

THE PERFORMANCE OF A GROUP OF MANGAUNG
CHILDREN IN THE GESELL PRESCHOOL TEST

S.J. MOHLAHLE



HIERDIE EKSEMPLAAR MAG ONDER
GEEN OMSTANDIGHED E UIT DIE
BIBLIOTEK VERWYDER WORD NIE

UOVS - SASOL-BIBLIOTEK



19940492940122000019

**THE PERFORMANCE OF
A GROUP OF MANGAUNG CHILDREN
IN THE GESELL PRESCHOOL TEST**

S.J. MOHLAHLE

(i)

**THE PERFORMANCE OF A GROUP OF MANGAUNG CHILDREN
IN THE GESELL PRESCHOOL TEST**

by

SEISO JULIUS MOHLAHLE

submitted in partial fulfilment of the requirements for the degree of

**MAGISTER ARTIUM
(CLINICAL PSYCHOLOGY)**

in the

FACULTY OF ARTS

at

THE UNIVERSITY OF THE ORANGE FREE STATE

BLOEMFONTEIN

HIERDIE EKSEMPLAAR MAG ONDER GEEN OMSTANDIGHEDE UIT DIE BIBLIOTEEK VERWYDER WORD NIE

Supervisor: Dr I. Herbst

Co-Supervisor: Mr K.G.F. Esterhuyse

November 1993

ACKNOWLEDGEMENTS

I wish to express my deep thanks to God Almighty for the strength and perseverance He bestowed upon me in the study.

I further wish to thank the following:

- Thari-ya-Tshepe, Susan Murray and J.S. Mokoka preschools for having granted me permission to conduct the study in their schools and also the Mangaung parents for allowing me to test their children.
- My promotor, Dr. I. Herbst for untiringly effort she deployed as my promotor and educator. I learned a lot from our discussions, deliberations and decisions.
- Mrs. S.W.J. Vorster for her difficult task of typing the original scripts.
- Mr K.G.F. Esterhuyse for guidance in statistical approach in this study and I regard him as co-supervisor.
- Mrs. A. Mostert who did the typing of the final script.
- Mrs. H. Labuschagné for sifting out technical errors and ensuring standardised language.
- To the staff of the UOFS Psychology Department for the supportive role they played throughout the study career at this tertiary institution and I wish to thank my colleagues who contributed a lot in my studies.
- My brothers, Masooa, Mokone, and sisters Maseeiso and Sebina for encouragement and prayers.
- My wife, Tsabeng Maria, whom I regard as the foundation and fountain of support and strength.
- My mother, for her encouragement, though she died very early in my life.

LIST OF CONTENTS

	Page
CHAPTER 1: INTRODUCTION	1
1.1 HISTORICAL BACKGROUND: THE SITUATION IN OTHER COUNTRIES	2
1.2 THE SOUTH AFRICAN SITUATION A HISTORICAL PERSPECTIVE	3
1.3 THE PRESENT SITUATION IN THE REPUBLIC OF SOUTH AFRICA	6
1.4 SCHOOL-READINESS TESTING IN THE REPUBLIC OF SOUTH AFRICA (RSA) A NEED FOR INVESTIGATION EXPLAINED	8
1.5 AIM OF THE STUDY	10
CHAPTER 2: CHILD DEVELOPMENT: THEORETICAL BACKGROUND	12
2.1 DEVELOPMENT: A DEFINITION	12
2.1.1 Psychoanalytic and psychosocial approaches	14
2.1.2 Behaviour analysis approach	16
2.1.3 Social Learning Theory	18
2.1.4 A cognitive developmental approach	19
2.1.5 Language development approach	22
2.2 GESELL'S THEORETICAL PERSPECTIVE OF DEVELOPMENT	23
2.2.1 Gesell's view of development	23
2.2.2 Cycles of development	25

	Page	
2.3	THE FOUR FIELDS OF BEHAVIOUR DISTINGUISHED BY GESELL	29
2.3.1	Physical/motor behaviour	29
2.3.1.1	Gesell's developmental profiles of the motor abilities of five and six year old children	30
2.3.2	Personal-social behaviour	32
2.3.2.1	Gesell's developmental profiles of the personal-social abilities of five and six year old children	33
2.3.3	Language behaviour	36
2.3.3.1	Language behaviour of five to six year olds	36
2.3.4	Adaptive behaviour	38
2.3.4.1	The adaptive behaviour profile of five to six year olds	39
2.4	SCHOOL-READINESS CRITERIA	41
2.4.1	Criteria of emotional readiness	41
2.4.2	Criteria for social readiness	42
2.4.3	Criteria with regard to physical readiness	42
2.4.4	Criteria for intellectual readiness	42
2.4.5	Criteria for normative readiness	43
2.5	NORMALITY	43
<hr/>		
	CHAPTER 3: CROSS-CULTURAL ASSESSMENT OF CHILD DEVELOPMENT	48
<hr/>		
3.1	TESTS USED IN THE SOUTH AFRICAN SITUATION	48
3.1.1	Intelligence Tests	50
3.1.2	Developmental Tests	52
3.1.3	Psycholinguistic tests	54
3.1.4	Emotional Tests	55

	Page	
3.1.5	Personality Tests	55
3.2	A GLIMPSE AT DEVELOPMENTAL APPROACHES IN DIFFERENT CULTURES	56
3.3	CROSS-CULTURAL ASSESSMENT OF CHILD DEVELOPMENT	59
3.3.1	Intelligence testing in other culture groups	59
3.3.2	Cultural relativism	61
3.3.3	Cultural bias	62
3.3.4	Cross-cultural comparability of test measurements	65
3.4	TESTS DEVELOPED AND/OR STANDARDIZED FOR BLACK CHILDREN	67
3.4.1	Intelligence and aptitude tests	68
3.4.2	Aptitude Tests	70
3.4.3	Developmental Tests	70
3.4.4	Psycholinguistic tests	71
3.4.5	Emotional Tests'	72
3.4.6	Personality Tests	72
3.4.7	Newly developed tests for specific situations	72
3.5	SCHOOL READINESS TESTING	73
3.5.1	The Gesell test as possible option	74
3.6	FACTORS TO KEEP IN MIND WHEN TESTING CROSS-CULTURALLY	75
3.6.1	The test language	76
3.6.2	The roles and responsibilities of test administrators	77
3.6.3.1	Test administration	78

CHAPTER 4: METHOD		
A COMPARISON OF THE PERFORMANCE OF AMERICAN AND A GROUP OF BLACK SOUTH AFRICAN CHILDREN IN THE GESELL DEVELOPMENTAL TESTS		84

4.1	SAMPLE POPULATION	86
4.2	THE MEASURING INSTRUMENT	88
4.2.1	The motor component of the Gesell Test	89
4.2.2	Personal-social behaviour	92
4.2.3	Language behaviour	92
4.2.4	Adaptive behaviour (Cognitive aspects)	95
4.3	PRELIMINARY METHODOLOGICAL CONSIDERATIONS IN THE USE OF THE GESELL TEST	99
4.3.1	Translation of instructions and verbal items	99
4.3.2	Adaptation of subtest materials	101
4.4	PROBLEM FORMULATION	101
4.4.1	The aims of the study	101
4.4.2	The research hypotheses	102
4.5	PROCEDURE	103
4.5.1	Prior arrangements	103
4.5.2	Test administration and scoring	104
4.5.2.1	Testing environment and precautions	105
4.5.2.2	The actual test situation	106
4.6	STATISTICAL ANALYSIS OF DATA	107

		Page
<hr/>		
	CHAPTER 5: RESULTS	108
<hr/>		
5.1	RESULTS OF THE COMPARISON OF RSA BOYS AND GIRLS	109
5.2	RESULTS OF THE COMPARISON OF RSA AND USA NORMS	110
5.2.1	Five Year Olds	112
5.2.2	Six year olds	117
<hr/>		
	CHAPTER 6: DISCUSSION OF RESULTS AND RECOMMENDATIONS	123
<hr/>		
6.1	FINDINGS AND IMPLICATIONS OF THE STUDY	124
6.1.1	Comparison of Mangaung, RSA data of five year old preschool children with that of the American normative group	124
6.1.1.1	Adaptive behaviour	125
6.1.1.2	Language behaviours	128
6.1.1.3	Motor behaviour	131
6.1.2	Comparison of Mangaung, RSA data of six year old preschool children with that of the American normative group	132
6.1.2.1	Adaptive behaviour	132
6.1.2.2	Language behaviour	133
6.1.2.3	Motor behaviour	135
6.3	COMMENTS ON THE OVERALL RESULTS	135
6.4	RECOMMENDATIONS	137
	SUMMARY	140
	REFERENCES	142
	APPENDICES	

LIST OF TABLES

	Page
TABLE 4.1: THE DISTRIBUTION OF MANGAUNG SUBJECTS ACCORDING TO AGE AND SEX	87
TABLE 4.2: THE DISTRIBUTION OF MANGAUNG SUBJECTS ACCORDING TO PRESCHOOL ATTENDED	88
TABLE 5.1: TEST FOR COMPARISON OF THE RESULTS OF RSA BOYS AND GIRLS ON THE GESELL TEST	109
TABLE 5.2: TEST FOR COMPARISON BETWEEN MANGAUNG (RSA) AND USA PRESCHOOL CHILDREN ON THE GESELL TEST	112
TABLE 5.3: THE FREQUENCIES AND PERCENTAGES OF MANGAUNG AND USA PRESCHOOLERS WHO WERE SUCCESSFUL/UNSUCCESSFUL ON SUBTEST 6 (GESELL PICTURE VOCABULARY)	114
TABLE 5.4: THE FREQUENCIES AND PERCENTAGES OF MANGAUNG AND USA PRESCHOOLERS THAT WERE SUCCESSFUL/ UNSUCCESSFUL ON SUBTEST 8 (GESELL ACTION AGENT)	115
TABLE 5.5: THE PROPORTION AND PERCENTAGE OF MANGAUNG (RSA) AND USA CHILDREN WHO WERE SUCCESSFUL/UNSUCCESSFUL IN SUBTEST 9 (GESELL CALCULATIONS)	116
TABLE 5.6: COMPUTATION OF CHI-SQUARE ON ALL SUBTESTS COMPARISON BETWEEN RSA AND USA PRESCHOOL CHILDREN	118
TABLE 5.7: THE FREQUENCIES AND PERCENTAGES OF MANGAUNG (RSA) AND USA PRESCHOOL CHILDREN, SUCCESSFUL AND UNSUCCESSFUL ON SUBTEST 6 (GESELL PICTURE VOCABULARY)	119
TABLE 5.8: THE NUMBERS OF MANGAUNG AND USA PRESCHOOL CHILDREN AGED 6 WHO WERE SUCCESSFUL/UNSUCCESSFUL ON SUBTEST 8 (GESELL ACTION AGENT)	121

LIST OF FIGURES

	Page
FIGURE 5.1: COMPARISON OF BOYS AND GIRLS: RESULTS OF MANGAUNG PRESCHOOLERS ON THE GESELL TEST	110
FIGURE 5.2: COMPARISON OF USA AND RSA RESULTS OF FIVE YEAR OLD CHILDREN ON THE GESELL TEST	111
FIGURE 5.3: COMPARISON OF USA AND RSA RESULTS OF SIX YEAR OLD CHILDREN ON THE GESELL TEST	117

INTRODUCTION

Many black children are not school-ready when entering school for the first time, causing a high failure rate in the first school year(s). This situation creates a need for the earlier detection of school problems in order to be able to intervene appropriately (Herbst, Schoeman & Huysamen, 1993). In the Republic of South Africa, with its variety of inhabitants, examiners often experience a need for culture-fair measuring instruments. Although many tests are available, the developmental assessment of black toddlers, and especially preschoolers, still pose problems to examiners. A test that appears to be suitable, is that of Gesell (Frances, Bates & Ames, 1972; Gesell, 1966; Ilg, 1985a; Ilg & Ames, 1972), which is commonly used in First-World settings. The Gesell Preschool Test, consisting of four sub-divisions, namely motor, adaptive, language and personal-social fields of behaviour (Haines, Ames & Gillespie, 1980), is a useful tool for determining school-readiness as it determines the age level at which any given child is performing. The reliability and validity of this test, however, have not been established specifically for South African black population groups. In order to establish the appropriateness of the Gesell test for use with children from the local population, the development of developmental psychology,

1.1 HISTORICAL BACKGROUND: THE SITUATION IN OTHER COUNTRIES

In the United States of America the early 1960s was highlighted by interest in the preschool and kindergarten-age child. With the knowledge that over 5 million preschool children in rural villages and adjacent areas were under-fed, underclothed, homeless and uneducated, whilst many more were institutionalized, neglected or otherwise dependent, the necessity of appropriate intervention became obvious (Gesell, 1971). Piaget's focus on the development of children's cognitive abilities contributed to the development of preschool enrichment programmes. During the affluent years of 1967 - 1970 when federal money was readily available in the United States of America, the concept of school-readiness was highlighted and developmental programmes to promote school-readiness were established in preschools (Zigler & Stevenson, 1993). Parents realized how much it helped their children to be placed appropriately and experienced this movement as very positive. The nursery school movement as an educational and social experiment yielded invaluable data relating to the preschool child (Gesell, 1971). In order to use this data to evaluate, assess and diagnose the children's readiness to start with primary education, suitable tests were developed.

Between 1920 and 1940 methodology developed rapidly and numerous standardized tests of achievement, intelligence, aptitude, interest and personality were published. The oldest tests of infant and preschool development are the Merrill-Palmer Preschool Performance Test, 1926-31, the Minnesota Preschool Scale by Goodenough *et al.* (1932-40), and the Cattell infant Intelligence Scales

for children between 18 months and six years. The revised Stanford-Binet Intelligence Scale was published in 1937, followed by the Wechsler-Bellerine Intelligence Scale (Aiken, 1976). The Bayley Scale of Infant Development (1969), which is expressed in standard score form as a Mental Developmental Index and a Psychomotor Developmental index measures the performance of children from 2 to 30 months. The Gesell Developmental Schedule made psycho-educational diagnosis of learning disabilities possible and served as an early detector of potential learning disorder prior to children's entrance into formal schooling. The test was standardized for 2½ to 8½ years on a representative sample of 1 032 children (Kaufman & Kaufman, 1977) and contained 18 short tests of mental and motor ability which were measured within one hour per child.

1.2 THE SOUTH AFRICAN SITUATION: A HISTORICAL PERSPECTIVE

In South Africa a situation similar to that in the United States of America existed. Developmental psychology, which addressed under-achievement and poor education, emerged as a result of the poor-white crisis which was accentuated by the report of the Carnegie Commission in 1932 (Liddell & Kvalsvig, 1990). Stemming from this report, large amounts of state funding were allocated to the development of feeding schemes and the improvement of educational facilities. This was in contrast to the mainstream of South African psychology, which at the time was centered mainly in universities and in three fields of practice, namely health, education and work, before World War II. Psychology emerged from the war with increased prestige - encouraging foundations to support psychological research and providing opportunities to prove the value of psychological intervention in problems. In the preschool

field, the issue of day-care provision for children of black working mothers was identified as an area in need of Government intervention by childcare professionals as early as 1930. This led South African developmental psychologists and related professionals to the problem of the educational underachievement of children (Liddell & Kvalsvig, 1990). The high failure rate amongst black school children could be due to many factors, some which may be related to the impact on school readiness - poverty, poor quality of education, insufficient preschool education and ill health.

In developing countries it is frequently encountered that education has differentiated effects on children with diverse abilities (Cronbach, 1972; Epstein, 1985). Grant (1969) states it that although urbanization affects the level of performance of a child, it does not affect the structure of intellect. Epstein (1985) states that both Vernon and Biesheuvel contributed to our understanding of Third World children's abilities by stating that the acquisition of psychomotor skills are based upon the intensity and duration of early exposure to Western culture. Thus, if a child's environment is restrictive with respect to certain activities, at varying ages he/she may function well below his/her potential in those activities. These deficits could persist into adulthood (Irvine, 1954). Cultural factors, however, prescribe what shall be learned and at what age. Consequently, different cultural environments lead to the development of different patterns of abilities, so that the abilities which are culturally boosted, show a marked amplification (Epstein, 1985). Burnett's research indicated that children reared in relatively isolated communities have impoverished verbal and reasoning abilities, but well-developed perceptual and motor abilities in comparison with the abilities of urban children (Epstein, 1985).

Developmental research on black children in South Africa has been characterized by the projection of a negative image of such children's capabilities and accomplishments (Liddell & Kvalsvig, 1990). More recent work, however, portrays a wider viewpoint. Herbst (1985; 1989) mentions that different developmental patterns exist amongst the different culture groups and that the kinds of early experiences children are exposed to, have an influence on their developmental strengths and weaknesses as compared to those of other population groups. Investigating the developmental tasks of black preschool children in the Orange Free State, she found that these children performed better than the Western norms on gross motor tasks, but not as well on fine motor tasks which are regarded as very important for accomplishing tasks set in the Western type school syllabus. In a similar way, the performance of black children on auditory perceptual tasks was better than the Western norms - whereas visual perceptual tasks yielded a lower score than the available norms (Herbst, 1985, 1989; Herbst *et al.*, 1993). This kind of tendency, *albeit* not identical, has been identified by numerous researchers, such as De Jongh (1985) and Ras (1987). The picture could thus not be described as entirely negative, but rather as a situation where a different pattern of early development seems to exist. One must thus be cautious not to jump to conclusions.

The assessment of the abilities of black children poses another issue that has received a lot of attention in recent years. Authors, such as Vassof (1985), state that the abilities of African children have been underestimated by psychometric testing and that this was responsible for the mental massacre of African children. The opinion was further expressed that the ethnographic psychometric approach to measuring children's behaviour has neglected to account for the deleterious effects of socio-political stress factors that black children experience (Burman,

Kvalsvig (1990) states that situations such as these further reinforced the negative image of black South African childhood. In spite of psycho-social stress factors, there are positive features of black child-rearing and socialization which have survived social and cultural transition. Some of these aspects, like helping one another in times of hardship, sharing and respecting God, will be mentioned under 3.2 (Segoete, 1979; Sekese, 1978). The strength of mother-child bonding has proved positive in coping strategies, according to Liddell and Kvalsvig (1990), and this represents a concept to be studied by developmental psychologists.

