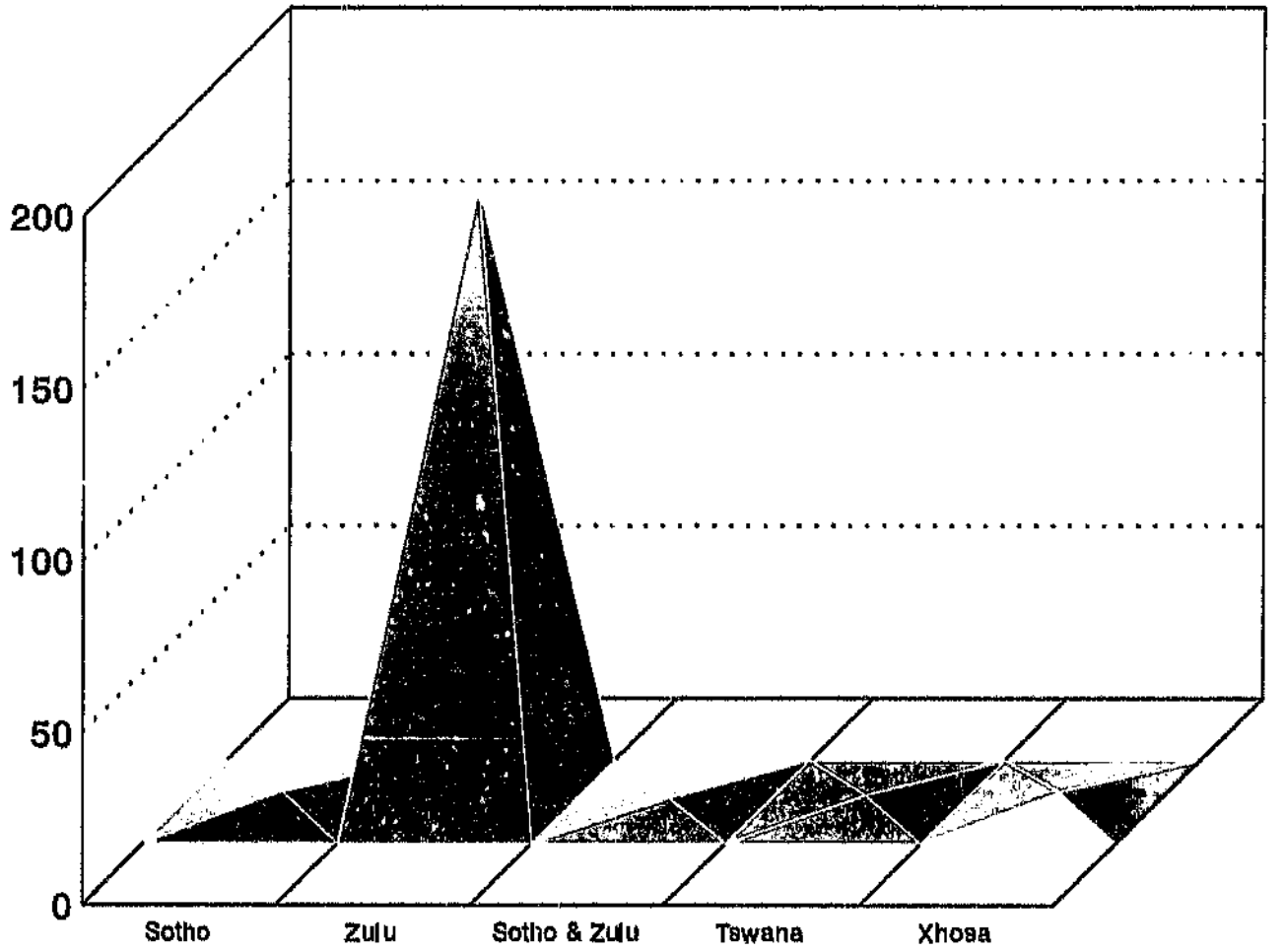


Figure 12: Ratios of dominant language

Information on the respondents' dominant language as well as other languages they spoke was obtained from three sources, viz, parent report, teacher report and demographic information obtained on the Test Booklet of the ZERLA.
95% of the respondents were dominant language Zulu speakers as can be seen in Figure 12. This figure also shows the breakdown of the languages spoken by the remaining 5% of the sample. Three respondents spoke Xhosa, a language closely related to Zulu as it also belongs to the Nguni group. The remaining six respondents were either Sotho or Tswana speakers which is an expected result, as Sotho languages are the next most common, after Zulu in Soweto (*Morris*, 1980).

Appendix M indicates that over 80% of either parents' first language was Zulu. Figure 13 represents the ratios of other languages spoken in the home.

Thirty-nine (21%) of the respondents were bilingual. Included in the second languages they spoke, were 26 respondents who spoke Sotho, 11 who spoke Xhosa, one who spoke English and one, Portuguese. One subject was trilingual, speaking Sotho and Xhosa in addition to Zulu.

2.1.3 Description of respondents

Table 5 is a summary of the description of respondents used.

TABLE 5: Description of respondents

Number of subjects	n = 188
Dominant language	95% Zulu* (n = 179)
Residence	Soweto
Schooling	15% African Self Help Association nursery schools in Soweto - see map in Appendix K
Parents/Caregiver present in home	All respondents
Age range	2.6 - 5.5 years*
Gender	Female 45% (n = 86) Male 55% (n = 102) Distribution of subjects according to gender and age can be seen in Appendices L and N respectively.

* Additional descriptions are provided below.

2.1.3.1 Dominant language

(Excerpt from teacher report)		
Question	:	What language does the child speak at creche?
Response	:	Soweto language

Ross, Lipper and Auld, 1985). Low-birthweight was not used as a criterion in this study as it was not possible to obtain comprehensive case histories or medical records of children who may have been born with this condition.

4) Socio-economic status (SES). SES has been found to be a significant contributor to children's acquisition of language (Silva and Ferguson, 1979; Wells 1986). It is a well established fact that children from disadvantaged backgrounds and poor socio-economic conditions may have increased prevalence for language disorders. Studies have found decreased receptive language abilities and poorer vocabularies to be directly correlated with low SES (Adler, 1979; Edwards, 1989; Hurlock, 1978; Johnson, 1974; Randall et al., 1974).

SES was not included as a formal criterion for subject selection in this study because of difficulties associated with obtaining accurate information. However the fact that all subjects were resident in Soweto, a predominantly low-income community should be remembered (Shueyane, et al., 1977; Yach, Richter, Cameron von Schirnding and de Wet, 1993).

The factors mentioned above impact on language development, hence their omission is recognised as a limitation of the study. However, the large number of respondents tested lessened the impact of these exclusions.

study. However subjects were not excluded on the basis of these "at risk" factors.

2.1.2 Criteria not included for respondent selection

1) Normal language was not required as a criterion for subject selection. This was because the sample was to be representative of a 'typical' preschool population which may have had some prevalence of language disorders, as discussed in Chapter 2, Section 3.8. McCauley and Swisher (1984a) believe that it is important not to exclude individuals on the basis of "nonnormal language ability" (p. 36) as doing so makes it difficult to detect "the possible presence of a language impairment". Thus language impaired respondents may have been included in this pre-standardisation pilot test sample.

2) Hearing, vision, and intellectual abilities were not considered as criteria for respondent subject selection. The reason was due to the practical constraints of assessing these. However, in instances where these deficits were obvious, such as blindness, respondents were not assessed. Respondents with motor difficulties were not excluded from testing if they 'could use their eyes as pointers' (Reynell, 1977).

3) Low-birthweight. Advances in medical technology have resulted in increased survival rates of low-birthweight infants. Although the data is not definitive, several studies have suggested a high incidence of language problems in children with a mass of less than 1500g at birth (Kenworthy, Bess Stahlaman and Lindstrom 1987;

However, results of research are equivocal and therefore McCauley (1977) concluded that "there are NO [sic] significant differences" (p. 361).

7) The following have been identified as "at risk" medical factors for language impairment in the South African population (Penn and Segal, 1982):

- Discharge from the ear and earache.[29]
- Gastroenteritis.[30]
- High temperature
- Measles
- Diagnosed or hypothesised as being brain damaged
- Emotional trauma[31]

The direct relationship between these factors and language impairment has not yet been established. However, it has been shown that the presence of these factors, combinations of these or repeated occurrences of these, does increase the risk of language impairment (Penn and Segal, 1982). Therefore, these factors were taken into account when selecting respondents for this

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[29] Research has shown that children with middle ear problems are likely to have poorer verbal skills and educational problems (N. Madkin, 1989, personal communication, 22 March 1994).

[30] Although gastroenteritis primarily affects children under two years, it may affect a child's development until five (Forfar and Arniel, 1984). Rossi-Espagnet (no date, cited in World Health Organisation 1988, pp 24-25) has found a particularly high prevalence of gastroenteritis in urban slums and squatter environments. The South African Township Annual Report (1990) reports a high incidence of death as a result of gastroenteritis in Soweto.

[31] Children living in Soweto are constantly exposed to violence (Lab, 1987; Sideris 1990; Simpson, 1991). Hence this was a difficult variable to control for.

5) Respondents were to be in the preschool age range, that is from two years six months to five years and five months. As described in Chapter 2, there are two phases of language development in this age range. By age three "the typical child has gained entry into all domains of language including vocabulary, phonology, syntax and morphology" (Anisfeld, 1984, p. 247). For Zulu speakers this implies the development of noun class and concordial morphology, passives and relatives (Suzman, 1991).

The second phase is that of four and five year old children who have "fairly complete language" (Nicolosi and Collins, 1989, p. 301). They are fine-tuning their skills at this stage.

Preschool children's language abilities were targeted in this research as their responses were sufficiently mature and consistent to allow for adequate performance in a formalised testing situation. From a prevention perspective, it would have been preferable to target younger children, in order to identify possible problems as early as possible. However practical reasons such as the limited attention span of young children, precluded this.

6) An equal number of males and females were to be assessed, in order to control for the gender variable. Controversy exists regarding gender difference and language abilities (Klann-Delius, 1981; Tanz, 1987). It is believed that girls have superior language skills to boys (Carrow, 1973; Macoby and Jacklin, 1974; Hurlock, 1978).

'mouth'.

In this instance, elicitation of the expressive subtest, preceded the receptive, in order to change the mode of the response and thus prevent boredom. Appendix S depicts which noun classes were elicited in the ZFRLA.

3.3.3 Agreement

As described in Chapter 3, in Zulu alliterative agreement permeates the entire sentence (Taljaard and Bosch, 1988). Agreement is an example where components of language are inextricably intertwined (Bernstein and Tiegerman, 1993). Agreement was therefore not examined in an individual subtest but rather as a part of a response in different subtests, such as in the expressive language sample, subtest 13c. Respondents had to describe what they were wearing in response to the research assistants' question, for example:

ibhulukwe elinjani 'What do your pants look like?

A correct response would be *i-bhulukwe li-green* SP5-pants RP5-green 'the pants are green.' Thus the subject would be demonstrating knowledge of relative concords with the agreement between the noun and agreeing constituent (Doke, 1990).

3.3.4 Syntax

Subtest 12 assessed respondents' syntactic knowledge of applied extensio s on a receptive level. The context was bathing a doll.

Research assistant: *Ngibonisa omkhulu* 'show me grandfathers.' Respondents were then to point to the identified stimuli from an array of items.

Subtests 6 and 7 elicited noun classes in a similar fashion expressively.

Research assistant: *Ngubani lo* 'who is this?', while pointing to *umkhulu* 'grandfather.' The child would be required to say whom she/he saw.

In an attempt to assess noun classes in a pragmatic manner, subtests 5 and 8 were elicited by having respondents either name or identify body parts representing different noun classes. Identification of body parts was used as these are among the first vocabulary items that children acquire (Clark, 1981).

The receptive task (subtest 8) utilised the vignette that the doll provided, had hurt herself. The subject 'could make her better' by placing an elastoplast on the part of the body named by the research assistant. For example:

Ngibonisa ikhala 'show me the nose' and the elastoplast would be stuck on the doll's nose.

In subtest 5, subjects were to name the body parts, belonging to different noun classes that the research assistant pointed to on the doll:

The research assistant would point to the mouth and ask *yinile* 'what is it?' The desired response was *umlomo* NC3-mouth

Figure 15 is a graphic representation of the linguistic components of Zulu that were included for assessment on the ZERLA. These components were assessed through 22 subtests. The subtests are referred to as 'packet' on the ZERLA Test Booklet (see Appendix R). Each subtest was labelled with a number. Certain subtests were divided into further subtests, which were represented by a letter of the alphabet, relating to their subtest number; for example the verb system was examined in subtest 14, and adverbs were assessed in subtest 14 f. The following section provides information on how the subtests were devised and structured.

The first section of the ZERLA Test Booklet required the research assistants to complete biographical and demographic information about each child. The subtests followed on from this section. Each subtest was preceded by instructions to the research assistants. These instructions explained how the stimuli were to be set out as well as the instructions the research assistant was to give the child. The desired response was written in capital letters for the research assistant, where appropriate.

3.3.2 Form: Morphology - Noun classes

As Zulu is a morphological language respondents' knowledge of their noun classes was a major focus of the ZERLA. Subtests 1 - 8 assessed the respondents' knowledge of singular and plural noun classes both receptively and expressively. Subtests 1 - 4 elicited noun classes receptively by research assistants asking respondents to show them objects designated by their respective noun class. An example was:

3.3 Item development: Devising the components of the ZERLA

3.3.1 Practical information

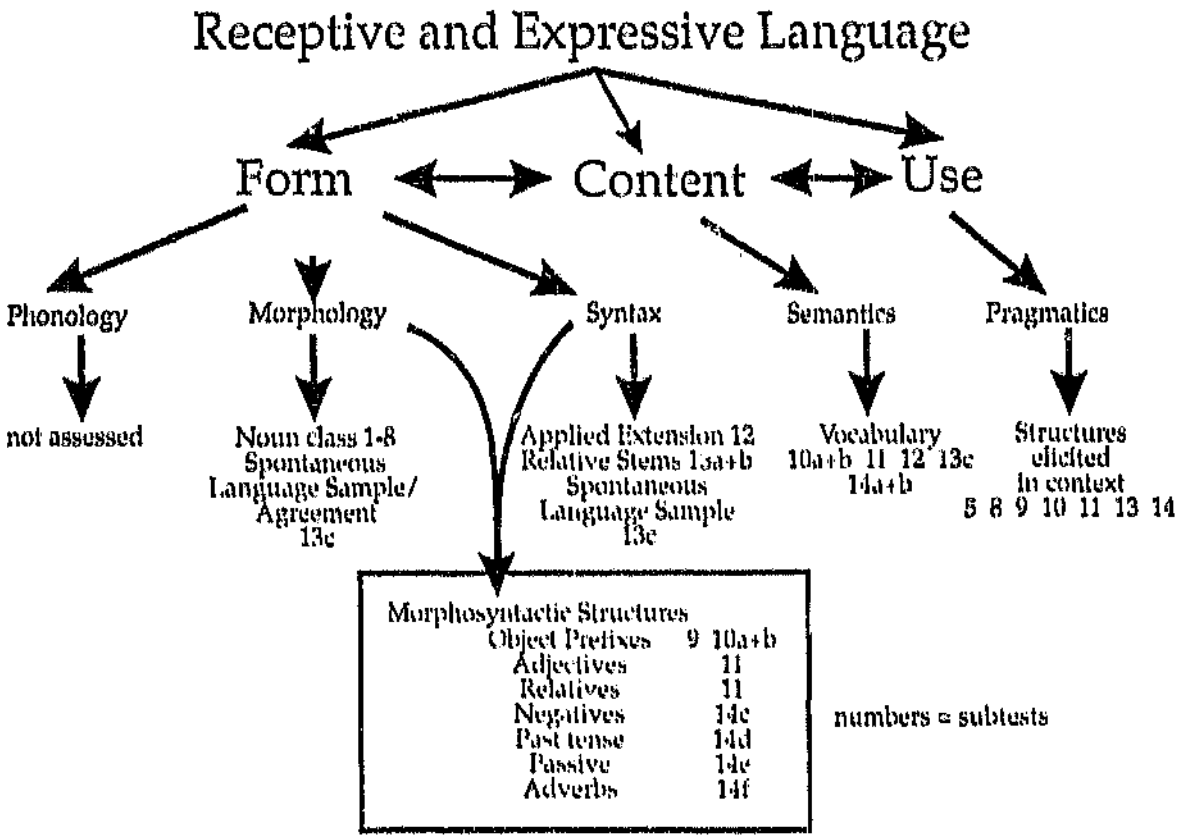


FIGURE 15 Components of the ZERLA

TABLE 7: **Procedures for preliminary investigations**

	Aims	Results
Preliminary investigation 1	To assess noun classes	- Noun classes could be assessed using the context of parts of the body as the context
Preliminary investigation 2	To assess object prefixes, agreement, applied extensions, adjectives and relatives	- Omit prefixes to say *thatha izinkomishi* 'take them, the cups' and not *zithathe izinkomishi* - Combination of standard Zulu and Soweto Zulu to be utilised for assessment of adjectives and relatives
Preliminary investigation 3	- To elicit a spontaneous language sample - To assess verbal structure	- Spontaneous language samples could not be tape recorded due to high levels of noise - No changes to assessment of verbal structure were required

As Table 7 indicates, the preliminary investigations determined that the test principles and constructs, described previously, could be operationalised. Thus, the following phase of the procedure, to finalise the components to be used in the ZERLA, could be implemented. This phase is described in the following section.

mentioned above, into a preliminary version of the ZERLA. Three preliminary investigations were then undertaken in order to verify whether this version of the ZERLA could be operationalised.

Each investigation examined a specific aspect of the ZERLA, such as noun classes. In addition, general considerations for administering and scoring the ZERLA, for example test location, were considered. Table 7 provides a summary of the procedure followed for the preliminary investigations, while Appendix Q contains a detailed description.

Twenty children who met the same respondent subject selection criteria previously described were used for each pilot study. The research assistants were two community speech and hearing workers. Preliminary investigation took place in KuhleKahle, Thabisong and Itumeleng nursery schools in Soweto.

After conducting each preliminary investigation version of the ZERLA, research assistants coded and analysed the results. In depth interviews were then held. (A description of in depth interviews is provided in Section 5.4.2). Participants included the researcher, the research assistant who assisted in devising the preliminary investigations and the research assistants who administered these. During the interviews, descriptions and explanations of the findings of each investigation were supplied and changes recommended.

Components of language interact dynamically and content, form and use are inextricably intertwined (Bernstein and Tiegerman, 1993; Dale and Henderson, 1987; Lahey, 1988). This is true of Zulu where in fact the connection between morphology and syntax is recognised formally as morphosyntactic structures. The skills measured on subtests of the ZERLA may thus have examined more than one aspect of language structure simultaneously, for example relatives were assessed morphosyntactically and semantically.

The ZERLA was devised using the urban based variety of Soweto Zulu described in Chapter 3. Subject selection criteria would have ensured that both the children and the research assistants would have been familiar with this variety. The vocabulary for the stimuli was obtained from the lexicon that Suzman (1991) found her subjects used.

The stimuli included in each subtest were derived empirically. The process of their selection is to be described in detail in a later section. Traditionally, the manner of eliciting responses in formal language testing is to provide a stimulus to the child and observe the response (Hedrick, Prather and Tobin, 1975, 1984; Hresko et al., 1991). This method of elicitation was also used in the ZERLA.

3.2 Pilot studies[35]

The researcher, together with the research assistant who had an honours in linguistics, incorporated the principles and constructs

[35]The term pilot studies and preliminary investigations are used interchangeably.

abilities (Suzman, 1991) to this model.

3.1.2 General principles and underlying constructs

> Given the enormous complexity of language, it would be unrealistic for a test to attempt to evaluate in detail every aspect of a speaker's linguistic knowledge. An adequate test should have a clearly defined focus - that is, it should be specifically designed to assess the grammatical, semantic or pragmatic systems or subcomponents within these systems (Vaughn-Cooke, 1986, p. 43 - 44).

In keeping with the aims of this study and relating these to Vaughn-Cooke's suggestion, the focus of the ZERLA was to assess the three characteristic features of Zulu, that is, the noun class system, extensive agreement and verbal structure. In addition, relatives and passives, which have a high functional load in Zulu, were to be assessed.

The ZERLA was therefore, specifically designed to evaluate children's knowledge of the morphology, syntax, morphosyntactic structures, semantics and to an extent the pragmatics of Zulu, through the use of receptive and expressive subtests. The purpose of each subtest was to provide an indication of a respondent's knowledge of a specific component of her/his language.

This information was obtained primarily from information about Zulu children's acquisition of language (Oberstein, 1987; Stephen, 1988; Suzman, 1991). Basic texts of Zulu grammar such as Doke (1990) and Taljaard and Bosch (1988) were also utilised. This combination of sources would ensure that the variety of Zulu used was reflective of a spoken variety rather than a standard form.

its applications.

Similarly, Suzman (1991) found that she could not analyse tone from the naturalistic data she had obtained, as this data was too voluminous. In order to study tone she was forced to devise a separate structured task and use this on an entirely different group of subjects. Her experience thus indicated that tone could be studied as a distinct entity. Therefore, upon the advice of S.M. Suzman (personal communication, November 2, 1991) and because of the complexities of including tone in a formal language assessment, the researcher decided not to include tone as a definite aspect of assessment in the present study. The implications of this omission are considered in the final chapter.

Hresko et al. (1991, p. 2) report that

> language use was not used as a dimension of the TELD-2, because operationalizing language use is extremely challenging in that the concept does not lend itself easily to standardized test formats...

The ZERLA does not formally assess pragmatics for similar reasons. However, attempts were made to devise the ZERLA in a pragmatically sensitive manner (Lund and Duchan, 1993), through assessing language in context. Examples include adjectives and relatives being assessed within the theme of dressing a doll. The most convincing reason for using Lahey's (1988) model of language as a linguistic frame of reference for the ZERLA was that this model was devised according to language universals, described in Chapter 2. Thus, its use could be extended to Zulu. When devising the ZERLA it was therefore possible to relate details on the acquisition of Zulu language

a basis for other formal language assessments such as the Test of Early Language Development [TELD and TELD-2] (Hresko, Reid and Hammill, 1981, 1991) further justifies its use as a model for the ZERLA. The TELD-2 examines preschool children's form and content along the dimensions of receptive and expressive language as can be seen in Appendix P. The components of phonology, morphology, syntax and semantics provided the frame of reference for constructing the subtests of the TELD-2.

The structure of the ZERLA would be analogous to the TELD-2, as both tests were devised according to the same model of language. The age range of the subjects of the two tests were also similar, with the age range of the TELD-2 being 2 years to 7.11 years.

One aspect in which the ZERLA would differ from both Lahey's (1988) model of language and the TELD-2 was that phonology was not to be assessed. This was because many of the respondents may not have acquired all their sounds, as the development of phonology continues until at least five years of age (Bernthal and Bankson, 1989; Creaghead, Newman and Secord, 1989). Therefore, if phonology were to have been tested on the ZERLA, false positives may have occurred as developmental phonological processes might have been identified as disordered phonology.

The non-assessment of phonology also meant that tone was not to be evaluated. The rationale for excluding tone was that, despite this being an integral part of Zulu grammar, early Bantu grammarians did not study this phenomenon (Wilkes, 1978). Wilkes (1978) postulates that tone was not studied due to the lack of effective methods for analysing and describing tone in all

* the test should be based on valid assumptions about language.

* the test should provide an adequate description of some aspect of the child's knowledge of language.

* the assessment is required to reflect the latest developments in linguistic theory.

* The results of the test should provide principled guidelines for language intervention.

The ZERLA was based on an adaptation of Lahey (1988) and Bloom and Lahey's (1978) theoretical model of language, discussed in Chapter 2. Establishing the ZERLA on Lahey's (1988) model satisfies Vaughn-Cooke's (1986) criteria, as this is a valid model of language and it provides a description of form, content and use. The fact that it includes pragmatics demonstrates its contemporariness in linguistic theory[31]. Finally, as regards the criterion of providing guidelines for therapy, Wickstrom et al., (1985) describe assessment based on Lahey's (1988) model of language as having direct implications for intervention.

The use of Lahey's (1988) theory of language also fulfils the recommendation of Cronbach (1971, cited in Snow and Lohman, 1989), who suggested that construction of a test begins with a theory about behaviour which is derived from prior research. The fact that Lahey's (1988) model of language has been used as

[31] It is acknowledged that there are later developments in linguistic theory.

phase was to define the principles on which the ZERLA was constructed. Once these principles had been delineated, they were operationalised by undertaking three preliminary pilot investigations. The components of the ZERLA were then determined, based on the results of these pilot investigations. Additional measures in the form of parent and teacher reports were also developed. After these measures had been formulated the ZERLA was administered and the results were then scored and analysed. Figure 14 is a schematic diagram of the procedure followed in devising the ZERLA.

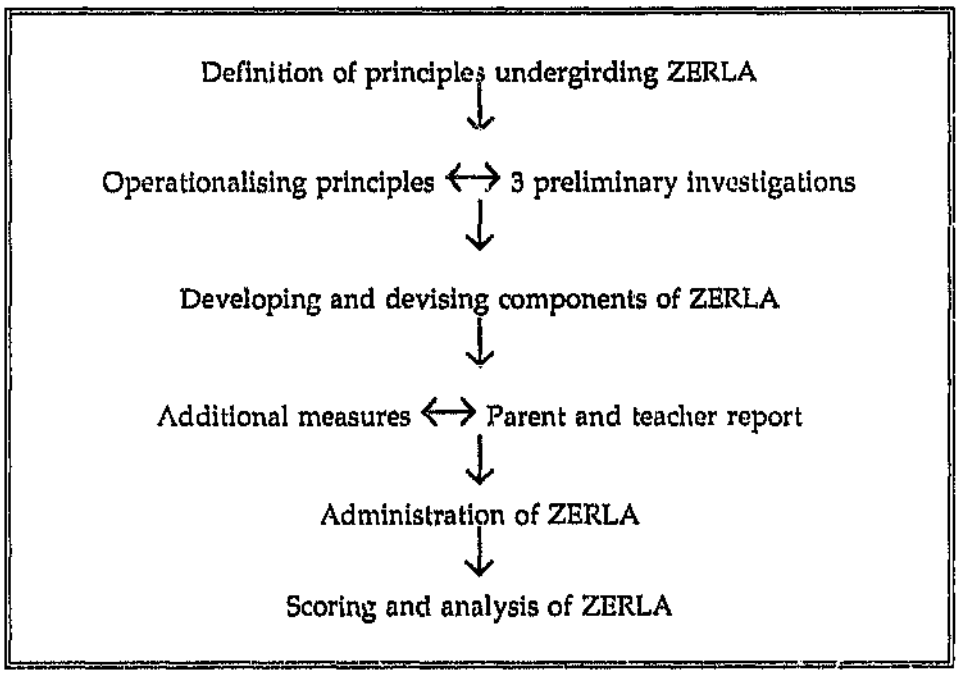


FIGURE 14 **Stages for devising and administering the ZERLA**

3.1 Principles on which the ZERLA was based

3.1.1 Linguistic theory

Vaughn-Cooke (1986) suggests criteria that should be used when establishing new language tests. These include the following:

Parent and teacher questionnaires were pilot tested on 20 parents, 20 teachers, two speech-language therapists and four research assistants. Responses indicated that the questions were understood and provided useful information. The research assistants reported that it was unnecessary to translate the questionnaires into Zulu. They considered that parents and teachers had sufficient knowledge of English in order to complete the questionnaire. This proficiency could be attributed to English being a lingua franca in Soweto (Schuring, 1988). Furthermore, research assistants reported that the respondents would be insulted if they were asked to answer in Zulu (S. Mseleku and B. Mtambo, personal communication, October 19, 1992).

3.4.2 Construction of parent and teacher reports

Parent and teacher reports were devised in the form of self-completion questionnaires (Cohen and Manion, 1991; de Vaus, 1991). Care was taken to word the questions as clearly as possible and examples were provided to ensure understanding of questions, for example, question 15 provided alternatives of different treatments for gastroenteritis.