1.3 THE PRESENT SITUATION IN THE REPUBLIC OF SOUTH AFRICA

Regarding the first school years, it has been recorded that many black children are not ready to be subjected to the Western type school curriculum (Herbst, Schoeman & Huysamen, 1993), and they encounter problems with the school work. When the child experiences failure, he/she develops a negative self-image which in turn affects his/her ability to achieve. The negative effect such a situation could have on the child, necessitates early intervention and also the assessment of the developmental levels of preschool children and school starters. Liddell and Kvalsvig (1990) points out that in 1985 an estimated three million black South African women were employed and there were five million black children under school-going age in South Africa. The situations within which many of these children are brought up, necessitate some attention to the influence of the environment the child is reared in. Several reviews have indicated that high household density has adverse effects on children's development, while overcrowding is associated with negative effects on physical growth (Christiansen, Nora & Herera, 1975). Limited physical space has been

shown to affect cognitive development and the educational performance of younger children adversely (Murie, 1983). The housing shortage in South Africa forced black families to lodge with others in extended families in some cases. This implies that there is no reason to expect a uniformity in positive relationship between household density and family size (Richter, 1989). Cognizance is thus taken of the fact that early childhood situations are very often far from ideal, and that this situation is aggravated by the fact that so many mothers have to work away from their homes. Alternative solutions thus have to be found, in order to provide young children with proper care facilities, simultaneously creating situations where these children could be introduced to enriching and stimulating experiences.

Fortunately, many psychologists and other researchers are at present paying attention to issues such as school readiness, early intervention/developmental stimulation, and the assessment of developmental tasks of preschoolers and young students in order to organize appropriate intervention. Educational and staff training programmes are offered by instances such as Early Learning Resource Unit (ELRU), TREE, NTATAISE and the Urban and Rural Foundations, whilst other welfare and community projects such as that of Creches Care and the Mangaung University Partnership Project (MUCPP) in the Orange Free State all contribute towards these goals. Very often, existing creches and preschool environments are utilized for this purpose. These places do not always offer an ideal learning environment, as they are often overcrowded and have little equipment and no funds to obtain this with (Herbst, 1989; Herbst *et al.*, 1993). At least, a start could have been made and some research has indicated that black children coped under these conditions, as

reflected in the appropriateness of their social behaviour, in a crowded nursery environment (Richter, 1989).

Unfortunately, much more research will be needed and participation with respect to enhancing school readiness should be encouraged. Another of the mentioned fields of research that needs attention, is the development of appropriate and valid assessment tools that can be used for the early detection of developmental needs which may exist. School readiness, for instance, could be assessed in order to avoid failure because of immaturity.

1.4 SCHOOL-READINESS TESTING IN THE REPUBLIC OF SOUTH AFRICA (RSA): A NEED FOR INVESTIGATION EXPLAINED

There is sufficient reason to propose school-readiness testing of black preschool children. Although school-readiness tests were devised by the various departments of education in the Republic of South Africa, very little was done to satisfy the needs of the black community in this respect. There are, for instance, no school-readiness tests to screen the preschool children for school attendance. Early screening and the identification of potential educational problems should reduce the progressive and alarmingly extensive drop-out and failure rates of these children, as this tendency further has a direct bearing on the already poor matriculation results. A number of tests are being used in the South African context, including the more recently developed tests of Foxcroft (1991), Herbst *et al.* (1993) and Ras (in Herbst, 1989), whilst the norms of the McCarthy Scales (Richter & Griesel, 1991) were recently standardized for use amongst black South African children. Foxcroft (1991) developed the General Reasoning Group Test to identify scholastically at risk children of different races. Ras

(1984) developed the Learning Readiness Test for Black School beginners in order to place these children in homogenous groups within the school situation and to plan strategies for remedial assistance, should it be indicated. At the time of the commencement of this script, some of the tests mentioned, were not yet available, whilst others did not cover the spectrum of aspects that need to be assessed in the local population of black children (Herbst, Schoeman & Huysamen, 1993). At that stage, the Herbst Measuring instrument was still in the process of being standardized.

Of the tests mentioned earlier (the Gesell Developmental Test), appears to measure many of the developmental aspects considered to underlie school readiness. The Gesell Developmental schedule has not been used extensively in South Africa, but may be suitable for use with the black population group, because it is easy to administrate and relatively culture fair. In this test the behavioural maturity of preschoolers regarding the developmental tasks of adaptive, language, motor and personal-social behaviour is assessed with reference to their chronological age. Achieving the mastery of a task - like effectively shaping one's behaviour to external requirements as compared to internal needs - is one of the convincing and valuable measures of cognitive development. Research findings as to the importance of behavioural age in determining school placement confirmed the usefulness of this test (Gesell, 1971).

The Gesell test may have great potential for use in the South African context, with specific relevance to black children. This assumption will be explored in this study. The value of the Gesell Developmental Test as a screening tool for

school placement purposes for black children was the focus of the study to be described.

1.5 AIM OF THE STUDY

The main aim of the study was to compare the data of Mangaung (Bloemfontein, OFS) preschool children with the American normative group data on this test, in order to determine whether the American norms of the Gesell School Readiness Test could be applied to black South African toddlers and preschoolers.

To accomplish the objectives of the study, the following was to be done:

- The instructions and verbal items of the Gesell Developmental Schedule were to be translated into South Sotho, as most of the children in Mangaung are conversant in that language. Some sub-tests were to be adapted to cater for the cultural and national differences between the American and South African children.
- The Gesell Developmental Test was to be administered to 100 normal black preschool children between the ages of five years and six years, who at the time had been in the preschool for a period of more than six months. This was to be compared with the Gesell Normative Sample in terms of subject variables such as age, sex and normative behaviour like adaptive, language and motor behaviour.
- The performance of the South African children (Mangaung preschoolers) was to be compared to that of the five - six year olds in the American

normative sample to see whether their performance was comparable enough to justify the application of the Gesell Developmental Test for School-readiness with South African Blacks.

- The extent to which subject variables such as sex and age influenced performance on the Gesell Developmental tasks was to be studied to provide information concerning the factors to consider when interpreting the test results. This would also be necessary in order to provide indicators to undertake a full scale standardisation of the school readiness test in South Africa among the black pre-school population.

In order to provide a basis for this study, the following chapters will first deal theoretically with child development (Chapter 2), with specific reference to the development of the four to six year old child. The assessment of the developmental abilities of children from different culture groups will subsequently be attended to (Chapter 3). Mention will be made of existing available tests, and especially those that have direct bearing on this study. The Gesell Test, will also be reviewed. Chapter 4 covers the methodology, followed by the results/findings of the study (Chapter 5) and the discussion thereof in Chapter 6.

CHILD DEVELOPMENT: THEORETICAL BACKGROUND

Different theories exist regarding child development. In order to know what level of development is expected of children at different age levels, some approaches towards a theory of development will be investigated, followed by an overview of the developmental profiles of pre-school children, according to Gesell (1971). Because children of these age-groups are preparing for school, one must also take cognizance of school-readiness criteria.

2.1 DEVELOPMENT: A DEFINITION

Development refers to a sequence of changes in organisms (Eysenck, Arnold & Meili, 1972; Reber, 1985) and progressive changes in shaping organization and behavioural patterns of an organism from birth to death (Goldenson, 1984). It is an irreversible sequence of change and progressive change to higher levels of differentiation and organization, resulting in a positive connotation of progress (Van Geert, 1986) and "increases in effectiveness of function, maturation, sophistication, richness and complexity" (Reber, 1985: 194). Carmichael and

Undeutsch regard development as growth and describe it as a quantitative increase (Reber, 1985). On the other hand, it is also understood and described in the sense of qualitative change taking place in phases, stages or a number of transformation steps and preeminenting higher developmental forms (Gesell, 1979; Reber, 1985; Spically, 1986; Van Geert, 1986). The concept of sequential growth evolved from embryology studies in the eighteenth century. With the help of microscopes, it became apparent that embryonic development took place in a series of steps (epigenetically), which always occurred in the same sequence. It therefore became reasonable to look for sequential unfolding of structures after birth and in the successive developmental periods. As children vary in their rates of development, "it became evident that rates of development are largely controlled by internal genetic mechanisms" (Crain, 1986: 23).

Whilst there are quantitative changes where the child experiences an increase in size, there is also qualitative growth in that the body systems of the child undergo substantial changes in structure and functions (Bukatko & Daehler, 1992; Craig, 1980). Growth is described as a an increase in the physical size of the body and its parts, whereas development also refers to the accompanying predictable, continuous and orderly process or patterns associated with growth. According to Bukatko and Daehler (1992) children grow up in various cultures and social settings that stress unique customs, values and beliefs. As a consequence, children differ in the kinds of experiences they receive throughout their childhood. Different theorists view development differently. In the sections to follow some of these viewpoints will be mentioned. The first to be discussed, are the views of the psycho-analytic theorists, namely Freud and Erikson.

2.1.1 Psychoanalytic and psychosocial approaches

(i) Sigmund Freud

Psychoanalytic models refer to a set of theories which are most frequently associated with Freud and his followers (Bukatko & Daehler, 1992). These models are based upon the idea that unconscious motivations contribute to behaviour. Sigmund Freud's psychoanalytic theory is generally referred to as a biological theory of personality "because it focuses on biological drives as manifested within the social context" (Zigler & Stevenson, 1993: 48). It concerns itself primarily with explaining the development of personality and changes in interpersonal relationships with parents and significant others in helping to determine ego (fostering the formation of representational and cognitive mechanisms) and superego (the conscious monitoring of the acceptability of actions or behaviours) (Bukatko & Daehler, 1992; Zaichkowsky, 1980).

Freud emphasized the importance of early experience in child development and identified five stages of psycho-sexual development, namely the oral, anal, phallic (3 to 5 years of age), latency (5 years to adolescence) and lastly the genital stage (Bukatko & Daehler, 1992). Freud placed emphasis on the experiential content of a stage. In terms of developmental progress, it often depends on the value or meaningfulness of that content to the individual (Salkind, 1985).

Within the psychoanalytic model there is an interplay between the mechanisms of learning and maturation. Maturation plays a concealed role in the presence of almost all the developmental conflicts or crises. Learning plays an important

role in the mechanism of development and resolution of conflicts as well as in general successful adaptation. Through repeated associations, the individual learns to recognize how to satisfy need without the simultaneous presentation of the goal object. The satisfaction of needs is critical.

The psychoanalytic theory has received considerable criticism - mainly because the concepts associated with it are difficult to objectify and as a result are not easily subjected to scientific inquiry (Zaichkowsky, 1980). Freud's contribution has also been criticized as being culture bound, whereas sources of conflict that affect social and personality development differ among societies (Bukatko & Daehler, 1992).

A major theory, namely that of Erik Erikson, was developed and built upon the work done by Freud - of whom he was a student - whilst it also addressed the criticisms against Freud's theory (Bukatko & Daehler, 1992; Zigler & Stevenson, 1993).

(ii) Erikson's Psychosocial Theory

According to Erikson, psychological development results from the interaction between biological needs and social demands. The basic principle of Erikson's theory is epigenesis, which assumes that all parts of a system have a unique ascendancy within that system. The principle of epigenesis is based on an embryological model in which each event during fetal development has a unique tune of ascendancy, the plan for which is contained in the organisms' genes. Anything that grows has a ground plan, and out of the ground plan the parts

arise, each having its time of special ascendancy until all parts have evolved to form a functioning whole (Salkind, 1985).

Erikson's model emphasizes the social conditions that exist during the different developmental stages and he paid attention to the role these conditions play in the resolution of each of the eight psychosocial crises. Erikson's use of epigenetic principles emphasizes the unfolding of a time plan as a result of maturational or biogenetic influence. Psychosocial models would state that learning plays an important role in the resolution of conflicts as well as in general successful adaptation. To postpone the resolution of a conflict could cause the individual to remain at a developmentally more immature stage and thus impair further developmental progress. The psychoanalytic model assumes that there is a series of critical events in the individual's life and that these events become major influences on development. The discontinuous view of Erikson's model of the principles of epigenesis identifies separate tasks associated with eight separate stages that are all related - but are unconnected to one another.

2.1.2 Behaviour analysis approach

The basic assumption of behavioural theory is that behaviour is a function of its consequences. Skinner (in Salkind, 1985) believes that through the systematic study and analysis of these consequences, the effects of environmental events in learning could be understood. Learning is the primary mechanism through which development occurs, hence development can be understood within the context of learning (Salkind, 1985). Learning theorists see development over the lifespan as a gradual step by step "accumulation of knowledge, skills, memories and competence" (Craig, 1980: 36).

Learning theory states that all human behaviour is governed by laws and therefore can be predicted and controlled (Zaichkowsky *et al.*, 1980). Learning theorists have many elements in common. First, they use well-established principles of learning to account for children's behaviour. Second, they assume that the laws of learning are the same for everybody and for all ages (Craig, 1980). Third, unlike the cognitivists and psychoanalysts, learning theorists place little importance on the stages of development. Because laws of learning are the same for everyone, they argue that there is no reason to believe that these laws change at different stages in the child's development (Salkind, 1985; Zaichkowsky *et al.*, 1980).

Behaviourist scientists base their conclusions on observations of overt behaviour. Behaviour is determined by experiences that are reinforced and not by free choice (Biehler, 1976). This is in concordance with Locke's assumption that all knowledge comes from experience. The most important contribution this model has presented is the systematic analysis of behaviour in educational application such as programmed instruction. Much of the behaviour also develops through repetition. We learn through rewards and punishments. We engage in behaviour that brings us praise, compliments, and other rewards; we refrain from actions that produce unpleasant consequences. The individual is seen as reactive instead of being active in the environment. The behaviourists' approach further ignores the role of intellect and emotions in development (Salkind, 1985). Although the learning theorists recognized the limits of infants, these limits do not constitute stages (Craig, 1980).

2.1.3 Social Learning Theory

An important assumption of the social learning theory is that significant learning takes place through the process of imitation or modelling of the behaviours of others (Bukatko & Daehler, 1992). Within the social learning theory, certain classes of behaviour, such as socially desirable customs and behaviours, can often be learned without the benefit of direct experience (Bukatko & Daehler, 1992). Indirect reinforcement is as effective as direct reinforcement for facilitating and promoting imitation. Social learning theory ascribes special importance to the operation of internal mediational processes in development.

Social learning theory assumes that the impetus for behaviour is environmental in nature, but the developmental process is bidirectional, characterized by a reciprocity between the individual and the environment - reciprocal determinism. Imitating behaviour occurs through the internalization of what the model represents, followed by the learner's attempts to match that representation (Salkind, 1985). Harrison, Wilson, Pine, Chan and Buriel (1991) state that adaptive strategies refer to observable social behaviour as cultural patterns that are interpreted as adaptive or maladaptive within the social connection. Adaptive strategies are proposed cultural patterns that promote the survival and well-being of the community, families and individual members of the group within certain environments.

Bandura assumes in his analysis of child behaviour that social interaction incorporates both the concepts of imitation and identification (Salkind, 1985). In order for modelling to occur, there must be an attentional process where the child must attend to, recognize and differentiate the distinctive features of the

model's response (Koen, 1978). The child must thus have the sensory capabilities, the motivation, the arousal level, and the perceptual set for taking in the modelled events. The second process of observational learning is the retention of the modelled events. The third process in the modelling sequence involves the motor reproduction which transforms mental reproduction into matching behaviours. The fourth process in social learning is reinforcement of the overt matching behaviour in order that one can speak of motivational processes defining which behaviours are likely to be performed (Bukatko & Daehler, 1992; Koen, 1978).

Criticism against this theory, as well as a previous one, is that neither the behaviour analysts, nor the social cognitive theorists, emphasize sensitive periods in development (Bukatko & Daehler, 1992). The social learning theorists see the individual as reactive instead of being active within the environment. The behaviourist approach also ignores the role of intellectual and emotional development (Salkind, 1985).

2.1.4 A cognitive developmental approach

Although for many years psychoanalytic and learning theories dominated psychology, many developmental psychologists are now, according to Zigler and Stevenson (1993), interested in cognition. According to these authors, cognition refers to the way in which humans gain knowledge through perception, memory and thought processing. This approach regards children as spontaneous and active in the construction of their own knowledge of the world, invoking a series of reorganizations of their minds (Zigler & Stevenson, 1993). Salkind (1985) describes the process as developmental progression from one level to the next.

The study of the science of knowledge thus includes the way in which knowledge changes over the course of the development of the individual.

Development is a spontaneous process which emphasizes the individual's inherent capability of being dynamic - development represents a modification and reorganization of psychological structures. This interaction between the individual's internal motivational system and the demands of the environment forms the essence of development. Striving for order or balance, equilibrium is a self-regulatory process that keeps the individual on the right track (Wessels, 1992).

Maturation is a process through which biological change takes place. It is controlled by innate mechanisms and experiences which imply that the child must actively interact with the environment. Experience does not have to be directly physical, but can be any kind of mental activity such as perception or problem solving. Social transmission occurs when information, attitudes and customs are transmitted from one group to another (Le Vine, 1991).

In the cognitive developmental approach, adaptation is viewed as a process that has its roots in biology, thus referring to the individual's adjustment to the environment. Adaptation is a very complex process that involves the modification of either the individual or the environment to fit the needs of the individual (Salkind, 1985). According to Jordan (1980) the basic element of intellectual development is the acquisition of a good vocabulary. With an appropriate level of words, children can take care of their needs and can enter into their full social role (Jordan, 1980). Language exerts an increasingly dominant role in the achievement of concepts, particularly in the ordering and

classification of the multitude of sensory phenomena which are the child's world (Di Leo, 1977).

McClinton and Meier (1978) state that in Piaget's theory the tendency toward organization implies that events are interrelated and coordinated. Adaptation implies that the person is likely to make changes that ensure survival in the environment which - in Gesell's embracing adaptation - includes language and intelligence (Gesell, 1971). The tendency to adapt is actually based on two specific processes, called assimilation and accommodation. An equilibrium process produces growth and change through constant attempts to bring assimilation and accommodation into equilibrium (McClinton *et al.*, 1978).

Smith and Lowie (1988) maintains that all children should have an equal opportunity of acquiring intelligence and developing their talents and abilities. He assumes that equal opportunities during the so-called Piagetian preconceptual period will result in equality of achievement. Over the past 20 years, however, it has been consistently shown that children from lower social class groups, ethnic minorities and adverse social conditions have only managed to reach average achievements (Smith *et al.*, 1988).

Cognitive developmental theorists emphasized the perspective that children learn through discovery and experience. Although the sequence and processes of development are predetermined, Salkind postulates that this is not true of the actual content of behaviour within these stages (1985). Individual differences are accommodated and the individual is active, rather than reactive, in the developmental process.

2.1.5 Language development approach

Learning theory maintains the assumption that children learn language in the same way as they learn other kinds of behaviour, namely through reinforcement. Social-learning theorists maintain that children imitate the sounds they hear adults make and are then reinforced for doing so - thus emphasizing the role of the environment as the promoter of language development (Papalia, 1989).

Nativists assume that human beings have an inborn capacity for acquiring language and learn to talk as naturally as they learn to walk (Di Leo, 1977; Jordan, 1980). Language performance is one of the significant indicators of neurological maturation, readiness for academic learning, and the level of cognitive function. It is the vehicle with which one acknowledges and explores one's own physical, mental and emotional states (Zaichowsky *et al.*, 1980; Jordan, 1980). Language is a tool for the acquisition of new learning for the control of behaviour (one's own and that of others) and for the identification of the environment (Zaichowsky *et al.*, 1980). Between three and five years of age the child uses both egocentric monologue and interpersonal communication, the latter being characterized by questions, requests and commands. This is often related to his/her immediate environment and those activities in which he/she is engaged (Di Leo, 1977; Zaichowsky *et al.*, 1980). The acquisition of language depends for its existence on an environment that provides the child with experience to analyse (Jordan, 1980). Throughout the pre-school period language development proceeds from one- to two-word utterances to complete, grammatical sentences and a vocabulary of several thousands of words. Almost every child learning to speak any language follows this general sequence of stages. This universality of sequencing indicates that maturation plays a large

role in the child's early language behaviour. As behaviour is closely associated with maturation, it develops in a systematic sequence closely related to age, irrespective of environmental factors (McClinton *et al.*, 1978).

Various theories of child development and what development entails, together with what maturation implies, have been studied. The latter plays a very significant role in Gesell's maturational theory. As this thesis is exploring the Gesell developmental test, the theoretical perspective of Gesell has to be taken into consideration and will subsequently be discussed.

2.2 GESELL'S THEORETICAL PERSPECTIVE OF DEVELOPMENT

For Arnold Gesell and his co-workers, child development is based on a holistic view and the simple philosophy that behaviour is a function of structure and that humans develop in a patterned and predictable way (Gesell, 1979; Ilg *et al.*, 1972). Although Gesell used observation as a means of studying development, criticism of his approach is that little attention is paid to individual differences. On the other hand, it would not be feasible to generalize an individualistic approach to the entire population. Facets of Gesell's holistic view of development will subsequently be discussed.

2.2.1 Gesell's view of development

Gesell's maturational theory places the emphasis on biological forces that provide both the impetus and the direction for development. Functioning is based upon the adequate development of physical structures and thus a specific behaviour is not possible unless the appropriate basic structure has been

developed. Each developmental age has characteristic patterns of mental and physical organization, of social and emotional behaviour and of play interests and activities in the interaction between the organism and the environment. Gesell distinguishes both stages and phases during the developmental process. The stages range from the age of four weeks to 16 years of age. In the infant it starts with physical activity in order to gain homeostasis of its own physiological functions. The following stage (four to 40 weeks) entails the discovery of objects as entities through the senses; followed by the 40 weeks to two year old period where the self is discovered. This stage incorporates the discovery of space and time through movement and is also reflected in the child's use of language. Between two and five years of age the child starts to view people, and thus also him/herself as an entity. According to Gesell (1979), this life cycle is highlighted by the exploration of time and space, the elaboration of representation and the discovery of abstraction. It is followed by a stage (five to 10 years) where the child reasons abstractly and discovers him/herself as a member of a species, society and culture. From the age of 10 years the child defines him/herself and stabilizes as an entity within a specific environment and social milieu. The characteristics of this stage include further exploration of the role of the self with regard to the species, society and culture and also in the ability to separate facts from fantasy. The final developmental stage described by Gesell is that of the 16 year old who is engaged in the task of gaining stability as a member of his/her species, society and culture. According to the author (Gesell, 1979), each stage represents a longer, slower cycle.

Due to their view of the individual's susceptibility during certain critical periods in development, the maturationalists stress the importance of timing in developmental intervention. As age is a fairly accurate indicator of biological

change, it represents a crucial marker of development, and thus also of school readiness, according to Gesell (1979). He views development as characterized by abrupt transitions from one level of development to the next, within the continuous nature of development. According to the maturationalists, there is a swing in development from one end of the continuum to the other during a relatively short period of time.

In spite of individualistic and unique differences among children, developmental sequences are relatively consistent from child to child and from one culture to another (Gesell, 1979). Gesell further differentiates between different developmental cycles, which will subsequently be discussed.

2.2.2 Cycles of development

"Developmental age is the age at which the child is functioning as a total organism - the social, emotional, intellectual and physical components are interdependent" (Gesell, 1979: 7). Growth is thought of as a cyclical spiral within time, moving quite rapidly in early life and slowing down with age. Gesell's cycles of development are divided into six well-defined stages which are repeated throughout life from birth up to adolescence. Each stage has characteristics of its own. Some stages are prevailed by calmness, restraint and compliance, whilst others tend to be characterized by wildness, explosiveness, and definite out of boundedness. The stages described by Gesell range from 0 weeks to 16 years and older. Of these stages, only the period covering the pre-school period is relevant to this study. According to Gesell (1979) the period in which children of the five to six year age group belong, is characterized by the exploration and elaboration of representation, exploration of time and space and

the discovery of abstraction. The nucleus of this cycle encompasses the viewing of concepts as entities. The next cycle (up to 10 years) is summarized in the exploration of abstraction and discovery of self as a member of species, society and culture. Despite the general stages of development, it is important to be cognizant of the child's uniqueness - the individual rate and pattern of growth, as well as particular talents, capabilities and weaknesses. Gesell (1979) points out the necessity to keep in mind that children rarely exhibit the characteristics of just one age.

According to Gesell (1979), growth further represents a non-linear process with the forces of growth alternating between stages of equilibrium and stages of disequilibrium. In this respect, six cycles or phases of development, which do not necessarily all proceed at an even rate, are indicated. These phases, as conveyed by Ilg (1985), a co-worker of Gesell, are subsequently outlined:

- The **smooth** phase (2 years) is characterized by relative calmness, meeting demands to satisfaction, consolidation and enmeshment with the environment. Two year olds meet problems with confidence.
- **Break-up** (2½ years) is trademarked by oppositional behaviour and being at odds with the self and the environment; together with a boiling, bubbling and ritualistic approach to life. These children solve problems by regressing to past behaviours which previously gave results - but are then not satisfied with them.

- **Sorting out** (3 years) is summarized as behaviour which is temporarily quieting. Different tasks, places and situations elicit different related behaviours. They associate results with specific problems or tasks, and establish relationships with other children. The approach to problem-solving lies in the discovery and exploration of new ways to gain approval. Specific behavioural patterns are applicable to specific problems.
- **Inwardizing** (3½ years). Children in this phase of development search for stability, order and little change. They are fearful of the unexpected. The child depends on what he/she can control and fit into the world within him/herself. The approach to problem-solving is an inductive process, working from parts to get to the whole.
- **Expansion** (4 years). This phase is characterized by constant motion and noise and vigorous movement. The children are so lost in filling newly discovered spaces, that they lose themselves in the process. Movement and change are the keys to direction and are sought after. Deductive reasoning is used in problem solving - the child wants to deal with the whole, so they will know what the parts are.
- **"Neurotic" fitting together** (4½ years). This phase is characterized by intricate enmeshing of forces, and the ability to separate fact from fantasy. It is a "bothered" age, because children have a glimmer of what is possible, but they cannot always achieve the possible. In problem-solving, the child sees the problem and many alternatives in dealing with it. This leads them to not being sure of which possibility is more probable, and what the end result should look like.

- At the age of five years children enter another **smooth phase** in which everything is "good", and they are positive realists. They are interested in the here and now. They try to make the familiar more familiar. They play house, play father or mother working and are not terribly receptive to talk and tales of magic and fairy tales. Their egocentricity is shown in personal ownership rather than general ownership. The children are integrated in their actions and are conformist. The self-limitations are stronger than self-assertion.

- The 5½ year phase represents the next **break-up** period which is characterized by a sense of certain inconsistencies in their world; combative behaviour; resistance, dawdling, indecisiveness, overdemandingness and explosiveness; instability of emotions. Life is now one of double alternatives.

- **Sorting out.** Gesell sees the six year old phase as one of action, with the system undergoing real growth changes. The child tends to be very dramatic and has a natural tendency to express and to organize new experiences through muscular action. They react with the whole body when they cry. They use body posture, gestures and speech to give expression to emotional tides. They are selfish, act with impulsive enthusiasm, and release tension at home by running around wildly, crying and picking fights. The six year old child can count up to 10 and needs help to control bursts of activity, and brash, impulsive reactions.

In the following section the general development of children, and more specifically the developmental profiles of five and six year old children, will be discussed according to the Gesell developmental schedule (Gesell, 1979; Ilg, 1985). This can be regarded as what is expected from the child within the age groups of five and six years and is representative of the diagnostic criteria of the age group in question in this study.

2.3 THE FOUR FIELDS OF BEHAVIOUR DISTINGUISHED BY GESELL

The four fields of behaviour distinguished by Gesell (1979) are entitled motor, languages, adaptive and personal-social, and in the next section they will be discussed in the same sequence.

2.3.1 Physical/motor behaviour

According to Gesell (1965) early childhood can be regarded as a period of integration and stabilization of basic behaviour. Motor characteristics include postural reaction, prehension, locomotion, general bodily coordination and specific motor skills (Gesell, 1965). Gesell views the term behaviour as a convenient term for all the child's actions - whether reflex, voluntary, spontaneous, or learned. The child, at birth, is already endowed with all the nerve cells he will ever have. "The infant of today is a token of the past as well as a promise of the future which means that his nervous system is the carrier of an immense series of evolutionary adaptation" (Gesell, 1942: 13). Motor behaviour has many neurological implications, because as the nervous system undergoes growth differentiations, the resulting behavioural responses differentiate accordingly. The interesting features about the development of

complex movements are that their automatization increases rather than lessen their adaptability to new demands (Gesell, 1966: 65). According to Gesell all forms of motor behaviour are actually postural activities and forms of locomotion or prehension are essentially a closely knit series of sequential postural adjustments. He further states that an increase in automatization also indicates the continuity of development to complexity and higher and more defined skills of later years. Movements entail adjustments of the organism to its environment. Pattern changes in the nerve cells produce corresponding changes in patterns of behaviour (Gesell *et al.*, 1984).

Gross motor behaviour includes postural reactions, head balance, sitting, standing, creeping and walking, whereas fine motor behaviour consists of the use of the hands and fingers in the prehensory approach to grasping and manipulation of an object (Knoblock & Pasamanick, 1974). Through ceaseless manipulation of objects, the child penetrates further into the topography and the solid geometry of space.

2.3.1.1 Gesell's developmental profiles of the motor abilities of five and six year old children

During the preschool years the child is growing at a relatively slower, steadier rate than during the period of infancy. The five year old child weighs around 19 kilograms. There are no large differences between boys and girls during this period, although boys are slightly heavier than girls. The five year old is about 1,07 meter in height. Teeth are shed at six years and permanent teeth replace them. The general trends in the achievement of body control include the sequence from reflexive action to unconscious cortical control, the transition

from bilateral to unilateral control, and the tendency from maximum towards a minimum of muscular involvement. The preschool years represent a time of incessant gross motor activity, during which there is continuous practice and improvement in locomotor action with all its variations - such as in the manipulation of objects and an increased skill in coordinating body action with sensory stimulation (Gesell, 1964). Gross motor ability includes, amongst others, balancing on narrow beams of wood, climbing, throwing, catching a ball with both hands, standing on one foot with hands folded on the chest, jump on one foot for ten successive times, riding a two-wheel bicycle; moving rhythmically according to music; running, jumping over a rope, diving, using alternative feet when climbing steps, hopping, walking on a straight line, swimming, and getting up into a standing position without using the hands. The five year old is more agile than at four and more controlled in general bodily activity. Five year olds have a "more mature" sense of balance, which makes them seem more sure and less given to caution on the playground (Gesell, 1966: 52). At five years the child is quite adept in executing complicated synergetic muscular activities and can hop for a distance of four meters, and walk long distances on tiptoes. At six years old, children can jump from a height of 30 centimeters, landing on the toes, hop 17 meters, make a standing broad jump of about 90 cm, walk on the toes for three meters. He/she can "take a long step in both walking and running and normally exhibits greater alacrity in his movement" (Gesell, 1966: 73).

According to Gesell the perception of depth is the result of the gradual integration of visual and proprioceptive cues. The five year old maintains an easy reaching balance and combines the reaching for and placing of objects into one continuous movement. The six year old smoothly synchronizes coordination.

The motor maturity scale includes, amongst others, a well-developed sense of equilibrium and an increased social adaptability. The spontaneous postural demeanours give an impression of relative finishing and completeness. The child shows greater precision and command of tools. The five year old likewise controls a crayon when drawing with greater assurance and definitiveness. The straight strokes show an increased neuro-muscular command over the downward vertical, left to right horizontal, and downward oblique axes. He/she has difficulty with the obliques required in the copying of a diamond, but is quite able to copy a square and a triangle (Gesell, *et al.*, 1940).

In summary, fine motor ability levels for five - six year olds include: holding paint brushes and using them to paint more intricate objects like a circle; cutting papers with scissors; folding papers into triangles; pasting papers; colouring in of pictures with coloured crayons; imitating patterns, letters, figures, numbers and writing his/her own name; making stars; eating with a fork; cutting own meat; tying shoe laces, fastening buttons, combing and brushing hair, and bathing (Gesell, 1973).

2.3.2 Personal-social behaviour

Personal-social behaviour comprises the child's reactions to other persons and his/her adjustments to the impacts of culture. "Personal-social behaviour comprises the child's personal reaction to domestic life, to property, to social groups and community conventions and reactions to the social culture in which he lives" (Gesell, 1966: 4). "These reactions are so multitudinous, variegated and contingent upon environment that they might seem to be beyond the reach

of developmental diagnosis. These behaviour patterns are determined by intrinsic growth factors, their attainment depending upon the child's neuromotor maturity" (Gesell, 1966: 4). These behavioural traits include the child's abilities and attitudes, feeding abilities, self-dependence in play cooperation and responsiveness to training and social conventions. "Certain rhythms of sleep, feeding and elimination must be adjusted to the culture into which the baby is born" (Gesell, 1942: 21). Personal-social behaviour is particularly subject to societal goals and individual variations (Knobloch, 1974: 5). The family is both a biological and cultural group. It is biologic in the sense that it is the best arrangement for begetting children and protecting them where they are dependent. It is a cultural group, because it brings "into intimate association persons of different age and sex who renew and reshape the folkways of the society into which they are born" (Gesell, 1942: 9).

2.3.2.1 Gesell's developmental profiles of the personal-social abilities of five and six year old children

The five year old is relatively independent and self-sufficient, and is already mature enough to fit into a simple type of culture. He/she is dependable and obedient in the household. Normally, he/she gives little trouble regarding sleeping patterns, toilet habits, dressing, and in the duties of everyday life. The five year old is protective toward younger playmates and siblings. In under-privileged homes the five year old frequently shows remarkable competence and responsibility in sharing in the care of an infant. According to Gesell the five year old, if he/she got lost in a big city, would be able to tell his/her name and address. A child of this age is calm and might exhibit indifference in distressful and tragic situations, because his/her emotional organization is limited by the

self-engrossment which has already been noted in his/her intellectual reactions. This child is innocent of certain complex emotions because he/she is still simply organized. But in less complicated situations attractive emotional traits and attitudes like seriousness, purposefulness, patience, persistence, carefulness, generosity, outgoingness, sociability, friendliness, poise, pride in accomplishment, pride in going to school, satisfaction in artistic production, and pride in possession are clearly displayed. This child plays in groups of two to five with new sociability. He/she is very social and talkative during meals. Although he/she does not have a sophisticated appreciation of cooperation, a sensitivity exists towards social situations. He/she likes to make an impression on companions. Children of five are also beginning to realize that companions sometimes cheat in play. So they themselves may develop a tendency to use mild deceptions and fabrications. They have an elementary sense of shame and disgrace, as well as of status. They are more conscious of cultural differences as well as differences between the two sexes. Typically they are stable and well adjusted in emotional life, as well as in intellectual outlook. Self-assurance, confidence in others, and social conformity are cardinal personal-social traits at five (Gesell, 1940).

The five year old is interested in the completion of a task - even to the extent of cleaning his/her plate. The self-help of feeding him/herself is done skilfully but slowly. He/she tends to eat faster when eating alone. He/she has a conventional ability and tendency to monopolize the conversation. The child likes to conform and will, if reprimanded, make an effort to improve his/her behaviour, although frequent reminders might be needed. A short nap is taken occasionally as anti-fatigue adjustment. Bedtime (e.g. 19h00) is persistently kept and if they have not been disturbed by nightmares and dreams five - six year olds

sleep for approximately 11 hours per night. Although five - six year olds take fairly good responsibility for toileting, they often urinate infrequently and put off going to the toilet during this stage. It is customary for a five - six year old to have one elimination a day. Bathing is accomplished with a fair amount of speed and participation by the child. Five to six year olds do better at dressing if the clothes are laid out singly on the floor (Gesell, 1973).

The child's learning of cultural roles and expectations, such as self-control, and acceptable and unacceptable behaviour is achieved through the interaction with other people, including adults. The ratio of acquisition may vary according to the culture within which the child grows up. Acceptable behavioural patterns are: cooperation, sympathy and empathy, need for social approval, imitation, attachment to persons, and the learning and the respecting of sex-differences. Role modelling of parents influence sex identification and typification. The five to six year old has grasped the understanding of the world and his/her own identity. The child is reasonably independent and self-sufficient and tends to be trustworthy and attentive to household chores. Few problems are met with in sleeping, toilet and eating habits. He/she takes a keen interest in household activities, whilst emotional reactions are still very unpretentious.

Play activity is functional in the development of the child as it provides an outlet to release superfluous energy; it aids in skeletal development and physical fitness; it allows the child to take risks and to resolve conflicts; it fosters socialization, cooperation and the subjection to rules (Gesell, 1973; Stander, 1988).

2.3.3 Language behaviour

Language embraces all behaviour of the child in connection with "soliloquy, dramatic expressions, communication and comprehension" (Gesell, 1966: 14). Language behaviour includes mimicry and comprehension of the communications of others.

Language articulation and speech are functions which depend upon a social milieu, but which also require, primarily, the readiness of sensori-motor and cortical structure of language. Inarticulate vocalizations and vocal signs precede words, which are learned from and reinforced by others in the environment. Given the minimal prerequisite of normal intellectual potential, language is socially determined. If the input is rich, language is elaborated and facilitates the expression of other cognitive abilities. "A restricted language milieu may exert a developmental penalty, but the child should not be penalized for his limitations in communications" (Knobloch, 1974: 138). In children who are otherwise normal, speech production may sometimes be delayed, "while language comprehension and communication through gesture and pantomime remain entirely age-appropriate" (Knobloch, 1974: 138).