A combination of closed and open ended questions were asked in order to gain detailed information. Closed ended questions were used as they supplied information about whether the respondent had thought about the matter and in order to "get at" specific aspects of the issue (De Vaus, 1991, p. 75). If the respondent indicated the presence of a condition, for example a language problem, open ended questions were then asked in order to obtain comprehensive information.

reports also provide information on behaviours that may not readily be observable to examiners" (Hresko, et al., 1991). Thus, an additional item format, parent and teacher reports in the form of questionnaires were devised for the following reasons:

* to obtain biographical information in order to determine whether respondents met the criteria for subject selection.

* if respondents did meet the criteria, then parent and teacher reports were to provide demographic and case history information concerning each respondent.

* Parent and teacher reports contribute important information about the validity of language samples (Holland and Forbes, 1986). Hence, they would be used as a measure of construct validity to verify the results the respondents obtained on the ZERLA (Additional details are provided in the statistical analysis section).

3.4.1 Pilot study of parent and teacher report

Pilot studies were conducted on the parent and teacher reports as Dillman (1978) asserts that pretesting is especially important for self-completion questionnaires. Further, he suggests that pretests should be conducted on different categories of people, such as the population to be surveyed and colleagues as they understand the purpose of the study. In order to accomplish this, different versions of parent and teacher reports, which included a Zulu translation, were devised to determine which was the most effective.

instructed to deal with this incongruence by explaining what the figures were meant to depict, that is, boys. Use of such stimuli is recognised as a limitation of the study.

After acquiring all the stimuli on the inventory, they were placed in 'String-Tie' or 'Zip Seal' transparent plastic bags, according to their designated subtest. The contents of each bag were listed on an adhesive label which was stuck onto the plastic bag, ensuring the easy identification of test items. All the plastic bags were then placed in a durable pack with straps that made for easy transportation. Test items were organised in this way to ensure uniformity and systemisation. The inventory was also placed in the bag for research assistants to ensure they had all the necessary objects.

Each object required in a subtest was provided and objects were not moved from one subtest to another. Test items were thus duplicated if necessary. The benefit of having replicas of test items was to prevent the respondent being distracted while the research assistant searched for a needed item.

The previous section has described the linguistic components of the ZERLA as well as the selection of the stimuli. Additional measures to determine the language abilities of the respondents were devised as a complement to the ZERLA. These will now be discussed.

3.4 Additional measures

Parents and teachers were used as informants as they "can supply a wealth of information" (Gallagher, 1983 p. 13). Parent and teacher reports have been found to be reliable and valid (Rosetti, 1990). These

object or the site, depending on which aspect of language was being assessed. Specific examples are provided in the verbal structure section (3.3.5.2), previously described.

An added advantage of the activity mat was that it afforded subjects the opportunity of manipulating and moving the objects. Having respondents' active participation could assist in preventing boredom as this was a variation in mode of presentation.

Certain of the test items such as dolls representing *ogogo* 'grandmothers' were purchased at flea markets from craftspeople engaged in producing traditional Zulu crafts. This ensured cultural relevance and simultaneously supported merchants. In a similar vein, dolls clothes were commissioned from self-help organisations. The researcher specifically procured stimuli in this way in an attempt to benefit communities as much as possible. Appendix V depicts the environments where stimuli were obtained.

The researcher succeeded in obtaining appropriate stimuli except for figures representing *abafana* 'male children'. Despite requests to craftspeople to produce such objects as well as visits to many toy stores, it proved impossible to acquire these.

Thus figures were chosen that depicted boys because they were of the appropriate size, that is smaller than *obaba* 'fathers' and *omkhulu* 'grandfathers'. The disadvantage of these figures were that they were wearing uniforms. Respondents therefore correctly identified them as soldiers or police. Children living in townships have been found to have negative mental associations with soldiers (Shmukler, 1989). Research assistants were

This was achieved by performing an informal survey of Soweto mothers, who had come to Baragwanath hospital for a routine developmental follow-up on their children. They were questioned about what their children played with at various ages. Examples of items provided by the mothers included household items and toys. In addition, stimuli that were commonly seen in Soweto, such as *ihashi* 'horse' (Dellatola, 1990), were used. Items were also selected according to a list that Reynolds (1989) found that Black South African children commonly played with, such as combs and plastic bottles. Appendix T provides the inventory of stimuli that were used in the ZERLA.

In an effort to meet the criteria mentioned above and to ensure that items were representative of life in Soweto stimuli were specially devised. An example was the activity mat used in subtest 14 to elicit semantic and morphosyntactic structures. The need to devise this mat arose as a result of preliminary investigation 3, which found that the commercially available activity mat was not representative of the respondents' sociocultural environment. (See Appendix U).

The activity mat used in the ZERLA was designed by an art student resident in Soweto and studying in a local college. The mat depicted a 'typical' Soweto neighbourhood with characteristic *amakhaya* 'houses ' and *groundini* 'field'. Items not common in Soweto, such as flowers, were thus sadly excluded (Dellatola, 1990).

The manner in which the activity mat was used was for the research assistants to place toys and common objects at different sites. They would then ask the child questions either about the

receptive and expressive subtests of the ZERLA, for the most part, followed the method used by the Test of Language Development [TOLD] (Newcomer and Hammill, 1982). These authors explained that they did not feel it necessary to design "receptive and expressive linguistic components with identical items" (p. 15). Their rationale was th ' the score that a child obtained on the test could be compared with her/his peers and this would give an indication of the child's abilities. On the ZERLA, by chance, rather than design, out of the 22 subtests 11 were receptive and 11 expressive.

3.3.8 Selection of stimuli

Selection of appropriate test items for the ZERLA was based on variables defined and utilised by McCarthy (1954) cited by Weiner and Hoock (1973). These included age, sex, intelligence level, urban or rural habitation and ethnic background. Test items that were used in the ZERLA were to be representative of vocabulary items that Suzman (1991) found that Zulu speaking children knew. These included lexical items representative of noun classes such as *imoto* NC5-car 'car'.

Stimuli had to be familiar to the children and compatible with their level of symbolic representation (Reynell, 1977). Lund and Duchan (1993) suggested that for preschool children toys should be used, as these are more interesting than books and games. The majority of the stimuli on the ZERLA were thus represented by toys.

The environment determines categories of thought and language, according to Bates et al., (1988). Hence an effort was made to ascertain what stimuli were familiar to children living in Soweto.

3.3.6.3 General assessment of vocabulary

Besides these specific subtests, vocabulary was appraised in conjunction with other subtests. Lexical concepts were integrated into morphological subtests, such as when noun classes were elicited through body parts.

As was discussed in the chapter on Zulu language acquisition (Chapter 3), the assessment of colour and number is a complex issue. Because of the possible implications of the results of this study it was necessary to verify when, in their nursery school programmes, the respondents were taught their colours and numbers. At the nursery schools that the respondents attended, learning of colour terms was reported to occur informally during daily programmes with the two-and-a-half and three-and-a-half year old children. The 'senior' class, four-and-a-half year olds', learn "their numbers and colours in a more structured way, utilising the Clever Play School Readiness Programme (J. Clowes, personal communication, 6 October. 1992).

3.3.7 Receptive and expressive language

As may be seen from the above explanations, the ZERLA examined comprehension and production of morphological, syntactic and morphosyntactic structures. The construction of

Morris-Friehe and Sanger, 1993). The ZERLA utilised a semi-structured language sample which assessed respondents' expressive vocabulary (subtest 13c). Research assistants asked questions which required responses from the respondents. The conversations included description of concrete 'here-and-now' topics (Snow, 1981), where respondents were to describe what they were wearing, for example, *ugqokani namhlanje* 'what are you wearing today?'. Respondents' knowledge of agreement, relative stems and causatives were also elicited in this manner.

A more complex aspect of discourse was elicitation of the past tense (Crystal, 1989). The research assistant asked about routines, for example *yini oyidlile namhlanje ekuseni* 'what did you eat this morning for breakfast?'.

When eliciting language samples, the rapport between the subject and the tester is important (Holland and Forbes, 1986; Miller, 1981). Therefore, the language sample was only elicited after the children and research assistants had established a relationship, by engaging in other tasks on the ZERLA.

Research assistants transcribed the subjects' responses verbatim. This was because the third preliminary investigation indicated that tape recorders could not be used, due to the high levels of ambient noise.

mother?'. The child would have to point to the correct position on the mat.

This subtest was useful as it served to orientate the respondents for the subtests which followed.

Subtest 14b examined subjects' knowledge of verbs, on a similar task.

Respondents would have to move the dolls as requested by the research assistants as in the example:

beka umama ekhaya 'Put the mother at the house'

Utilising the activity mat ensured that semantics was assessed in context. It also gave some sense of understanding of semantic relations.

3.3.6.2 Expressive vocabulary

> Spontaneous language sampling is the centrepiece of child language assessment (Gallagher, 1983, p. 2).

Spontaneous language samples are collected for the purpose of examining a person's usual language and can be elicited by engaging the child in brief conversations (Holland and Forbes, 1986: Hux,

A doll was modelled walking slowly. Research assistants would then ask: *uhamba kanjani* 'how did she walk?'

A reply such as *kancane* 'slowly' was required.

3.3.6 Semantics

Lund and Duchan (1993) claim that analysis of all aspects of semantics is not appropriate in the context of a formal language test. A review of standardised language tests indicates that vocabulary and semantic relationships (Clinical Evaluation of Language Functions [CELF-R], Semel, Wiig and Secord, 1992) are the areas of semantics assessed most often (Kersner, 1992). Tests such as the British Picture Vocabulary Test (Dunn, Dunn, Whetton and Pintile, 1982); Peabody Picture Vocabulary Test (Dunn, 1959) and TELD-2 (Hresko et al., 1991) have examined vocabulary. Body parts, nouns and verbs are assessed in the Bankson Language Test (Bankson, 1990). Using these tests as a guide, the ZERLA was to assess semantics primarily through vocabulary.

3.3.6.1 Receptive vocabulary

Specific vocabulary subtests included subtest 14a, where the activity mat was used to assess receptive vocabulary, as can be seen in the example provided below.

Research assistants placed dolls at various locations on the mat and asked *uphi umama* 'where is

Past tense

Subtest 14c attempted to elicit respondents' use of the past tense marker *e*. Research assistants were to perform certain actions and then ask subjects to describe what had occurred.

The research assistants would make the horse run and then ask:

ihashi lenzeni 'what did the horse do?'

Passives

Suzman (1985; 1987) points out that Zulu employs the passive when asking who/what subject questions. The ZERLA tested passives receptively with locative questions by the child having to point to a location on the activity mat (to be described in Section 3.3.8.

The research assistant would ask *kuthengwaphi* 'where do we buy it?' The child's expected response would be *esitolo* 'at the shop'.

Adverbs

Subtest 14f elicited respondents' knowledge of adverbs expressively. In this subtest research assistants' demonstrated a doll performing an action and then asked the child to describe that action, for example:

taught in 'Sowetan'. Thus numbers and colours were learned in a code-switched form by adding a Zulu prefix to an English stem, for example *a-two* AP6-two 'two' and *a-red* RP6 red 'red'. Adjectives and relatives were assessed in the context of dressing a doll with clothes provided.

		Standard Zulu	Soweto Zulu
Adjectives -	general	*-khulu* 'big'	Not tested
	numbers	*-bili* 'two'	*-two* 'two'
Relatives -	colours	*-bomvu* 'red'	*-red* 'red'

FIGURE 16 **Manner of eliciting adjectives and relatives**

3.5.5.2 **Verb structures**

Negatives

Subtest 14c examined respondents' use of negative markers in the present tense with subject prefixes (SP). These were elicited expressively.

isithuthuthu ekhaya 'is the motorbike at the house' The desired response would be :

asikho ekhaya 'it is not at the house'

first of its kind in Zulu precludes it from being able to determine certain aspects of va' y, such as concurrent validity. However, as described below other aspects of validity could be established. These attributes of validity will be discussed in the following section.

5.3.3.1 Face validity

This construct was determined qualitatively (see Section 5.4), during interviews with research assistants. In order to establish if the ZERLA was assessing what it claimed to assess, research assistants were asked whether they thought that the ZERLA was testing the respon ' language abilities.

5.3.3.2 Content validity

Anastasi (1990, p. 140) explains that content validity is achieved by the "systematic examination of the test content to determine whether it covers a representative sample of the behaviour domain to be measured". Determining content validity is "the responsibility of the test user" (Lund and Duchan, 1988, p. 289). Test users should decide whether the assessment has content validity by considering the model of language that the test was based on. They can also determine whether the test content covers a representative sample of language by analysing "specific subtest content" (Wiig et al., 1992, p. 55). In the case of the present assessment test users should thus consid' the fact

two weeks. The same research assistants that performed the original tests retested the children. A coefficient alpha of 0.8. was required to indicate good test-retest reliability.

5.3.2.3 Mark remark reliability

Traditionally, inter-rater reliability is determined by a test being administered to the same person by more than one examiner or when the test is score [1] by more than one examiner (Lund and Duchan, 1988; McCauley and Swisher, 1984a). Unfortunately practicalities precluded this form of reliability from being implemented. Not using interrater reliability is seen as a limitation of this study.

However, an alternative form of this reliability, mark remark reliability was employed. To obtain this form of reliability, two research assistants were assigned to recode 30% of the ZERI.A Test Booklets. This was done in order to determine the accuracy of coding. The coefficient alpha in this instance would indicate the amount of agreement between research assistants. A high coefficient alpha was desired, as this would indicate that little variation had occurred between research assistants when coding the tests.

5.3.3 Validity

As discussed in Chapter 2, the fact that this assessment is the

total number of correct responses out of the total number of possible responses on each subtest of the ZERLA were calculated as a percentage. Frequency counts of all responses for subtests were added in order to obtain composite scores for each respondent.

5.3.1 Norms

The coded data from all the respondents were used to transform the raw scores to means. Standard deviations were also calculated.

5.3.2 Reliability

Various measures of reliability were implemented to determine whether the ZERLA was consistent in measuring the respondents' language abilities. Because of the manner in which the data were structured, correlations between test items and obtained responses were used to determine reliability. In all instances, a Cronbach's coefficient alpha (Cronbach, 1951) of 0.8 was required to determine a high level of reliability.

5.3.2.1 Internal consistency

Internal consistency was achieved by computing the coefficient alpha between correct and incorrect responses on each item and the total test score (Anastasi, 1990; Hresko et al., 1991).

5.3.2.2 Test-retest reliability

This measure was obtained on the ZERLA by readministering 10% of the tests after a period of

For each subtest research assistants were to perform frequency counts of subtests, followed by calculating the composite score for the ZERLA. The maximum achievable score was 148. These coded results were then analysed statistically and qualitatively.

5.2 Coding and analysing parent and teacher reports

The open ended responses obtained on parent and teacher reports were coded according to a devised system of codes. De Vaus (1986) suggests that a set of coding categories should be devised in order to deal with open ended responses. These were only designed after the parent and teacher's reports were completed as "with open-ended questions coding cannot be done until after the questions have actually been answered" (De Vaus, 1986, pp 188 - 189). Coding information for closed ended questions is provided in Appendix CC while Appendix DD contains instructions for research assistants on how to code the open ended information so that it could be compiled into a coding frame.

The procedure followed was to go throug'i the first 80 responses[36] and then make a list of "peoples answers and see if they can be grouped under various headings" (De Vaus, 1986, p. 188). The researcher then developed a set of coding categories on the basis of what the parents and teachers had answered.

5.3 Statistical analysis

Descriptive statistics were applied to analyse results by characterising "phenomena in detail" (Bailey, 1987, p. 39). For each respondent, the

[36] Due to a poor response rate, see Chapter 5, Section 3.1, there were fewer than 80 parent reports.

If a response was coded as incorrect, for both receptive and expressive subtests, the research assistants had to provide the correct answer and an explanation of the error. This procedure was followed in order to obtain a clear understanding of errors that the respondents made. This manner of coding is illustrated in the following example:

> When respondents had to name body parts in subtest five, the correct response was *imi-nwe* NC4-finger 'fingers'. Some subjects gave the singular form *umu-nwe* NC3-finger *'finger'*. The research assistant would then code this as 0, indicating an incorrect response. In addition she/he would write the correct response, *iminwe* 'fingers' and the explanation of the error, namely that the subject had used a singular form instead of a plural.

This form of coding assisted the researcher in determining common trends in the children's incorrect responses. Because of the differences in the varieties of Zulu spoken in Soweto there may have been variations in the manner that the research assistants were coding the data. This method of coding allowed the researcher to ascertain if in fact variation did occur.

Research assistants were required to translate the responses for the benefit of the researcher. The researcher scrutinised the coded results and where additional analyses were required, such as for the subjects' responses to colour on the language sample (subtest 13c), she devised additional coding tasks for research assistants. In this instance, research assistants were to scrutinise subtest 13c and transcribe the response verbatim and then classify it, as can be seen in Appendix DD.

of the nursery schools. Attempts were made to keep test conditions as constant as possible, as is required in formal testing (Hresko et al., 1991). However, this could not always be controlled for, due to a lack of facilities or poor weather conditions such as rain. Testing therefore either took place outside or inside, usually in the principal's office, due to lack of any other available space. Photographs of the testing procedure can be seen in Appendix BB.

5 TREATMENT OF DATA: CODING AND ANALYSIS

5.1 Coding and analysing the ZERLA

Codes were devised by the researcher according to the following suggestions made by Longabaugh (1980, p. 105).

> A code should be detailed enough to provide a characterization sufficient to the needs of the investigator... The simpler the code, the easier it will be to train coders to use it and the more reliable the data will be gathered.

After testing had begun, the research assistants were instructed on how to code data, with particular attention being paid to the coding of expressive data. Research assistants were also provided with written instructions on how to code and analyse data. These instructions are provided in Appendix CC.

On the ZERLA, correct responses, designated with a tick (✓) or yes, were given a score of 1. Incorrect responses, indicated by an X or no, received a score of 0. Codes were also given to biographical information, for instance, language spoken. A list of these codes can be seen in Appendix CC.

4.4.2 Teacher report

Teachers and principals completed these while the respondents were being tested and returned them to the research assistants.

4.4.3 ZERLA

Research assistants operated in pairs, each taking turns to either administer the ZERLA or record and score the respondents' answers. The research assistant who performed the testing set out the stimuli for each subtest and read the instructions to the child from the ZERLA Test Booklet.

The second research assistant in the pair, recorded and scored the child's responses. Receptive items were ticked (✓) if correct and received a cross (X) for an incorrect response. In the case of an incorrect response, research assistants were required to record the exact nature of the response. This information was used for qualitative analysis, at a later stage.

Expressive items were transcribed verbatim. Because Zulu is a morphologically complex language, the importance of transcribing each morpheme of the child's utterance, such as the prefix and the stem, was emphasised. The instructions for recording and scoring can be seen in Appendix Z (2).

4.4.4 Test conditions

Children were tested individually in the quietest available areas

It was estimated that each test would take 30 minutes to administer. Research assistants were to assess a minimum of six respondents per day. In addition, the children assessed at the first two nursery schools, were to be re-examined after an interval of two weeks. This was necessary for the determination of test-retest reliability. Based on these figures and taking the volatile political situation in Soweto and unforeseen circumstances into account, it was estimated that it would take a month to test the required sample of 200 children. As reported previously, the eventual sample size of this study was 188.

4.3 Workshop for nursery school teachers

A public education workshop was organised for all nursery school teachers, prior to testing, at the University Speech and Hearing Clinic [USHC]. An aim of the workshop was to familiarise the teachers with the research to be conducted in their nursery schools. A further aim was to provide information at a primary prevention level, by describing communication problems occurring in preschool children and the treatment of these. The programme for the workshop can be seen in Appendix AA.

4.4 Test administration

4.4.1 Parent report

Research assistants took the informed consent and parent report forms to the schools. Principals and teachers distributed the forms with accompanying notes to the parents, asking that they be returned immediately. If the forms were not returned after a few days, principals sent further written reminders to the parents.

Research assistants were required to role-play both administering and scoring the ZERLA in order to ensure that they fully understood the test procedure. One research assistant acted as the respondent, while a pair of research assistants tested and scored the assessment.

These role-plays were video recorded on a National VHS MS2 video camera. The researcher and research assistants viewed the recordings together in order to ensure that research assistants were administering the tests correctly. The score sheets were also checked to ascertain that each research assistant was scoring responses accurately.

4.2 Scheduling of test administration

Principals of the designated Zulu speaking nursery schools were contacted by telephone, both by the research assistants and the Director of the African Self Help Association. The purpose and procedure of the ZERLA was explained to them, in order to determine whether they wished to participate in the research. Out of the 16 nursery schools contacted, 15 agreed to participate.

Upon obtaining the principals' consent to take part, the subject selection criteria were explained to them. Principals indicated how many suitable children they had in their nursery schools. Dates for testing were then scheduled. Research assistants also obtained directions on how to reach the nursery schools. The length of time that pairs of research assistants were to spend at each nursery school would depend on the number of respondents who conformed to the age criteria as well as the availability of research assistants. Not all the research assistants were always available.

4 ADMINISTRATION

The section that follows describes how the ZERLA was administered. Figure 17 summarises this information in a flow chart.

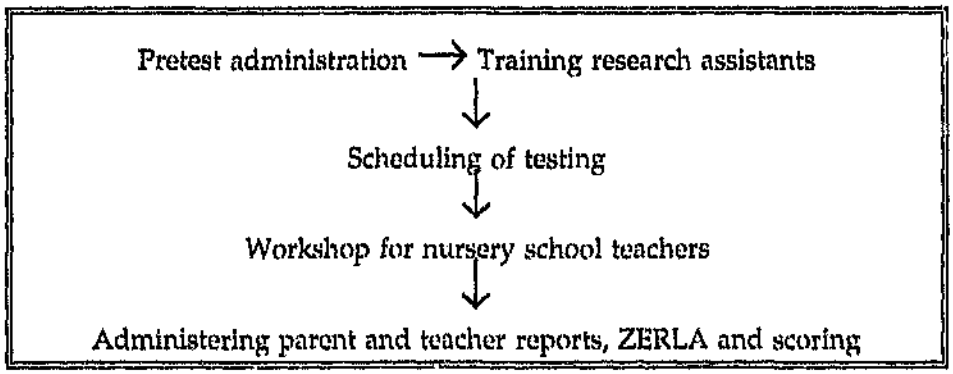


FIGURE 17 **Procedure for administration of the ZERLA**

4.1 Pretest administration

A day seminar was held in order to train research assistants in standard ways of administering and scoring the ZERLA. The detailed programme can be seen in Appendix Z (1). The seminar aimed at the following :

* training researchers to schedule appointments
* providing background information regarding the purpose of the research
* familiarising research assistants with test stimuli
* demonstrating testing and scoring procedures

* Parents were asked questions about the specific "at risk" medical factors of ear infection and gastroenteritis as these are variables that Penn and Segal (1982) found to influence language development. These conditions are also prevalent in urban environments (South African Township Annual Report, 1990). As far as possible, details of treatment were also obtained in order to determine the severity of the problem (items 10 -15, Section B).

3.4.4 Teacher report (See Appendix X)

Teacher observation predicts with up to 80% accuracy, children who will experience academic failure (Haring and Ridgeway, 1967, and Ferlndne, Jacobson and Linden, 1970, cited in Illerbrun et al., 1985).

As with the parent report, teachers were asked to provide biographical information regarding the children (items 1 - 4). Languages spoken by the respondent were assessed in items 5 and 6. Items 7 and 8 questioned teachers' opinions of respondents' language ability. Lahey (1988, p. 151) reports that "if the child's communicative interactions are different from those expected of peers, these will usually evoke some comment in ... reports".

3.4.5 Informed consent (Appendix Y)

The researcher devised an informed consent form which explained the purpose of the ZERLA. Parents were to sign this, if they agreed to allow their child to be tested.

3.4.3 Parent report (See Appendix W)

Case history information was to be obtained in the following areas:

* Biographical data. Details such as age, gender and relationship of the caregiver to the child were sought. Items 1 - 7 were for the purpose of obtaining biographical information.

* Linguistic data. The College of Speech Therapists Specific Interest Group in Bilingualism (1990) suggests that speech-language therapists should obtain accurate linguistic information regarding the languages spoken by the client and her/his family. Such information would also demonstrate exposure to different languages and their varieties. Such data was critical for this investigation because of the varieties in Soweto Zulu and the influences of multilingualism. Questions 8 - 14 dealt with this section.

* Parents were asked to give their opinion of their child's receptive and expressive language (questions 1 - 6, Section B) as parent report can provide valuable information on early child language development (Dale and Henderson, 1987).

* Questions 7 - 9, Section B, were asked to determine if there was a family history of language and associated problems.

TABLE 8 Singular and plural noun classes scores

SINGULAR				PLURAL			
RECEPTIVE	Mean	Variance	Standard Deviation	RECEPTIVE	Mean	Variance	Standard Deviation
NC 1, 1a: Packet 1	1.994	0.005	0.072	NC 2, 2a: Packet 2	1.984	0.026	0.1o2
NC 1, 1a: Packet 3	2.946	0.934	0.305	NC 2, 2a: Packet 4	2.941	0.076	0.277
NC 3, 5, 7, 9, 11: Packet 8a	4.873	0.121	0.347	NC 4, 6, 8, 10 Packet 8b	3.712	0.264	0.514
TOTAL SINGULAR RECEPTIVE	9.813			TOTAL PLURAL RECEPTIVE	8.637		
EXPRESSIVE	Mean	Variance	Standard Deviation	EXPRESSIVE	Mean	Variance	Standard Deviation
NC 3, 5, 7, 9, 11: Packet 5a	3.809	0.880	0.938	NC 4, 6, 8, 10: Packet 5b	3.941	1.418	1.190
NC 1, 1a: Packet 6	3.765	0.458	0.676	NC 2, 2A: Packet 7	1.117	0.970	0.984
TOTAL SINGULAR EXPRESSIVE	6.574			TOTAL PLURAL EXPRESSIVE	5.058		
TOTAL SINGULAR	16.387			TOTAL PLURAL	13.695		

A suggestion for future research[38] is to evaluate the prefix of noun class 2a *o* on a rural-standard Zulu speaking population to determine which form of this noun class they use.

1.1.1 Singular and plural

Acquisition of singular forms of nouns occurs prior to plurals generally in child language (Anisfeld, 1984). This finding is also true of African languages (Demuth, 1992; Suzman, 1991). The probable reason for this pattern of acquisition is that children tend to acquire marked forms of words later than unmarked forms. The process of acquisition of marked forms tends to be characterised by overgeneralisation initially. However, children understand and use plural forms by age three (Nicolosi and Collins, 1989). These findings are true of languages such as English and Hebrew (Anisfeld, 1984; Berman, 1986; Brown, 1973).

Results on the ZERLA are consistent with these findings as responses indicated that subjects were more proficient at singular noun classes than plural forms. They obtained a mean of 16.387 for singular noun classes, while for plurals the mean was 13.695 as can be seen in Table 8. Better scores were also obtained for singular noun classes, within each noun class, than for plurals, as Table 8 shows.

A complicating factor in scoring singular and plural noun classes, was that on occasions respondents omitted the plural marker, for example saying inyawo for *i-zi-n-yawo* NC10-foot 'feet'.

---

[38] Specific implications for future research are provided as they arise. General implications will be discussed in Chapter 8.

However, another reason for the difficulty that the respondents experienced with these noun classes could have been associated with the semantic-cognitive nature of the test items. These results will be discussed in more detail in the section dealing with semantics. (See Section 1.4.4).

Figure 20 shows that subjects performed most poorly on subtest 7, the expressive test examining noun classes 2 and 2a, where 68% of subjects said *abo-baba* instead of *o-baba* NC2a-father 'fathers'. 72% of subjects produced the form *abomkhulu* for *omkhulu* NC2a-grandfather 'grandfathers'. The mean for the plural form of these noun classes was 1.117, compared to a mean of 2.765 for subtest 6, which examined noun classes 1 and 1a, the singular form. One of the reasons for this poor score could be because NC2 and 2a are not very productive in Zulu. They refer to proper names and kinship terms and so are not commonly used.

Oberstein (1987) found the subjects in her study were also utilising a prefix *abo-* which was a combination of noun class 2 *aba-* and noun class 2a *o-* instead of *o*, the prefix of noun class 2a. As mentioned in Chapter 3, she concluded that the alteration of the prefix was a dialectal variation utilised in Alexandra. Thus, the fact that the respondents of the ZERLA, tested in Soweto, also used this form indicates that it is representative of an urban variety. This indicates a shift from the standard Zulu form (Suzman, personal communication, 21 September, 1993).

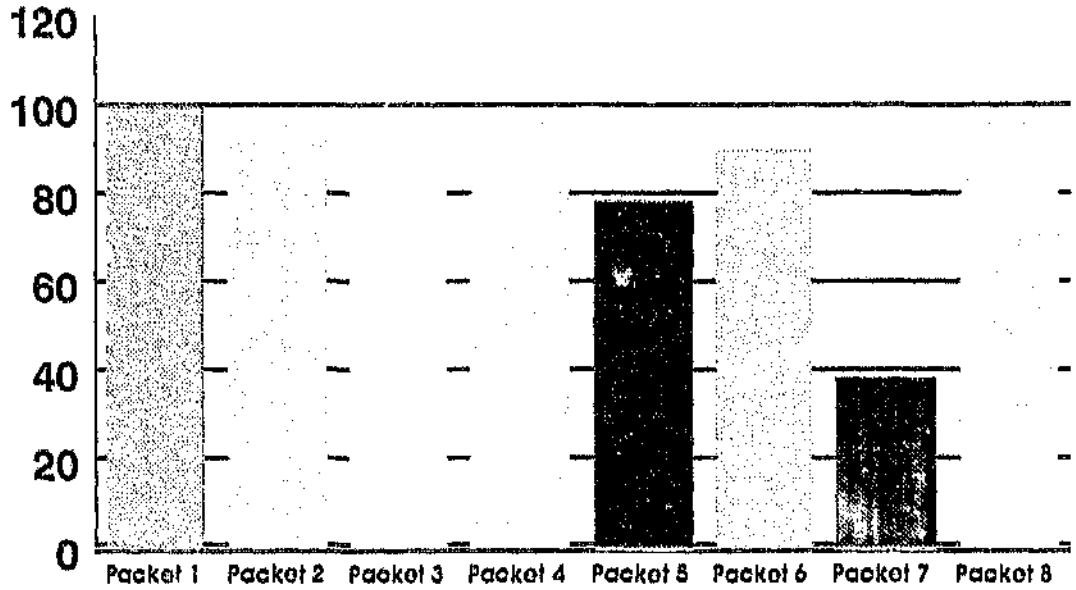


FIGURE 20 Mean percentage scores of noun classes

1.1 Morphology : Noun classes

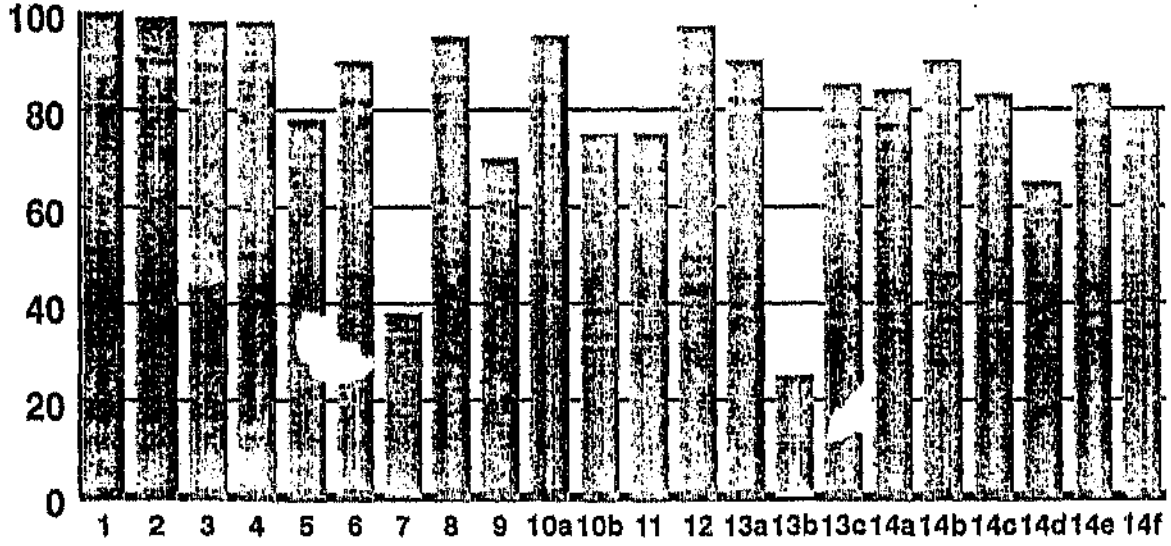
The mean percentage scores that subjects obtained for noun classes can be seen in Figure 20.

Subjects obtained mean percentage scores of 100% for six out of the eight subtests, examining the noun class system. There are two possible explanations for these high percentages. The initial explanation is arithmetical and relates to the fact that six of the subtests consisted of two or three stimuli only. This resulted in similar mean scores and small standard deviations being obtained.

The second explanation is attributed to the early acquisition of noun classes in Zulu and other Bantu languages, usually by age three (Demuth, 1992; Kunene, 1979; Oberstein, 1987; Suzman, 1991; Tsonope, 1987). As described in the introduction, both Suzman's (1991) and Oberstein's (1987) research showed that Zulu speaking children had specifically acquired classes 1, 1a, 2, 5, 6, 7, 9, 10 by age three.

Frequency counts[37] revealed that respondents did experience some difficulty in noun class 4 *iminwe* 'fingers' and noun class 11, *uzwane* 'toes' in subtest 5. This finding is in keeping with the literature as both Suzman (1991) and Oberstein (1987) reported that these noun classes developed later. The fact that there is an unequal distribution in the use of noun classes (Suzman, 1991) could explain this result. Noun classes 3, 4 and 11 do not occur with the same frequency as noun classes 5, 6 and 9. However, commonly learnt terms like *iminwe* 'fingers', fall outside this generalisation.

[37] The scores are given in the semantics section.



KEY

PACKET NUMBERS:	
1-8	Noun classes (Receptive and Expressive)
9,10B	Present Object Prefixes (Expressive)
10A	Present Object Prefixes (Receptive)
11	Adjectives and Relatives (Receptives)
12	Applied extensions (Receptive)
13A	Relatives Stems (Receptive)
13B	Relatives Stems (Expressive)
13C	Spontaneous Language Sample
14A,14B	Semantics (Receptive)
14C	Negative Subject Prefixes (Expressive)
14D	Past Tense (Expressive)
14E	Passive (Receptive)
14F	Adverbs (Expressive)

FIGURE 19 Mean percentage scores of ZERLA subtests

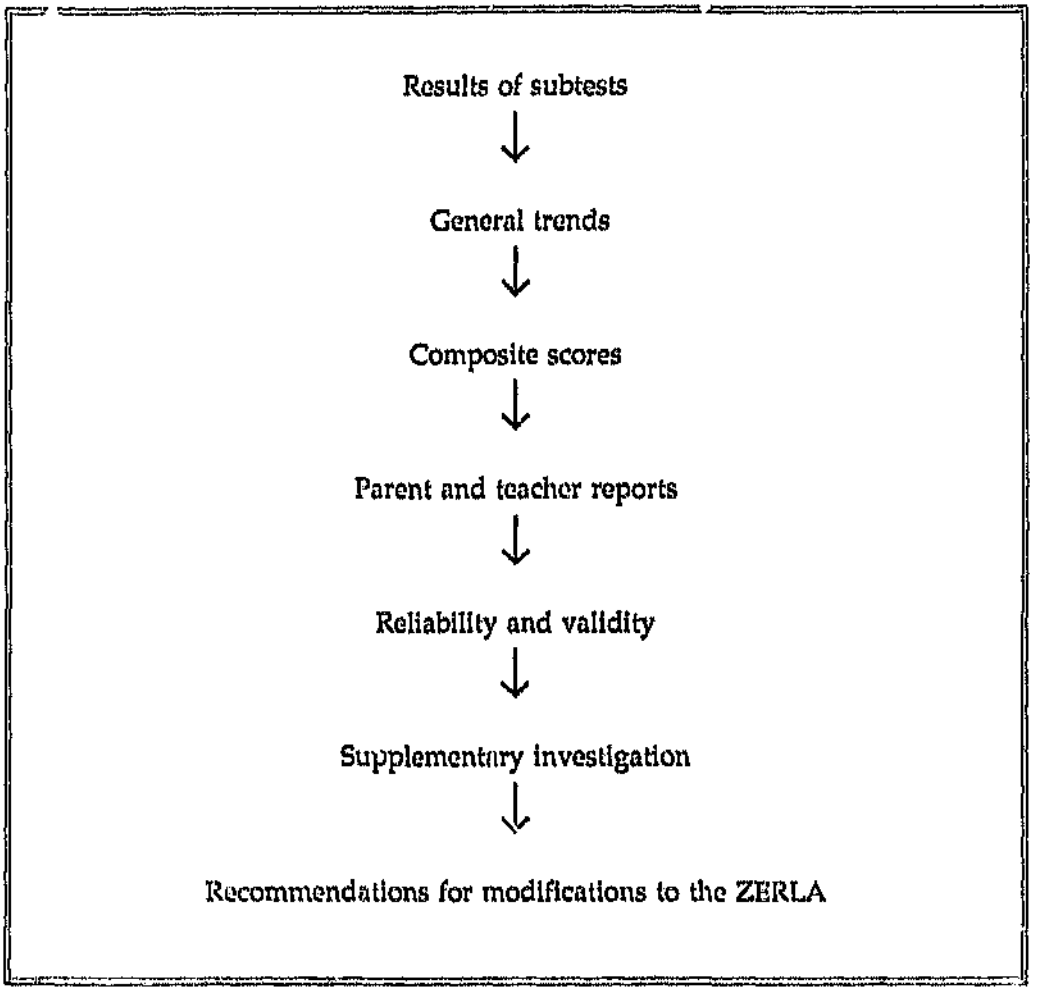


FIGURE 18 **Order of presentation of results**

1 RESULTS OF SUBTESTS OF THE ZERLA

This section portrays the results obtained for subtests on the ZERLA, as percentage scores, means and standard deviations. T tests of significance were employed and the results are provided when a statistically significant result was obtained. Variations were found in the scores of the subtests. A focus of this section is to explain the reasons for the differences. Figure 19 represents the results of the subtests, graphically.

CHAPTER 5

RESULTS AND DISCUSSION OF PRE-STANDARDISATION PHASE

The aim of this chapter is to provide the results of the pre-standardisation phase of the ZERLA. The chapter begins with a presentation of the results obtained on the subtests which assessed characteristic linguistic components of Zulu, such as noun classes. The results of the subtests are presented individually, as well as in relation to one another and to age and gender variables. The effects of sociolinguistic variables on the subtests are also described. Composite scores obtained by individual subjects resulting in the prevalence score for this sample are then provided. These are followed by findings of parent and teacher reports and the relationship of these to individual scores obtained on the ZERLA.

The results of reliability measures of the ZERLA are described and the sociolinguistic factors which impinged on these results are elaborated upon. As a result of the reliability scores obtained, an additional experiment had to be devised. The procedure and the results of this investigation are described.

This chapter concludes with a discussion pertaining to modifications necessary to the ZERLA, prior to standardisation of the test. The contents of this chapter will follow the order presented in the flow diagram.

6 SUMMARY

This chapter aimed to provide a detailed description of the methods used in the pre-standardisation phase of the research. The first two sections delineated the aims of the study and the criteria for selection of both groups of subjects, followed by a description of the respondents and the research assistants.

The third section dealt with the procedure for devising the ZERLA and related item development. Principles and theories on which the ZERLA was based were described. One of the most important principles was incorporating the sociolinguistic and sociocultural aspects of Zulu and the Soweto environment into the design of the ZERLA. The preliminary investigations assisted in determining the linguistic components that constituted the ZERLA. These components and a description of how they were to be elicited in the morphological, syntactic, morphosyntactic and semantic subtests were described. Parent and teacher reports were also devised to complement the information obtained on the ZERLA.

The fourth section of this chapter described the process of administering the ZERLA. Additional administrative procedures included contacting nursery schools of the African Self Help Association in Soweto and setting up appointments for testing. Training research assistants in administration, scoring and coding the ZERLA was an important aspect of administration as this was crucial in achieving a reliable measure of language.

The final section of this chapter described the treatment of the data. Descriptive statistics and qualitative analysis were employed in order to analyse the data.

they thought the subtests were assessing their designated component of language. Research assistants were also asked to explain the reasons for coding and analysing responses as they had.

5.4.3 Focus group interview

This kind of interview aims at providing information and insights into the attitudes, perceptions and opinions about a prearranged topic (Katzenellenbogen et al., 1991). The procedure followed in a focus group interview is for participants in the research to meet under the guidance of a facilitator. Focus group interviews were held after the administration of the ZERLA, with one of the aims being to determine face validity. A schedule of the pre-established list of points used by the facilitator, the researcher, in the focus group interviews is provided in Appendix EE.

5.4.4 Analysis of data

Katzenellenbogen et al., (1991) explain that although methods for performing qualitative analysis are well developed, procedures for analysing them are limited. This data was analysed bearing these limitations in mind. Both groups of interviews were tape recorded and were then transcribed by a research assistant. The interviews were evaluated in accordance with de Vaus's (1991) procedure for analysing interview data which recommends the identification of common themes. The researcher therefore identified common themes in research assistants' responses. These responses were summarised and structured in a manner that could be used to explain issues or questions (Silverman, 1988).

it is essential to use this method of analysis. Qualitative analysis provides a comprehensive description and rationale for the results, particularly reliability (Marshall and Rossman, 1989; Patton, 1988). It also complements statistical data. The methods of qualitative research undertaken are described below.

5.4.1 Participant observation

As mentioned in the section which described the research assistants, the researcher did not actively administer tests, in order to avert tester bias. However, in order to obtain "a firsthand involvement of the social world chosen" (Marshall and Rossman, 1989, p. 79) she engaged in participant observation. Thus she monitored testing by observing the proceedings, particularly through the use of field notes and videotaping as suggested by Katzenellenbogen, Joubert and Yach, (1991) and Van der Burgh (1988).

5.4.2 In depth interview

Cohen and Manion (1991) state that the interview is a two-person conversation initiated by the interviewer for the specific purpose of obtaining research-relevant information. The qualitative interview aims to provide a framework for research assistants to "speak freely and in his or her own terms about a set of concerns which the researcher brings to the interaction and whatever else the subjects may bring" (Ferreira, 1988, p. 120). An additional aim of the interview is to "obtain valid and reliable information" (Marshall and Rossman, 1989, p. 82). In this study, the researcher held one-to-one interviews with each research assistant in order to assist in achieving this aim. She asked them about their perceptions of the ZERLA, for example whether

that the ZERLA was based on an adaptation of Lahey's (1988) model of language as well as the theory relating to Zulu (Doke 1990) and Zulu language acquisition (Suzman, 1991), as described in Section 3 of this chapter. They should also consider the components of language examined, as depicted in Figure 15 and peruse the ZERLA Test Booklet to determine content validity.

a) **Construct validity**

This study attempted to ascertain construct validity by correlating parent and teacher reports of the children's receptive and expressive language abilities with the scores of the ZERLA. This was in an effort to determine if the ZERLA was sufficiently sensitive to identify children with language problems (Anastasi, 1990).

b) **Discriminant validity**

Discriminant validity is an empirical attribute of validity (Plante and Vance, 1994). Measures of discriminant validity were obtained through calculating analysis of variance [Anova] and determining whether the language assessment was able to discriminate between 'normal language' and language impairment.

5.4 Qualitative analysis

As many of the measures of reliability and validity are not empirical,

When comparing these results to those describing the acquisition of number in the literature, the 4.6 - 5.5 year old Zulu subjects were performing at the level of three to four year olds (Hurlock, 1978; Nicolosi and Collins, 1989). The respondents of the present study were however, more proficient at counting than subjects living in Crossroads, whose number concept was not fully developed at seven years (Reynolds, 1989). These results also applied to colour which Reynolds' subjects had difficulty naming at age seven (Reynolds, 1989). The respondents on the ZERLA were also more proficient at identifying colour than the Setswana speakers in the study of Davies et al., (1992). Davies et al.'s (1992) subjects did not understand colour concepts at five years.

As mentioned in Chapter 3, Davies et al., (1992) contend that naming of colours occurs later in societies where colour has low salience. This could be the reason that the respondents in this study achieved relatively low scores for colour. However, the fact that when the respondents named colours, they did so from all the equivalence classes, as shown in Figure 24, raises the question of whether in fact colour has low salience in contemporary Zulu. As described in Chapter 3, A. Koopman (1994, personal communication, August 30, 1994) also suggests that Zulu may be a fully developed Stage VI language with regard to its colour terminology.

Based on the findings of this study, the researcher hypothesises that colour may well have a low salience in Zulu and hence children do not develop this concept at an early stage. However, once children learn colour they learn all the equivalence classes, as these all exist in Zulu.

Stage					
I	II	III	IV	V	VI
-mhlope 'white'		*-luhlaza* 'green'			*-mpunga* 'grey'
>	*-bomvu*> 'red'	>	*-luhlaza* > 'blue'	*-nsundu* > 'brown'	*-purple* 'purple'
					-orange 'orange'
-mnyama 'black'		*-phuzi* 'yellow'			*-pink* 'pink'

FIGURE 24 **Respondents use of basic colour terms and their equivalence classes on the ZERLA**

1.4.3 Adjectives and relatives

There was a large improvement in the oldest age group compared to the younger age groups in the respondents' ability to identify relatives (colour) and adjectives (number) on subtest 11. The 2.6 - 3.5 year subjects achieved a mean score of 10.21, which increased to 10.92 for the 3.6 - 4.5 year old subjects. This mean score then increased to 13.26 for the 4.6 - 5.5 year old subjects. This improvement showed that older subjects were more proficient at identifying colour and number than the younger subjects. This result is congruent with the fact that numbers and colours are formally taught to the subjects in their nursery schools from age 4.6 (J. Clowes, personal communication, 6 October, 1992). Prior to this, they are exposed to colour and number on an informal basis.

were able to speak about less concrete topics, and events that had occurred in the past, such as what they had eaten or had drunk that morning. This is an advanced skill as Hurlock (1978) describes children being orientated for time by the age of six or seven. Zulu speaking children do appear to develop past tense earlier than the English speaking children that Hurlock (1978) describes. One of the subjects in Suzman's (1991) study had acquired the immediate and remote past tense by age 2.6 years. Males achieved higher means (13.2) than females (12.3) for the spontaneous language sample.

The spontaneous language sample indicated that respondents were using one of two alternative forms when describing the colours of their clothing. Responses indicated subject prefixes, for example, describing a shirt as *li-brown* SP5-brown 'the one which is brown'. The alternative form was the use of relative prefixes as in *eli-brown* RP5-brown 'the one that is brown'. The use of relative prefixes provided valuable information concerning children's knowledge and use of colour terms, as related to Berlin and Kay's (1969) model. The respondents used colours that represented all Berlin and Kay's (1969) equivalence classes, that is from Stage I to Stage VI, as Figure 24 shows. The significance of the use of all the equivalence classes will be discussed in the following section.

1.3.3.6 General trends obtained for verb subtests

On all the verb subtests, older subjects demonstrated better knowledge of verbs than younger subjects (See Figure 22 which illustrates the age effect). Males scored higher than females on subtests of verb ability, as can be seen in Figure 23. When comparing respondents' performances on tests of verbal abilities to those of noun classes (Figure 19), it can be seen that subjects performed better on tests of noun classes. This is consistent with the general observation in language acquisition studies that nouns tend to be acquired before verbs (Hurlock, 1978).

1.4 Semantics

1.4.1 Summary of semantic results

Improvement in scores with increase in age occurred in all semantic subtests, indicating a development and progress in the subjects' vocabularies as they grew older. This phenomenon is common in children's language during the preschool years (Bernstein and Tiegerman, 1993).

1.4.2 Spontaneous language sample

Respondents scored 90% on this subtest. They achieved a mean of 12.840 and a standard deviation of 3.206. This showed that they could answer general questions about here-and-now topics such as what was happening at nursery school. In addition, they

Figure 22 shows that there was an age effect for the learning of the passive structure. The youngest subjects obtained a mean of 2.46, the intermediate group achieved a mean of 2.55 and the oldest group 2.69. This is not a statistically significant result. This improvement in scores corresponds to the result of the study conducted by Stephen (1988). Stephen's subjects' comprehension of the passive increased between ages three to four years (She did not test five year olds).

1.3.3.5 Adverbs

Respondents experienced some difficulty with adverbs, with 84% achieving correct responses. This score could have been attributed to ambiguity in the manner that the subtest was designed as will be explained in Section 4.1.2.3.

This score could also have been due to poor agreement on what was considered as a correct response by research assistants. Certain research assistants accepted a response of *kakhulu* 'walking a lot'[40] instead of *masinya* 'walking fast'. On occasions, respondents provided pragmatically appropriate responses, such as *gijima* 'run'. Again, not all research assistants accepted this as an appropriate response.

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[40] The colloquial form of *kakhulu* is fast.

example, *uyabadlalisa* 'you make them play' to the stimulus *ngenzani ngabantwana* 'what am I doing with the children?' However, respondents were not utilising the *e* marker, denoting past tense and therefore their responses were coded as incorrect.

The respondents scored the lowest for this verb subtest. This score could be attributed to the fact that the stimuli were incorrectly devised, and assessing the present tense instead of past tense.

The youngest group of subjects experienced most difficulty with this subtest. The improved proficiency as age increased, with past tense replicates the findings of van Reenen's (1989) study where five year old subjects were more capable of producing past tense inflections, such as *e*, than younger subjects.

1.3.3.4 Passives

Passives have been found to be a structure that is acquired late in languages such as English, Hebrew and Japanese. However, other studies show that this is not true for Bantu languages (Demuth, 1992; Suzman, 1987) or Turkish (Aksu-Koc and Slobin, 1985; Slobin, 1992). As with the abovementioned studies of Bantu languages, respondents on the ZERLA demonstrated good knowledge of passives, obtaining a score of 90%. In fact, this is the verb structure on which respondents scored the highest (cf Appendix FF).

understood and were familiar with the stimuli and vocabulary represented on the activity mat. This score improved to 95% for subtest 14b, which required respondents to perform actions. It can be conjectured that the respondents' active participation in this subtest led to the achievement of the higher scores.

It was important that respondents demonstrated the semantic knowledge assessed on these subtests, as this was required for the remaining verbal subtests.

1.3.3.2 Negatives

Subtest 14c measured the use of negative present tense forms. Respondents achieved scores of 90% correct, but research assistants indicated that the respondents were not using the negative marker *a*. In response to a question such as *i-hashi li-s-esitolo*? 'Is the horse at the shop?' respondents were providing pragmatically appropriate answers, such as *eh eh* or utilising the click */cha/*, indicating the negative. However, they were not using the required response *alikho* 'it is not'.

1.3.3.3 Past tense

Problems similar to those that occurred on the negative subtest arose on subtest 14d, which was to elicit past tense markers. In 70% of cases, children provided pragmatically appropriate responses, for

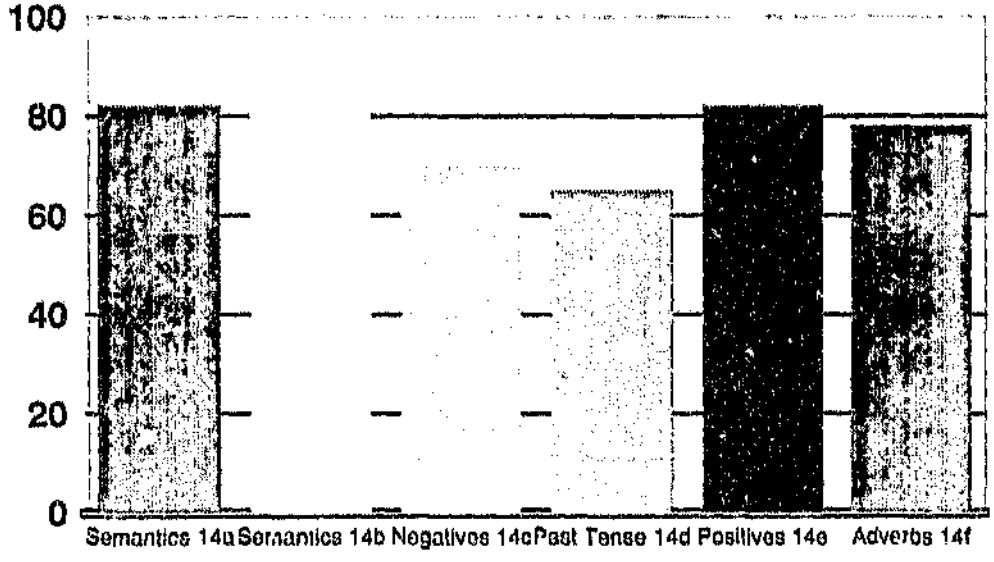


FIGURE 2[1] Mean percentage scores for subtests assessing verbs

Figure 19 indicates that respondents obtained relatively lower scores for object prefixes than they did for noun classes. These results could be due to the object prefix being a later developing structure. They could also be attributed to object prefixes occurring in a less perceptually salient position in words. Object prefixes are found in medial position, as can be seen in the examples above (Kunene, 1979: Suzman 1991). These scores could also be as a result of disagreement among research assistants as to what was considered a correct response in this subtest. Some of the research assistants had difficulty identifying object prefixes.

1.3.2 Adjectives [general and number] and relatives [colour]

The result obtained for this subtest was 76%, indicating that respondents experienced some difficulty with identifying relatives and adjectives. These difficulties were associated with semantic concepts and will be discussed in further detail in the semantic section.

1.3.3 Verb structures

Verb structures were elicited through the use of the specially designed activity mat. Figure 21 illustrates these results graphically and the mean scores and standard deviations are provided in Appendix FF.

1.3.3.1 Vocabulary (Subtest 14a and 14b)

Eighty two percent correct responses were obtained for subtests 14a. This showed that respondents

1.3 Morphosyntactic Subtests

1.3.1 Object prefixes: agreement and present tense[39]

TABLE 10: **Mean scores and standard deviations for object prefixes**

Subtest	Topic	Mean	Variance[40]	Standard Deviation
9	Present object prefix (expressive)	3.462	4.014	2.003
10a	Present object prefix (receptive)	13.345	1.104	1.050
10b	Present object prefix (expressive)	11.239	15.808	3.976

In subtests 9, 10a and 10b, subjects were required to describe actions that the research assistant was performing, with the aim of eliciting object prefixes, thereby indicating knowledge of agreement, for example *u-ya-wa-nunya* second person singular pronoun -present tense marker-OP6-suck 'you suck them'. Receptively, subjects scored 96% for subtest 10a. When tested on the same items expressively, their scores decreased to 76%. On subtest 9, which also assessed object prefixes expressively subjects scored 74%. Thus low scores were consistently obtained for expressive items. Examples of errors were the omission of the object prefix *lu*, for example, respondents said *u-ya-pluza-a* NC1-tense-drink-present tense marker 'she is drinking', instead of *u-ya-lu-pluza* NC1-tense-OP11-drink-present tense marker. This was also a finding of Suzman's (1991) research.

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[39] It should be noted that difficulties were encountered when devising these subtests and they will have to be reconstructed in a revised version of the ZERLA.

[40] All scores have a seemingly large variance due to the fact that the data is not symmetrical.

contributing much useful knowledge about subjects' knowledge of their syntax. Therefore this subtest will be omitted in a final version of the ZERLA.

1.2.2 Relative stems

Respondents did not experience any difficulty with this structure on a receptive level. However, the lowest score of all subtests was obtained for subtest 13b, examining expressive knowledge of relative stems. The subjects scored 30% for this test. Research assistants reported that respondents experienced difficulty conceptualising the desired responses which was to contrast *elinobisi* 'who has milk' to *elingenbisi* 'who is without milk'.

It is difficult to ascribe a reason for this poor response as Suzman (1991) found that relatives are generally acquired by age three. The context may have been a contributing factor, as relative stems were produced in a naturalistic context in Suzman's (1991) study.

Thus it appears as if the respondents were using the singular form *in-yawo* NC9-foot 'foot'. Research assistants reported that in fact respondents were using a contracted form for the plural which is an accepted colloquial way of speaking. They were also reported to vary their tones resulting in these responses.