2.3.3.1 Language behaviour of five to six year olds

The five to six year old has not only acquired the ability to use language efficiently, but has begun to have a sense of the social standards and limitations with respect to its use. Five year olds talk without infantile articulation. Their answers to questions are more succinct and to the point. Their questions are

answers betray an interest in the practical mechanisms of the universe. They are pragmatic, serious and empirical. Language is not essentially complete in structure and form. The five year old has assimilated the syntactical conventions and expresses himself in correct, finished sentences. The dramatic play of five is full of practical dialogue and commentary which has to do with the everyday functions of business, kitchen, grocery and store, transportation, garage. "The preoccupation with community situations in group-play reflects an intellectual effort to understand social organization" (Gesell, 1940: 56).

The talk of the five year old is in essence a form of "collective monologue" and does not bear upon causal or logical relationships. Although five year olds classify the world in which they live through a discriminating and even analytic use of words, their thinking is still so self-confined that they cannot suppress their own point of view even temporarily, in order to realize their reciprocity to the point of view of others. They lack synthetic capacity and the power of explicit reasoning. They make no distinction between the physical and psychological; they confuse physical causality with psychological motivation.

"He is so egocentric (in Piaget's sense) that he is unconscious of himself, unaware of his own thinking as a subjective process separate from the objective world. Hence an intellectual innocence which is profoundly primitive in spite of a deceptive mature facility in grammar and speech" (Gesell, 1940: 56).

Social speech communicates feelings and thoughts and is intended to be understood by someone other than the speaker. The five to six year old child

has a good control of elements of conversation and shows much less tendency to over-respond in answering questions.

At the age of five, concept of numbers, up through ten, is expected to be pretty well established; more familiar colour names should be used correctly; and names of familiar objects should be remembered. Comprehension questions require verbal adaptation to hypothetical or socially significant situations (Gesell, 1976). The five to six year old personifies the centre of his/her own universe. The child thus operates from a self-centred base, which corresponds with the stage of egocentrism, as described by Piaget (1929). From the age of six years the child takes a more active part in reading.

Five to six year old children begin to use sentences of six to eight words. They can define simple words, and they know some opposites. They can now deal with prepositions like *over*, *under*, *in*, and *behind*. They use verbs more than nouns. They use more conjunctions, prepositions and adjectives (Gesell, 1973, 1976; Papalia, 1989).

2.3.4 Adaptive behaviour

Adaptivity includes alertness, intelligence and various forms of constructiveness and exploration (Gesell, 1966). Gesell maintains that adaptive behaviour is a convenient category for "those varied adjustments, perceptual, orientational, manual, and verbal, which reflect the child's capacity to initiate new experiences and to profit by past experience" (Gesell, 1966).

"The 5 year old builds a complicated, three-dimensional structure whereas the 6 year old reverts to building in two dimensions, but has less ambitious notions though he suits his constructions to his material" (Gesell, 1966: 111). At five years, the child shows marked improvement in speed, dexterity and precision in the placement of objects. The discriminating appreciation of visual-spatial relationships, ability in eye-hand coordination and control of the mechanism of release is demonstrated by the child's expert and almost perfect alignment of the cubes in tower building. "He performs in a cool, deliberate and confident manner, and unless he becomes careless, there is little risk of displacement on release" (Gesell, 1966: 84).

Fine motor behaviour consists of the use of the hands and fingers in the prehensory approach to grasping and manipulation of objects. Adaptive behaviour, the forerunner of later intelligent behaviour, must be the primary basis for predicting intellectual potential. The infant's integration of stimuli in a meaningful fashion is a complicated process, and is the index of the intactness of his cerebral cortex (Gesell, 1942).

2.3.4.1 The adaptive behaviour profile of five to six year olds

Adaptive behaviour has been described as "a convenient category for those varied adjustments, perceptual, orientational, manual and verbal which reflect the child's capacity to initiate new experiences and to profit by past experience" (Gesell, 1976: 108).

The five year old shows conclusiveness and autocriticism, can count ten objects and can tell his/her age.

"Here we reckon with the finer sensori-motor adjustments to objects and situations, the co-ordination of eyes and hands in reading and manipulation, the ability to utilize the motor equipment appropriately in the solution of practical problems; the capacity to initiate new adjustment in the presence of simple problem situations which we set before the infant" (Gesell, 1942: 5).

The relative motor maturity of five to six year olds reflects in the way they solve problems which includes geometric and spatial relationships. Other characteristics and abilities rest on a comparable perceptiveness of order, form and detail. The child is expected at five years to master the sequence according to size and forms; put back his toys safely; master the drawing of a human figure from head to toe and be able to notice what is missing; be able to complete what he/she has started and be able to discriminate between numbers. Five year olds can intelligently count ten objects, and can do a few simple concrete sums within the magnitude of their age. The five to six year old shows better understanding of time; repeats the theme of the story told to him; shows better understanding of concepts of time, like *yesterday* and *tomorrow*; is able to recall musical tunes; can be accurate, relevant and practical, and is able to sustain attention and adhere to reality in a reasonable fashion (Gesell, 1973, 1974). "Intellectually they seem well oriented, but close examination of their verbalized judgement and notions discloses amazing forms of immaturity in their thinking" (Gesell, 1940: 54).

2.4 SCHOOL-READINESS CRITERIA

The developmental profile of Gesell as discussed, makes it clear that the child of five to six years old is expected to have achieved a behavioural profile which implies readiness for school. This could be expected to be the case, as the five to six year old child finds him/herself in a preparative stage for starting formal education. The mentioned maturational tasks bring us to the general criteria for school readiness as expected in most countries and communities. As this project concerns the school-readiness of children, the following section will deal with this issue.

School readiness criteria refer to certain standards that are set. The child's competence in these respects, would indicate his/her readiness for formal school attendance. Although many researchers have set criteria, the following summary is based on the work of De Witt (1988), who refers to five aspects of school readiness, corresponding with the Gesell view of school readiness.

2.4.1 Criteria of emotional readiness

The child asks questions and explores his/her world. The child is expected to make choices and also show independence in spite of the presence of adults. A certain amount of confidence and control of feelings should be more dominant than at a younger age. The child must not be over anxious, but be able to take and/or hold his/her place.

2.4.2 Criteria for social readiness

At this age the child is expected to be able to communicate with other children and form relationships. A shift from egocentrism to altruism should be made, implying the child's being able to share with others. Gradual conformation and identification with the peer group should be noticeable. Positive self-image should be present. In the process of disengagement from parents, the child should start to form relationships with other children.

2.4.3 Criteria with regard to physical readiness

The child should be able to run with ease, stand on one foot for five seconds and balance for a set period of time; be able to walk on a straight line; catch and throw a ball; know that he/she is left handed or right-handed; skip and hop and be able to somersault. The bodily movements should be fluent by now.

2.4.4 Criteria for intellectual readiness

The child is expected to be able to count, to do one-to-one pairing, be able to recognize and copy certain forms, be able to understand cause and results; be able to do simple subtraction and division; be able to see certain similarities and differences; be able to recognize regular rules; differentiate between the background and foreground; be able to estimate, plan and judge/assess/evaluate and have understanding of symbols. Initial trial and error is now replaced by insight in problem solving (De Witt, 1988).

2.4.5 Criteria for normative readiness

The child is able to subject him/herself to authority; to differentiate between decent and indecent behaviour and to know and be able to use concepts like *please, thank you, and excuse me*. He/she easily switches into a routine time for eating, and the use of toilet facilities, etc. He/she is able to eat properly; respect the rights of others and respect simple rules and regulations (De Witt, 1988).

In the previous paragraphs school-readiness criteria and behavioural profiles have been discussed. This information indicates what is expected from the "normal" child of the pre-school age group. Since only children who meet the criteria of normality were to be included in the study this script is concerned with, the term *normality* is subsequently analysed. Normality is, both in the theoretical and pragmatical sense, a very difficult concept to define.

2.5 NORMALITY

Normality is defined by Offer (1974) as a dynamic equilibrium of living organisms. The concept of homeostasis directs attention to the complex interactions of the various bodily systems (Offer, 1974: 7). In Piaget's theory, normality equals progression (Irvine, 1988). Different approaches exist towards the meaning of normality. A few of these are subsequently mentioned.

(i) Existentialism

Existentialism and phenomenological dialectical approach to normality does not stand as the opposite of abnormality, nor as the absence of all abnormalities, but rather as a complex entity, qualitatively different from those entities composing abnormalities (Offer, 1974).

(ii) Psychoanalytic

Psychoanalytic theorists view normality as an ideal fiction. Freud, in his concept of universality, sees normality as an ideal, an absolute, the end range and hence non-existent. He viewed normality as based on the following categorization (Offer, 1974):

- Descriptive meaning which means absolute psychic normality
- Structural meaning implying absolute psychic normality
- Economical meaning - the harmony of the ego
- Functional meaning, implying the degree of normality, and
- Social meaning, implying schematic normality.

Psychoanalysts present the following criteria for normality in optimal integration:

- Emotional maturity implying the ability to enjoy every pleasure with relative freedom.
- Strength of character.
- Capacity to deal with conflicting emotions.
- A balance between internal life and adaptation to reality.

(iii) Statistical and normative concepts

Telef's doctrine assumes that the average man appears as nature's ideal, "... and deviate toward the good, as well as towards the bad, to appear as different degrees of nature's mistakes", and "that the average is the most frequent value and nature's large errors are rare" (Offer, 1974: 51).

(iv) The cultural relativism of normality

Offer (1974) states that both Benedict and anthropologists were of the opinion that culture permits few people to flourish, in that the dominant determines the culture and normality, whereas the rest are regarded as abnormal. This pressurizes others to conform to the dominant majority and leads to the acculturation of minority cultures. The culture that defines the criteria will also determine the classification and distribution of normality.

(v) Universalistic criteria

The universalistic criteria for normality can be evaluated pragmatically by emphasizing the importance of man's ability to relate to his fellow men through sociability, security and status. The four areas on which normality is based is health, utopia, average and transactional systems. The latter stresses that normal behaviour is the end result of interacting systems that change over time.

Though normality and health have often been associated with terms such as "adaptation" in Gesell; "competence" in Binet; and most recently "coping" - it

appears that the healthier the defences, the better the coping abilities (Offer, 1974).

According to Jensen (1981) abnormalities can be classified into three categories, namely:

- Major gene defects - mutant genes; PKU, micro encephaly.
- Chromosomal abnormalities like Down's Syndrome.
- Brain damage such as is caused by encephalitis.

Taking cognizance of the variety of explanations of normality, it becomes complex to make an assumption of normality *per se*. Normality rather refers to some point on the continuum between abnormality and normality. For the purpose of the study, to be described later on in this script, all children whose parents and teachers did not report (questionnaires) and/or did not display severe physical and/or intellectual and/or emotional problems and were healthy enough to complete the test, were assumed to be within the limits of normality and were included in the data acquisition process.

In his longitudinal studies in 1930, Gesell applied similar criteria to children, excluding those who had a history of birth injury or other disease. He further pointed out that with the aid of established "norms" one can determine how far an individual child had developed in relation to his/her age (Illingworth, 1968). Should the infant lag behind within the first 3 years, this could be indicative of mental defectiveness. According to Gesell (1979), normality is contained in the mentioned adaptive, social, behavioural, and personal fields which encompass the totality of a human being.

Summary

In this chapter different theories of child development were looked into, whilst the developmental profiles of pre-school children, as well as school-readiness criteria, were discussed. Having seen the various theories of development - and especially the holistic approach of Gesell, with its relevance to school-readiness - normality was also looked at. The discussion of these issues provides a basis for the investigation into the cross-cultural approach with regard to the assessment of child development.

CROSS-CULTURAL ASSESSMENT OF CHILD DEVELOPMENT

Child developmental theories and developmental profiles of preschool children have been under discussion and an attempt has been made to explain normality. In this section attention will be paid to the assessment of development in young children, with special reference to the assessment of children from culture groups that differ from those for whom tests were primarily developed. The first to be mentioned, are some of the tests that are currently being used in the South African situation.

3.1 TESTS USED IN THE SOUTH AFRICAN SITUATION

Although many tests, such as the

- Wechsler Intelligence Scale for Children (WISC-R);

- Wechsler Preschool and Primary Scale of Intelligence for children between 4 and 6½ years;
- Peabody Picture Vocabulary Test (hearing or receptive vocabulary) containing four pictures each per age level and arranged in ascending order of difficulty;
- Cattell Culture Fair Intelligence Tests Scale 1 (ages four to eight);
- Children's Personality Questionnaire (CPQ); and
- Columbia Mental Maturity Scale (non-language, culture-fair for cerebral palsied children, ages 3 to 10)

are available in the international market, this section will only include information on the tests readily available for use in South Africa. Different tests, which can be used to assess children, are currently available on the South African market. For use within different socio-cultural environments, tests should be culture-fair in that they are presented in a language familiar to the child, that culturally unfamiliar objects and pictures are not contained in the materials and that the lack of previous experience in test taking is kept in mind. The most appropriate tests for five to six year old children from different socio-cultural environments, will subsequently be discussed. The tests will be mentioned according to the aspects they assess, namely intellectual ability, developmental aspects, psycho-linguistic abilities and emotional maturity (HSRC Manual, 1993).

3.1.1 Intelligence Tests

(a) *The Junior South African Individual Scale (JSAIS).*

The JSAIS (1979) is a battery comprising 21 separate scales which measure various aspects of the cognitive functioning of children of between three and seven years.

(b) *The Senior South African Individual Scale (SSAIS)*

The SSAIS (1964) is intended for 6 to 17 years olds.

(c) *The Cattell Culture-Fair Intelligence Test*

The Cattell test measures individual intelligence in children between four and eight years of age in a manner designed to reduce as much as possible the influence of verbal fluency, cultural climate and educational climate.

(d) *Leiter International Performance Scale*

This scale measures the general intelligence using tasks that require no verbal instructions or answers. This test was designed in the USA for children from foreign or non-Western cultural backgrounds of between two years and 18 years.

(e) *Griffiths Mental Development Scales*

The Griffiths Scale of Mental Developmental measures trends of development that are significant of intelligence and are therefore indicative of mental growth in babies and young children (birth to two years of age). Designed by Griffiths (1954), they measure locomotor development, personal social adjustment, hearing and speech, hand and eye coordination and performance. According to Aiken (1972), the Griffith lacks predictive validity and is more verbal than non-verbal.

(f) *Test of Non-verbal Intelligence (TONI)*

TONI tests non-verbal intelligence and is suitable for language and/or hearing impaired individuals.

(g) *Metropolitan Readiness Tests (MRT)*

These tests are designed to measure the pre-reading skills of children enrolled in kindergarten or beginning first grade.

(h) *Metropolitan Achievement Tests (MAT)*

These tests provide a national measure of a student's acquisition of materials taught in classrooms from kindergarten through grade 12.



- (i) *Peabody Individual Achievement Tests (PIAT)* are designed to measure achievement from kindergarten through high school (5 years to 18 years).
- (j) *Stanford Achievement Test (SAT)* provides a comprehensive set of tests for various types of achievements related to the school curriculum in the primary, intermediate, and advanced secondary school levels.

3.1.2 Developmental Tests

Developmental tests seek to assess a child's degree of maturity in a given area of cognitive, affective, or psychomotor growth. Tests may include observation of a child's physical characteristics.

(a) Bayley Scales of Infant Development

This measure is designed to ascertain the infant's developmental status and to determine the extent of any deviation from normal development. The test is designed for children from 2 months to 30 months.

(b) McCarthy Scales of Children's Abilities (MSCA)

These scales yield seven measures of intellectual and motor development and are designed to serve as a single instrument to measure the overall development of young children from two and a half to eight and a half years of age. McCarthy measures skills that are needed for school success and is used as an indicator of remedial intervention.

(c) *Denver Developmental Screening Test (DDST)*

This test focuses on aiding the identification of developmental problems and delays in preschool children.

(d) *Gesell Developmental Schedule (GDS)*

This test is designed to assess the maturity of the young child regarding his/her adaptive, motor, language, and personal social development.

(e) *Detroit Tests of Learning Aptitude (DTLA)*

The Detroit tests are designed to provide a graphic representation of individual children's psychological strengths and weaknesses and to relate these to learning problems.

(f) *Minnesota Child Development Inventory (MCDI)*

This measure is designed to be completed by the mother of the one to six year old child to yield uniform data about the developmental level of the child.

(g) *Purdue Perceptual-Motor Survey (PPMS)*

The PPMS is designed to provide teachers with a measure to identify children - from the first through fourth grades - who may be lacking in

certain perceptual-motor skills deemed to be a prerequisite for normal acquisition of academic skills. It thus can indicate major areas of deficit for intervention.

3.1.3 Psycholinguistic tests

Sentence completion tests, projective drawings, the Children's Apperception Test (CAT) and the Child and Adolescent Rorschach tests are all personality tests which are used diagnostically.

(a) *Illinois Test of Psycholinguistic Abilities (ITPA)*

This test was developed to provide a diagnostic measure and to determine the specific abilities and disabilities which might be important with regard to children's learning.

(b) *Gesell Developmental Schedule (GDS)*

This test, mentioned under the Developmental Tests, includes a language component.

(c) *Griffith's Scale of Mental Development*

The Griffith's Scale of Mental Development was also mentioned under the Developmental Tests, but is indicated here because it includes assessment of hearing and speech performance.

3.1.4 Emotional Tests

Emotional tests represent projective assessment instruments. All projective devices rest upon the assumption that the manner in which the person is organized psychologically will determine the content and style of that person's perception. Emotional measures include tests such as the Minnesota Multiple Personality Inventory (MMPI: for use with adults. Tests for use with children, include the following:

(a) *The Task of Emotional Development (TED)*

The Task of Emotional Development (TED) is a projective test which was devised in order that professionals working with children and adolescents could identify emotional health problems which might be interfering with the child's functioning.

(b) *Make a Picture Story Methods (MAPS)*

MAPS was designed to be used in both psychodynamic interpretation of personality and in the psychiatric classification of subjects from ages six to ages beyond 60.

3.1.5 Personality Tests

These tests evaluate personality tendencies, mental functioning, interests, responsiveness and temperament for use in guidance, selection and placement.

The Structured Objective Rorschach Test (SOT) (1975) is used for adults, whilst the equivalent test, suitable for children younger than eight years, is called the Children's Apperception Test (CAT).