1.1.1.1 Receptive and expressive differences

The respondents demonstrated superior receptive abilities on subtests of noun classes, as the means and standard deviations in Table 9 indicate. This will be discussed in further detail in the section dealing with receptive and expressive performance.

TABLE 9: **Receptive and expressive scores for noun classes**

	Reception	Expression
Mean	69.739	53.398
Standard deviation	7.114	12.207

1.2 Syntax

1.2.1 Applied extension

Subtest 12 examined verbs together with agreement of noun classes 5 and 6. Subjects scored 96% on this subtest, with females and males performing equally well. Older respondents scored slightly better than the younger children. A mean of 2.936 was obtained for this receptive subtest with a standard deviation of 0.381. This subtest does not appear to be

(1988, p. 44) believes that loan words should be "regarded as part of the stock of basic colour terms" as this is necessary in societies which are undergoing rapid change, as Zulu is. He states that it is necessary to regard a loan word as a basic colour term as this colour term is often used and "...a newly imported colour term gains frequent usage as a result of its high relevance to the new situation" (Tsonope, 1988, p. 44).

As regards th · results obtained on the ZERLA, the researcher believes that the loan words should be regarded as basic colour terms. These loan words were obviously adopted into Zulu prior to these subjects, aged between 2.6 - 5.5, learning them. Thus for the ZERLA respondents, these words are not recent. There is also no evidence to suggest that the respondents on the ZERLA learned the loan words in any different way to the manner in which they learned their basic colour terms. Indeed, in some instances they used loan words for basic terms, for example *eli-black* RP5-black 'black'.

1.8.1.1 Methodological limitations

The respondents' use of standard and varied code-switched forms of the relative structures affected research assistants' scoring and coding of responses. Inconsistencies were found in what research assistants considered to be correct or incorrect forms, for example one researcher would consider the form *ezi-white* RP10-white 'white' as correct, while another would not. This inconsistency on how research assistants rated colour terminology lends credence to Myers-Scotton's (1993) remark that 'people are extremely

relative prefix being maintained, although on occasions it appeared in what may have been a contracted form, for example *li-broom* RP5, contracted-brown 'brown'. It is difficult to determine this, as it is not certain when the respondents were using the colour term as a relative stem or a subject prefix marker. Based on the fact that little use of contracted forms occurred on other subtests besides noun classes, the researcher hypothesises that the subjects were mostly using subject prefixes.

The loan words occurring as responses on the ZERLA, took the same structure as loan words found in Northern Sotho for example "*-mêphurê* purple" (Louwrens 1993, p. 125) and *-bulau* 'blue' in Chichewa (M. MacKenzie, personal communication, March 1, 1994). The use of these loan words once again relates to Berlin and Kay's (1969) basic colour terms and brings into question how many equivalence classes actually exist in Zulu. As described in Chapter 3, Berlin and Kay (1969) do not consider a colour as basic if it is a loan word, as "recent foreign loan words may be suspect" (Berlin and Kay, 1969, p. 6). The implication of this is, if loan words are not accepted as basic colour terms in Zulu, then Zulu cannot be considered a Stage VI language.

However, researchers have queried this concept. Louwrens (1993, p. 128) contends that

> due to Northern Sotho's close contact with Afrikaans and English, the language could easily revert to adoptives/borrowings, as has already happened with the tv most commonly adopted colour terms namely *pinki* 'pink' and *-mêphurê* 'purple'.

Figure 24 previously presented indicates that respondents on the ZERLA used only loan words for equivalence class 6. Tsonope

look?'. The results indicated that subjects provided a wide variety of responses in this task as is shown in Figure 25.

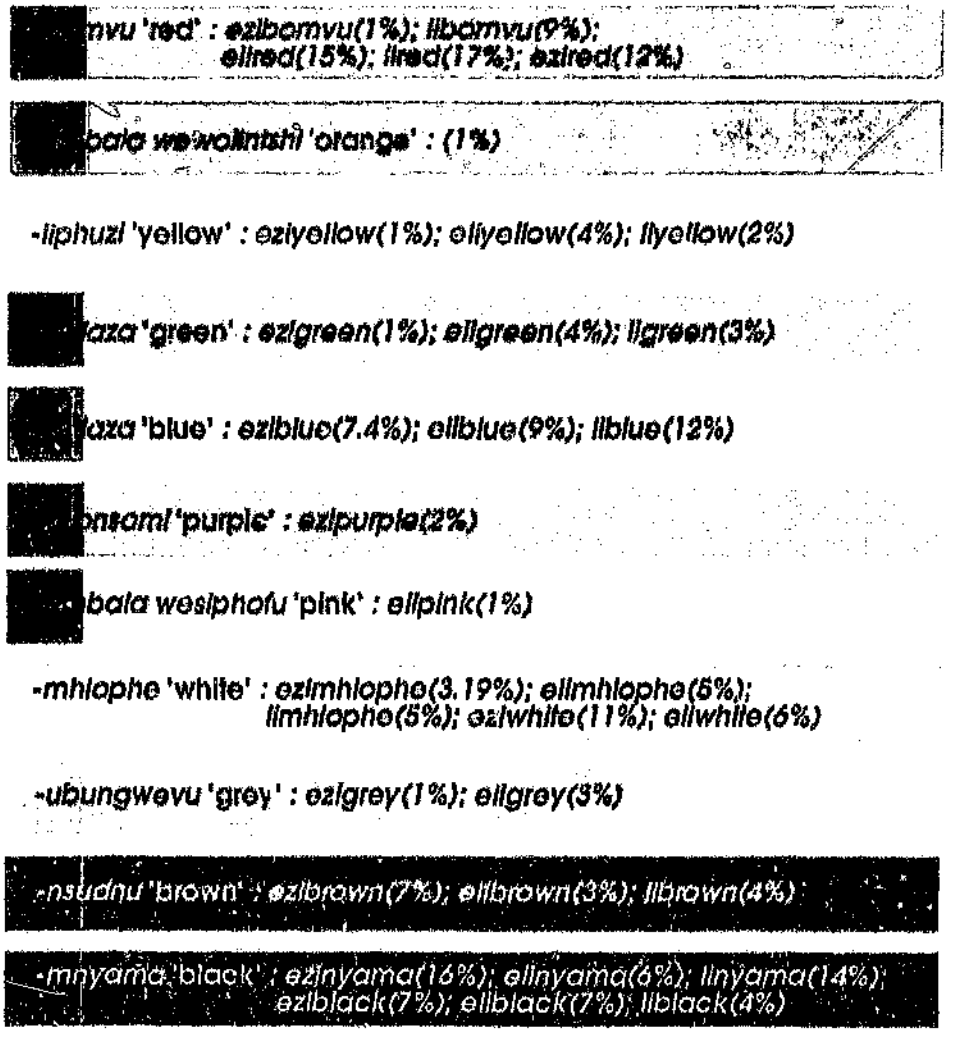


FIGURE 25 **Continuum of responses for colour**

These responses formed a continuum from standard Zulu forms such as *ezi-nyama* RP8-black 'black', moving to loan words such as *ezi-black* RP8-black 'black'. The code-switching resulted in the

1.8 Sociolinguistic factors

The influences of variation and language shift occurring in Zulu, discussed in Chapter 3, were taken into account when devising subtests of the ZERLA for example, subtest 11 where adjectives and relatives were assessed utilising standard Zulu (*amabili* 'two') and code-switched forms (*amatwo* 'two').

The subjects' responses exhibited the influences of language shift and variation. This is not an unexpected result as all the respondents were speakers of Soweto Zulu Examples of language shift included subjects' responses indicating the use of loan words or code-switched terms, such as *i-chain* NC5-chain 'chain' for *ubu-hlalu* NC14-bead 'bead' in subtest 10. In this instance, the respondents were using English as the embedded language by using the English stem 'chain'. They were adding a Zulu prefix *i*, representative of noun class 5 to the word. This response also illustrates the formal changes that occur to noun classes, which were described in Chapter 3. The Zulu word *ubuhlalu* belongs to noun class 14 which usually does not adopt new forms (Beekman, 1987; Louw, 1983). Therefore, code-switching resulted in the word changing to noun class 5, a common class for borrowings. The increased productivity of certain classes at the expense of others appears to be a feature of urban based varieties (S.M. Suzman, personal communication, November 10, 1994).

1.8.1 Spontaneous language sample

Respondents demonstrated strong evidence of code-switching in their use of colour terms on the expressive language sample, where they were asked to describe the colour of their clothing, for example *iroko/ibhulukwe elinjani* 'how does your dress/pants

were, however, not statistically significant. The subtests on which males performed better were primarily those assessing verb structures, the exception being the subtest assessing negative constructions.

This is an interesting finding as Lynch (1983, p. 353) asserts that "popular belief and scholarly opinion generally maintain that girls are more advanced in language than boys". Hurlock (1978) embodies this by stating that "boys, as a group, lag behind girls in learning to talk. At every age boys' sentences are shorter and less grammatically correct..." (p. 172). These statements concur with the findings that females scored higher than males on nine subtests of the ZERLA.

Although no definite findings regarding language abilities and gender exist (Wells, 1986), some research has shown boys having better language abilities than girls. For example a literature review undertaken by Winitz (1959) found boys' language to be superior to that of girls in a 2:1 ratio. The trend that males performed better on more subtests than females on the ZERLA concurs with this research. These differences may have been as a result of the fact that girls are socialised to be more reserved than boys. Rogoff (1982) believes that through everyday activities and social interactions, culturally shared meanings pertaining to gender are constructed and internalised. Results of a study conducted on caregivers' interaction with their children in a rural village, in the Eastern Transvaal strongly support Rogoff's (1982) statement and the fact that socialisation between genders is different (Seroff and Bortz, 1994).

In summary, similar to findings of other researchers (Wells, 1981), results obtained on the ZERLA did not show any real evidence for differences between genders.

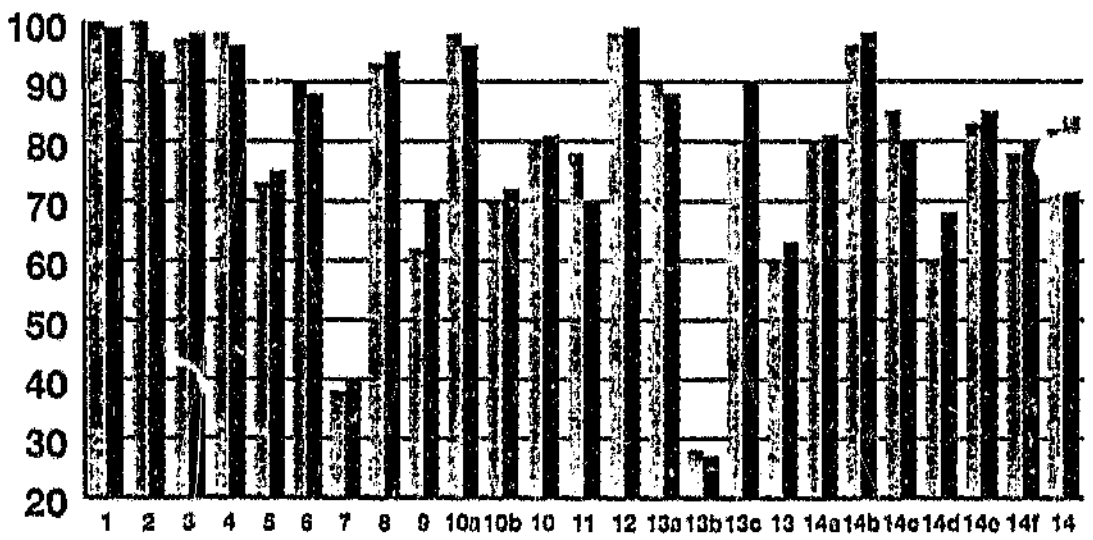


Figure 23 ■ Females ■ Males

FIGURE 23 **Mean percentage scores for subtests according to gender**

This table demonstrates how the means increased for the older children, signifying that older children have better language abilities than younger children. Informal comparison with other formal language tests, such as the SICD (Hedrick et al., 1984) shows similar increases.

Increased proficiency on the ZERLA could be attributed to the fact that Zulu children have been found to incorporate additional morphological elements into more complex linguistic structures, between ages 2.5 and 3 years (Suzman, 1991). Examples include many morphemes occurring in complex verbal constructions such as *a-ngi-m-bon-anga* Negative-I-him-see-negative past tense 'I didn't see him'. Children's language acquisition should be fairly complete in form and structure by between age four and five with the child having mastered the syntax of her/his native language by about age five (Chomsky, 1969; Marge, 1972; Nicolosi et al., 1989). The older respondents on the ZERLA did appear to have acquired most of the language structures assessed.

The previous section dealt with the older subjects obtaining better scores on subtests of the ZERLA than younger subjects. However, in four of the subtests there was some decrease in scores as Figure 22 shows. A possible explanation for the decrease could be the increase in errors "when the range of grammatical options increases. This typically occurs in the fourth year of life" (Slobin, 1992, p. 8).

1.7 Scores for each subtest according to gender

Figure 23 displays the scores obtained according to gender on the ZERLA.

Results show that males scored higher than females on 13 subtests while females scored higher than males on nine. These differences

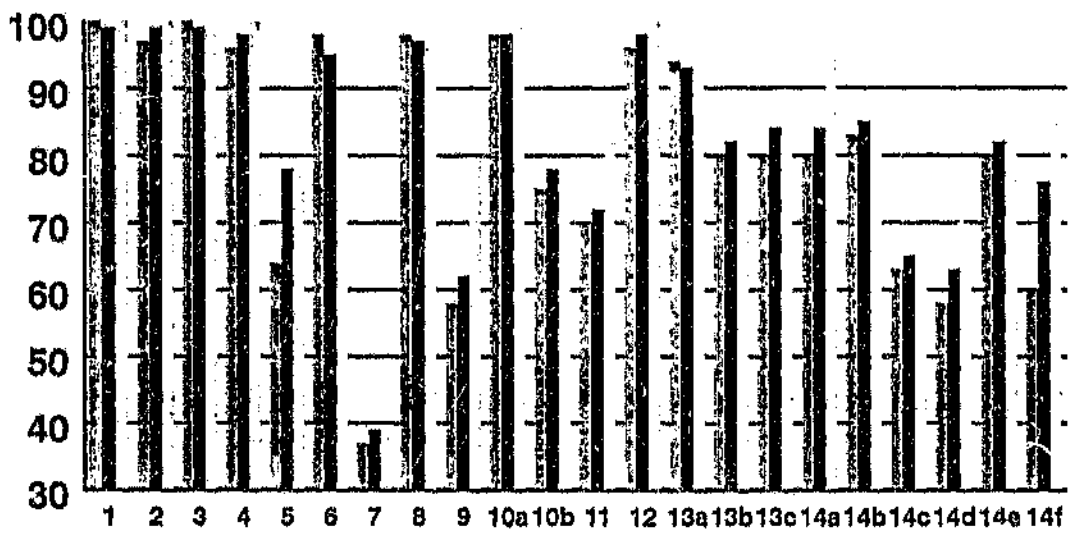


Figure 22

FIGURE 22 Mean percentage scores for subtests according to age

1.6 Scores for each subtest according to age

Figure 22 indicates the scores that the respondents obtained according to their age groups.

It can be seen that on the ZERLA, scores increased from the youngest to oldest groups in 54% of instances. Subtests which had significant increases in scores are listed:-

- Subtest 5 : naming of body parts;
- Subtest 9 : present object prefixes;
- Subtest 11 : adjectives and relatives;
- Subtest 13c : spontaneous language sample;
- Subtest 14d : past tense
- Subtest 14f : adverbs

Appendix GG contains a table which depicts the means obtained for three month age groupings within the three major age groups. Table 13 is a summary of the increased means obtained by the three age groups according to age.

TABLE 13: Mean scores obtained for each age group on the ZERLA

Age	Number	Mean	Standard deviation
2.6 - 3.5 years	29	116.29	20.71
3.6 - 4.5 years	123	123.04	15.45
4.6 - 5.5 years	36	128.63	15.28

occurred for all age groups. This table also shows that both the abilities appeared to increase with age, as the older subjects' scored better than the younger.

TABLE 12: **Mean receptive and expressive age scores and standard deviations**

Age	Receptive mean	Standard deviation	Expressive mean	Standard deviation
2.6 - 3.5 years	67.392	8.685	48.892	15.492
3.6 - 4.5 years	69.121	7.480	53.918	10.591
4.6 - 5.5 years	72.555	4.299	58.083	13.695

1.5.1. Comparison with other formal language tests

On the Reynell Developmental Language Scales (Reynell, 1977) Reynell performed Pearson correlation coefficients on expressive language and verbal comprehension scales, for three different age groups of subjects. The results indicated that receptive scores were better than expressive, although the correlation coefficient decreased from 0.67 in the youngest children (1 - 2.6 years) to 0.32 in the oldest children (6 - 7 years). Thus the ZERLA results are similar to those of the Reynell. However, superior receptive language, at all ages, did not correspond to the findings of other formal language tests such as the Sequenced Inventory of Communication Development [SICD], (Hedrick et al., 1984). On the SICD, the younger respondents' receptive scores were superior to expressive abilities. By age four the gap between the receptive and expressive language abilities had closed and no difference was found in these abilities.

than their English speaking counterparts. English speaking children have been found to name body parts such as hair, hands and feet by age two (Nicolosi and Collins, 1989). A possible reason for this later acquisition could be attributed to conceptual categories being derived from different ways of interacting cognitively (Bernstein and Tiegerman, 1989). Hence respondents in this study may not have been exposed to this semantic category at a young age.

1.5 Receptive and expressive language

TABLE 11: **Receptive and expressive scores**

	Mean	Standard deviation	T Test of Significance	Prob > T (.05 level)
Reception	69.542	7.114	134.411	0.0001
Expression	53.595	12.207	59.979	0.0001

The phenomenon of receptive language skills being superior to expressive language is well documented (Bernstein and Tiegerman, 1993; Illingworth 1983; Ingram, 1974; Taylor and Swinney, 1972). This phenomenon also prevailed in the study performed on Zulu speaking toddlers previously mentioned (Bortz, 1992). Bortz (1992) found that 18 month old Zulu speakers' expressive language abilities were more limited than those of their English speaking peers. They were producing fewer words at this age and had restricted mean length of utterance.

The results obtained on the ZERLA confirmed that receptive abilities were superior to expressive abilities. Table 11 shows that the differences between these abilities were statistically significant. Table 12 shows that the receptive scores predominating over expressive

1.4.4 Body parts

Universally, one of the first categories of words children acquire are body parts (Clark, 1981: Hawkins, 1988). The youngest group of respondents on the ZERLA named body parts correctly in 66% of instances, as subtest 5 in Figure 20 indicates.
A feature of language that is used by children when they do not have a vocabulary item in their repertoires, is to "overextend productively on account of a simple scarcity of items in his/her productive vocabulary" (Clark, 1981, p. 10). On the ZERLA, overextension was observed in this youngest group of subjects. For example, subjects said *izandla* 'hands' for *iminwe* 'fingers'. Other examples of overextension were *amazipho* 'nails' for both *iminwe* 'fingers' and *uzwani* 'toes'. Errors in naming body parts were also evidenced as a singular/plural confusion, where 47% of the youngest subjects responded with the singular form *un-yawo* NC11-foot 'foot' for *izin-yawo* NC10-foot 'feet'.

The 3.6 - 4.5 age group showed an increased ability to name body parts and did so correctly in 80% of instances, as Figure 22 indicates. The oldest group of subjects showed a slight decrease in ability for this task, with 78% correctly naming body parts.

When these results are compared to other studies, it can be seen that naming body parts is a semantic category which Zulu speaking children acquire as they grow older. This is evidenced by the fact that Zulu speaking toddlers could identify body parts, but could not name them at 18 months (Bortz, 1992).

If the ability to name body parts is examined crosslinguistically, it appears that Zulu speakers acquire this lexical category later

The state of flux of languages being spoken in Soweto homes is shown in responses such as "the whole family speaks Sotho. He is the only one who speaks Zulu" and "She is still young to understand all languages. What she is doing is she mixes all languages [sic]" Penn and Segal (1982) found the presence of more than one language in the home a significant factor for language impairment. What is also evident in these responses is that parents are also commenting on their children's speech, fc · example stuttering. As parents often confused speech disorders with those of language, this question should be rephrased in future questionnaires.

3.2.4 Family history of communication problems

Eighty five percent of parents (n = 78) reported no family history of speech, language and hearing problems. The problems of the 12% of parents (n = 11) who related that a communication difficulty existed, included hearing impairment in four instances and one child's grandfather stuttered. Three of the brothers of the children tested appeared to have auditory processing problems, for example 'short-term memory'.

3.2.5 "At risk" medical factors

Ear infections and gastroenteritis often affect language acquisition (Friel-Patti and Finitzo, 1990; Hasentab, 1987). Karnovsky (1991) found that gastroenteritis subjects on her study had poorer receptive and expressive syntactic abilities than non-gastroenteritis subjects.

3.2.3.1 Expressive language disorders

Twenty three percent (n = 21) of parents replied that their children were not speaking like adults. The explanations they provided for their responses are contained in Table 16.

TABLE 16: **Parents descriptions of expressive language difficulty**

Nature of responses	N	Verbatim description of problem
Developmental	2	'He uses baby language'
Unintelligible	2	'You don't understand what he is trying to say'
Phonology	5	'He doesn't pronounce words properly'
Stuttering	2	'When he speaks he is stuttering'
Multilingual	7	'Because he is using two languages'
Other	3	'Worried whether my child is in a good manner with other children'

Considering the age of the respondents, it was not surprising that some children were experiencing phonological problems. The literature reports on acquisition of adult phonology by age five (Creaghead et al., 1989). The fact that parents reported phonology as a problem attests to the accuracy of the parents' responses.

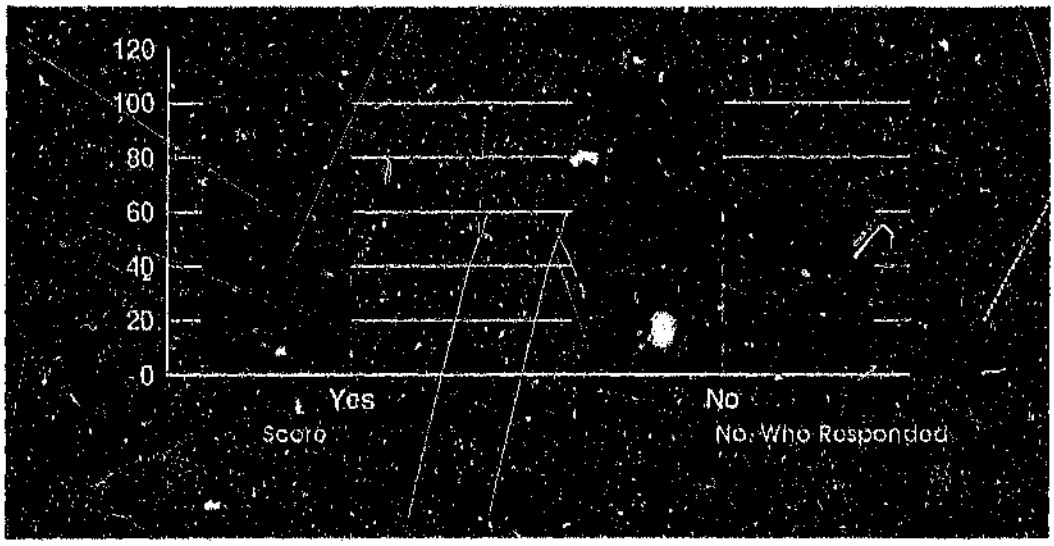


FIGURE 29 **'Are you worried about your child's speaking?'**

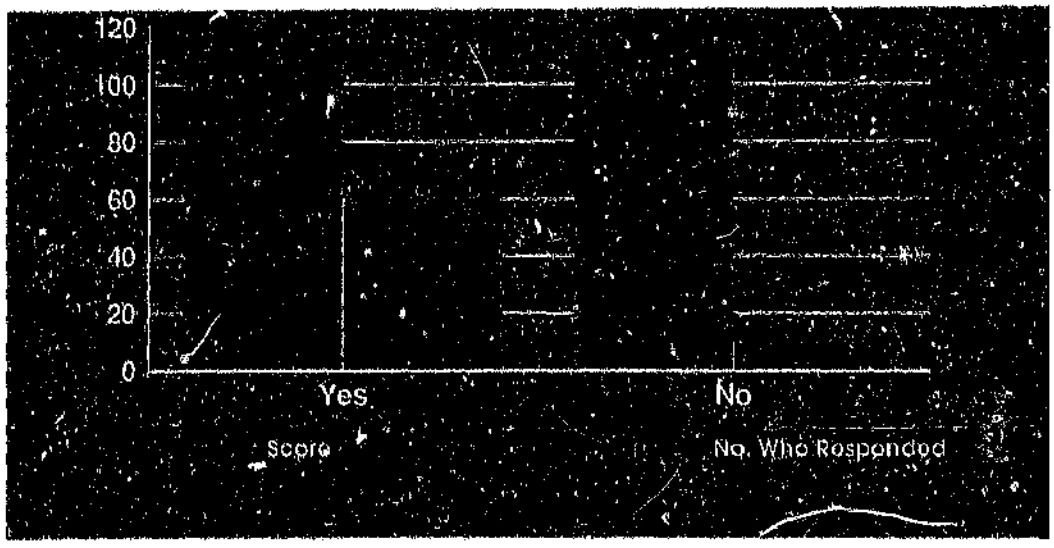


FIGURE 30 **'Is your child speaking nearly like an adult?'**

Only three parents responded that their children could not understand. Clearly, therefore, the majority of parents were not worried about their children's receptive language.

These two questions serve as a cross check for each other (the first asked the information in a negative form while the opposite was true for the second). The results indicate that the latter question, "Can your child understand everything that you say to her/him?" was a question which yielded more information.

A specific question inquiring about children's receptive abilities was whether they understood when they were asked to bring the parents an item or when the parents gave instructions. The responses were very definite. 99% (n = 91) of parents indicated that their children could do this. Asking such specific questions would therefore seem to be the best way of devising test items in future tests.

3.2.3 Expressive language

The majority of parents were not concerned about their children's expressive language abilities as 84% (n = 77) of parents answered that they were not worried about how their children spoke (See Figure 29). In addition, Figure 30 illustrates that 77% of parents reported that their children's speech resembled that of adults.

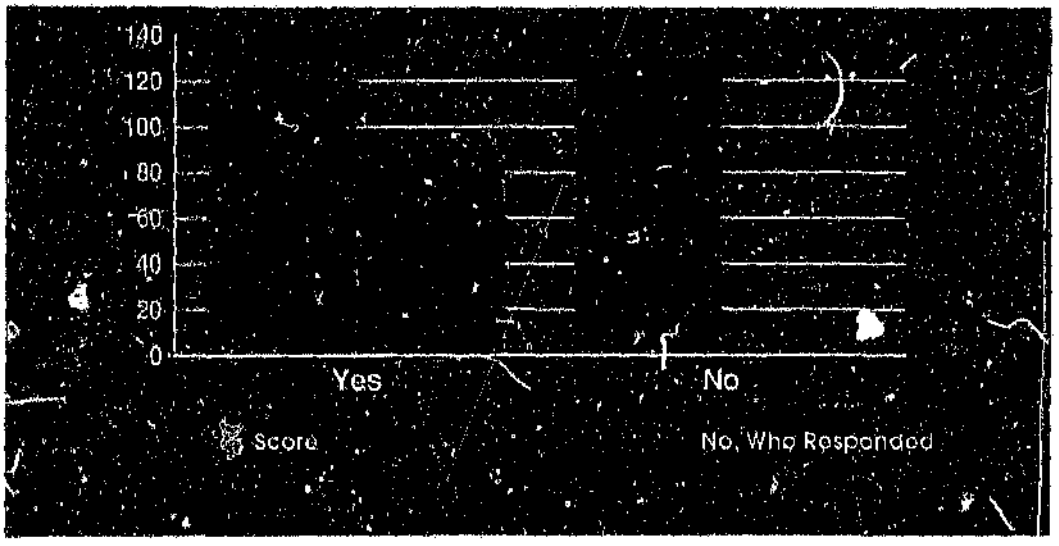


FIGURE 27 **'Are you worried about how your child understands things?'**

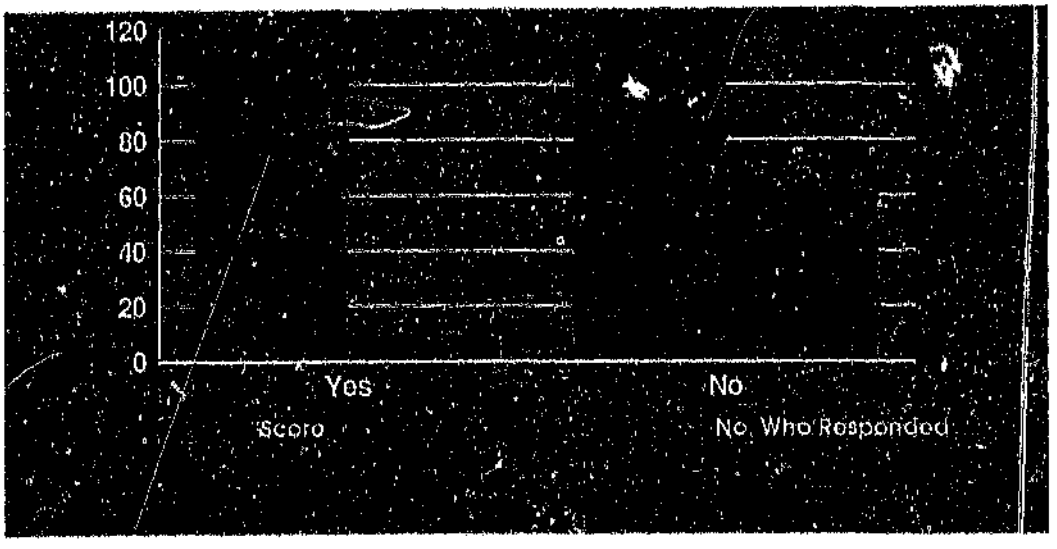


FIGURE 28 **'Can your child understand everything...?'**

be discussed in Section 4.2.2 of this chapter.

3.2 Parent Report

The results described in this section are parents' responses to open and closed ended questions, asking them to report on their children's receptive and expressive language abilities. Their responses are indicated by means which vary, according to the number of responses to each question.

3.2.1 Linguistic data

The responses to the initial questions relating to languages spoken in the home are described in Chapter 4, Section 3.4.3 of Chapter 4. Attempts were also made to determine the variety of Soweto Zulu spoken, for example by questioning parents about the length of time they had lived in Soweto. Seventy eight (n = 76) of parents had always lived in Soweto. Of the 22% who had not, 10% had lived in Kwazulu/Natal prior to coming to Soweto. The other 12% had lived in other townships such as Alexandra or Sebokeng and one respondent had lived in Angola. She was married to a Portuguese speaker and had only lived in Soweto for one year.

3.2.2 Receptive language

Figure 27 demonstrates that 77% of parents (n = 71) were not worried about their children's receptive language. These results may be compared with Figure 28 where 97% (n = 89) of parents responded that their children were able to understand.

made every effort to have these returned. However, not all reports were returned as Table 15 indicates.

TABLE 15: **Response rates**

ZERLA only	50
Parent report and ZERLA	29
Teacher report and ZERLA	46
ZERLA, Parent report and Teacher report	63
Total number	188

Attempts were made to improve this response rate by two research assistants returning to the nursery schools, a month after testing had been completed and handing out additional forms and letters. (These are displayed as Appendix HH). These letters included public education information on the language abilities of three to four year old preschool children, the original age of the subjects of this study. This information was included as a primary prevention strategy (Gerber, 1990). The response rate of parent and teacher reports returned did not improve. Reasons were that Soweto was experiencing a taxi strike at the time, making it impossible for research assistants to travel to the nursery schools to collect the forms due to intimidation. The researcher then telephoned the nursery schools to ask them to return completed reports in the mail, but only one nursery school did so.

This low percentage of completed parent and teacher report is recognised as a limitation of the research. However, it is not certain how this response rate could have been improved, since, as can be seen from the above description, all possible avenues were explored. This low response rate did not have a direct outcome on the results of the study as, although parent and teacher reports were found to be reliable, they were not found to be valid sources of information. This issue will

other prevalence studies, such as 3 - 5% of the American population (Van Riper and Emerick, 1990) or 4,7% of the total English population (Wirz, 1993). As no prevalence studies have been conducted in South Africa, no comparisons can be made to the local population. However, the high prevalence of language problems found on the ZERLA bears sad testimony to Penn's (1978) prediction that the "incidence of language disorders seems to be increasing" (p. 235)

2.2 Possible etiologies of language problems on ZERLA

The "at risk" factors of earache, gastroenteritis and emotional trauma (Boola, 1992; Penn and Segal, 1982; Simpson, 1991) could have contributed to this high percentage of language problems. In addition, the fact that the respondents came from a deprived sociocultural environment may have had an effect on their language abilities (Shueyane et al., 1977; Yach et al., 1993).

Correlations were attempted among the variables of age and gender and the respondents who scored poorly on the ZERLA. However, no clear correlations was achieved. Seventy one percent (n = 15) of the respondents who scored poorly were in the 3.6 - 4.5 age group, due to the unequal distribution of this sample. The youngest and oldest groups each contained three subjects who scored poorly. No gender difference was exhibited amongst these language impaired subjects as 11 of them were male and 10 female.

3 PARENT AND TEACHER REPORT

3.1 Response rate

Research assistants handed out parent and teacher reports when they administered the ZERLA at the nursery schools. Principals and teachers

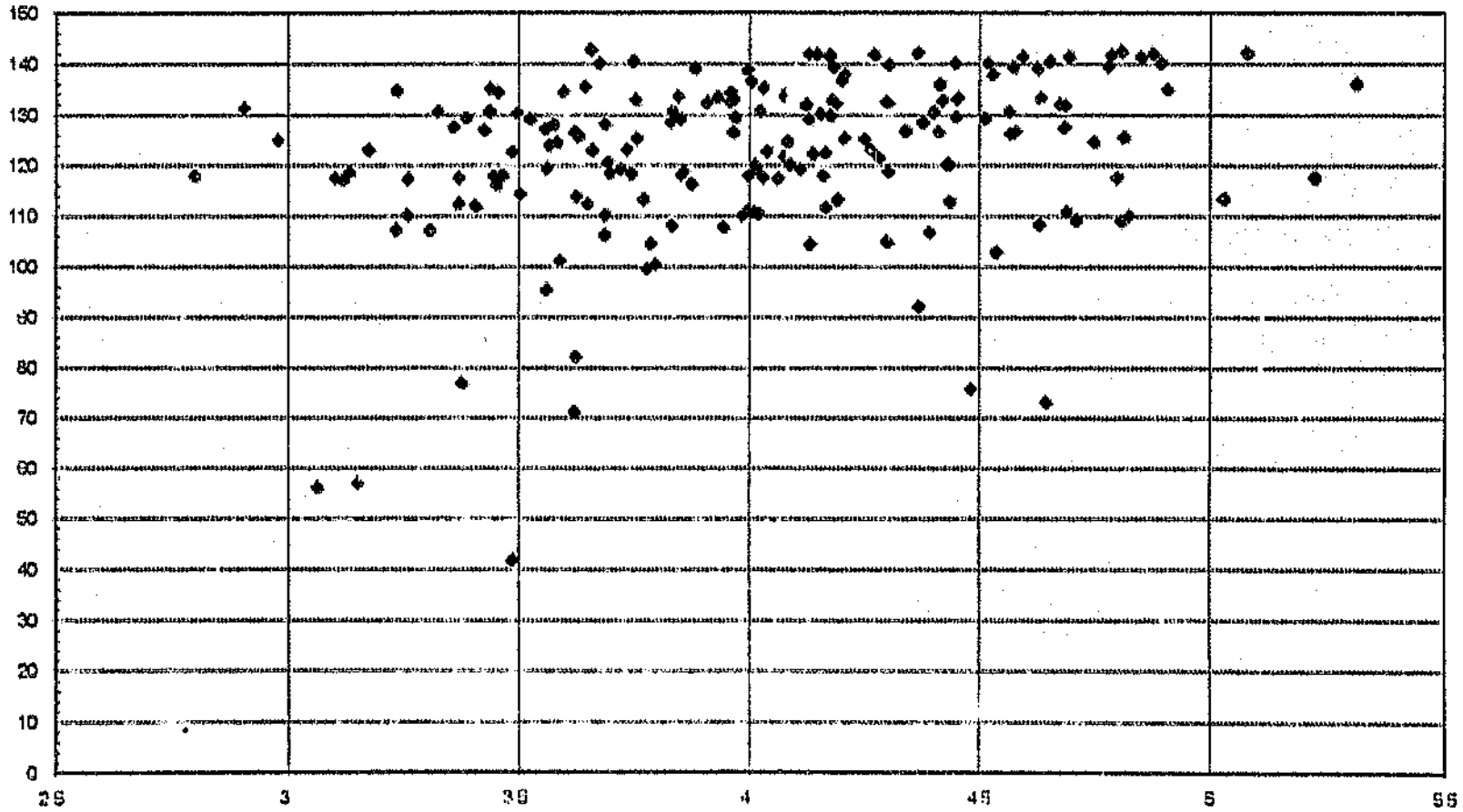


FIGURE 26 Cluster of scores attained on the ZERLA

2 COMPOSITE SCORES

As mentioned previously, Zulu speaking children have acquired most of their language structures by three years (Oberstein, 1987; Suzman, 1991). This being the case, it would be expected that the majority of respondents on the ZERLA would achieve high scores. Thus any respondent who did not achieve a high score would be suspected as having a language problem.

The criteria for respondent subject selection stipulated that 'typical' preschool subjects' language should be assessed. Children with language impairment could therefore have been included in the test sample.

The maximum score that was possible to obtain on the ZERLA was 148. The scatter graph in Figure 26 indicates that the majority of respondents' scores were clustered in the range 120 to 148. This figure also indicates that some respondents, 'the outliers', did not score within this cluster. They achieved scores of 110 or lower. A score of 110 was therefore considered to be indicative of language delay. According to this criterion, 11% (n = 21) of the sample, were found to have language problems.

It is important to note that there were nine subjects who scored below the cut off score of 110, who were either bilingual or second language speakers of Zulu. Had these nine subjects' scores been included in the overall prevalence rate, prevalence would have increased to 16%. These subjects' poor scores reflect the influence of a multilingual environment on a child's language abilities. Additional details related to etiology are provided in the following section.

2.1 Prevalence of language problems on the ZERLA

The prevalence rate obtained on the ZERLA is high when compared to

COMPONENTS OF LANGUAGE	RECEPTIVE LANGUAGE	EXPRESSIVE LANGUAGE
Negative subject prefixes (Subtest 14c)	Not tested	Inconsistent
Past tense (Subtest 14d)	Not tested	Inconsistent
Passive (Subtest 14e)	Appropriate	Not tested
Adverbs (Subtest 14f)	Not tested	Inconsistent
Semantics		
Body parts	Could not identify *iminwe* 'fingers'; confuses *unyawo* 'foot' with *izinyawo* 'feet'	Responses for *-iminwe* 'fingers' include : *amazipho* 'nails'; *isandla* 'hand'; *izandla* 'hands'. *-uzwane* 'toes' include : *unyawo* 'foot'; *izinyawo* 'feet'; *iminwe* 'fingers'; *amazipho* 'nails'
Adjectives *-khulu* 'big' Number *-ne* 'four'	Correct Inconsistent	Not tested
Relatives Colours *-mnyama* 'black' *-purple* 'purple'	Inconsistent	Not tested
Spontaneous language sample Relatives (Colours)	Correct	Use of loan words and code-switched forms
Pragmatics		Subjects would answer *cha* 'no' or *mgazi* 'I don't know' when they did not know an answer
Relative stems	Not tested	Appropriate
Spontaneous language sample	Not tested	Appropriate

poor at judging what code-switching is'. She reported that informants would provide a definite response to a form that is acceptable and then negate this later (C Myers-Scotton, personal communication, September 16, 1993).

1.9 Summary of results obtained on subtests of the ZERLA

The general trends of results obtained on specific subtests of the ZERLA can be seen in Table 14 below.

TABLE 14: **Trends obtained on subtests of the ZERLA**

COMPONENTS OF LANGUAGE	RECEPTIVE LANGUAGE	EXPRESSIVE LANGUAGE
Morphology		
Noun classes (Subtests 1-8)	Correct	NC2a *abobaba/obaba* 'fathers' singular/plural *umu-nwe* NC3-finger 'finger'/*imi-nwe* NC4-finger 'fingers'
Syntax		
Applied extensions (Subtest 12)	Appropriate	Not tested
Relative stems (Subtests 13a-13b)	Appropriate	Inappropriate
Morphosyntax		
Object prefixes (Subtests 9, 10a-10b)	Appropriate	Appropriate. Research assistant inconsistencies
Adjectives (Subtest 11) General *-ncane* 'small' Numbers *-ine* 'four'	 Appropriate Inappropriate	 Not tested Numbers not tested
Relatives (Subtest 11) Colours *-bonvu* 'red'	Inappropriate	Not tested

Research assistant:

Make the mother walk fast and ask *uhamba kanjani* 'how does she walk?'
The desired response is:
masinya 'fast'

Most subjects responded *hamba kakhulu*, which is a colloquial form implying 'fast'.

Such a response indicates a pragmatically appropriate response, although it is not eliciting the desired morphosyntactic structure. An implication for the standardisation version of the ZERLA would be to devise a coding system that would credit the child with the appropriate response. However, the coding system should indicate that the required structure was not elicited.

In order to elicit the target, alternative methods of elicitation such as delayed imitation (Creaghead et al., 1989) could be used. In such instances research assistants could say the required response, *masinya* 'fast', then utilise a carrier phrase such as *yimi* 'what is it' and then the child would have to produce the target.

4.2 Validity

Newcomer and Hammill (1982), authors of the TOLD, report that "unfortunately it is far easier to define validity than it is to demonstrate

specified set of instructions, which is one of the criteria for formal language testing (Bernstein and Tiegerman, 1993; McCauley and Swisher, 1984a). This has important implications for future use of the ZERLA.

Another trend emerging from interviews reflected the influence of code-switching and loan words on Soweto Zulu. Research assistants also felt that test administration time was too long, resulting in respondents losing concentration which affected their performance. One research assistant reported that neither the past tense nor the negative were being elicited because of the way that the test had been devised, as discussed previously. Another research assistant found the test items to be particularly suitable and culturally appropriate.

4.1.2.3 Ambiguous test items

The researcher and research assistants noted that certain of the subtests, particularly verb subtests, were ambiguous. This ambiguity affected the children's responses and research assistants coding and analysing of data. Negative, past tense and adverbial subtests (14c, d and f) were devised in such a way that respondents did not necessarily have to use the required structure, as can be seen in the following example:

is occurred more for receptive than expressive subtests. This indicates that the ZERLA had a measure of face validity (McCartney, 1993).

Observation of research assistants' coded responses and explanations on ZERLA Test Booklets reveals disagreement among research assistants as to what was regarded as a correct response, for example a research assistant would code an item on subtest 14c, which assessed negatives as correct. On re-marking, a different research assistant would code this as incorrect and indicate the omission of negative markers. When these discrepancies were discussed in the focus-group interviews, consensus could not be obtained from research assistants as to what constituted a correct response. Part of the reason for this disagreement is that, despite the fact that research assistants were either dominant Zulu speakers or had a good knowledge of Zulu, they had varying knowledge of Zulu linguistic structures. Not all research assistants were familiar with all aspects of the agreement system, for example object prefixes.

A problem that research assistants reported on in relation to test administration was the fact that responses depended on how the stimuli were being presented. The research assistants stated that they could determine when stimuli were being changed, in order to assist respondents in obtaining the correct answer. Thus it did not appear that research assistants were consistently using the

order to attempt to elicit a response from the child.

An additional problem, which impacted on the accuracy of testing was the manner in which research assistants translated both test stimuli and test responses. Interviews and consultations with other experts in Zulu indicated that research assistants were not translating literally. Rather, they were making use of liberal translations. A reason for such translation may have been the fact that the speech-language personnel were utilising methods of testing that they were familiar with from other formal language assessments. An example is the Reynell (1977) where a typical stimulus is "give me the longest red pencil". On the ZERLA in subtest 10a, which assessed object prefixes, research assistants were to tell the child to *thatha omama* 'take the mothers'. They translated this response as 'give me the mothers'. The translation of give is *pha* or *nika* and not *thatha* 'take'. Although not literal, it can be seen that this translation does produce the same effect in testing.

4.1.2.2 In-depth and focus group interviews

Common themes emerging from the interviews held with research assistants, after they had administered and coded and analysed the results of the ZERLA, indicated that they believed that the ZERLA was achieving its goal of assessing the language of preschool Zulu speaking children. One research assistant reported that he felt this

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that he wore *izicathulo ezinyama* 'black shoes' and on the retest *izicathulo ligreen* 'green shoes.'

Leonard et al., (1978) and Lund and Duchan (1988) assert that one of the disadvantages of using formal language tests is that they assess language in a decontextualised setting. Poor reliability on the spontaneous language sample may have been associated with contextual factors such as that language was removed from its "ordinary intentionality" (Lund and Duchan, 1988, p. 283). However, besides for expressive relative stems (subtest 13b), context did not appear to affect the respondents, as although reliability was low on this subtest, respondents generally did not score poorly. Rather, there were discrepancies in research assistants scoring of the data. A possible method for improving reliability on a spontaneous language sample would be to elicit a more representative sample in modified versions of the ZERLA.

4.1.2 Qualitative analysis

4.1.2.1 Participant observation

Results of participant observation revealed that, for the most part, research assistants administered and scored the ZERLA according to the recommended format. Problems were noted however, when subjects exhibited difficulty when responding. Research assistants then altered the stimuli, in

4.1.1.3 Mark remark reliability

This result was achieved by two research assistants recoding 30% of the ZERLA Test Booklets. A high correlation of 0.76 was obtained. However, low mark remark reliability was obtained in the following subtests:

Subtest 9

(object prefixes, expressive) - 0.51

Subtest 10b

(object prefixes, expressive) - 0.72

Subtest 13c

(language sample) - 0.68

It can be seen that poor test-retest and mark remark reliability was obtained mostly for expressive subtests and for the spontaneous language sample on both measures. The low reliability obtained on this subtest was a clear example of the effect of code-switching and loan words. Children produced a range of responses, for example when naming colours, and research assistants were not consistent in their rating of these. The inconsistency when marking code-switched items was exacerbated by the subjects use of different colour terms on the two test occasions. An example on the original test a subject reported

A reliability coefficient of 0.27 was obtained, indicating a poor correlation.

Despite overall test-retest reliability being poor, individual subtests demonstrated slightly better test-retest reliability. These were:

Subtest 8

(noun classes 3-11, receptive) - 0.318

Subtest 9

(object prefixes, expressive) - 0.423

Subtest 11

(adjectives and relatives, receptive) - 0.481

Subtests which indicated poor test-retest reliability included :

Subtest 5

(noun classes, 3-11 expressive) - 0.002

Subtest 6

(noun class 1, 1a expressive) - 0.085

Subtest 13

(spontaneous language sample) - 0.022

Subtest 14

(verbs, expressive) - 0.013

4 TREATMENT OF DATA

4.1 Reliability

The previous two sections have described the results of scores obtained on the ZERLA and parent and teacher report. The next issue to be addressed is whether in fact these results were valid and reliable, that is, wheth ' the test produced sim'' r results under constant conditions on all occasions (Bell, 1993; McCartney, 1993).

Reliability was also ascertained, to see if the ZERLA could be used to fulfil the third sub-aim of this study, which was to determine the appropriateness of the assessment tool devised, using both quantitative and qualitative analysis.

4.1.1 Statistical analysis

4.1.1.1 Internal consistency

Internal consistency was calculated to determine whether test items closely resembled each other. Cronbach's coefficient alpha (1951) was used to compute internal reliability (Feldt and Brennan, 1989; Kline, 1986; Sturner, et al., 1994). A score of 0.79 was obtained, indicating good internal reliability.

4.1.1.2 Test-retest reliability

Ten percent of the respondents were retested on the ZERLA, after a two week interval (Kline, 1986).

3.5 Comparison of ZERLA, parent and teacher report

As mentioned previously, 21 respondents or 11% of the sample exhibited a language problem. For 27% of these subjects there were no parent or teacher reports available. For the remaining 70%, 20% had no other associated problem. Of the last 50%, there was at least one corroborating factor among the ZERLA test score and the parents' and teachers' reports. Thus, parent and teacher reports were reliable in providing information, as the literature has described them (Rosetti, 1990).

In 23% of instances the corroborating factor was related to multilingualism. A family history of communication problems was found in 7% of the language impaired respondents. The remaining 23% of cases either had ear infections or gastroenteritis. In 3% of instances there was more than one exacerbating factor, for example multilingualism and ear infections.

Two sets of twins were among the language impaired subjects. Many studies have been performed on twin language and have found an overall immaturity of verbal skills, errors in syntax, phonology and cognition (Lets Talk, June 1993).

When considering the abovementioned "at risk" etiological factors in combination with the subjects' sociocultural environment it is no wonder that a high prevalence of language problems was found on the ZERLA. Multilingualism was a variable that constantly impinged on children's language abilities. An additional "at risk" factor was the amount of violence (Penn and Segal, 1982) occurring in Soweto. Although this factor was not investigated in detail its effects may have influenced respondents' performance.

3.3 Teacher report

3.3.1 Receptive language

Three percent of teachers indicated that the respondents of the ZERLA had receptive language problems. They described these problems as the child being 'slow in mind' or 'very slow in understanding'.

3.3.2 Expressive language

Only one teacher reported that a child was not speaking like other children in her/his class. A few of the open ended responses indicated that the children were shy. It is difficult to interpret the significance of such information.

3.4 Comparison of parent and teachers reports

As both parent and teacher reports were only completed for 34% of the sample it was difficult to compare these reports. However, parents and teachers appeared to agree on the absence of language problems in 90% of instances.

Agreement also occurred when a problem was reported, for example both the parent and teacher of ZB described him as 'a shy boy'. Multilingualism had an effect where there was disagreement between parent and teacher report, such as when a parent reported that the child was using a language that was not being used at home. However, the teacher did not find any problem with this child.

3.2.5.1 Hearing

Ninety five percent of parents reported that their children could hear. Subjects had not suffered from ear infections in 86% of cases. Fourteen percent of subjects were described as having suffered from ear infections and treatment obtained was in the form of antibiotics and ear drops. One parent had obtained this from a pharmacist. One child had undergone a tonsillectomy.

3.2.5.2 Gastroenteritis

As occurs commonly in children from urban environments (South African Township Annual Report, 1990), 15% of subjects participating in the study were reported to have had gastroenteritis. Parents indicated that this was treated by medication.

These instances of ear infections and gastroenteritis can be compared to South African studies conducted on language impairment in relation to these two factors (Boola, 1992; Karnovsky, 1991; Penn and Segal, 1982). 14% of the subjects of Boola's (1992) study had ear infections and 17% of Karnovsky's suffered from gastroenteritis. The subjects who had these "at risk" factors were among those who obtained poor composite scores on the ZERLA. This fact will be discussed in more detail in Section 3.5, which follows.

which duplicate each other.

6.2 Expressive language

Both quantitative and qualitative analysis indicated that problems existed with expressive subtests and alterations had to be made to these, for example the subtest examining the past tense.

6.2.1 Spontaneous language sample

As poor test-retest and mark remark reliability were obtained for the spontaneous language sample, efforts needed to be made to elicit a more representative language sample. An enriched language sample could be achieved through the use of narratives and picture descriptions. A specifically devised taxonomy would be used to score these productions.

The narratives and picture descriptions would provide a sample that could be utilised to determine mean length of utterance (MLU). MLU provides an index of the complexity of children's speech until at least five years (Brown, 1973; Miller, 1981, Peterson and Marquardt, 1990). It has been successfully used on Zulu speaking toddlers (Bortz, 1992).

Singing a song or saying a rhyme

The inclusion of singing a song or saying a rhyme would allow for expressive language to be assessed in an additional context (McCartney, 1993). Such a task would be a culturally appropriate form of eliciting expressive language and would also assess a skill that preschool children with typical language abilities should exhibit (Reynolds, 1989).

information will be utilised to prevent inconsistencies from occurring in the standardisation of the ZERLA.

The supplementary investigation did provide valuable information regarding discriminant validity. This data indicates that the ZERLA is a tool that is able to successfully diagnose language impairment in children.

6 RECOMMENDATIONS FOR CHANGES TO THE ZERLA

One of the aims of the pre-standardisation phase was to administer the ZERLA, to determine any changes and refinements that had to be made so that standardisation could proceed. Participant observation and responses derived from interviews, were particularly useful in determining recommendations for changes.

6.1 Decrease test administration time

Research assistants felt that, in some instances, respondents tended to get bored as the duration of the test was too long. Duration is an important factor as tests that are too long can "reduce validity" (McCauley and Swisher, 1984a, p. 35). Research assistants felt that this situation could be rectified without affecting the information that the ZERLA provided. They recommended, that where receptive and expressive subtests elicited the same information, for example subtests 5 and 8 (noun classes), the receptive subtest be omitted. They found that in most instances, the receptive subtest was redundant, as the respondents were achieving high scores on the expressive subtest. Children would not have been able to do so if they had had a receptive language problem. Assessing a subtest either receptively or expressively provides credence to Newcomer and Hammill's (1982) argument that it is unnecessary to design receptive and expressive items

b) **Receptive and expressive language scores**

Receptive and expressive scores also differed significantly between the two groups. The language impaired group achieved a mean of 58.1 on receptive subtests and a mean of 41.083 on expressive subtests. These results were both significant at the .05 level. The non language impaired group achieved a mean of 69.263 for receptive subtests and 53.476 for expressive subtests.

c) **Composite scores**

The differences between the composite scores of the non-language impaired and the language impaired groups were statistically significant. The non-language impaired group achieved a mean score of 122, out of the maximum composite score of 148. The language impaired respondents obtained a mean maximum score of 72. This score is very low when considering that the cut-off score indicative of a language impairment was 110. Thus this score serves as a definite demonstration of language disability in this group.

5.5 Conclusions

Although the supplementary investigation did not achieve its aim of increasing reliability, this investigation yielded useful information regarding the inconsistencies of research assistants' evaluations. This

TABLE 18: **Significant differences between non-language impaired and language impaired subjects**

Subtest	T Test of Significance	Degrees of Freedom	Prob > T (.05 level)
1	2.1350	16	0.0486*
2	3.2585	17.7	0.0045
3	2.9476	16.8	0.0091
4	3.0453	16.8	0.0074
5	3.0687	19.3	0.0062
6	1.8912	30.0	0.0683*
7	3.2132	27.0	0.0034
8	2.4549	16.0	0.0259*
9	2.9973	20.1	0.0071
10a	1.5762	18.3	0.1321*
10b	4.4378	17.7	0.0003
11	3.4995	27.4	0.0016
12	3.3466	16.0	0.0041
13a	3.5431	16.7	0.0026
13b	3.4357	22.3	0.0023
13c	4.5270	19.6	0.0002
14a	4.3932	17.1	0.0004
14b	3.1773	19.9	0.0047
14c	4.7977	24.2	0.0001
14d	3.4051	32.8	0.0018
14e	2.2450	34.0	0.0314*
14f	4.7196	34.0	0.0001

* = border-line significance.

5.4.2 Discriminant validity

Different measures of discriminant validity provided data on whether this investigation demonstrated whether the ZERLA was able to discriminate between language impaired and non-language impaired subjects.

a) Analysis of variance

Analysis of variance (Anova) was performed on the initial tests of the language impaired (n = 17) and non-language impaired subjects (n = 19). Anova indicated that the ZERLA was successful in identifying respondents who were language impaired. There were statistically significant differences obtained in all the mean scores for each subtest for the non-language impaired and language impaired subjects, as can be seen in Table 18.