In summary it can be said that, although the mentioned tests have been used extensively, they are not necessarily suitable for use with young children from other culture groups. In order to qualify this statement, the following section will deal with ways in which cultural differences could influence the test performance of children.

3.2 A GLIMPSE AT DEVELOPMENTAL APPROACHES IN DIFFERENT CULTURES

Development of children in all cultures is, in the first instance, genetically determined - whilst the behaviour of these children is defined by the culture within which they develop. Cultural factors prescribe what shall be learned and at what age. According to Ferguson different cultural environments lead to the development of different patterns of ability (Irvine, 1988). What is seen as normal development within one culture, would not necessarily be within normal limits for another. The interaction between culture and environment regarding certain aspects of the child's development necessitates that at this stage, diverse cultural styles of child rearing should be taken cognizance of. In order to study a child from a certain cultural environment, one must thus be aware of differences in expectations. The following paragraphs, excerpted from Abel, Metraux and Roll (1991), illustrate some typical examples.

Japanese see the infant as a separate biological organism who from the beginning, in order to develop, needs to be drawn into increasingly interdependent relations with others. Americans see the infant as a dependent biological organism who, in order to develop, needs to be made increasingly independent of others.

The French and the German regard infants as essentially passive and dependent on the mother's initiative and control. German children are expected to deliberately reason with their mothers and not be submissive. Mothers establish firm discipline, so that obedience to impersonally stated rules will be taken for granted by the child.

French children are raised to be safe and reasonable. A child is not expected to differentiate truth and falsehood before the age of five or six or to be capable of abstract reasoning before early adolescence. It is the responsibility of teachers to "awaken the child's mind" and to teach the child in such a way that the child's making mistakes is prevented. Spontaneity, for the French, is safe and creative and discipline is regarded as a continuous process (Abel *et al.*, 1991).

Early Indian childhood involves a lengthy maternal:child symbiosis and development, for both men and women, continues to emphasize dependency throughout the life cycle. Indian children are encouraged to live, for long periods, in a mythical and magical world. In the childhood world, objects, events, and other people do not have an existence of their own, but are intimately related to the self and its mysterious world (Abel *et al.*, 1991).

In the RSA, we find multicultural and multinational societies among the blacks (Segoete, 1979; Sekese, 1978). With the first child, the mother is given special treatment for three months during which she will be served because of the honour of childbirth to extend the generation of the husband. Breast feeding stretches up to a year, promoting security, dependency and attention for the child. The grandfather and grandmother were initial educators of folklores and customs where children from two years to eight years were told about the heroic deeds and epics of the folk, whilst interesting stories and fables were also related. From the age of eight years the boy takes the responsibility of looking after the sheep and lambs and calves. From 12 to 16 years the boys can be sent to initiation school for six months where the boys are prepared to be soldiers, men and the carriers of tradition. Heroic deeds and powers are highly appreciated. Girls are trained as early as from eight years to become good wives. At this stage they are already booked by adults for their sons. The children are not only for the blood parents but are for the nation - hence children had to respect each and every adult in spite of nationality. Communal life of the blacks, in which they give a helping hand to one another in times of troubles and hardship, maintains societal *esprit de corpse*. Sharing and generous giving to the destitute are highly recommendable. God is respected and can only be addressed through those near Him, namely the ancestors. However, Westernization has to a great extent changed some of these basic cultural institutions (Segoete, 1979; Sekese, 1978).

3.3 CROSS-CULTURAL ASSESSMENT OF CHILD DEVELOPMENT

Having briefly surveyed some cultural views on child-rearing, some aspects concerning the assessment of child development across cultural barriers will now be discussed. This will include information on aspects such as cultural relativism, cultural bias and the comparability of different cultures.

3.3.1 Intelligence testing in other culture groups

South Africa is fundamentally a Third-World nation with the majority of its multicultural and multinational inhabitants being subjected to the same acculturation forces that operate elsewhere on the continent (Kendall, 1988).

In the 1940s and 1950s an attempt was made to measure ability by holding constant aspects in the test that had strong cultural influence and concentrating on common elements to all cultures. The fact that cultural factors reinforce certain modes of behaviour and discourage others became matters questioned in African research. The unavoidable role played by culture in determining the level of group performance on cognitive tests posed serious problems. Researchers concluded that any retardation in the specific skills and abilities among the African is less a function of maturation and more a question of culturally determined factors. Africa is undergoing cultural change and it is important to be able to measure the capacity to adapt to such a change.

In Cronbach *et al.* (1972) Biesheuvel questions the usefulness of "intelligence", whilst Taylor introduced "adaptability" as a target for investigation in South Africa. Biesheuvel defines adaptability as the concept that measures the

advantages of "what people can learn to do" and this provides the scope for "... the recognition of genetic, constitutional and cultural involvement without prejudgement of the relative importance of any one determinant" (Cronbach, 1972: 50). Reasons for the preferral of the concept "adaptability" by the Gesell developmental theory, are discussed subsequently.

Intelligence is seen as an inherited attribute rather than performance that can be modified by learning. The fact that testing within a country is equally culture-bound and that within one nation many differences in environmental influence and educational possibilities are found, cannot be ignored. Against this background it became necessary for psychologists to take into consideration findings such as these and to guard against discrimination. Instruments measuring higher mental processes must be sensitive to, and reflective of, the ecology of learning of different populations. Franklin (1972) advises that to gain a better understanding of performance, particularly intellectual performance, it may be more advantageous to focus on the specific population and contextual characteristics that define abilities.

Valid tests or items may contribute to discrimination against a minority group when a correlation exists between the test or item and race, sex or religion. Nevertheless, it is possible to develop cognitive tests which satisfy the usual criteria for reliability and validity specifically for illiterate and semiliterate children. Cronbach (1972) outlines the objectives of cross-cultural measurement as follows:

- The first requirement in working towards a definite conceptualization and methodology in cross-cultural psychology is to formulate the purpose of cross-cultural research and measurement.
- The second objective is to study the influence upon behaviour and on the origin of individual differences of a wider range of environmental variation than is available within a single culture or than could be experimentally manipulated in any culture.
- Third, cross-cultural psychology leads on to an examination of the generality of explanatory constructs and concepts that constitute the body of psychological knowledge.
- The fourth objective is the description of group differences, be they ethnic, cultural or sub-cultural.

3.3.2 Cultural relativism

Cultural relativism reflects to culture seen in terms of its own evaluative system. Judgement is based upon "own experience and reflects deep-seated enculturation to a limited and specific culture" (Segall *et al.*, 1966: 17). Berry (in Cronbach, 1972) states that psychologists should attempt to demonstrate that cognitive functioning is adaptive to qualitatively differing cultural demands and that, instead of intelligence, alternative concepts of cognitive competence should be used. Berry argues that the investigators themselves were part of the culture which determined the course of development. Furthermore, the character of phenomena which they studied must have influenced the formulation of laws,

the description of typical processes and the setting of developmental norms (Berry, 1972; Segall *et al.*, 1991). Dague (1972) alleged that culture-free tests are not independent of cultural factors, particularly of literacy. No test of intelligence could be independent of cultural factors and cultural variables are inevitably constituents of human perception (Segall *et al.*, 1966).

To avoid these problems, Berry (in Cronbach, 1972) advised psychologists to socialize within non-Western ethnic groups and explore their intellectual system for concepts traditionally used to refer to general cognitive ability. Furthermore, Western psychologists should search the historical roots of their own concepts, in an attempt to discover previous insight about and justifications for the notions of qualitatively different "intelligence". Lastly, psychologists should attempt to demonstrate that cognitive functioning is adaptive to differing cultural demands.

3.3.3 Cultural bias

For tests to be standardized, implies that they must be administered with standard directions under standard conditions to a sample of examinees representative of the group for whom the test is intended (Jensen, 1981). The ultimate aim of standardization is the establishment of norms which will serve as a frame of reference for interpreting ratio scores. Jensen (1981: 133) describes standardization fallacy as follows:

".... not that a test standardized in one group might not be biased against other groups, but the dogmatic claim that it is necessarily biased against any other group simply by virtue of its standardization on a different group".

"Bias" means a systematic error of measurement or estimation. According to Jensen (1981: 136) "the error can be positive (the true value is consistently overestimated) or negative (the value is consistently underestimated)".

Culture loadedness is not based on statistical criteria. With reference to culture-bound fallacy, Jensen (1980; 1981) argues that in the tests developed for a certain group - usually the minority group - the items are automatically biased against other groups. Hence, the determination of bias must be based on objective psychometric criteria (Irvine, 1988) and the items deemed as culture-loaded may emerge as biased in psychometric criteria. "Bias can only be detected by objective statistical techniques applied to actual data" (Jensen, 1981: 130).

Item bias indicates that an item on a test is biased against members of minority groups. A test which is predictively biased towards a certain group is not inherently unfair - it is only when decisions are based on test results that one may speak on the fairness of these decisions. In summary, not much evidence of predictive bias against minority groups was found by Taylor (1987) in America. According to him, the only cases of predictive bias which had emerged, was that against the "majority" or advantaged group. Moshe Zeidner (1987) established that the cultural bias hypothesis was disconfirmed in the Israeli context, whilst Drasgow, from the USA, also investigated bias. In his study of the biased measurement on two standardized psychological tests, Drasgow (1987) found that the group differences could actually be attributed to environmental differences in the case of men, women, whites, blacks and Hispanics.

The question of sex bias in mental tests arises from consideration of the fact that boys and girls, from an early age, are socialized in traditional masculine and feminine roles, involving differences in types of toys, games, experiences, learning opportunities and developing skills. The two types of ability that consistently show significant sex differences (in favour of males) and which cannot be attributed to test bias are analytic spatial-visualization abilities and mathematically or quantitative reasoning ability. In general, sex bias in mental tests "... seems to be a rare, even a non-existing phenomenon in properly controlled studies" (Jensen, 1981: 634).

Taylor (1987) states that within-test bias detection methods can do no more than identifying relative bias. According to Jensen (1981), detection of test bias can be approached from:

- (i) **A situational biased test situation** such as the race, language, or customs of the testees, that could differentially affect the test performance of persons of different races or cultural backgrounds;
- (ii) **External indicators of bias**, like how accurately the test scores, can predict some external criterion of consequences such as scholastic performance, college grades or success in the job (Jensen, 1981); and
- (iii) **Internal indicators of bias**. Evidence of this kind of bias is found when psychometric features of the test lead to different behaviours in the majority and minority groups.

With the exception of cases where socio-cultural themes cannot meaningfully influence performance level, cultural bias can not be eliminated. Hence, Boykin, Franklin and Yates (1979) explain that anthropologists have criticized attempts to measure things in other cultures without the understanding of the culturally defined systems of concepts, categories, classification and contextual variables which are meaningful to the native speakers. Pollard (1979) argues that children from different groups emphasize different aspects in their social and psychological environments, in an effort to cope and achieve educationally - in the same way people from different backgrounds use different motivations to obtain similar goals. Kirkpatrick *et al.* (1968) argues that, regardless of the validity of a test, unfair discrimination will occur if the criterion scores achieved by ethnic groups are lower than their actual criterion scores. He further states that non-verbal tests may not necessarily be more accurate for use with minority ethnic groups. On the other hand the adaptation of tests to the standards of minority groups will be unfair to members of the high-scoring majority group. Drasgow (1987) states that to reach dependable conclusions about bias, it is necessary to use a method that does not confuse measurement bias with between group differences, whereas Diaz (1986) asserts that tests used across cultures should be tapping into similar functional characteristics. If they fail to do so, conclusions drawn from comparisons of test scores may be of limited value.

3.3.4 Cross-cultural comparability of test measurements

The concept of the reliability of a test refers to its relative freedom of unsystematic errors of measurement whereas the validity of a test is the extent to which a test measures what it is designed to measure. A diagnostic test has the

function of identifying specific difficulties in learning a subject. To construct a diagnostic test in a basic skill such as reading, spelling or arithmetic, performance on the subject as a whole must be analysed into subskills and the group of items must be devised to measure performance on these subskills (Taylor, 1987).

According to Sixtl (1967), appropriate theory should explicitly incorporate assumptions about interactions between the individual and the environment. Theoretical concepts like intelligence, which was replaced by the term "adaptability" in Gesell (1973), belongs to high level abstraction which cannot be confirmed by experimental studies and empirical research. Irvine (1988) argues that theory which does not encompass cross-cultural empiricism, has no *a priori* claim for universality. According to Fredericksen (in Taylor, 1987), it may occur that the same test does not measure the same construct and the test designed to measure crystallized intelligence in one culture may measure fluid intelligence in another. Taylor postulates that because of the unfamiliarity of the concepts in another culture, cross-cultural comparison of absolute scores are meaningless (1987).

Functional equivalence has to do with the construct validity of a test in different groups. According to Taylor (1987) 'culture reduced' tests try to minimize culture loading by not using words, letters, numbers or even pictures of familiar common objects (Jensen, 1980; Jensen, 1981: 133).

In order to achieve equivalence of measurement, different instruments - including non-verbal tests - can be used within different groups to establish the equivalence of a given concept. Score differences may be compared in

correlational techniques. Taylor (1987) postulates that scalar equivalents are measured in the same metric across cultures and have the same zero point in each culture, thus making comparisons of absolute scores across cultures possible.

In the next subsection, a summary of tests which may be used with preschool children and school beginners will be given in order to find amongst these tests suitable for use with the population and age groups covered in this study.

3.4 TESTS DEVELOPED AND/OR STANDARDIZED FOR BLACK CHILDREN

The multicultural and multinational South African communities imply that tests can not automatically be applied to all pupils. Discrimination against ethnicity must be avoided in that psychologists should strive for the utilization of culture-free and culture-fair intelligence and/or adaptability tests, as was suggested by Biesheuvel in Cronbach *et al.* (1972). Ascertaining the culture fairness of tests to be utilized with the black population groups, places a demanding responsibility on psychologists. In these cases tests have to satisfy certain requirements. Most of the tests which reduce the use of material exclusively used by other cultures, are regarded as culture fair. In order to prevent cultural discrimination and bias in tests, Jensen (1980) suggested that preliminary practice items be instituted; that pictorial materials be used; that non-language and power tests be implemented; and that abstract reasoning, non-scholastic skills and the solving of novel problems be included. The content of all test items should be highly familiar and the level of difficulty and complexity should be in relation to the child's level of education. According to him common objects universally shared

by all human beings include: parents, the human body, trees, fire and water. The processes common to all human beings include breathing, choking, seeing, eating, sleeping, running, striking, and feeling anger and fear.

Although not always in the fullest sense, some available tests do meet the criteria of culture fairness and the known tests suitable in this respect for pre-school children and school beginners are subsequently listed.

3.4.1 Intelligence and aptitude tests

A number of intelligence tests, such as the Individual Intelligence Scales for Tswana Speaking Pupils, Xhosa Speaking Pupils (1988), and for Zulu Speaking Pupils (1988) had been standardized for pupils between the ages of 9 years 0 month and 15 years 11 months. It contains no vocabulary test, but the global intelligence comprises subtests including Comprehension, Problems, Black Designs and Absurdities. Although the reliability coefficients (0,80) and the content validity of the tests were regarded as satisfactory, the predictive validity of the scales had not yet been established. Similar intelligence tests for younger children were not available at the time of the study. Thus, the intelligence tests available for 4 to 7 year old children are supplemented with aptitude tests.

(a) The General Reasoning Group Test

Foxcroft (1991) designed this group test for the identification of scholastically at risk white, Indian, coloured and black children from all the socio-economic classes. With the use of this test, neuro-psychological screening was done and the general reasoning ability of children whose

scholastic performance was categorized as below average, average, and above average, was established.

(b) *The Senior South African Individual Scale (SSAIS)*

SSAIS was revised in 1991 and it was standardized for both English and Afrikaans speaking pupils between seven years to 16 years 11 months. The SSAIS test for South Sotho was still in process of being standardized at the time the study was undertaken, and it was not available to be considered for use in Mangaung.

(c) *The Cattell Culture-Fair Intelligence Test*

The Cattell Culture Fair Intelligence Test (1973) was standardized for English-speaking children aged four to eight years. The purpose of this test was to reduce, as much as possible, the influence of verbal fluency, cultural climate and the educational level of the testees. The non-verbal subtests require of the testees to perceive relationships in shapes and figures. The advantage of the culture fair scales is that they are non-verbal and that there is no necessity for translating the items when the test is used with non-English speaking people. Unfortunately this test is not readily available in South Africa.

(d) *Griffiths Mental Development Scales*

This test for measuring mental growth in babies and young children from birth to eight years of age, is available in English (1970). The problem of

the Griffiths mental development test is that it has not yet been standardized for black children, so that cross-cultural validity and reliability has not yet been ascertained.

3.4.2 Aptitude Tests

(a) The Aptitude Tests for Beginners (ASB)

The ASB (1974), which is aimed at obtaining a differentiated picture of aptitudes of school beginners which are considered to be essential for progress at school, has not been standardized for black children.

3.4.3 Developmental Tests

(a) The McCarthy Scales of Children's Abilities

The McCarthy Scale made psycho-educational diagnosis of learning disabilities possible and served as an early detector of potential learning disorders so that remediation may occur. It includes cognitive as well as gross motor scales and comparison of the factor structure for separate groups of black and white children between 3 and 7½ years of age, revealed striking similarities by which the construct validity of this test for both racial groups was accentuated (Kaufman, 1977). The inclusion of gross motor tests in the McCarthy Scale is in accordance with Gesell's treatment of cognitive and motor variables as two essential aspects of the total holistic functioning of the organism. Richter and Griesel (1991)

adapted the McCarthy Scales and the norms for use amongst black South African children.

(b) *The Gesell School Readiness Test*

The Gesell School Readiness Test was designed for United States of American children between five to nine years of age (Ilg, 1982). This test covers four areas of development, through the measurement of the child's physical/motor, adaptive, language and personal-social behaviour. It thus covers a wide spectrum of assessment in a culture-fair manner.

(c) *Learning Readiness Test for Black School Beginners*

Ras (1984) developed this culture-fair test to establish the level of learning readiness of a specific group of urbanized black school beginners. The purpose of this test was further to serve as an aid to place these children in homogenous groups, and to plan a strategy for rendering remedial assistance and teaching methods. This test focuses mainly on the intellectual abilities of the children.

3.4.4 Psycholinguistic tests

No tests for measuring psycho-linguistic abilities of black pre-schoolers could be found.

3.4.5 Emotional Tests

No tests for measuring emotional facets of black pre-schoolers could be found.