TABLE 17: **Rater disagreement**

Subtest	Topic	Research assistants testers: (T) (N=2)	Research assistants coders: (C) (N=2)
5	Noun class (expressive)	T1 [42]	
6	Noun class (expressive)	T1 and T2	
8	Noun class (receptive)		
9	Present object prefixes (expressive)	T1: T1 and T2	C1 and C2
10b	Present object prefixes (expressive)	T1: T1 and T2	C1 and C2
14c	Negative (expressive)	T1 and T2	
14d	Past tense (expressive)	T2	
14e	Passive (receptive)	T1	C1 and C2
14f	Adverbs (expre- /e)	T1 and T2	C1 and C2

Disagreement occurred in more than double the amount of expressive subtests (seven) then receptive subtests (three). The disagreement between research assistants in subtests 9, 10b and subtests 14 are congruent with the findings of the principal study. Part of the reasons for these disagreements were attributed to stimuli being ambiguous as described in Section 4.1.2.3.

[42] The mention of one research assistant, for example T1 indicates 'intra-rater' disagreement. The mention of two research assistants, for example T1 and T2 implies inter-rater disagreement.

language-impaired subjects returned for their retests. Despite the fact that the implementation of the design could not be completed in its entirety, certain trends regarding reliability emerged. The first finding was that research assistants were as inconsistent in the scoring and coding of responses as they had been in the principal investigation. Sociolinguistic variables and ambiguities in the test instructions continued to influence their decisions. This investigation also highlighted the perturbing fact that research assistants were not consistent in what they considered as an appropriate response. They were thus exhibiting 'intra-rater disagreement' and violating one of the principles of inter-rater reliability (McCartney, 1993). On one administration of a test they would code a response as correct and yet code the same response as incorrect, either for another respondent, or of the original respondent, i. the design necessitated them to code the retest. Such inconsistency has significant implications for devising an alternative manner of scoring and coding the ZERLA.

Table 17 illustrates the lack of agreement between research assistants, and internal inconsistency within their own coding on each subtest. This table is based on the relationship of testers and coders in the cross-over design (see Figure 31). Table 17 represents the manifestation of the disagreement among and within research assistants for each subtest.

5.3 Description of subjects

5.3.1 Respondents

The non-language impaired group was to fit the general respondent selection criteria of the ZERLA. The second group, the language impaired respondents, had to meet most of the same selection criteria. They did not have to meet the "at-risk" factors for language impairment. They also had to have previously been diagnosed as language impaired. Subjects for the language impaired group were obtained from the speech therapy and paediatric departments at Baragwanath hospital. The non-language impaired group consisted of 19 subjects for the initial testing and the retest. 17 language impaired subjects were assessed in the initial testing. However, only five subjects returned for the retest.

5.3.2 Research assistants

The criteria for selection of research assistants was the same as for the initial investigation. The four research assistants were divided into two groups of two, according to the requirements of the design.

5.4 Results

5.4.1 Reliability

As mentioned above, one of the reasons that this investigation was designed, was for the purpose of achieving more reliable scores. This aim could not be fully achieved as only a few of the

The non-language impaired subjects were assessed at a nursery school belonging to the African Self Help Association in Soweto. The language impaired subjects were assessed at the USHC, as they all attended different nursery schools. Parents were reimbursed for travel expenses.

Language Ability	Research Assistant: Tester	Research Assistant: Marker		Respondents	
Normal Language	1	1	Test	1 - 5	6 - 10
			Re-test	1 - 5	11 - 15
	2	2	Test	11 - 15	16 - 20
			Re-test	6 - 10	16 - 20
Impaired Language	1	2	Test	21 - 25	26 - 30
			Re-test	21 - 25	31 - 35
	2	1	Test	31 - 35	36 - 40
			Re-test	26 - 30	36 - 40

FIGURE 31 **Cross-over design**

provided above indicate that reliability, especially test-retest reliability obtained on the ZERLA, was not good.

Hence a supplementary study was devised, whose aim was to improve these measures. Instituting the supplementary investigation also provided the opportunity to determine inter-rater reliability in its conventional form, and not as mark remark reliability as had previously occurred. An additional aim of this investigation was to determine discriminant validity, that is whether the test was able to discriminate between language impaired and non-language impaired subjects.

5.2 Procedure

A cross-over design was specifically formulated to achieve these aims (See Figure 31). This design required two groups of respondents, a non-language impaired and a language impaired group. Each group was to consist of 20 subjects[41]. Two groups of research assistants were also required. The task of one group, consisting of two research assistants was to administer and score the test on the predetermined number of respondents. The second group, also containing two research assistants, was to code and analyse the responses after testing.

The implementation of this design involved assigning respondents and research assistants to different groups in a structured manner. Figure 31 depicts the allocations. As one of the aims of this investigation was to determine test-retest reliability, each group of respondents were tested and then retested a fortnight later.

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[41] Plante and Vance (1994) performed a similar study, whose aim was to determine whether standardised language tests could ascertain developmental language impairments. They also utilised 20 subjects in their study.

4.2.2 Construct validity

The researcher did attempt to ascertain construct validity. In the case of the ZERLA the construct that was measured was whether the assessment should identify children with language problems. Attempts were made to correlate parent and teacher reports of their children's language ability with results obtained on the ZERLA. Informal as these reports were, they were the only measures which could show whether the ZERLA was measuring the construct of language impairment (Anastasi, 1990; Hresko et al., 1992).

Attempts to determine construct validity, utilising parent and teacher reports did not succeed however. One reason was due to the poor response rates of parent and teacher reports. A further reason was that those parent and teacher reports that were completed did not prove to be useful in determining construct validity, as their results were inconclusive (See Figures 27, 28, 29 and 30). Construct validity was also determined using discriminant validity. This will be described in Section 5.4.2 of this chapter.

5 SUPPLEMENTARY INVESTIGATION

5.1 Rationale and aims

As reported in the methodology, for an assessment to be a reliable representation of language skills, respondents should obtain the same result on the test on two occasions [test-retest reliability] and the person scoring the test should make the same scoring decisions on each occasion [inter-rater reliability] (Beech et al., 1993). The results

conclusively" (p 24). This difficulty exists as validity is a relative rather than an absolute construct. McCauley and Swisher (1984a) and Plante and Vance (1994) found that many standardised tests do not report sufficiently on the validity of their tests.

Attempts to determine the validity of the ZERLA were exacerbated by the fact that the ZERLA is the first language assessment to be standardised in Zulu. Hence it could not be correlated with other standard measures (Kline, 1986; Neale and Liebert, 1986) and thus criterion-related validity could not formally be determined. When comparing results of the ZERLA to those found on the SICD (Hedrick et al., 1984), on an informal basis, mean scores of age for both tests were found to increase at comparable rates.

4.2.1 Face validity

As discussed above, the ZERLA appeared to have face validity, and measured what it claimed to measure (McCartney, 1993) as in their interviews research assistants reported, that "the ZERLA was achieving its aim of establishing a test that would assess Zulu speaking children's receptive and expressive language abilities" (M. Tshule, personal communication, October 4, 1993). M. Mangena (personal communication, October 21, 1993) believed that "the ZERLA succeeds in some ways as a formal language assessment for Zulu speaking preschoolers". He felt that the ZERLA was "more effective in assessing receptive language than expressive language, probably because of the methods used to elicit the language or the way the questions are being asked." Anastasi (1990) would regard this comment as a criterion for indicating that the ZERLA had face validity.

final affix *-a*. As no other alternatives for assessing past tense on the ZERLA could be found it was decided to eliminate this subtest.

Eliciting narratives, songs and nursery rhymes also did not prove to be beneficial as respondents were shy and did not spontaneously produce these. Instead they imitated research assistants' productions. It was therefore decided to abandon these items. Picture descriptions were to be continued as they provided a sample for linguistic analysis. They also acted as a 'sociopolitical commentary' as a number of the children described acts of violence and killing in their descriptions. The three pictures and the taxonomy for the analysis is provided in Appendix II.

1.6.3.1 **Range of responses**

Utilisation of the range of responses was effective, although certain additional modifications did have to be made. The first modification concerned the fact that some appropriate responses had not been included in the original pool of acceptable items. Research assistants suggested that these responses be added to the pool. These additions were made.

The need to add items highlighted an important principle for this scoring system, that is, that the appropriate pool of responses can never be finite. Languages, especially Zulu are constantly changing in order to meet the needs of their communities (Coulmas, 1985; Kamwangamalu, 1989). In addition, one of the consequences of

1.6.2 Procedure

The modifications described above were compiled into a revised version of the ZERLA. This version was pilot tested on a sample of 30 respondents, who met the respondent subject selection criteria of the ZERLA, described in Chapter 4. Two research assistants, a non Zulu speaking speech-language therapist, and a dominant Zulu speaker, administered this pilot test. Details concerning the utilisation of research assistants in this manner is provided in Section 2.2.2 of this chapter. The children's responses were to be scored and coded according to the newly devised method.

1.6.3 Results

The revised version of the ZERLA consisted of ninety items. These items, in subtests 1 to 15, constituted the revised composite score. Spontaneous language samples, subtests 16 and 17 (picture description) were to be analysed separately. The duration of the test remained thirty minutes. There were an equal amount of receptive and expressive subtests that is seven. These subtests were not reciprocal, rather they were supplementary. This was in accordance with Newcomer and Hammill's (1982) suggestion that it is not necessary to design a test for identical receptive and expressive components.

The majority of the changes to the subtests of the revised version of the ZERLA were found to be suitable. A change that was not successful, was the addition of the word *izolo* 'yesterday' for the subtest eliciting the past tense. Respondents continued to provide answers using present tense markers, such as *ya* and the

whether a response could be considered as appropriate, pragmatically appropriate or inappropriate.

* Research assistants were then required to code and analyse Test Booklets of respondents who participated in the 'modification of the ZERLA' pilot study. Unbeknown to the research assistants, included in these Test Booklets were their own and those of their colleagues. The researcher included these Test Booklets in order to determine agreement among research assistants and whether research assistants were consistent in their own responses.

* Once the Test Booklets had been coded and analysed, a focus group interview was held. The purpose was to discuss the classification of the responses according to the continuum of responses, as well as to decide on items to be included in the pool of appropriate responses.

* After all this information had been obtained, the researcher arranged and categorised the responses on the continuum and constructed a list of responses belonging to the pool of appropriate responses.

1.6 'Modification of the ZERLA' pilot study

1.6.1 Aim

The purpose of the pilot study was to ascertain the appropriateness of the modifications made to the ZERLA. In addition the effectiveness of the newly devised scoring system was to be verified.

inappropriate responses, scored as X. The pragmatically appropriate responses would be scored in a separate section, viz. qualitative responses. The second dimension for the range of responses would be concerned with the precise responses that should be included in each of the three categories on the continuum. The category of appropriate responses would consist of a pool of correct responses, in order to take into account the variables described above. The manner of describing this pool of responses is provided below. The category of inappropriate responses would include any response that was unacceptable.

The second category, of pragmatically acceptable responses, would consist of different kinds of responses, for example, a general responses such as *angazi* 'I don't know'. Responses could also be more specific to subtests. Thus, in the subtest examining negatives the child could indicate the negative by saying *eh* 'no'. The child would not have to provide the targeted negative structure, *alikho* 'it is not'. In such instances, the examiner might use alternative methods, such as delayed imitation (Creaghead et al., 1989) in order to determine whether the child knew the target structure or not. The examiner would them make a note concerning the child's ability to provide the desired response. These would not be added to the composite score rather they would be scored in the qualitative response section.

The following method for formulating the continuum of responses and pool of appropriate responses was implemented:

* Research assistants were given the newly formulated ZERLA Test Book 1 and asked to fill in the responses they would expect from each stimulus. They were instructed to consider

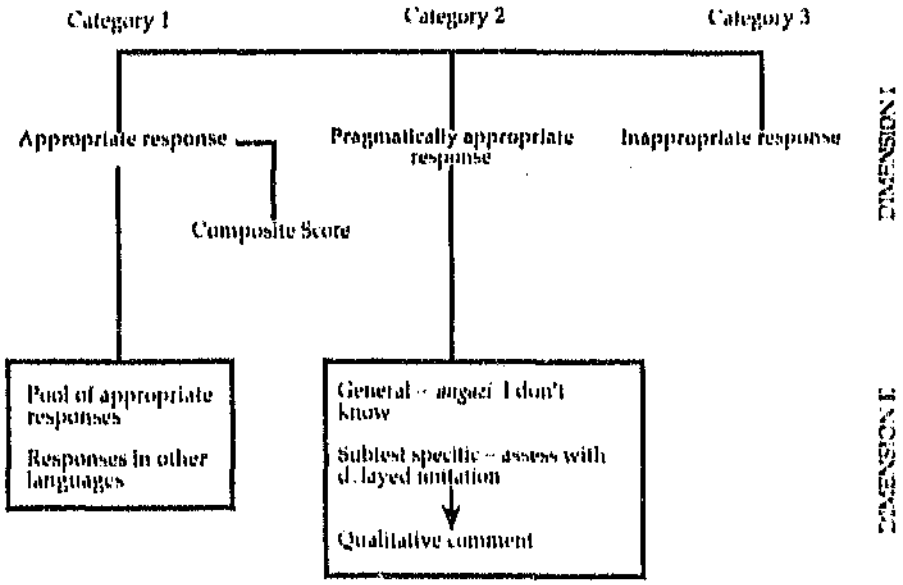


FIGURE 32 **Range of responses**

The proposed range of responses would be formulated according to two dimensions, as illustrated in Figure 32. The first dimension would be a continuum containing categories of responses. The continuum would begin with responses that were appropriate. On the opposite end of the continuum would be inappropriate responses. Responses that were pragmatically appropriate, but which did not yield the desired answer would be situated in the centre of the continuum. In a separate category, pragmatically responses would be scored in a manner which was acceptable for each category. Thus a child would be credited for an appropriate response, by receiving a tick (✓) and this credit would be added to the composite score. No credits would be given for

utterances.

1.4.2 Singing a song and saying a nursery rhyme

Research assistants asked children to sing a song and say a nursery rhyme. If the respondents indicated uncertainty of what was expected from them or were reluctant to engage in this activity, research assistants provided an example.

1.5 Coding and scoring of responses

As described in the previous chapter, one of the major factors affecting reliability of the ZERLA scores was the manner in which the test had been scored and coded. Many variables influenced scoring. These included sociolinguistic variables and different levels of knowledge of Zulu linguistic structures amongst research assistants. Thus an alternative method of dealing with responses had to be devised. The researcher felt that a suitable method would be to devise a range of responses, as such a method could take all the abovementioned variables into account. This kind of method is also more representative of how children develop and use their language (McCartney, 1993).

1.4 Inclusion of additional subtests

1.4.1 Spontaneous language sample

Because poor reliability was obtained on the spontaneous language sample in the pre-standardisation phase, additional language sampling tasks were included. These consisted of narratives, where the respondents were to tell a story and picture descriptions. Respondents were to describe three pictures. These were then transcribed verbatim by the research assistants and analysed according to a morphological, syntactic and semantic taxonomy.

1.4.1.1 MLU

One of the aims of having respondents describe a picture was in order to determine MLU. The MLU was assessed using morphemes, as Zulu is a language with an "extremely rich morphology" (Suzman, 1991, abstract). A high count of morphemes obtained is not an indicator of complex language, as the structure of Zulu demands this, for example each noun contains two morphemes, the prefix and the stem. The method of computing the MLU was derived from Chapman (1981). Research assistants segmented the transcribed utterances into morphemes. They then counted the total number of morphemes, and the total number of utterances. The MLU produced for the narrative and each description was computed by dividing the number of morphemes by the total number of

subject stems in the following manner:

The research assistant asked the respondents to show them the stimuli they asked for

Ngi-bonise ezin-ohukile izin-dishi Pronoun-show RP10-broken NP10-dish 'show me broken dishes'

In order not to overwhelm the respondents, these stimuli were divided into two separate subtests.

1.3.2 Verb subtests

Changes were made to the instructions of subtest 14d, the subtest examining past tense, in an attempt to elicit past tense structures. The research assistant indicated that the action had occurred in the past tense by using the word *izolo* 'yesterday.'

No changes were made to the structure of the subtests eliciting negatives or adverbs. However, responses to these subtests were to be scored and coded using a range of responses, as will be discussed later, in Section 1.5.

It was also decided to include the verb subtests earlier in the administration of the ZRRLA. The reason was that the verb subtests required the respondents to concentrate on the activity mat for a considerable period of time. Therefore in order to ensure that the respondents were not fatigued, the order of testing was altered.

1.2 Elimination of subtests

The first modification to the ZERLA, was the elimination of subtests that were not found to be useful in the pre-standardisation phase. A list of these subtests and the reason for their elimination is contained in Table 19.

TABLE 19: List of subtests eliminated

Subtest	Description of Subtest	Reason
6 and 8	Receptive noun classes	Research assistants felt that these subtests were redundant, as they duplicated expressive subtests
12	Applied extensions	Subtest did not contribute worthwhile information
13b	Expressive relative stems	The stimuli were conceptually too complex
14b	Semantic knowledge of verbs	Redundant. Similar information was obtained in subtest 14a.[43]

1.3 Adaptations to existing subtests

1.3.1 Relative stems

As relative stems are an important structure in Zulu (Suzman, 1991) and because the expressive subtest assessing these had to be eliminated, it was decided to extend the receptive subtest. Thus this version of the ZERLA evaluated knowledge of relative

[43] This subtest was abandoned with some reluctance as it was useful in changing the mode of response, as it required respondents' active participation.

CHAPTER 6

METHOD FOR STANDARDISATION

The purpose of this chapter is to describe the procedure followed in the standardisation of the ZERLA. Prior to this occurring, the changes to the test that resulted from the pre-standardisation phase were implemented. These changes will be described initially, followed by an account of the standardisation procedure. At the same time as standardisation of the ZERLA occurred, this test was translated into other Bantu languages and pilot tested. The last section of this chapter will report on the procedure for devising these pilot tests.

1 ITEM DEVELOPMENT: MODIFICATIONS TO THE ZERLA

1.1 Item format

Despite the fact that parent and teacher report provided reliable information during the pre-standardisation phase, it was decided to exclude this format of assessment during standardisation. The reasons for this were that it had proved difficult to obtain completed parent reports. Also, it would not be possible to obtain teacher report as respondents attendance at nursery school was not a criterion for selection in this phase of the research. Thus only one item format, the actual language assessment would be used during standardisation. The changes made to the ZERLA will now be discussed.

exhibited low ZERLA scores were found to have some associated "at risk" factors such as otitis media and gastroenteritis, factors typical of an urbanised township.

Statistical analysis showed that the ZERLA had good internal consistency and mark remark reliability. Test-retest reliability was poor. Interviews with research assistants helped to account for the inconsistencies found in coding and analysing responses. Variations in the Zulu spoken by the research assistants could be a cause of some of the inconsistencies.

Qualitative investigation indicated that the ZERLA had face validity. Parent and teacher reports were not useful in determining construct validity.

An additional investigation, utilising a cross-over design, was devised to determine if reliability scores could be improved and to determine if the ZERLA could identify language impairment. Reliability was not improved as research assistants' inconsistencies in testing and coding of data were found to be the same as for the principal study. Statistically significant means and standard deviations were obtained when comparing non-language impaired and language impaired subjects. This indicated that the ZERLA had a measure of discriminant validity.

The chapter concludes by providing alternatives and suggestions to the problems found. These should be implemented prior to standardisation of the ZERLA.

6.3 Scoring and coding of responses

One of the greatest difficulties experienced when scoring the ZERLA was to know when a response was acceptable or not. This was due, in part to the variation of the Soweto Zulu spoken by research assistants who pilot tested, administered and scored the ZERLA. Poor mark remark reliability as well as information provided during the interviews indicated a lack of agreement and great variability in what research assistants perceived as a correct response.

Hence an alternative method for scoring responses needs to be designed. A range of responses is envisaged, where respondents would be credited for any appropriate alternative to a correct response, for example, colour terminology. An added advantage of utilising a range of responses is that they are more representative of child language, where individual variability exists (McCartney, 1993).

7 SUMMARY

Results of the ZERLA indicated that respondents were proficient in their knowledge of Zulu linguistic forms, particularly as regards noun classes. Subjects' receptive abilities were superior to their expression. Statistically significant increases were noted in subtest scores of older subjects. Variety, typical of Soweto Zulu, was found in subjects' responses. An 11% prevalence of language problems was found when calculating a composite ZERLA score.

Case history information indicated that the majority of parents and teachers were not worried about the respondents' receptive and expressive language abilities. In instances where concern was expressed, this related to multilingualism and developmental articulation problems. Respondents who

means, standard deviations, standard scores and percentile ranks.

2.4.2 Reliability

Cronbach's (1951) coefficient alpha was used to determine measures of internal consistency and mark remark reliability. 40% of the tests were recoded in order to determine the amount of agreement between research assistants. As described in Chapter 2 variations occur when standardised tests are readministered and no test exhibits perfect reliability. Thus, whenever a child is assessed on a test, some degree of error is reflected in the child's test score (Wiig et al., 1992). The "true" score, were it to exist, would be expected within a range of scores determined by the standard error measurement [SEM] (Wiig et al., 1992, p. 30). The SEM is the amount of error that should be considered when interpreting test scores. Reliable tests should have relatively small SEMs (Hresko et al., 1991).

2.4.3 Validity

The pre-standardisation phase of testing had already determined aspects of validity for the ZERLA, such as discriminant validity. Therefore little specific appraisal of validity took place during standardisation. Rather, this phase served to reinforce and confirm those aspects of validity, already established for example focus group interviews were held with the research assistants to determine whether the standardised version of the ZERLA utilised during the standardisation phase had face validity. Item development and modifications to the ZERLA were described so that test users would be able to decide whether the ZERLA had content validity. The standardisation of the ZERLA was devised so that results obtained could be correlated with other measures,

2.3.5 Coding of responses

After test administration, the speech-language therapist and the research assistant, who had administered the test, reviewed the scoring. For each child inappropriate responses, pragmatically appropriate responses and the expressive items were verified utilising the range of responses. Together the speech-language therapist and research assistant would check the pool of responses to decide if a response was appropriate or not. After all the responses were checked, frequency counts of the subtests were performed and all the appropriate responses were added to obtain the composite or total score for individual subjects.

a) Picture description taxonomy

Although analysis of the picture descriptions was performed according to the children's Zulu productions, the research assistant was to translate the responses into English for the speech-language therapist's benefit. Then, the speech-language therapist and the research assistant together coded and analysed the descriptions according to the devised taxonomy. Research assistants also calculated MLU from each description.

2.4 Treatment of data

2.4.1 Norms

Results obtained from all the subjects were analysed statistically in order to develop norms. Raw scores were converted to

with test administration or scoring of a response, she would immediately correct this. She also advised testers when to test an item using delayed imitation, when a pragmatically appropriate response was given.

A possible limitation in this method of testing was that testing took place in one room. Thus up to three children could have been in the process of being assessed at the same time. Respondents could have been distracted by the other children or the speech-language therapist moving around among testers. However, none of the research assistants reported this to be a problem.

2.3.4 Scoring of responses

The research assistant recorded the child's responses as they occurred. Receptive items were ticked (✓) if appropriate and received a cross (X) for an inappropriate response. In the case of an inappropriate response, research assistants were required to record the exact nature of the response. Pragmatically acceptable responses were also to be recorded verbatim, for later coding. The child's response to a delayed imitation task was also recorded verbatim. If a research assistant was uncertain whether a response was correct or not she was also to transcribe this response verbatim. These responses could later be checked against the range of responses.

Expressive items were transcribed verbatim. The importance of transcribing each morpheme of the child's utterance, such as the prefix and the stem, was emphasised to the research assistants. Research assistants also had to record verbatim the children's responses to the picture descriptions.

2.3.2 Scheduling of test administration

Names and addresses of respondents who fit the selection criteria were obtained from a database. Research assistants then either telephoned the parents or visited them in their homes in Soweto to schedule appointments.

As it was not a criterion for subjects to be attending nursery schools, an alterative venue had to be found for test administration. An unused room at Baragwanath Hospital in Soweto become the site of testing. Parents were reimbursed for the cost of transport to and from the hospital.

As mentioned previously the duration of the test remained 30 minutes. The ZERLA was to be standardised on 300 respondents. The three testers were to assess the minimum of nine respondents, each, per day. Taking unforseen circumstances such as violence and strikes which continued to plague Soweto during the period of standardisation into account, it was estimated that it would take four months to complete the testing.

2.3.3 Test administration

Children were tested individually by a tester, who set out the stimuli for each subtest and read the instructions to the child from the ZERLA Test Booklet.

The speech-language therapist was present during the time that the tests were administered. She coordinated and facilitated the proceedings. She followed the administration of the ZERLA utilising the Test Booklet. In this way, if she detected a problem

2.2.2.2 Description of research assistants

One research assistant who was a graduate speech-language therapist coordinated the test administration and scoring. She acted as a facilitator in test proceedings. Testing and scoring were performed by three dominant language Zulu speakers, who had no qualifications in speech-language therapy. They will be referred to as examiners or testers.

Limitations abound in this method of testing; for example, the possibility of tester bias (Taylor and Payne, 1983). However, the researcher felt it important to simulate conditions under which the ZERLA would be practically administered in order to determine any modifications that needed to be made in the method of testing.

2.3 Procedure

2.3.1 Pretest administration

Prior to testing, the researcher met with all research assistants, individually and together, to explain the purpose of testing, the method of test administration and scoring. Particular attention was paid to explaining how to score responses according to the range of responses.

hearing workers in South Africa (South African Medical and Dental Council [SAMDC], personal communication, 27 June, 1994). Thus untrained people, such as parents are often required to assist in assessment, with the facilitation of a speech-language therapist.

The following were the criteria for selection of research assistants:

Two categories of research assistant were required. The first category stipulated that research assistants be qualified speech-language therapists who were English or Afrikaans speaking.

The criteria for selection of the second category included the following:

a) Research assistants were to be dominant Zulu language speakers.

b) No qualification in speech-language therapy was necessary.

c) Research assistants were to be living in Soweto, to ensure that their sociolinguistic environment was consistent with that of the respondents.

d) Research assistants were to be literate, in order to score the responses.

It is suggested that socio-economic status and intelligence levels of respondents should be considered when determining representative samples (Lund and Duchan, 1988). However, practical constraints precluded these from being considered as criteria for respondent subject selection on the ZERLA. It is suggested that they be considered in a future study.

2.2.2 Research assistants

2.2.2.1 Criteria for selection of research assistants

Alterations were made to the criteria for selection of research assistants, for the current phase of the study. Low mark remark reliability and intra-rater reliability obtained during the pre-standardisation phase were reasons for these changes.

Practical issues were also a contributing factor. Ideally, the ZERLA should only be administered by Zulu speaking speech-language personnel. However, a desperate shortage of such personnel exists (Aron, 1984; Tuomi, 1994; Bortz, Jardine and Tshule, in press). At present there are only 10 speech-language therapists who are dominant speakers of one of the South-eastern Zone Bantu languages (Bortz, et al., in press). The remainder of speech-language therapists tend to be first language English or Afrikaans speakers (Alant, 1989). There are only 48 community speech and

TABLE 20: **Standardisation sample**

Number of subjects	N = 303
Dominant language	98% Zulu (n=298[44])
Residence	Soweto
Schooling	Although this was not a criterion 32% (n=96) of the sample attended nursery school
Parents/Caregiver, present in the home	All respondents
Age range	3.9 - 4.3 years
Gender	Female 54% (n=165) Male 46% (n=138)

The table shows certain limitations in this standardisation sample, for example, the sample is representative of a single geographic region, Soweto, an urbanised area. Thus the different dialects, which are prevalent in Zulu, described in Chapter 2, are also not represented (Nkabinda, 1968; Reagan, 1992). An additional limitation is the fact that a narrow age range was sampled. This limitation is offset by the large number of respondents within the selected age range.

[44]Three subjects were dominant Xhosa speakers and two were Sotho speakers.

minority of children living in Soweto attend nursery school (Morris, 1980; Sideris, 1990; South African Township Annual Report, 1990). Thus the use of nursery school as a criterion for subject selection makes the sample less representative of the population. Nevertheless, 32% of the sample did attend nursery school.

The second criterion that differed was the age of the respondents. In order to achieve a representative sample that provides an adequate range of abilities a 100 or more subjects are required (McCauley and Swisher, 1984a; Weiner and Hoock, 1973). In order to have sufficient respondents to obtain a representative sample, the age range of the respondents was limited from 3.9 years to 4.3 years.

2.2.1.2 Description of the standardisation sample

Table 20 illustrates the features of the standardisation sample.

language testing borrows from educational achievement and psychological tests, when regarding variables to be considered in selecting a normative group. Age, ethnic groups and intelligence are some of these variables (Weiner and Hoock, 1973).

Controversy exists within language pathology literature as to what comprises extensive samples. Launer and Lahey (1981) state that most norms on language tests refer to a limited population in comparison to tests from other disciplines, such as educational achievement and intelligence tests. Some tests are published with norms based on fewer than 30 subjects at any age level and rarely are more than 150 children used per age group. An example is the ITPA (Kirk et al., 1961) which was standardised on 700 children for age ranges spanning eight years. This implies that less than a 100 children in each age-band were taken to represent the total population.

Other criticisms that Launer and Lahey (1981) have concerning sampling are that the sample population often fails to represent a variety of geographic areas, social strata and intelligence levels. These criteria and criticisms were borne in mind when selecting the standardisation sample of the ZERLA.

2.2.1.1 Criteria for selection of respondents

The criteria for the selection of the respondents in this phase of the study were similar to the criteria of the pre-standardisation phase. One criterion that did differ was attendance at nursery school. It was not a prerequisite for respondents in the standardisation sample to attend nursery school. Due to a shortage in preschool facilities only a

norm-referenced comparisons of an individual child's score to the performance of her/his peers, in order to determine the presence of a language disorder.

2.2 Subjects

As in the pre-standardisation phase, two groups of subjects were used to standardise the ZERLA. The first group was the respondents and the second group, the research assistants. The respondents in this phase of the study were to constitute the standardisation sample of the ZERLA.

2.2.1 Standardisation samples

As the standardisation population is used to derive norms, a discussion of the importance of standardisation samples follows. Kline (1986, p. 159) states that the sample is "the crucial aspect of standardisation: all depends on the sample". The size of the sample and the representativeness of the sample are two critical variables which are interlinked. The sample should be large enough so that it is representative of the test population and demonstrates variation within this sample (Kline, 1986; Well 1986). However, because it is not always practical or possible to survey the entire population due to such factors as time and expense, the researcher must collect information from a subset of the population in such a way that the knowledge gained is representative of the entire population (Cohen and Manion, 1991, Neale and Liebert, 1986). The size of the sample dictates what the statistical sampling error will be. The aim is to have this sampling error as low as possible.

Extensive standardisation over a number of populations is imperative to establish usable norms. Sampling in formal

multilingualism is that the number of permutations of appropriate responses is infinite. Thus every time that a test administrator assesses a child on the ZERLA, they should consider each response provided, on its own merit.

The effects of multilingualism also indicated that it was necessary to create an 'other' category for the appropriate range of responses. This category was to accommodate responses that occurred because the children were speaking languages other than Zulu, for example English or Sotho. This category should include the name of the language spoken and the response provided in that language. Respondents should be credited for such responses and the appropriate response added to the composite score. The pool of appropriate responses is provided in Appendix JJ.

The changes that had to be made were effected and the version of the ZERLA to be used on the standardisation sample can be seen in Appendix KK. Appendix KK is thus a schematic diagram of all components of the modified version of the ZERLA.

2 STANDARDISATION OF THE ZERLA

2.1 Aim

The primary aim of this stage of the study was to standardise the ZERLA. This aim implies that the ZERLA would be used to make

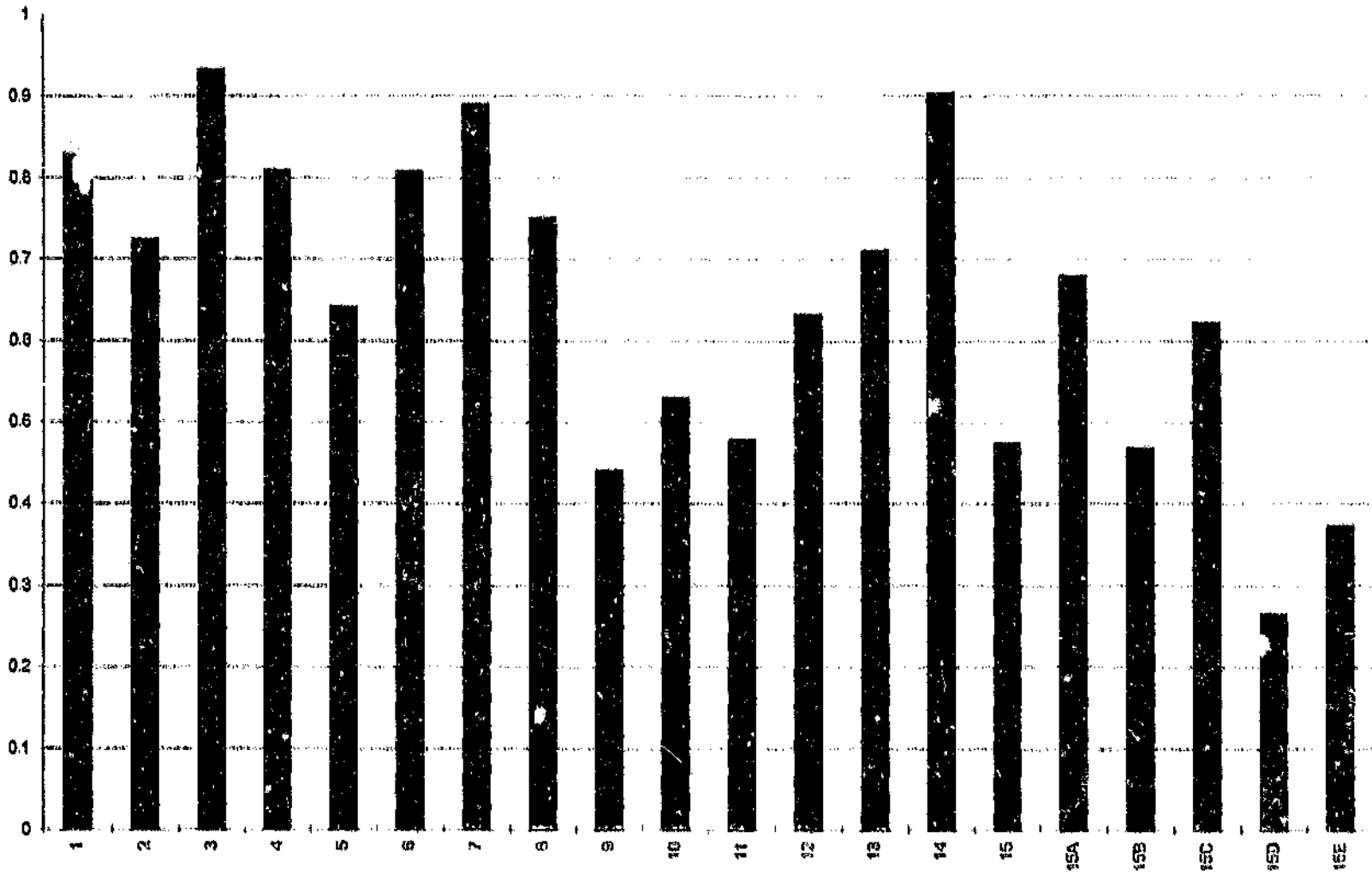


FIGURE 33a **Mean percentage scores of standardised ZERLA subtests**

1.2.3 Verb subtests (Subtests 8 - 11 [items 29 - 54])

Analysis of the items on subtests 8 - 11, showed that these items had better discriminating power and more suitable item difficulty than subtests of noun classes. 54% (n = 14) of the 26 items had appropriate discriminating coefficients.

Seven of the 12 items assessing respondents expressive knowledge of verbs [items 29 - 40] exhibited appropriate item difficulty. All the items assessing negatives, passives and adverbs were of appropriate difficulty on the ZERI.A.

1.2.4 Relative stems (Subtests 12 and 13 [items 55 - 62])

Five of the eight items assessing relative stems had appropriate discriminating coefficients. Six of the items examining relative stems were of suitable difficulty.

1.2.5 Adjectives and relative stems (Subtest 15 [items 77 - 90])

The discriminating correlations of 57% of items (n = 8) of this subtest was appropriate. This subtest also showed appropriate item difficulty for 93% (n = 13) of items.

It can be seen that the majority of items for subtests examining verb subtests, relative stems and adjectives were of appropriate difficulty. Discriminating power for the majority of items was also good. The positive results of item analysis in these subtests is a manifestation of reliability and validity on the ZERI.A (Anastasi, 1990).

Seventeen items constituting the subtests examining noun classes demonstrated appropriate item difficulty as can be seen in Appendix NN.

Item 12 (*imi-nwe* NC4-finger fingers') and item 19 (*u-zwane* NC11-toes 'toes') were shown to be too difficult, with 9% and 10% of respondents getting these correct respectively. It appeared that subjects did not know these lexical items. This is a similar finding to the pre-standardisation phase. Responses to these items on the pre-standardisation phase indicated that respondents could not name these particular body parts. Instead they were using labels from the general category such as *isandla* 'hand' for finger.

Subtest 6 (items 21 - 23) which examined the plurals of noun class 2 and 2a were appropriate items, with item 22 (*aba-ntwana* NC2-child 'children') exhibiting both good discriminating power and item difficulty.

1.2.2 Object prefixes (Subtests 7 [items 24 - 28] and 14 [items 63 - 76)

Neither subtest 7 nor subtest 14 exhibited good discriminating power. Three items on subtest 14 exhibited good discriminating power.

These subtests also proved to be too easy. On subtest 7 medians for the items ranged from 0.87 to 0.92. On subtest 14, two of the 14 items were of appropriate difficulty.

TABLE 22: **Results of item analysis**

	ZERLA
Discriminating power (Correlations)	
Number (N)	31/90
Percent of items with acceptable discriminating powers	34%
Ranges	-0.035 - 0.648
Item Difficulty (Percentages)	
Number (N)	59/90
Percent of items with appropriate difficulty	66%
Ranges	8 - 99.3%

The following section provides detailed results of item analysis for the different subtests. A summary of item validity and item difficulty is provided in Appendix NN.

1.2.1 Noun classes (Subtests 1 - 6 [items 1 - 23])

The results of item analysis indicated that the only one item, item 22 on subtests 1 to 6 (items 1 - 23)[47] examining noun classes, had sufficient discriminating power.

[47]The items referred to by number can be seen in the revised ZERLA Test Booklet, Appendix KK. The term packet number refers to subtest in this Appendix.

However, meeting the criteria for item analysis is not always a good criterion for tests which measure a combination of components, as the ZERLA does (Anastasi, 1990). Anastasi (1990) explains that only having items with good discrimination can lower the validity of a test in such instances. The reason for this is that when a test measures a complex criterion such as language, which is constituted of a number of traits, "purifying the test ... may reduce its criterion coverage" (Anastasi, 1990, p. 211).

In addition, as much as it is desirable that item analysis yields positive scores, there are other facets related to test items which may outweigh item validity or item difficulty. An example of these facets on the ZERLA relates to subtests of noun class (subtests 1 - 6). It was expected that these subtests would not necessarily meet the criteria for item analysis (see Section 1.2.1), as noun classes have been found to be acquired by age three in languages such as Sotho and Zulu (Demuth, 1992; Suzman, 1991). However, these subtests were included as they assessed linguistic structures which were intrinsic to Zulu (Doke, 1990).

Another facet of the ZERLA which outweighed item difficulty in particular, was the retention of 'easy items' that is, items that more than 85% sample got correct. These items were retained as they would be useful in detecting language impairment.

1.1 Discriminating power

The discriminating power of each item was determined by using the point biserial correlation technique (Howell, 1989). This technique indicates whether a test item discriminates between subjects who do well and those who do poorly, on the test as a whole. Point biserial correlations ensure the internal consistency of a test (Hresko et al., 1991; Newcomer and Hammill, 1977). These correlations are performed by correlating each item with the total raw score. Items should have median coefficients of 0.31 to 0.74 in order to be discriminating. The results of the point biserial correlation analysis can be seen in Appendix NN.

1.2 Item difficulty

Item difficulty is defined as "the proportion of examinees who get that item correct" (Hresko et al., 1991, p. 40). Good test items should range in difficulty from between 15 to 85%. Although this is a fairly wide dispersion, Anastasi (1990) contends that items should have an average percentage of difficulty, that is, approximate 50%. The mean percentages for item difficulty can be seen in Appendix NN.

Item analysis revealed that more items exhibited appropriate item difficulty than discriminating power, for all the assessments. On the ZERLA 37% of items met the criteria of discriminating power. Fifty one percent of the ZERLA items had appropriate item difficulty. Thus not all items included in the ZERLA met the criteria for appropriate discrimination power or item difficulty. The fact that the criteria for discriminating power and item difficulty were not always met is a limitation of this study, to a certain extent.

CHAPTER 7

RESULTS OF STANDARDISATION

The culmination of this research is embodied in the contents of this chapter, that is the results of the standardisation of the ZERLA. The standardisation process determined norms, so that children tested on the ZERLA can be compared to their peers.

The chapter begins by delineating the results of item analysis. This process provides reliability and validity information. Mean scores of all the subtests of the ZERLA are provided and noteworthy results discussed. The final section of the chapter portrays the results of standardisation, including reliability.

The results of the pilot studies performed in the other South-eastern Bantu Zone languages were similar to those found during standardisation. Details of these results are provided in Appendix MM. Some comparison is made between the results of the ZERLA and these tests in the body of this chapter.

1 ITEM ANALYSIS

Item analysis was performed on the ZERLA responses of all the subjects in the standardisation sample. Items were analysed according to two aspects, discriminating power[46] and item difficulty. The overall results of these two measures determining item analysis are provided in Table 22.

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[46] Discriminating power is also referred to as item validity. These two terms will be used interchangeably.

* certain stimuli had to be changed for the relative and adjective subtests. *amasokisi* sock 'socks' were not a familiar concept to the children. The children were also not familiar with colour terms.

As mentioned above, the data presented here was based on preliminary field testing. It is recommended that additional field testing be implemented prior to devising the rural version of the ZERLA. This testing should focus on the influence of the standard dialects spoken in these areas (G.K. Schuring, personal communication, April 1, 1993) and the relationship of this dialect to code-switching. The stimuli that assessed code-switched colour and number terms (subtest 15) may have to be adapted or eliminated.

4 SUMMARY

This chapter described the procedure followed in the standardisation phase of the ZERLA. Prior to standardisation, item analysis and modification of the ZERLA took place. The standardisation sample consisted of 303 dominant Zulu speakers. A speech-language therapist coordinated three dominant language Zulu speakers' administration of the test. Responses on the ZERLA were scored according to a range of responses. Norms, consisting of means and standard deviations, were to be derived from correct responses. Measurements of reliability and validity were also to be obtained. The last section of this chapter described pilot tests that were devised to assess whether the ZERLA could be translated into other South-eastern Zone Bantu languages. Changes that needed to be made for the use of the language assessments in rural environments were also portrayed.

3.2.1 Procedure

A preliminary field study was undertaken to determine the exact changes that needed to made to the language assessments for use in rural areas. Four children living in Acornhoek and Hluvukani, two rural communities situated in the Eastern Region, were assessed on the SHERLA in the manner previously described. Research assistants made note of any stimuli that were unfamiliar to the children.

In addition, a dominant language Shangaan speech-language therapist engaged in participant observation in these communities. She also interviewed mothers and nursery school teachers in order to gain an understanding of what children played with.

3.2.2 Results

Findings of test administration, observation and the interviews indicated that the following changes were required for the language assessments to be used in rural environments:

* the activity mat needed to be redesigned. Streets should not be demarcated as they do not exist in these areas.

* stimuli such as *xithuthuthu* 'motorbike' should be eliminated, as they are not found in these villages.

TABLE 21: **Description of respondents of Sotho, Tswana, Venda and Shangaan language assessments**

Dominant Language	(n)	Gender	Schooling	Age Range	Locale
Sotho	30	Female 50% (n=15) Male 50% (n=15)	40% (n=12)	3.9 - 4.3 years	Soweto
Tswana	27	Female 33% (n=9) Male 67% (n=27)	26% (n=7)	3.9 - 4.3 years	Soweto
Venda	26	Female 50% (n=13) Male 50% (n=13)	42% (n=11)	3.9 - 4.3 years	Soweto
Shangaan	18	Female 28% (n=5) Male 72% (n=13)	17% (n=3)	3.9 - 4.3 years	Soweto

3.2 Rural environment

The ZERLA was specifically developed for an urbanised environment. However, despite the fact that there is a rapid increase in urbanisation (Hlope, 1993), a substantial proportion of the South African population still live in rural areas. The rural areas have been particularly deprived of speech-language therapy services. An urgent need therefore exists for the ZERLA and its translations in rural areas. In order for these assessments to be used in these areas, alterations and adjustments must be made to test stimuli.

3.1.1 Procedure

* Speech-language therapists who were dominant language speakers of each of these languages translated the ZERLA and devised a preliminary schedule of the range of responses, for each assessment. These assessments can be seen in Appendix LL.

* The language assessments were pilot tested on samples of 30 subjects each. Respondents met the same selection criteria as the respondents for the standardisation phase of the ZERLA. A description of the respondents is provided in Table 21.

* The tests were administered by research assistants who were dominant language speakers of Sotho, Tswana, Venda or Shangaan.

* The procedure followed was identical to the procedure described above for the ZERLA.

such as reading, when the children in the standardisation sample are older. This was necessary in order to ascertain whether the ZERLA has predictive validity.

3 ADDITIONAL MEASURES

3.1 Translation of the ZERLA

The major focus of this research has been concerned with devising and standardising a Zulu language assessment, due to the lack of such assessments. Unfortunately, this dearth of assessments is not unique to Zulu, but extends to the other eight South-eastern Bantu Zone languages also spoken in South Africa. It has been mentioned that, because the Bantu languages are structurally similar, few problems would be experienced in translation from one language to another. Therefore a feasible solution to this shortage of tests could be the translation of the ZERLA into the other South-eastern Bantu Zone languages.

Thus, as an adjunct to the standardisation phase, it was decided to translate the ZERLA into languages which represented each of the language groups in South Africa and pilot test these assessments. The Zulu assessment was therefore translated into Sotho [SERLA], Tswana [TSWERLA], Venda [VERLA] and Shangaan [SHERLA][45].

[45] The Zulu assessment was also translated into Swati. However research assistants felt that this assessment was not valuable, as there was too close a similarity between Zulu and Swati spoken by Soweto respondents.

saw in the bucket picture. This increased to 90% (n = 274) for the traffic picture. Seventy percent of respondents (n = 213) of respondents listed items in the soccer picture. Naming is the same as what Lahey (1988) refers to as a listing of what the respondents see in a picture. An example is *ngibona izimoto namabhasi* 'I see cars and busses.'

A more complex level of picture description took place when the respondents made an inference from their picture descriptions, by describing something that could have occurred as a result of the picture but was not visible in the picture, for example *amabhakede baya koloba* 'they scrub with buckets'. Inference occurred most often in the bucket story where 88% of respondents (n = 266) described pictures in this manner. This amount decreased to 50% (n = 151) for the traffic picture and 13% (n = 40) for the soccer story[54]. A possible reason for the decrease could have been the nature of the picture, that is that the traffic story did not encourage many inferences. Only one percent of respondents (n = 4) made any errors in the semantic notions referring to pictures, for example, incorrectly naming an item *indishi* 'dish' for *-bhakede* 'bucket'.

Thus it can be seen that the majority of the sample had acquired the structure and form of their language and were using this appropriately (Marge, 1972; Nicolosi and Collins, 1989). The respondents were also able to describe pictures using different levels of semantic complexity.

[54] Few subjects provided responses to this story. This could have been due to the fact that this was the last test item to be administered and subjects had lost concentration.

TABLE 25: **Morphosyntactic structures used in picture description**

Morphosyntactic structures		Number of correct responses
Agreement		95% (n=288)[83]
Number :	Singular	67% (n=263)
	Plural	79% (n=240)
Tense :	Present	90% (n=273)
	Past	81% (n=244)
Negatives		69% (n=209)
Passives		48% (n=146)
Adjectives and relatives		58% (n=177)
Other :	Complements	20% (n=60)
Errors		11% (n=34)

The negatives used by the respondents correlated with the forms of the negatives delineated on the range of responses. Thus respondents were using negatives such as *abakhi amanzi* 'they are not fetching water'. They were also using pragmatically appropriate forms of the negative such as *angazi* 'I don't know'. Examples of adjectives and relatives that they used included standard Zulu and code-switched relatives such as *nelimhlophe* 'and white' and *eliblue* 'blue'. Respondents also used standard Zulu adjectives such as *encane* 'small' and *ezinkhulu* 'big'.

2.2.5 Semantic complexity/creativity

Eighty percent (n = 243) of the respondents named items they

[83] Figures do not add up to a 100 due to the variations in subjects' responses.

2.2.4 Measures of correctness

Analysis of morphological and syntactic structures, such as respondents' use of plurals, was performed under this category. The morphosyntactic analysis indicated that despite the fact that the sample size of each picture was small, respondents were correctly using a wide range of morphosyntactic structures in their picture descriptions, for example, use of both past and present tense. Table 25 is a summary of the morphosyntactic structures used by the respondents.

The fact that the respondents produced such a comprehensive range of structures in these limited samples gives credence to children having acquired the fundamentals of their communication by age three to four (Gesell, 1978). Their language is fairly complete in structure and form at this stage (Illingworth, 1983). The subjects on the standardisation sample were expected to be using their morphology, as Zulu speaking children have been found to have acquired their noun classes, agreement, relative stems and passives by age three (Suzman, 1991). Respondents do appear to have acquired these structures and they used the majority of them correctly. Isolated examples of errors occurred, for example with agreement *u-mama ba-bheke* NC1-mother-SP2-put 'the mother put'.

The number of morphemes which subjects produced for each story ranged from 2 to 63. The majority of respondents produced between 15 and 26 morphemes. Thirty six percent of respondents produced 21 and 23 morphemes respectively.

In order to compute MLU, Chapman (1981) recommends a sample size of at least 50 utterances. The sample size for picture description on the ZERLA fell short of this amount of required utterances. The small sample size must be taken into account when analysing MLU. Lahey (1988, p. 294) points out that "too few utterances... make it impossible to say much about the child's language in terms of content, form and use". However, in the context of the assessment it would not have been practical to obtain samples of this length due to time constraints. The picture description subtest was used as an adjunct to obtaining spontaneous language samples.

83.8% of respondents (n = 254) produced MLU's which varied between 20 - 22 morphemes. Brown (1973) reported that English speaking children were producing an MLU ranging from 3.75 - 5.5 morphemes by age 3 years and 10 months. The fact that the Zulu speaking children were producing nearly five times the amount of morphemes at this stage, than the English children, was expected. This fact is due to Zulu being a morphological language and not due to the respondents producing more complex utterances, as described in the previous chapter.

about the children's independence.

It is interesting that in response to the last two questions (14 and 15) *nenzani esiskoleni* 'what do you do at school?' and *wenzani ecreche* 'what do you do at the creche?' 16% of respondents (n = 49) reported that they went to nursery school in order to eat, *siyadla* 'we eat'. The fact that a function of nursery schools is perceived as being the provision of food, is common in South Africa. Bortz, Schoub and MacKenzie (1992, p. 64) reported that "parents tend to perceive feeding and day-care rather than preschool education, to be the primary functions of creche". Sideris (1990, p. 7) reports that children attending nursery school often suffer from "inadequate nutrition both at home and at the child care centre." Other responses relating to what children did at nursery school included *siyadlala ngama* 'we play with toys' and *siculace* ' we sing'.

2.2.2 Picture description (subtest 16) : Morphosyntactic analysis

This analysis was divided into measures of productivity and measures of correctness.

2.2.3 Measures of productivity

The majority of subjects produced between two to three sentences per picture description. Ninety four percent of subjects (n = 284) produced a mean of two sentences when describing all the pictures, while 88% (n = 268) produced three sentences.[52]

[52]These figures were possible as respondents produced different amounts of utterances, for example 115 who described the traffic picture in two sentences and 78 who used three sentences.

The modifications made to the standardisation version of the ZERLA would account for this result, in particular the addition of subtests 12 and 13 assessing relative stems (See Appendix KK). Item analysis indicated that these items had good validity and appropriate difficulty. Thus these subtests would appear to be assessing receptive abilities in a more accurate manner than the pre-standardisation version of the ZERLA did. Appendix QQ indicates that these results fit normal distributions. This will be discussed in more detail in Section 4.1.1.

2.2 Spontaneous language analysis[51]

2.2.1 Spontaneous language sample (Subtest 16)

In addition to providing information about the respondents' expressive language abilities the spontaneous language sample yielded interesting sociocultural information. A wide range of responses to question 1 asking *yini oyidlile namhlanje ekuseni* 'what did you eat this morning?' were provided. Thirty five percent (106) of subjects responded *ipapa* 'porridge'. Other responses included *iswide* 'sweet' and *amashokolethe* 'chocolate'. 12 respondents replied *akadlanga* 'I did not eat' or *lutho* 'nothing'.

Questions 3 - 5 of this subtest required that respondents describe details such as who looked after them, for example, *ugqokiswe ubani* 'who dressed you?' Responses to this question could be divided into two categories, that subjects' mothers had dressed them, that is *umama* 'mother' or they had dressed themselves, *yimi* 'myself'. Thus these questions were providing information

[51]The spontaneous language samples were analysed separately from the other ZERLA subtests.

TABLE 23: **Percentages obtained for adjectives and relatives**

Description of subtest	Percentage
Standard Zulu adjectives [numbers - 15a]	66%
Code-switched Zulu relatives [colours - 15b]	46%
Standard Zulu adjectives [15c]	78%
Code-switched Zulu adjectives [15d]	17%
Standard Zulu relatives [colours - 15e]	30%

2.1.4 Receptive and expressive subtests

TABLE 24: **Receptive, expressive and composite scores for the standardisation sample**[50]

	Mean	Standard deviation	N	Percentage
Reception	30.45	7.19	269	58.98%
Expression	30.54	4.46	269	71.02%
Total mean	60.99	10.37	269	64.65%

These results are significant at 0.001% Level

Table 24 demonstrates that respondents performed slightly better on expressive than receptive subtests. These results contradict the fact that receptive language dominates over expression (Ingram, 1974). They also differ from the results from the pre-standardisation phase of the ZERLA, where subjects performed better on receptive subtests.

[50]The terms composite score and total score will be used interchangeably.

acquisition of plurals occurred slightly later for the respondents on the ZERI.A. The statistically significant difference between the subtests indicates that the subjects on the standardisation sample had better knowledge of their singular than their plurals at age 3.9 - 4.3 years.

2.1.3 Adjectives [Numbers and general] and Relative stems [colours] (subtest 15)[49]

The results obtained for the items assessing standard Zulu and code-switched Zulu adjectives and relatives are provided in Table 23. T tests of significance showed significant differences for all subtests except for subtest 15a and 15c. Both these subtests examined standard Zulu adjectives, (subtests 15a in the form of numbers and subtest 15c general adjectives. These results do not reveal any particular patterns or trends. Respondents achieved the highest score for the assessment of regular adjectives, for example *ngilethele ingubo encane* 'show me the small blanket'. They performed poorest for the subtest assessing their knowledge of code-switched numbers, such as *ngilethele izikhwama ezithree* 'show me three bags'. Subjects were more proficient at identifying their numbers when this was presented in standard Zulu. The opposite was true for identification of colours. Respondents were more proficient in the identification of the item when it was presented in a code-switched form as compared to the standard Zulu form.

[49]Subtest 15 is divided into different categories, see Appendix JJ.

that items in the verb subtests were of appropriate difficulty. Thus it is hypothesised that these low scores support the universally held concept that nouns are acquired before verbs (Hurlock, 1978).

2.1.2 Relative stems (Subtests 12 and 13)

It was explained, in Chapter 6, Section 1.3.1, that the assessment of relative subject stems was carried out in two separate subtests (Subtests 12 and 13) to avoid overwhelming the respondent with too many stimuli. It was therefore hypothesised that the results of these two subtests would be similar and act as a cross-check for each other. However Pearson correlation coefficients (Howell, 1989) indicated statistically significant differences between the two subtests, with subjects scoring better on subtest 13 than subtest 12. The mean for subtest 12 were 2.62 and for subtest 13, 2.83. This was significant at a 0.0001 level of significance.