3.4.6 Personality Tests

No personality tests could be found for black pre-schoolers.

3.4.7 Newly developed tests for specific situations

In order to find a possible test for use with Mangaung five to six year olds, a study was also made regarding tests developed for pre-school children from specific South African situations.

(a) *The Herbst Test*

The Herbst Measuring Instrument has been developed for the assessment of cognitive and motor developmental tasks regarded as underlying school readiness in three to five year old children from Mangaung and Botshabelo in the Orange Free State (Herbst, 1989; Herbst, Schoeman & Huysamen, 1993). Since then the test, which includes the assessment of the intellectual abilities (over ten different cognitive subtests), fine motor development and gross motor development of preschool children, has been extensively utilized. Its level of reliability and validity is high. Although this test has been standardized on a norm group of approximately 600 Sotho-speaking children, and compares favourably with Gesell's Developmental Test, it does not provide information on the linguistic development of the pre-schoolers. The establishing of norms for the Herbst Test is at present being extended to include Tswana, Zulu, Xhosa, Pedi and Venda ethnic groups.

3.5 SCHOOL READINESS TESTING

A school readiness test is based on the totality of the developmental level of a given child and represents the criterion for the assessment of school readiness.

The question of using chronological age as a criterion arises in school readiness assessment. Typical behaviour, which is based on the average, is assumed to be a standard desirable. According to Gesell (1974) this leads to individuality being sacrificed in school placement. The concept of developmental age is perhaps more qualitative than quantitative. Deborah May (1986), in her research on the relationships between the Gesell School Readiness Test and standardized achievement and intelligence measures, concludes that a mere intelligence test does not and cannot attempt to measure a child's level of maturity. This is on account of the fact that a child may be of clearly superior intelligence, but at the same time lag behind others of his/her age group in either physical or behavioural maturity. Hence the combined use of IQ measures, achievement test scores and other available information would provide a stronger basis for recommendations which have long term implications for children.

In the absence of standardized school readiness tests to facilitate the easy placement of children in schools, there is an urgent need to pave the way. There are various tests in English and Afrikaans which may be translated and used as instruments of school-readiness testing for preschool children. In contrast to the general tests available for the purpose of screening and/or evaluating young children from Western cultures, it appears as if a very limited number of measuring instruments have been either developed or adapted (and tested) to

fulfil in the needs of the black target group. Tests which have recently been standardized are mainly for school attending children between 9 and 17 years of age, and are available in Xhosa, Tswana, Zulu, Northern Sotho, English and Afrikaans. Till recently there were no tests that catered for the preschool assessment of school-readiness.

A test which contains many of the subtests that are also found in tests such as JSAIS, and Griffiths which are commonly being used in the RSA, is the Gesell Test. This test was developed in the United States of America and is used in the Republic of South Africa for the assessment of white children. Many of its subtests - like picture vocabulary, block tests, complete a man, comprehension tests, copy form, interview and calculations are also found in other tests and have thus, indirectly, been standardized. Although tests such as the JSAIS, SSAIS, Binet, Guildford and Wechsler do not contain the gross and fine motor aspects contained in the Gesell test, they have been empirically validated in South Africa amongst whites as far back as 1940's and amongst blacks as from 1980. In the absence of a school readiness test standardized for blacks in South Africa, it might prove most valuable as the scale covers the ages from two years up to adolescence whereas the JSAIS and SSAIS tests each covers only a part of this spectrum.

3.5.1 The Gesell test as possible option

The Gesell School Readiness Test, of which the norms cover, amongst others, children from five to six years, is diagnostically useful in the medical field, psychological field and in school readiness, is easy to administer, emphasizes the adaptability approach more than intellectual capability and is thus more suitable

for application within various cultures. The Gesell School Readiness Test compares more favourably with other tests in that items are grouped into adaptive, language, motor and personal-social behaviour. This implies that it covers the totality of the child instead of focussing on the intellectual as in JSAIS, or on the personal-social and gross motor development as is the case with the Griffiths Scales. Data on the Gesell Preschool Test are based on longitudinal studies. In general, the test items are common amongst various cultures and communities. The Developmental Quotient, together with the global assessment information provided by the Gesell Test, can be of value both to the preschool teachers in the placement of children in the school and to psychologists in providing appropriate programmes for underdeveloped children or children lagging behind in certain developmental areas. The standardization and use of the Gesell Normative Scales as a reliable instrument of school readiness testing for black preschool children, as well as the adaptation of the Gesell Preschool Test to be used in the South African black preschool situation, could thus prove most valuable.

In the following section, some aspects to be considered in the adaptation of tests are referred to.

3.6 FACTORS TO KEEP IN MIND WHEN TESTING CROSS-CULTURALLY

Certain factors should be considered when testing children. Some of these factors have a significant biasing on test results. When testing children of different culture groups, one would like to ascertain that a factor such as

language is kept in mind. More general issues, regarding test administration, are of utmost importance and are thus also mentioned.

3.6.1 The test language

Dague (1972) held the view that translation into a local language was not always possible, due to the lack of corresponding words and concepts. Eckensberger (1972) mentions the problems of comparability with regards to language in "relativism of culture", whereas Kohan (1972) complains about the problem of translated equivalents (Ohuche & Otaala, 1981) which may not be equally familiar with regard to idioms, metaphors and symbols. Jensen (1980) indicates that translation of a test from one language to another is risky and should be done in connection with proper psychometric equating methods. One such method could be backward translation.

Another problem mentioned (Prewitt, Diaz, Rodriques & Ruiz, 1986), is that translation and standardization of a test do not guarantee that the test will be appropriate for all individuals who speak the target language and that many dialects may exist within one group. Thus, such tests are appropriate only to the extent that their items are as common to the subject being tested as they are to those sampled in the standardization procedure. Studies have indicated that people come to name, classify, and interpret their experience according to pre-existing patterns, often linguistic, which are culturally acquired (Segall, 1991).

To circumvent these problems, it required the training of natives in psychology who have command of the language, as well as the appropriate socio-linguistic background. The sample tested should be in the transitional stage of

industrialization and westernization or already have westernized parents. This is in line with what this research will try to achieve. Most of the children will have been exposed to preschool or preprimary programmes and will have had some previous experience by which unfamiliarity in the tests batteries to be used in the project would be minimized.

Once one has taken cognizance of the problems of adapting the test, attending to linguistic problems, cultural bias and cultural factors in testing, it is necessary to study the test to be used - being aware of the requirements of culture-fairness in tests. Thus, test administrators have certain responsibilities in using tests, and some consideration will subsequently be given to that aspect.

3.6.3 The roles and responsibilities of test administrators

Not only ethnicity, but also other discrete variables like sex and continuous variables such as socio-economic status pose problems of bias in testing. The latter "can be arbitrary in its 'cut off' point because of the values which form the number" (Taylor, 1987: 2). Although simple biographical characteristics such as race, sex and socio-economic status can be resorted to in the formation of groups, the differences in performance in the cognitive domain (intellectual tasks) can more often be ascribed to differences in knowledge and styles of information processing than to skin colour (Taylor, 1987).

Egalitarian fallacy: Jensen (1981) makes the totally unwarranted assumption that there are no differences between population groups, blacks and whites, and poor males and females. According to Taylor (1987) there are factors, which have nothing to do with genetic endowment, which may be causative to variation in

group performance. These factors include education, culture and exposure to certain types of experience. Thus it can be stated that group differences in test means and standard deviations do not necessarily indicate the presence of bias. The test user should thus examine the performance of the test in the application for which it is used. This is especially true of the Gesell Developmental Test which is used to select and place children in a variety of school-readiness classes. Once the tester is aware of the way in which variables can affect test results, and takes precautions to minimize such effects, he/she is faced with another responsibility. This lies in the appropriate administration of the test of choice.

3.6.3.1 Test administration

"Establishing rapport may be difficult with some ethnic minority children and with some children from a lower socio-economic background, especially when the examiner is white and comes from the middle class" (Sutler, 1982: 72).

When an examiner tests a child, the foremost requirement is to establish and obtain the confidence and cooperation of the child, or the results will not reflect the abilities of the child accurately. The environment should allow maximal conduciveness to allow the child to demonstrate the best of his or her capabilities. Children who feel apprehensive about the testing should be given reassurance and supportive gestures should be used. In order to reduce stress that may be produced by difficult questions, it should be explained why they are examined and various procedures such as praise for their efforts should be applied. In some cases a playful (*gamesome*) approach can be used to help the children relax. One has to keep in mind that testing infants and preschool

children may in general be difficult, because of their short attention span and susceptibility to fatigue at this early age. As a consequence, the reliability of tests administered at the preschool level are lower than that of tests of school-age children (Aiken, 1972).

In the initial stage of testing the child is greeted by his or her first name and the tester introduces him/herself. This is followed by a brief, simplified and frank explanation of the purpose of the test. Encourage the child, making it clear that you want him/her to do the best he/she is able to. Convey to the child your sincerity and interest in seeing him/her succeed, yet provide unconditional acceptance and support in cases of failure. In order to make the children feel at ease, it is necessary to encourage them to respond to each question or to try to do so in the case of their being reluctant to answering. By maintaining the child's interest throughout the test, full participation in the test can be achieved. In case of fatigue, the child can be given a break or subtests can be alternated (e.g. between motoric and adaptive) where possible. When the question is a difficult one, encourage the child by admittedly stating that this is the case.

The appropriate facial expressions and a clear, modulated voice, together with encouraging comments can further enhance cooperative participation. It is advisable that the test should begin with easier and simple questions before gradually gradienting to more complex and difficult questions presented in a relaxed atmosphere. Care should be exercised in praises, especially in the case where the child is obviously aware of his or her inadequacy. Praise should be focused on the child's effort rather than on the results. The characteristics which are required from the examiner to establish good rapport, are empathy, genuineness, warmth, and respect for the child. Helping the child to maintain a

sense of self-acceptance and self-esteem can promote a successful relationship. Positive reinforcement is required for the child who views a test situation with apprehension, seeing it as a situation in which his/her inadequacies are to be displayed.

Manipulative children who want to control the test procedure by making negativistic requests, require a firm examiner who will adhere strictly to the test procedure. The assessment of the child lies not only in his/her communicative skills in answering or responding, but non-verbal communication must also be taken into consideration.

Goodenough and Read (1976) provided guidelines to be adhered to when preschool children are tested, namely:

1. Do not remove the child from an interesting activity in order to test.
2. Take an extra toy with you for the children to use, if necessary, to maintain rapport and protect testing materials.
3. Use an attractive testing room.
4. Arrange materials systematically.
5. Keep testing materials, toys and other necessary equipment at hand but out of sight.
6. Do not urge the child to respond before he or she is ready.

7. Before beginning the examination, be sure that the child is physically comfortable.
8. Strictly adhere to test instructions.
9. Adjust the speed of administering the test to the child's temperament.
10. Keep voice low in pitch.
11. Prepare the child for each kind of test.
12. Do not ignore any remarks made by the child.
13. Give adequate praise.
14. Watch for early signs of boredom, fatigue, physical discomfort, or emotional distress, and take appropriate action before such conditions become acute.
15. Be playful and friendly, but always maintain control of the situation.
16. Try to have the child cooperate actively at all times.
17. Give the child a choice only when you intend to leave the situation up to him or her.

18. Use words and tone of voice that will help the child feel confident and reassured.
19. Never attempt to change behaviour by acts that may make the child feel less respected.
20. Avoid motivating the child by making comparisons between him/her and another child or by encouraging competition.
21. Redirect activities in a way that is consistent with the child's motives or interests.
22. Handle problems by trying to foresee and forestall them.
23. Clearly define and consistently maintain limits on the child's allowable behaviour. Be sure that the child clearly understands the limits that are set. However, although consistency is necessary, do not be inflexible. Accept the child's need to "test out" the limits and try to adapt the limits to the child's needs, giving him or her time to accept them while at the same time respecting his or her feelings.

Summary

In this chapter the testing of children from non-Western culture groups was looked at. The importance of being aware of factors which may influence the

test performance of children from all culture groups, but especially of these for whom the tests in use were not standardized, was stressed.

The mere fact of having reached the sixth birthday does not guarantee successful school attendance in terms of the child's level of development. Gesell's basic argument is that children should start school and be subsequently promoted on the basis of their developmental age rather than their age in years in order to prevent problems in schools, by placing children appropriately or by referring them for remediation (1973).

School readiness testing is compulsory in the white Department of Education. At present, however, appropriate school-readiness tests for different groups of black children in South Africa are virtually unavailable. The Gesell School-readiness test could be of importance in the Department of Education to diagnose and place black children in school to reduce the unnecessary high failure rate presently experienced in primary education.

CHAPTER 4: METHOD

**A COMPARISON OF THE PERFORMANCE OF
AMERICAN AND A GROUP OF BLACK SOUTH
AFRICAN CHILDREN IN THE GESELL
DEVELOPMENTAL TESTS**

There is a crying need for appropriate school-readiness tests for different South African situations. The Gesell Developmental Tests were developed through a longitudinal study and are based on the data from the New Haven preschool in the USA. Differences may be found when people from two different, and far removed, continents are compared with respect to the developmental criteria common to all children. Aspects of Gesell's Preschool Test have been incorporated and adapted into other tests, standardized in America, Europe and the Republic of South Africa, but no research has been done to date to ascertain the applicability of the Gesell Preschool Test to the South African blacks, especially the Sotho cultural grouping. This study thus will focus on an empirical comparison of the performance of five and six year old Mangaung children that of the New Haven, USA children in terms of the Gesell Preschool Test in order to establish empirically whether the Gesell Preschool Test, which appears to be suitable and also culture-fair, could be used to assess the school readiness of black South African preschoolers.

In the Gesell study, the children were not selected according to socio-economic class, but rather on the basis of sex, age and the fact that they visited the clinic. New Haven Clinic predominantly attends to white preschool children of middle and high socio-economic status, and no mention of blacks is found in the Gesell longitudinal testing. In the present study, however, three schools from the different regions constituting the Mangaung area were selected randomly in order to get a representative sample of the Mangaung community profile. This selection of subjects was done with a view to identifying items not suitable for black Mangaung children.

OBJECTIVES OF THE STUDY

The essence of this comparison is to establish areas of commonality in the various subtests with the intention of investigating the possibility of using the Gesell Developmental Test as a yardstick to measure maturity for school entrance among the (black) Sotho group in South Africa. Differences found will be viewed in the context of cultural differences and culture-fairness as well as the preschool programmes in which the children participate. Where possible, adaptation of items will be considered to make items suitable for the Sotho groups.

A comparison between the sexes will also be done, to determine whether similar intergroup performance differences will be found between boys and girls as in the case of the Griffiths, JSAIS, Wechsler and SSAIS tests. Other studies suggested that girls performed better than boys in such tests on language achievement. This will be explored in the study. It has also been hypothesised that boys do better than girls in the gross motor areas, whereas in fine motor exercises girls perform better.

By establishing or refuting these postulations, this project also as a standardization objective in view.

4.1 SAMPLE POPULATION

To constitute a normative population, Mangaung preschool children of both sexes and aged between five and six years were compared to American children in terms of data gathered by using the Gesell test. The Mangaung children were from the lower and average socio-economic class. The Mangaung population comprised mostly South-Sotho speaking children attending three preschools. The first group consisted of pupils attending preschool in Batho, the old location, the second group comprised of pupils from a preschool in Rocklands, which can be regarded as a semi-affluent part of the township, and the third preschool concerned was in Blomanda, which represents the modernized suburbs in the black township.

As Gesell only used subjects who were regarded as normal, the Mangaung population also included only children who displayed no significant signs of psychological and/or neurological abnormalities, who had been at their respective preschools for a period of six months or more and who had adjusted successfully to the preschool programme. Precautions were taken to assure validity in that age was to be held constant. Only children falling within the age category of 5 years 0 month to 6 years 11 months were included in the sample. Only children who were able to communicate in the Sotho language and to understand instructions in that language, were assessed. South Sotho and Tswana are the languages predominantly used in Mangaung. Children unable to converse in these languages, or to understand the instructions, were excluded. Only children from whose parents written permission had been obtained, were included in the assessment schedule.

Variables such as age, sex, socio-economic status, intelligence quotient (IQ), and language ought to be controlled when comparing different cultural groups, but Gesell had controlled only age and sex in the studies, not variables such as intellectual abilities and/or socio-economic status. In this study, age, language, physical and mental health, the absence of neurological problems, and affirmed preschool attendance were controlled. The gender distribution of the subjects was not controlled, but the design enabled the examiner to investigate whether or not the sexes differed in their performance on the Gesell Developmental Test.

One hundred children were selected, according to the mentioned criteria, to participate in the study. The subject sample was distributed according to age and sex, as is indicated in Table 4.1.

TABLE 4.1: THE DISTRIBUTION OF MANGAUNG SUBJECTS ACCORDING TO AGE AND SEX

AGE	BOYS	GIRLS	TOTAL
5 years	27	23	50
6 years	22	28	50
TOTAL	49	51	100

The following table (Table 4.2), indicates the sample distribution according to the preschools attended by the subjects.

TABLE 4.2: THE DISTRIBUTION OF MANGAUNG SUBJECTS ACCORDING TO PRESCHOOL ATTENDED

PRESCHOOL	BOYS	GIRLS	TOTAL
Preschool A	15	18	33
Preschool B	16	20	36
Preschool C	16	15	31
TOTAL	47	53	100

Due to the limited number of subjects tested and the fact that these variables were not considered by Gesell, no further distribution of attributes, according to socio-economic class and the academic status of the parents, was taken into account.

4.2 THE MEASURING INSTRUMENT

The children included in the study were to be evaluated by means of the Gesell Preschool Test. Gesell identifies four important fields of behaviour that contribute towards school readiness. The content of Gesell's assessment of each one of the fields, namely motor, personal-social, language and adaptive, will be described in this section.

4.2.1 The motor component of the Gesell Test

Motor development implies a certain level of neurological maturation and the Gesell test measures the child's ability to perform the activity and the tasks expected of him/her. This section covers both the fine and gross components of motor behaviour.

(a) Fine motor behaviour

(i) *Pellets and bottle*

The child is given 10 yellow pellets and a bottle with a small opening. He/she is then expected to take the pellets from the table one by one and deposit them into the small glass container, as fast as he/she can. The time is registered with a stop watch between the time the first and last pellets land in the container. The time factor plays a vital role in this subtest, as five year old children have to complete the task within 18 seconds and six year olds in 16 seconds. If this target is not met, it is regarded as failure. The main objective of this subtest is to evaluate fine motor skills, implying neurological maturation. The other rationale behind this subtest is to evaluate the eye-hand speed coordination.

(b) Gross motor behaviour

(i) *Walking on tiptoe*

A straight line is made on the floor with a five meter long white tape. The child is asked to walk on tiptoe from one end to the other. The child's ability to balance is

evaluated and the child is expected to demonstrate the ability to walk on tiptoe for a minimum of five steps. The rationale behind this subtest is to detect the maturation of the muscles and balance. Failure to do this implies failure in the test. No time limit exists.

(ii) *Skipping*

A child is asked to skip on one foot for 10 seconds and then skip on the other foot for 10 seconds. The child's muscle coordination and balance are assessed to establish physical development.

(iii) *Jump in place*

A child is asked to jump with both feet leaving the ground simultaneously. A child can jump as high as he/she can. The rationale behind this test is to establish the physical development, muscle tone and balance.

(iv) *Jump down*

A child stands on an elevated platform of about half a meter and jumps up high and then goes down to the floor. Physical fitness, well-developed muscles and balance are assessed, since the child has to land on his/her toes on reaching the ground. Assessing muscle coordination and general gross motor development is the rationale behind this subtest.

(v) *Stand on one leg, using legs alternatively*

The child is instructed to stand on the left leg for 8 seconds or more, balancing on that foot, thereafter on the right leg for eight seconds or more, without getting any support. The balancing emphasises the muscle development, balancing and coordination, which are important aspects of gross motor development.

(vi) *Hop on one leg, using legs alternatively*

The child is instructed to hop on one foot for a few meters and then use the other foot. Balance and muscle coordination are the key aspects evaluated in this section of gross motor development.

(vii) *Broad jump*

A tape of three meters long is placed on the ground, attached at the ends with cellotape which holds it firmly to the ground. A child is asked to jump with both feet from one end to the other. The first and the second jumps are measured, and the longest jump is recorded. This subtest measures muscular development, muscle coordination and balance. The child has to take off his/her shoes to ensure balance and for protection from sliding.

(viii) *Bean bag catch and throw*

The testee stands three meters from the examiner. The examiner throws the bean bag to the child who must catch it and the testee also throws the bag to the examiner to catch. The bean-filled bag is approximately 10 cm by 6 cm in size. The way the

child catches the bag, i.e. arms against the chest, hands against the chest, or hands alone, is recorded. The manner used by the child to throw, i.e. underhand, overhand and advanced throw with opposite foot in front is similarly recorded. The main objective of this subtest is to measure muscular maturity, balance, hand domination and muscle coordination.

4.2.2 Personal-social behaviour

Personal-social behaviour is not tested, but the way in which child presents him-/herself in the test-situation provides a lot of information. This requires an observant tester who will note the following aspects:

- Toilet habits displayed in the preschool situation.
- Manner of dressing.
- Communication: The way the child answers the questions, and the inquiring technique of the child to get more information.
- Temperament: The emotional predisposition of the child, i.e., it is important to observe whether the child is relaxed, calm, excited, nervous, anxious, shy, afraid, withdrawing, rebellious and/or uncooperative.

4.2.3 Language behaviour

The language component plays an important part in the communicative skills of the preschooler and is measured through interviews, picture vocabulary, block naming, comprehension questions, digit repetition and prepositions.

(i) Interview

Questions are asked, and the rationale behind the interview as a subtest is to establish the linguistic maturity, verbal comprehension, long-term memory, reasoning and communicative skills of the child. Clarity of speech as well as accuracy of the information will be of interest to the examiner.

The interview begins with the questions about the name, age, sex, birthday, siblings and ends with the ages of siblings.

A subtest consists of 18 cards in a Picture Vocabulary booklet. The child's ability to name the various illustrations on the picture cards is evaluated as the examiner presents them in the sequence of the test manual and the examiner records the child's response in naming each picture, verbatim. The rationale behind this subtest is to evaluate the object-name, concept identification, verbal and comprehension ability, visual discrimination and communicative skills.

(ii) Digit repetition

The ability of the child to recall from the short-term memory is measured by this test. The numbers from three up to six are said to the child who must repeat them after the examiner has said them. Those numbers repeated correctly are marked right and those numbers left out are encircled. The exercise is discontinued if the child still has not succeeded after the third attempt. The main objective of the test is to evaluate the short-term memory and verbal comprehension of the child. The test measures the ability of a child to store information, concentrate, and recall in the order given.

(iii) *Action agent*

The child's ability to associate a verb named by the tester with a corresponding agent is tested. Twenty-two verbs are used, and the child is expected to name the agent responsible for the action mentioned. The answers are written down on an answer sheet provided in the manual. The main aim of this subtest is to assess the linguistic maturity and vocabulary of the child, as well as verbal comprehension and reasoning and associative skills. There is no time limit for this test.

(iv) *Comprehension questions*

The questions are based on everyday things, such as what a person should do when hungry, sleepy, cold, crossing the street, or has lost something. There is no time limit and the child's answers are recorded. The rationale behind this subtest is to evaluate understanding, and reasoning and communicative skills, as well as verbal problem solving skills.

(v) *Discriminate prepositions*

The child's ability to understand the instruction, as well as concepts of space, is evaluated. The child is given a block and is instructed to place it in whatever area the examiner asks the child to put it, e.g. under, on, in the back, in front, beside. The rationale behind the subtest is to evaluate the language understanding of the child, spatial relationship, and concept, verbal abstraction, spatial discrimination, auditory acuity, direction, ability to follow instructions and fine motor coordination.

4.2.4 Adaptive behaviour (cognitive aspects)

(i) *Incomplete man - pencil and paper test*

In this test a foolscap sheet of green paper is used on which is stamped (in black ink) the outline of a man, having half his hair, one ear, nose and mouth, but no eyes, and half a bow tie with its central knot and one side of his neck, one arm and hand, and the opposite leg and foot. The child is requested to complete the picture. As the child adds parts, they are listed vertically at the bottom of the sheet.

There are nine parts in all to be completed, the tenth includes the body line. An eye itself may have several parts: outline of eye, eyebrow, eyelashes. Also missing is the ear, as well as the cheeks, the teeth and extra arm, leg, fingers and so on. The preschooler is expected to fill in the missing parts on the incomplete human figure. The objective behind this subtest is to assess the child's body-concept. The other aims are to evaluate the child's visual discrimination, understanding, abstract reasoning, motor coordination and integration. Subsequently, the following questions are asked: "How does he look? How does he feel inside? Is he happy or sad? How do you know?" The answers are recorded on an answer sheet provided in the manual.

(ii) *Block tests*

This test entails spontaneous block building with ten one-inch red cubes, which implies that the child may build anything creatively and name it. The tester observes the child's spontaneous play with the cubes. The next phase is that the

child is asked to build various structures such as a tower, train, bridge, gate, steps (6) and steps of 10 cubes.

The spontaneous block-building is done without demonstration. The subsequent structures such as train, bridge, gate and steps of six, may be modelled after demonstrations have been given, and the model may be left intact for the child to copy. There is no time limit, except that on completion of the first, the second one is presented and so on, until the last one has been successfully done. Failure on the second attempt to build the structure demonstrated, the particular subtest is stopped and the next one is commenced with, with a word of encouragement. The rationale of this subtest is to measure creativity, visual discrimination, fine motor coordination, visual-spatial and abstract thinking and short-term memory.

(iii) *Paper and pencil tests*

■ Copy form

The drawings in this section include rotating, vertical and horizontal strokes and the copying of a circle, cross, square, triangle, divided rectangle and diamonds in both horizontal and vertical position. The ability to copy a model reveals the maturation of visual perception, of neuro-muscular and eye-hand coordination, as well as general level ability. The subtest requires that a child reproduce and copy the various geometric forms with a pencil on a clean sheet. The pictures are placed on the dominant side of the child. The completion of the first geometric picture is followed by the next until all have been reproduced on the clean fool-scap sheet of paper. The rationale behind this subtest is to evaluate neurological maturity, revealed in visual-

motor integration. The other aspects measured are spatial concept, visual discrimination, ability, fine motor coordination, and hand dominance in respect of the handling of pencil. There is no time limit in this subtest.

- Identification of letters and numbers

The child is first presented a letter chart containing the letters A up to Z. The child is asked to name the letters as they are pointed out by the examiner on the stimulus chart. The correctly identified letters are encircled with a pencil. On completion, the letters correctly identified are written on the answer sheet provided in the manual.

Next comes the identification of numbers. The numbers are presented to the examinees, on the stimulus chart containing the numbers 1 to 12. The child is asked to identify the numbers indicated by the examiner and those correctly identified are encircled. Thereafter the correctly identified are recorded. There is no time limit. The main objective of the subtest is to evaluate the correct identification of letters and numbers, i.e. number concepts, visual discrimination and long-term memory.

- (iv) *Computation consisting of counting and calculations*

The child's ability to count in abstraction or count objects is evaluated. The number concept is evaluated together with linguistic ability. The examiner hands the child 20 one cent coins and asks the child, "How far can you count?" The child is asked to count as far as he/she can, or until he is told to stop. If the child begins to count

spontaneously, rather than answering the question, allow this. Stop the spontaneous counting is stopped when the child reaches 40.

Calculation: The sums are given as presented in the manual. The child has to do calculation as follows:

$$2 + 2 = \quad ?$$

$$2 + 3 = \quad \underline{\quad}$$

$$5 - 2 = \quad \underline{\quad}$$

$$7 + 3 = \quad \underline{\quad}$$

$$6 - 4 = \quad \underline{\quad}$$

$$14 + 3 = \quad \underline{\quad}$$

$$16 - 4 = \quad \underline{\quad}$$

The answers are written in the answer sheets and at times objects like cents may be given to the child to use in the calculations. The rationale behind this subtest is to evaluate the mathematical/arithmetic/number concepts together with abstract reasoning. This test has no time limit, but the examiner can continue until the child indicates by his incorrect responses that he cannot continue.

(v) *Form board*

The form board has three holes of a round, square and triangular shape and round, square and triangular fitting boards. The preschooler is asked to fit the square, circle and triangle into the holes on the form board in any sequence presented, as

explained in the manual. It is mostly for three year olds. The subtest evaluates the form concepts, spatial concepts, visual discrimination, abstract reasoning and fine motor coordination. Gesell prefers to classify this subtest as adaptive.

4.3 PRELIMINARY METHODOLOGICAL CONSIDERATIONS IN THE USE OF THE GESELL TEST

In studying the Gesell Developmental Test, certain aspects are to be heeded. These include the compilation of the original norm group; the language used in the subtests on the identification of letters and numbers and calculation; and other non-metric indicators such as is found in the motor skills assessment. The most important aspect to be considered, is the translation of the test instructions into the Sotho language.

4.3.1 Translation of instructions and verbal items

The issue of culture-fair and culture-free tests has been dealt with already (3.3; 3.4). The American and Sotho norm groups display vast differences in culture, socio-economic status, language and upbringing. A comparison of these two groups is expected to yield more cultural differences than adaptive behaviour. Prior to implementation the instructions had to be translated. Since the languages used predominantly among the blacks in Mangaung are South Sotho and Tswana, which are grouped as Sotho languages, it became necessary to concentrate on these two languages for the translation of the instructions, using linguistic equivalents in the case of verbal items and instructions.

The back-translation technique and linguistic equivalents were used, to ensure that the translation was correct.

- The psychologist researcher, conversant with the languages, translated the items outside the testing situation in the translator's presence.
- Then the translator did the translation with the psychologist, conversant in the language, being present, and
- the translator listened to the translator/psychologist/researcher as he translated during a pre-test procedure, and finally
- in the real test situation the translator listened as the translator psychologist did the translation for 4 children subjects being tested and then the translator and the psychologist sat together while the psychologist translated. The translator translated in the presence and under the supervision of the psychologist until the instructions were successfully translated. Finally, the translator assumed his responsibility throughout the sessions of testing.

The translated instructions of Gesell were sent to independent teachers of languages, namely Tswana and Sotho, and their translations were correlated. Sameness was regarded as successful, whereas the differences were submitted to the independent translators who were required to back translate, until a linguistic equivalent was achieved.

After all the items had been translated into Sotho, children were allowed to respond to subtests such as counting or the identification of letters and numbers in either South Sotho, English, or Tswana.

4.3.2 Adaptation of subtest materials

In the test material "cents" replaced "pennies" because this monetary system had been phased out in South Africa before the subjects were born. In this way all figures have been converted to the metrical system. An example of a question would thus be: "If you have ... cents (pennies) and I give you ... more, how many cents would you have?"

4.4 PROBLEM FORMULATION

4.4.1 The aims of the study

The specific aims of this study, first, were to compare:

4.4.1.1 the performance of boys and girls within the age range of five and six years on the Gesell Preschool Tests, and

4.4.1.2 the performance of the five to six year old USA normative group with that of the RSA Mangaung sample group on the Gesell Preschool Test.

Ensuing from these aims, further aims were to study the extent to which the Gesell Preschool Test could be used for measuring the school readiness of Mangaung preschool children, and to consider possible adaptations to be made to the Gesell

Preschool Test in order to extend its usefulness in assessing school readiness in black South African children in general.

4.4.2 The research hypotheses

To meet the aims of the study, hypotheses were stated on the comparison of the test results of boys and girls, as well as on the comparison of the Mangaung group of preschool children with the New Haven group tested by Gesell.

COMPARISON BETWEEN BOYS AND GIRLS

■ Research postulate 1

The performance of five year old RSA boys and girls will differ significantly on the Gesell Developmental Test Score.

Statistical Hypothesis 1:1

$$H_0: P_1 = P_2$$

$$H_1: P_1 \neq P_2$$

Where P_1 represents the proportion of boys who successfully completed a given subtest, and P_2 represents the proportion of girls who successfully completed the given subtest. (This hypothesis is stated with regards to all relevant subtests.)

Similar research postulates are also set for 6 year old RSA boys and girls.

COMPARISON WITH THE GESELL NORMATIVE SAMPLE

Research Postulate 1

The performance of five year old Mangaung preschool children will differ significantly from that of five year old American children on the Gesell Developmental Test.

Statistical Hypothesis 1.1

$$H_0 : P_1 = P_2$$

$$H_1 : P_1 \neq P_2$$

Where P_1 represents the proportion of 5 year old Mangaung preschoolers who successfully completed the given subtest, and P_2 represents the proportion of American preschoolers who successfully completed the given subtest. (This hypothesis is stated with regards to all relevant subtests.)

In the same manner hypotheses were set regarding the 6 year old population groups.

A description of the procedure to be followed and of the statistical methods to be used in analysing the data derived from the study, is subsequently given.

4.5 PROCEDURE

4.5.1 Prior arrangements

The study in the preschool was done over a three month period. Permission, in writing, from the preschool management committee and principal was obtained. Preschool teachers were contacted to ensure their cooperation. The letters to the

parents, requesting permission to use their children in the study, were forwarded to all the parents via the preschool principals. The letters included the contract to be completed in and signed for granting permission and was accompanied by a questionnaire regarding personal information such as information on the economic, educational and status level of the family; and the name, age, sex, and physical/psychological/neurological/mental health status of the child. This information was used in the selection of candidates included in the study.

4.5.2 Test administration and scoring

Following the translation of the Gesell Developmental Test in the Sotho language, the test was administered to 100 children from the three Mangaung preschools. Testing was done on the facilities which were provided by the relevant preschool and crèche. Two examiners were used in this project. The English-speaking examiner had trained preschool teacher as an interpreter and the South Sotho examiner acted without an interpreter. Prior to the test situation, interpreting had been done with ten children by the psychologist conversant in the language, so as to give the interpreter a chance to observe, listen and learn how interpreting could be done in a neutral way, without giving clues or giving his own view of what the child said. The English-speaking examiner learned the basic meaning of the language, to be able to assess the correct interpretation of the interpreter. Children were assessed by these two testers under the same conditions. The testers alternated the testees as follows: Tester 1 tested the even numbered children, irrespective of sex, while tester no. 2 tested the odd numbered preschool children, irrespective of sex. The administration of the test was done in accordance with the considerations and guidelines, as discussed under 3.6.2.1.

The performance of the children were scored according to the procedure laid down in the Gesell Test Manual (Ilg, 1985b).

4.5.2.1 Testing environment and precautions

As regards the testing, the following conditions were to be observed:

The test was administered individually in an environment familiar to the child. The selected area had to be reasonably quiet and trafficking of preschool children was reduced. The examining room was light and had enough windows. The presence of the preschool teachers in the vicinity was encouraged, in order to enhance cooperation and reduce anxiety that might negatively affect the response of the child. Testing was done only during the mornings, to avoid the distraction of the child's attention when other children left for home. Therefore, testing took place during the preschool hours, that is, after breakfast and between 08:30 and 15:00.

The test materials were arranged in the correct sequence, out of sight of the testees. The child was seated on the opposite side of the tester. Testing material to be handled by the child, was placed on the dominant side of the child. Immediately after the completion of a subtest, the testing materials were removed and replaced by the next set of materials to maintain the child's focus on the central part of the table.

4.5.2.2 The actual test situation

After the tester had greeted the child and introduced him/herself, the child was put at ease, as was explained under 3.6.2.1. Once the relationship was established, the child was invited to participate in the test. The name of the child was asked, and then written, with a number allocated to him/her on top of the Gesell answer booklet. The child was put at ease and his/her cooperation was to be obtained by explaining that there were easy questions and difficult ones, but any attempt would be appreciated and that the child were not to feel embarrassed if he/she could not answer correctly. If the child did not understand the instructions, he/she could also ask for more explanation. No verbal and non-verbal cues were given to the child when he/she struggled with the answers.

The testing was done in a quiet and calm way and the child was encouraged to go on, whenever necessary. The interpreter translated into simple language only what was said by the psychologist. The test materials were presented as specified in the manual, the tester using the correct tone and motivating the child where necessary. In the case of a child being very apprehensive, the tester could shift to gross motor tests like skipping or bean bag catching and throwing before the other tasks were tackled. As the Gesell test had been structured with a view to individuality and flexibility, a reassuring smile sometimes proved to be instrumental in the reduction of anxiety within the test situation (Gesell, 1979).

The responses of the examinees were recorded verbatim in the case of the interview, the action agent, the vocabulary test, and questions on comprehension and the incomplete human figure. Following the completion of the testing, the child was thanked for his/her cooperation, and taken back to his/her classroom. After the

child had left, the response sheet was indexed according to the school, the number of the child, the name of the tester and all relevant information, necessary for future reference, was added.