The researcher hypothesises that this difference is due to the fact that three of the four items on subtest 12 assessed plurals and one assessed singular (See Appendix KK[48]). This pattern was reversed for subtest 13. As described previously children tend to acquire their singulars before their plurals and acquisition of singular and plurals usually occurs by age three (Anisfeld, 1984, Berman, 1986; Brown, 1973). These facts are true of children speaking Bantu languages (Demuth, 1992; Suzman, 1991). The results obtained on these subtests confirm that singular forms are acquired before plurals. However the results suggest that the

[48] Please note that the packet number on the Revised ZERLA Test Booklet refers to subtest.

Strict comparisons cannot be made between the results of the standardisation sample and the results of the pre-standardisation samples due to the changes made to the ZERLA. However a general comparison between the mean percentage scores of the standardisation sample (Figure 33a) to the mean percentage scores obtained on the pre-standardisation sample (Figure 19) reveals similar results being achieved, that is subjects scored well on subtests of noun classes and object prefixes. They performed less well on verb subtests. Subjects on the standardisation sample performed better on subtest 6 examining plural noun classes 2 and 2a than the pre-standardisation sample did (subtest 7). It is hypothesised that the range of responses contributes to this change of scores, as subjects on the standardisation sample were credited for providing the form of the noun class which is used colloquially. This was not done during the pre-standardisation phase.

Figure 33b illustrates the mean scores subjects' achieved for each subtest as compared to the possible total score for each subtest. This figure illustrates that mean scores were lowest for negatives (subtest 9) and adjectives and relatives (subtest 15). Further details are provided in the section which follows.

1.3.1 Verb subtests (Subtest 8 - 11)

Respondents had good knowledge of the semantic concepts assessed on the verb subtests (74% on subtest 8). They scored poorly on subtest 9 examining negatives, 45%. As with the pre-standardisation phase subjects achieved the highest scores for passives, 52%. Scores of 48% were achieved for adverbs.

It is interesting to note that these scores remained low despite the fact that responses were from a wider range in this version of the ZERLA. As discussed previously item analysis indicated

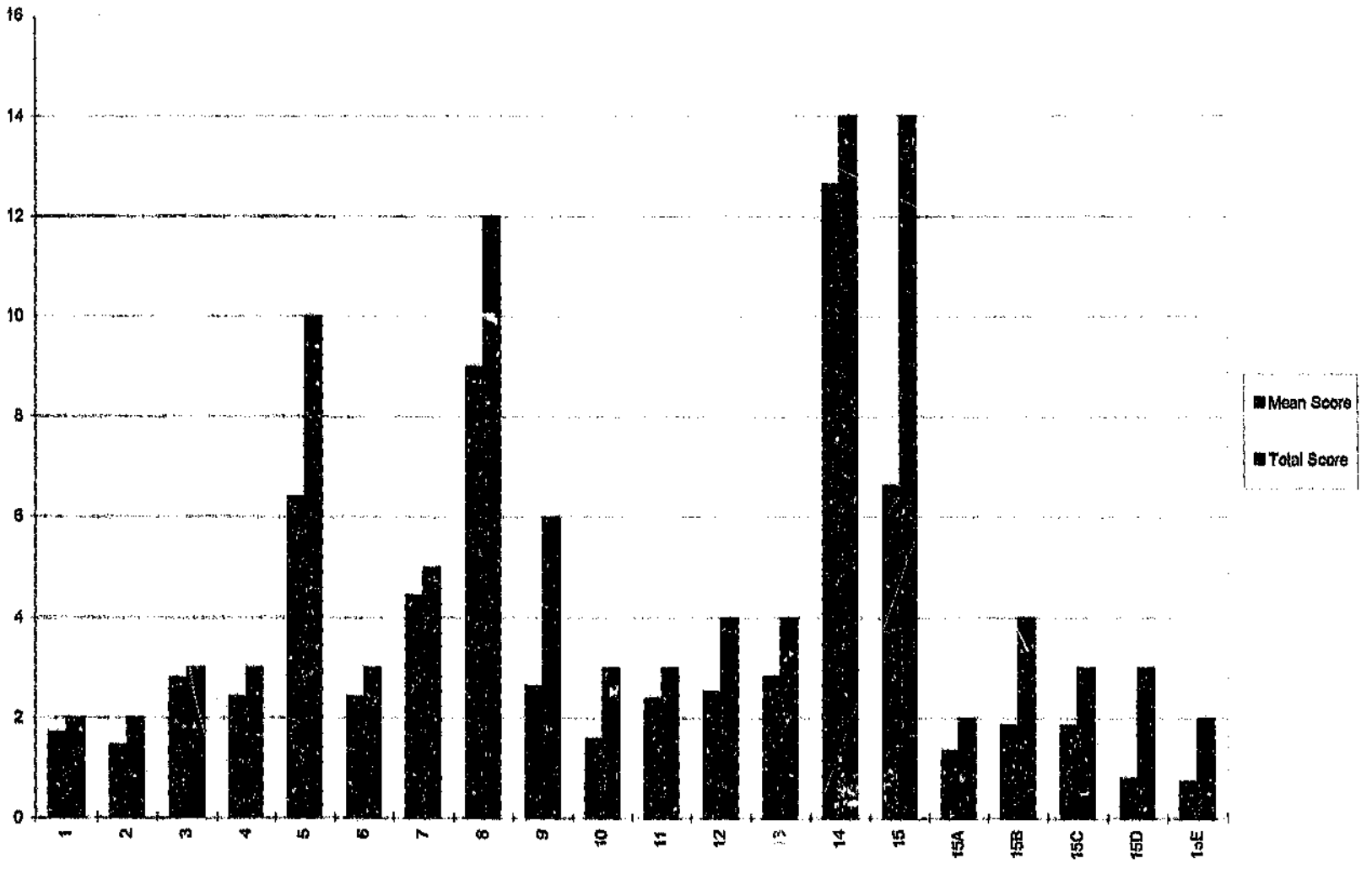


FIGURE 33b Mean subtest scores compared to total subtest scores

1.3 Screening test

The version of the ZERLA that has been reported on up until now, in both phases of the study has been the diagnostic form of the assessment. However, as described in Chapter 2 screening versions of standardised tests are also necessary and useful. Screening tests identify children with language problems rather than diagnose the problem in detail (McCa..ley and Demetras, 1990).

Item analysis provided valuable information as to which test items could be included on a screening version of the ZERLA. As the purpose of screening tests is to be discerning (Dale and Henderson, 1987; Emerick and Hatten, 1979), all the items that demonstrated both good discriminating power and appropriate item difficulty would be suitable for inclusion in such a test. A screening version of the ZERLA, which contains these items has been devised. This version can be seen in Appendix OO. A recommendation for future research is that the screening version of the ZERLA be pilot tested and standardised.

2 RESULTS OF SUBTESTS

This section will describe the results achieved by the standardisation sample on the subtests of the ZERLA. A general summary of the subtest results will be provided initially. Results of specific subtests will be described when relevant.

2.1 Means and percentage scores of ZERLA subtests

Figure 33a illustrates the mean percentage scores obtained by the respondents of the standardisation sample.

Most disagreement between the original marker and the remarker (9%) was noted in item 71 which asked *ngenzani ngesikwhama* 'what do I do with the bag?' When the responses was *uyahamba* 'you go with it' the original marker marked this as incorrect, even though this response does occur in the range of correct responses.

There was a 4% disagreement in item 18 *yinile izinwele* 'tell me hair.' This disagreement could have been due to the fact that one of the markers did not accept the colloquial and tonal response *inwele.*

4.3 Validity

As an aspect of content validity is the consideration of components of language assessed, content validity of the ZERLA was confirmed by the fact that the subtests in the standardised version of the ZERLA are described in detail (See Chapter 6, Section I). The discussion pertaining to item analysis, earlier in this chapter demonstrated item validity (discriminating power) and appropriate item difficulty on the ZERLA. The demonstration of discriminating power and item difficulty enhances the validity of the ZERLA.

During interviews held with research assistants, they confirmed the fact that they thought that the ZERLA was measuring the respondents language abilities. They also reported that they felt that the manner in which they were administering the test was effective and valuable. One of the examiners reported that she was surprised by how similar all the testing was. The speech-language therapist monitoring the test administration confirmed this. These comments reflect that the tests were administered in "a predetermined and consistent manner"

TABLE 29: **Cronbach's coefficient alpha and standard error of measurement**

	Mean	SEM	Cronbach's à
Total	61.0	1.349	0.87
Noun classes	16.8	0.728	0.79
Object prefixes	17.0	1.000	0.59
Verbs	15.9	1.073	0.75
Relative stems	5.4	0.747	0.57
Adjectives	5.6	1.006	0.55

4.2.2 Mark remark reliability

Two research assistants recoded 40% (n = 122) of the revised ZERLA Test Booklets. A Cronbach's coefficient alpha correlation of 0.56% was achieved. This was a lower correlation than was achieved during the pre-standardisation phase. Most of the mistakes occurred as a result of errors in addition, for example subtest 15, where eight arithmetical errors occurred. This high number of errors could be caused by the fact that this subtest was further divided into five subtests as can be seen in Appendix JJ. The scores for mark remark reliability are of some concern for this phase of the research. However, it is unlikely that such errors will affect test users in the future as they will score tests individually. Therefore the addition errors that occurred as a result of a number of tests being scored simultaneously, should not arise.

TABLE 28: **Results of Chisquare goodness-of-fit tests**

	Chisquare	Degrees of Freedom	Significance Level
Receptive scores	19.676	23	0.661
Expressive scores	48.681	15	Not significant
Composite scores	11.940	8	0.153

4.2 Reliability

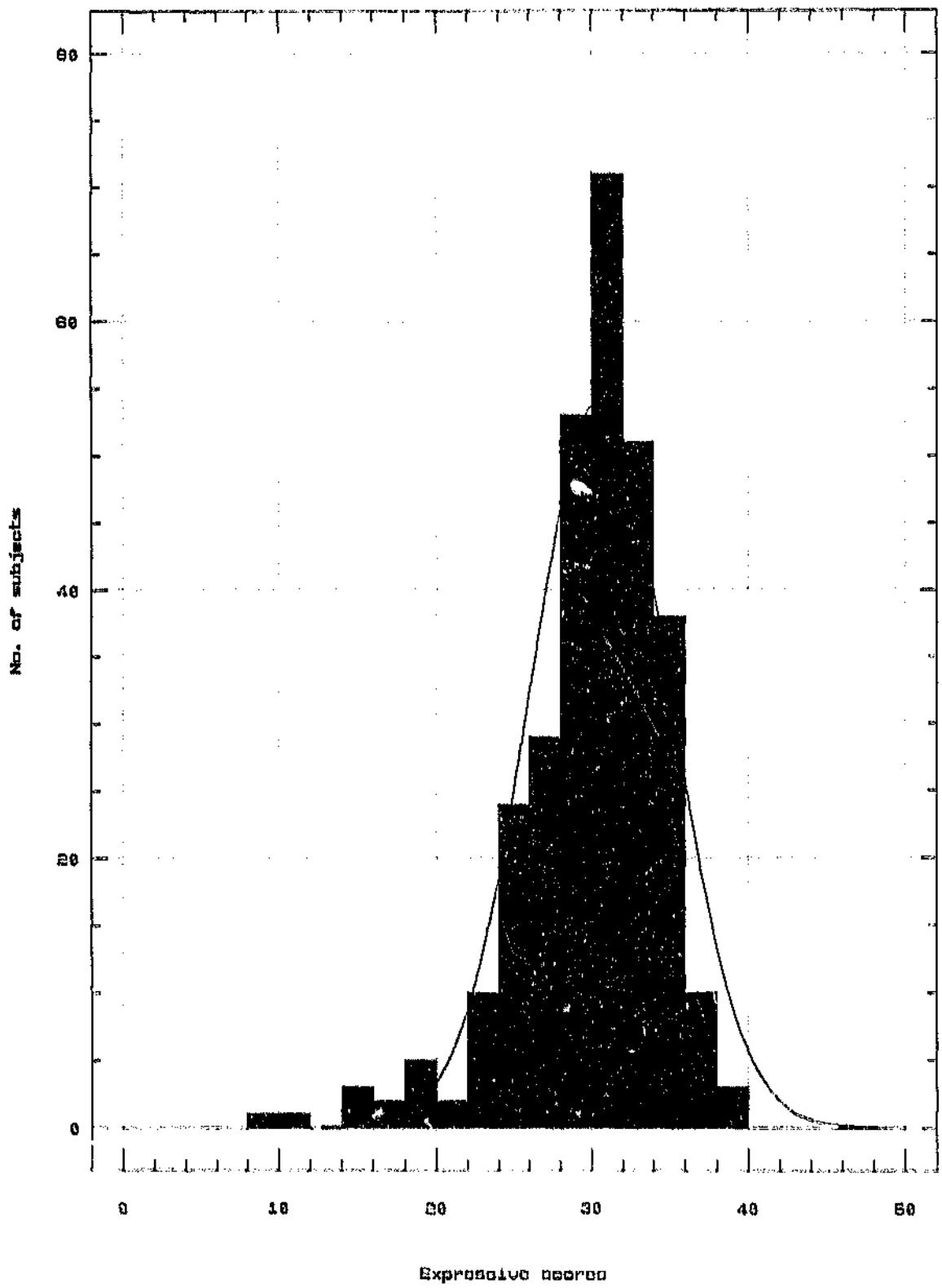
4.2.1 Internal consistency

Cronbach's coefficient alpha (1951) yielded a score of 0.85. This indicated that the test items on the ZERLA were homogeneous, that is, internal consistency was established.

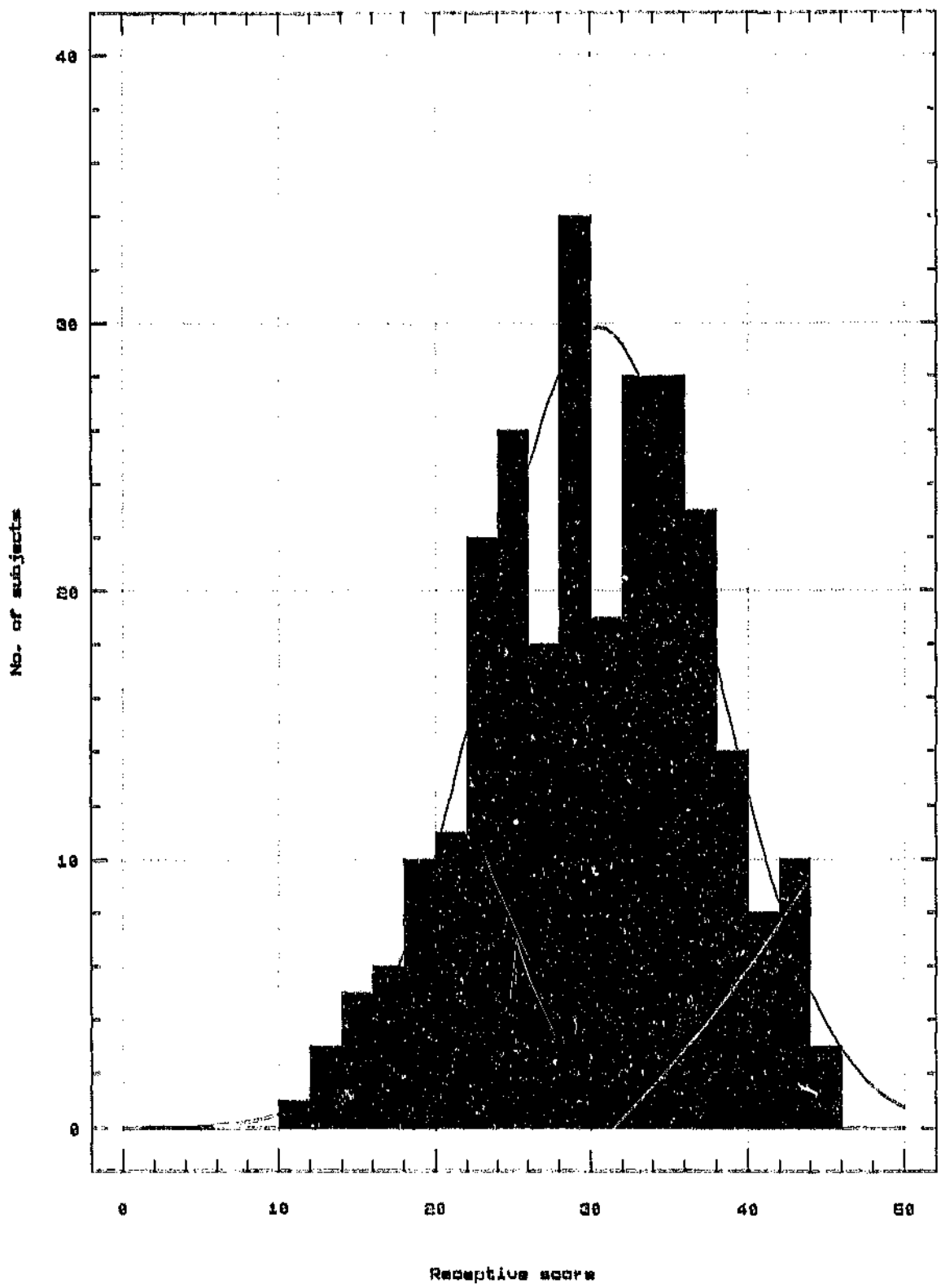
$SEM = SD\sqrt{1 - r}$ (Anastasi, 1990).

Cronbach's coefficient alpha and SEM illustrate that the ZERLA has good internal consistency as can be seen in Table 29.

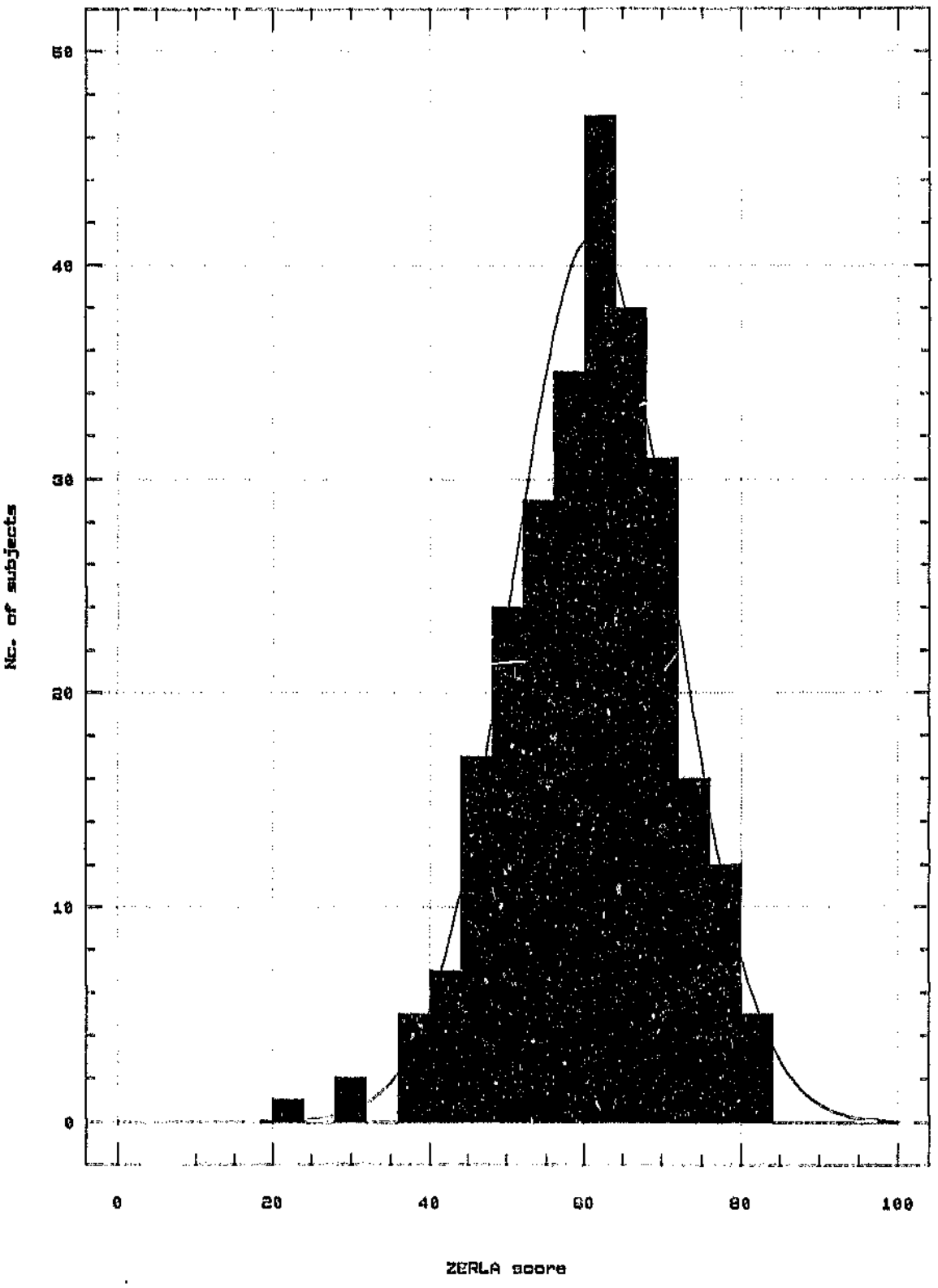
Frequency histogram of expressive scores



Frequency histogram of receptive scores



Frequency histogram of ZERLA scores



4.1.1 Normal distributions

Figure 34 represents the normal distribution of scores obtained on the ZERLA. Figure 35 depicts the distribution for receptive scores while Figure 36 portrays those for expressive scores. These latter two figures show that the receptive scores are spread over a wider distribution than the expressive. Generally these figures illustrate that the ZERLA scores were representative of a normal distribution. This is a positive result which has important implications for subjects who are assessed on the ZERLA in the future.

These normal distributions are additional indicators of the validity of the ZERLA. Anovas, T Tests of significance and Bonferoni T Tests have a weakness in indicating normal distributions. Thus Chisquare goodness-of-fit tests were administered to these data in order to determine if they fit a normal distribution. The results of the Chisquare goodness-of-fit tests can be seen in Table 28. These results indicated that the scores for receptive language and the composite score of the ZERLA showed good fits with the normal distribution. These results were not statistically significant. A poor fit was obtained for expressive scores, as a significant difference from the normal curve was obtained. The good receptive and composite scores adds to the validity of the ZERLA.

ZERLA Raw Scores	Z score	Percentile Rank	ZERLA Raw Scores	Z score	Percentile Rank
50	-1.06	14.5	71	0.96	83.3
51	-0.96	16.8	72	1.06	85.6
52	-0.87	19.3	73	1.15	87.7
53	-0.77	22.1	74	1.25	89.5
54	-0.67	25.0	75	1.35	91.2
55	-0.58	28.2	76	1.44	92.6
56	-0.48	31.5	77	1.54	93.9
57	-0.38	35.0	78	1.63	94.9
58	-0.29	38.7	79	1.73	95.9
59	-0.19	42.4	80	1.83	96.7
60	-0.10	46.2	81	1.92	97.3
61	0.00	50.0	82	2.02	97.9
62	0.10	53.9	83	2.12	98.3
63	0.19	57.7	84	2.21	98.7
64	0.29	61.4	85	2.31	99.
65	0.38	65.1	86	2.40	99.2
66	0.48	68.5	87	2.50	99.4
67	0.58	71.9	88	2.60	99.5
68	0.67	75.0	89	2.69	99.7
69	0.77	78.0	90	2.79	99.7
70	0.87	80.7			

TABLE 27: Standard scores and percentile ranks achieved on the ZERLA

Raw ZERLA score	Z score	Percentile rank	Raw ZERLA score	Z Score	Percentile rank
0	-5.87	0.0	25	-3.46	0.0
1	-5.77	0.0	26	-3.37	0.0
2	-5.67	0.0	27	-3.27	0.1
3	-5.58	0.0	28	-3.17	0.1
4	-5.48	0.0	29	-3.08	0.1
5	-5.38	0.0	30	-2.98	0.1
6	-5.29	0.0	31	-2.88	0.2
7	-5.19	0.0	32	-2.79	0.3
8	-5.10	0.0	33	-2.69	0.3
9	-5.00	0.0	34	-2.60	0.5
10	-4.90	0.0	35	-2.50	0.6
11	-4.81	0.0	36	-2.40	0.8
12	-4.71	0.0	37	-2.31	1.0
13	-4.62	0.0	38	-2.21	1.3
14	-4.52	0.0	39	-2.12	1.7
15	-4.42	0.0	40	-2.02	2.2
16	-4.33	0.0	41	-1.92	2.7
17	-4.23	0.0	42	-1.83	3.4
18	-4.13	0.0	43	-1.73	4.1
19	-4.04	0.0	44	-1.63	5.1
20	-3.94	0.0	45	-1.54	6.2
21	-3.85	0.0	46	-1.44	7.4
22	-3.75	0.0	47	-1.35	8.9
23	-3.65	0.0	48	-1.25	10.5
24	-3.56	0.0	49	-1.15	12.4

Standard scores, or Z scores express the individual's distance from the mean in terms of the standard distribution. Anastasi (1990, p. 84) states that standard scores are "the most satisfactory type of derived score".

A percentile is indicative of an individual's relative position in the standardisation sample (Anastasi, 1990). A disadvantage of percentiles is "the marked inequality of their units, especially at the extremes of the distribution" (Anastasi, 1990, p. 82). If the distributions of the raw scores approximate the normal curve, as the ZERLA does (see Figure 34) then the raw scores at the centre of the distribution are exaggerated by the percentile transformation. Raw score differences at the ends of the distribution are shrunk for normal distributions (Anastasi, 1990). Thus the fact that the ZERLA provided two types of norms (developmental and within-group norms) prevented the weaknesses of a particular kind of norm influencing the results.

Table 27 is essential for potential testers who wish to use the ZERLA to assess a child's language abilities and compare the child's performance to her/his peers. In order to determine a child's performance on the ZERLA the tester would compare a child's raw score, for example 64. She/he would then compare that score with the Z score provided (0.29) and the percentile rank 61.4. The raw score of 64 therefore indicates that the child is performing in the average range.

TABLE 26: **Analysis of variance and tests of significance amongst language assessments**

	T confidence interval	Bonferoni T confidence level	T Test of significance	Bonferoni Test of significance
ZERLA	56.55	56.22	57.63	57.63
SERLA	52.00	50.98	55.20	55.20
TSWERLA	49.81	48.74	53.19	53.19*
VERLA	52.06	50.97	55.50	55.50
SHERLA	43.97	42.66	48.11*	48.11*

* indicates a significant difference.

4 RESULTS OF STANDARDISATION

4.1 Norms

Norms for the ZERLA are provided in the form of means, standard deviations, standard scores and percentile ranks. The means and standard deviations contribute developmental norms for the ZERLA while percentile ranks provide within-group norms. Standard scores and percentile ranks of the ZERLA are provided in Table 27. Tables of receptive and expressive standard scores and percentile ranks are provided in Appendix PP.

Seven percent (n = 22) of respondents described an incident of violence in one of the picture descriptions. Although this is not a high percentage, no specific incidents of violence were portrayed in the pictures. In the soccer picture many children mentioned that a soccer player had fallen, *bayakele omunye uwile* 'the other one has fallen.' However some subjects inferred more violence from this picture, for example, *omunye ufile - bulaweyilo* 'one is dead - killed by one holding this thing'.

3 COMPARISON OF THE ZERLA TO ASSESSMENTS IN OTHER SOUTH-EASTERN BANTU ZONE LANGUAGES[55]

Analysis of variance was performed on T and Bonferoni confidence intervals as well as T Tests and Bonferoni T tests of the five different language assessments. The purpose was to determine if statistically significant results existed amongst the assessments. A summary of these results is provided in Table 26. Results of these analyses indicate that the best total score was acheived on the ZERLA. The poorest scores were obtained for the Shangaan assessment.

[55]The bulk of the results pertaining to the assessments of the other South-eastern Zone Bantu languages are contained in Appendix MM. As these studies are not directly related to the main aim of the ZERLA, and occurred as a supplement to it, the results are not included in the main body of this chapter.