4.6 STATISTICAL ANALYSIS OF DATA

In this study, an *ex-post facto* research design was used. In order to test whether there are differences between the RSA boys' and girls' achievement on the 13 subtests of the Gesell Test, the chi-squared-test for homogeneity was done. In a similar manner the test data of the Mangaung children were compared to the Gesell norm data. Due to the nature of the data (successful/unsuccessful), frequency distributions were used to compare the relevant groups. Because of this, the chi-square test for homogeneity was used.

CHAPTER 5

RESULTS

The absence of standardized school readiness tests for black children results in the placement of children in school, before they are school-ready. This may be detrimental to the child. During schooling stages, there is again an urgent need for an appropriate measuring instrument. Although the Gesell Test seems suitable, no research has been done to establish this. As appropriate tests are urgently needed, this study focused on a comparison of the Gesell preschool test in the performance of a group of Mangaung (RSA) children according to USA norms.

The main aim of the study was to compare the data of Mangaung (Bloemfontein, OFS) Preschool children with the American normative group data on this test, in order to determine whether the American norms of the Gesell School Readiness Test could be applied to black South African toddlers and preschoolers.

- The performance of the South African children (Mangaung preschoolers) was to be compared to that of the five - six year olds in the American normative sample to see whether their performance was comparable enough to justify the application of the Gesell Developmental Test for School-readiness with South African Blacks.
- The extent to which subject variables such as sex and age influenced performance on the Gesell Developmental tasks was to be studied to provide information concerning the factors to consider when interpreting the test results.

5.1 RESULTS OF THE COMPARISON OF RSA BOYS AND GIRLS

In order to compare the RSA boys and girls on the 13 Gesell subtests, a number of chi-squared-tests for two independent samples, and based on the actual scores obtained, were done and the results are shown in Table 5.1.

TABLE 5.1: TEST FOR COMPARISON OF THE RESULTS OF RSA BOYS AND GIRLS ON THE GESELL TEST, BASED ON 2X2 TABLES OF FREQUENCIES

	CHI-SQUARED VALUE	DEGREES OF FREEDOM	p
Test 1: Block Test	1,010	4	0,908
Test 2. Interview	2,189	3	0,534
Test 3. Copy Form	5,873	5	0,319
Test 4. Incomplete Man	2,922	6	0,819
Test 5. Digit Repetition	2,126	4	0,713
Test 6. Picture Vocabulary	5,412	9	0,797
Test 7. Comprehension	1,989	5	0,851
Test 8. Action Agent	15,480	14	0,346
Test 9. Calculation	5,919	8	0,656
Test 10. Pellets and bottle	3,059	3	0,383
Test 11. Jumps	1,051	1	0,305
Test 12. Bean Bag Catch	4,270	3	0,234
Test 13. Bean Bag Throw	3,050	4	0,549

According to the results shown in Table 5.1, it appears that there are no statistically significant differences between the performance of boys and girls in any of the 13 Gesell subtests. According to this result, it is not necessary to differentiate between the sexes for the forthcoming analyses.

Figure 5.1 represents a comparison of the results of Mangaung boys and girls on the Gesell test, according to the adaption, language and motor components.

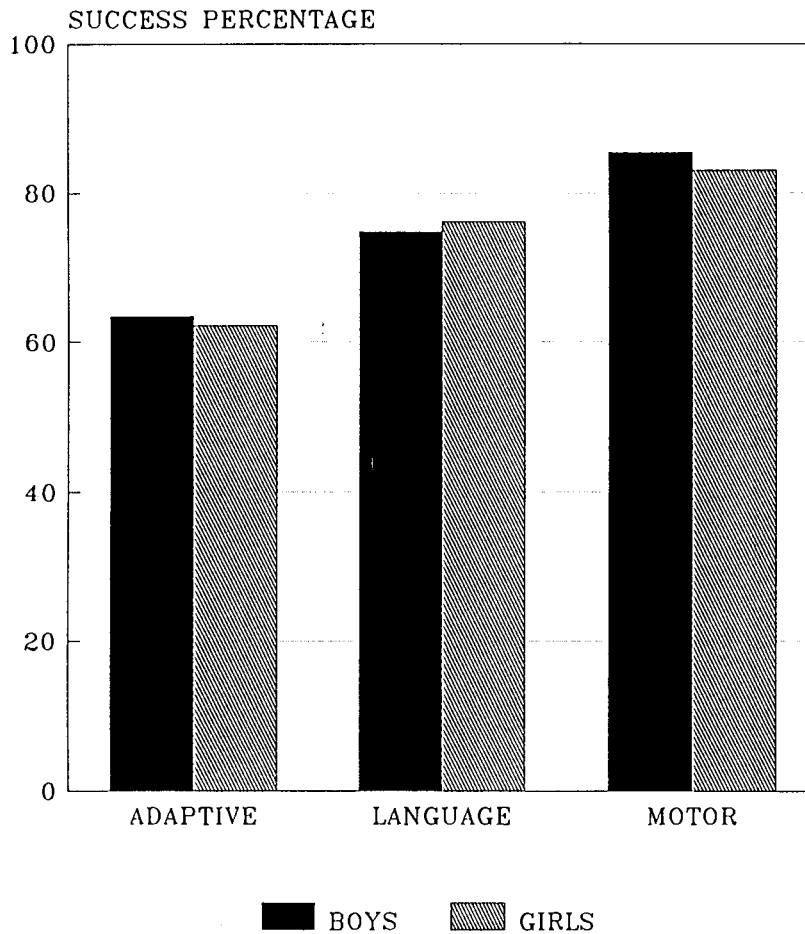


Figure 5.1: Comparison of boys and girls: Results of Mangaung preschoolers on the Gesell Test

5.2 RESULTS OF THE COMPARISON OF RSA AND USA NORMS

- Viewed according to the three Gesell components, the RSA results of the five and 6 year old children, respectively, were compared to that of the USA norm group.

In Figure 5.2 the comparative values of the five year old children representing the two norm groups, is graphically illustrated. As significant differences existed in all three subsections, namely adaptive, language and motor, individual subtests were viewed and the data was expressed in terms of the proportions of successful/unsuccessful testees. Results are discussed separately for the five year and six year olds.

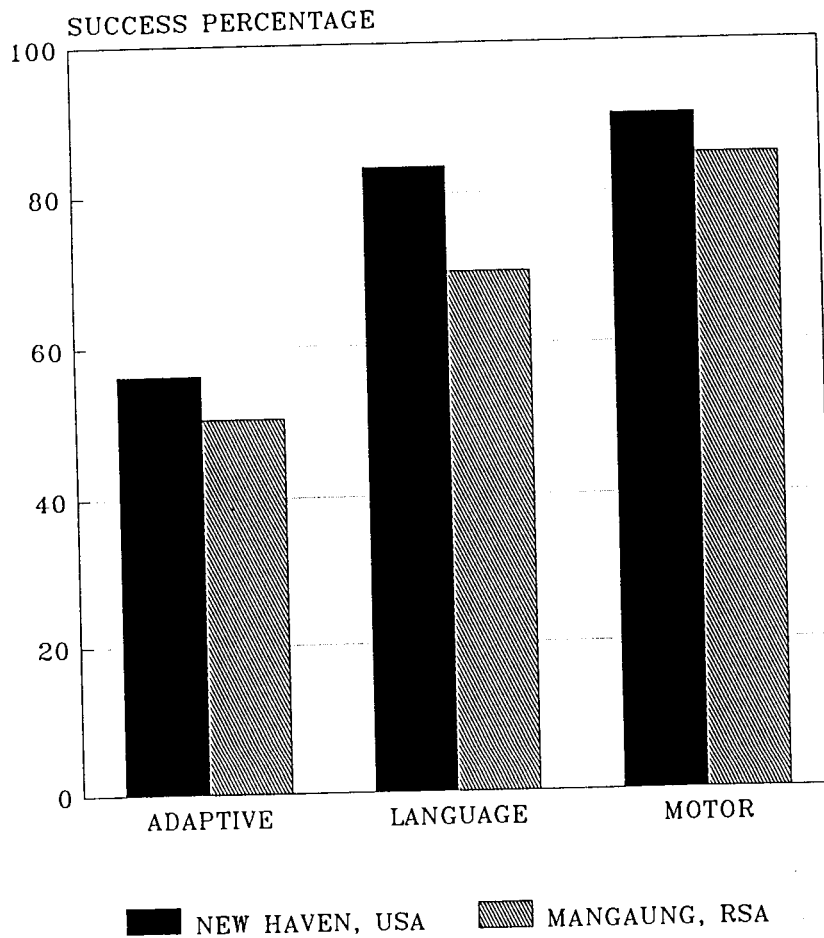


Figure 5.2: Comparison of USA and RSA results of five year old children on the Gesell Test

5.2.1 Five Year Olds

The chi-squared-test was done for the 13 subtests and the results are given in Table 5.2.

TABLE 5.2: TEST FOR COMPARISON BETWEEN MANGAUNG (RSA) AND USA PRESCHOOL CHILDREN ON THE GESELL TEST

SUBTEST	CHI-SQUARED-VALUE
Test 1: Block Building/Block Naming	0,138
Test 2: Interview	1,238
Test 3: Copy Form	1,238
Test 4: Incomplete Man	0,00
Test 5: Digit Repetition	0,150
Test 6: Picture Vocabulary	8,394*
Test 7: Comprehension	0,196
Test 8: Action Agent	5,514*
Test 9: Calculation	5,642*
Test 10: Pellets and bottle	0,00
Test 11: Jumps	0,00
Test 12: Bean Bag Catch	0,0353
Test 13: Gross motor/Bean Bag Throw	0,0353

* $p \leq 0,05$

It is clear from Table 5.2 that on the 5% level of significance differences in proportions were found for three subtests, namely the Picture Vocabulary, Action Agent and Calculations.

No significant differences between the Mangaung and USA norm groups were found in the blockbuilding/naming, interview, copy form, incomplete man, digit repetition, comprehension, pellets and bottle, jumps, bean bag catch and gross motor subtests. This could mean that these subtests could be used with the Sotho norm group.

In order to establish the nature of the difference for these three subtests the frequencies and percentages are given and discussed separately.

(a) Sub-Test 6: Picture Vocabulary

The observed frequencies, as well as percentages, is given in Table 5.3.

TABLE 5.3: THE FREQUENCIES AND PERCENTAGES OF MANGAUNG AND USA PRE-SCHOOLERS WHO WERE SUCCESSFUL/UNSUCCESSFUL ON SUBTEST 6 (GESELL: PICTURE VOCABULARY)

GROUP	SUCCESSFUL	UNSUCCESSFUL	TOTAL
USA	47 (82,5%)	10 (17,5%)	57
RSA	33 (58,9%)	23 (41,1%)	56
Total	80	33	113

It is clear from Table 5.3 that a greater proportion of RSA (Mangaung) children fell in the category of those who were unsuccessful in the performance in the test in comparison to the USA children.

The items in the picture vocabulary that elicited the least success were:

- (1) "Pitcher", which the children identified as a cup and which has no Sotho linguistic equivalence.

- (2) "Leaf", which was identified with either a "tree" or a "flower" and referred to by these names.
- (3) "Arm" was identified as "hand". The correct term exists, namely "sephaka". This word is rarely used in conversation with the child. Of the girls 9,6% were successful in identifying this part, whilst 12,9% of the boys could successfully identify this part.
- (4) "Cane", was identified by the children in its cultural context, namely "knobkierie" or "umbrella stick". The average percentage of successful identifications ranged from 40,6% for boys to 54,9% for girls.
- (5) "Baseball" is an item which is associated with a popular sport in America and the South Africans identified it either as a "tennisball", which is correct according to Gesell, or "football", used in a popular South African sport among the blacks. The successful percentage was 27,7% for boys and 44% for girls.

These five items resulted in the highest rating of unsuccessful attempts in the proportion compared to the American preschool children.

(b) Sub-Test 8: Action Agent

The observed frequencies as well as percentages, are given in the following table, Table 5.4.

TABLE 5.4: THE FREQUENCIES AND PERCENTAGES OF MANGAUNG AND USA PRE-SCHOOLERS THAT WERE SUCCESSFUL/ UNSUCCESSFUL ON SUBTEST 8 (GESELL: ACTION AGENT)

GROUP	SUCCESSFUL	UNSUCCESSFUL	TOTAL
USA	42 (73,6%)	15 (26,3%)	57
RSA	30 (53,6%)	26 (46,4%)	56
Total	72	41	113

It is clear from Table 5.4 that a greater proportion of RSA (Mangaung) children fell in the category of those who were unsuccessful in the subtest in comparison to the USA children. The items in this subtest that gave the Mangaung preschool children problems, are:

- (1) "melts" of which the linguistic equivalence is difficult to find, though the correct translation is "qhibidiha".

These items yielded an average success rate of 35,2% for boys and 37% for girls.

- (2) "Sails" - this yielded an average success rate of 24% for boys and 14,4% for girls. "Sails" in Sotho is translated as "Sesa" as well as "swim". The preschool children find these terms difficult to master.
- (3) "Floats" in Sotho is "phaphalla". This word is rarely used and is classified as difficult for ordinary children.
- (4) "Crawls" and "roars" have similarity of translation, i.e. "rora", and again this can be attributable to a and lack of linguistic equivalence in Sotho.

- (5) "Aches" is simple in English, but in translation to the Sotho it means "opa", which has double meaning, that is "ache" or "hit".

(c) **Sub-Test 9: Calculations**

The observed frequencies, as well as percentages, are given in the following table, Table 5.5.

TABLE 5.5: THE PROPORTION AND PERCENTAGE OF MANGAUNG (RSA) AND USA CHILDREN WHO WERE SUCCESSFUL/UNSUCCESSFUL IN SUBTEST 9 (GESELL: CALCULATIONS)

GROUP	SUCCESSFUL	UNSUCCESSFUL	TOTAL
USA	6 (10,5%)	51 (89,5%)	57
RSA	16 (28,6%)	40 (71,4%)	56
Total	22	91	113

It is clear from Table 5.5 that the greater proportion of RSA (Mangaung) preschool children fell in the category of those who were successful in the performance of the subtest of calculation as compared to the USA children, who fell short in this subtest.

The reason for the difference of 10,5% for USA to 28,6% for RSA (Mangaung) may be attributable to the new approach in preschools in RSA, in which basic mathematics and calculations are introduced to prepare the children for school readiness. The calculations which are done mostly at primary level, nowadays are not familiar to the preschool children in the RSA and the fact that the test was done more than 20 years ago, before the revision and implementation of the new programme in the preschool, may be the reason for the disparity between the USA and RSA subjects.

The other subtests indicate no significant difference, which implies that with the exception of Picture Vocabulary, Action Agent and Calculations, which are culture-orientated, there are grounds to believe that the Gesell test can be standardized for use with black Sotho children.

5.2.2 Six year olds

In Figure 5.3 the comparative values of the six year old children representing the two norm groups, is graphically illustrated.

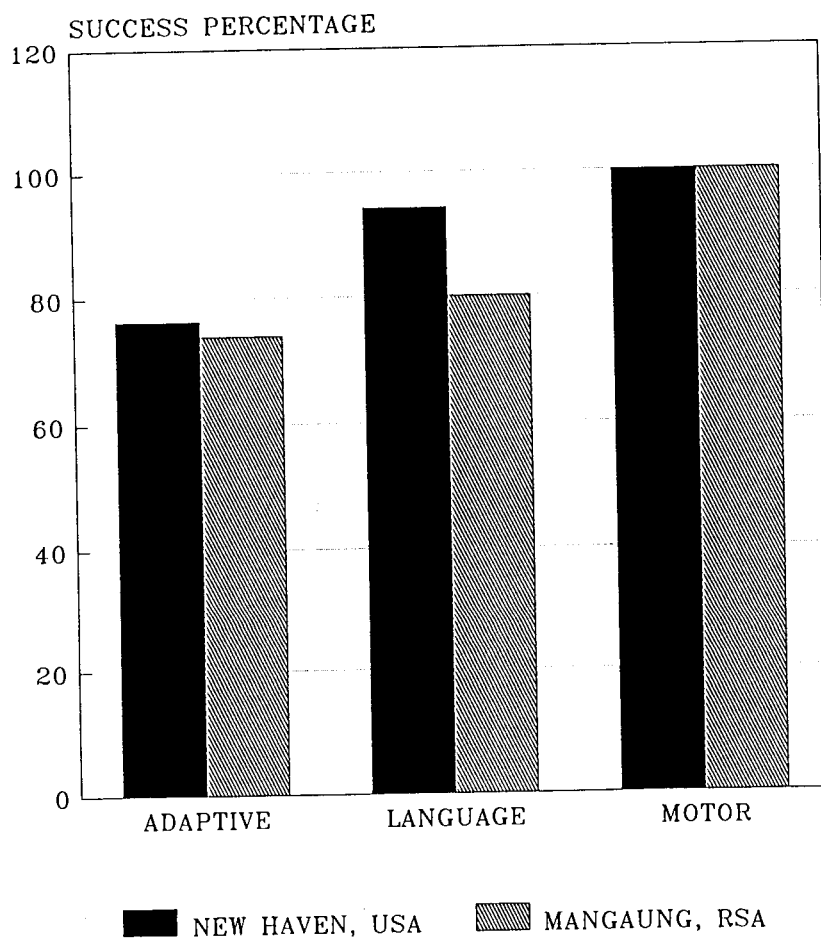


Figure 5.3: Comparison of USA and RSA results of six year old children on the Gesell Test

As differences were indicated, a chi-square-test was done on the 13 subtests to compare the data of six year old Manguang RSA children with the USA norms, and the results are depicted in Table 5.6.

TABLE 5.6: COMPUTATION OF CHI-SQUARE ON ALL SUBTESTS: COMPARISON BETWEEN RSA AND USA PRESCHOOL CHILDREN

SUBTEST	CHI-SQUARED
Test 1: Block Building/Naming	1,085
Test 2: Interview	1,309
Test 3: Copy Form	1,349
Test 4: Incomplete Man	0,00
Test 5: Digit Repetition	0,543
Test 6: Picture Vocabulary	4,857*
Test 7: Comprehension	0,00
Test 8: Action Agent	4,957*
Test 9: Calculation	1,403
Test 10: Pellets and bottle	1,582
Test 11: Jumps	0,00
Test 12: Bean Bag Catch	0,00
Test 13: Gross motor/Bean Bag Throw	0,00

* $p \leq 0,05$

It is clear from Table 5.6 that differences of statistical significance were found for two subtests, namely Picture Vocabulary and Action Agent. In order to establish the nature of the difference for these two subtests, the frequencies and percentages are given and discussed separately.

(a) **Sub-Test 6: Picture Vocabulary**

The observed frequencies, as well as percentages, are given in Table 5.7.

TABLE 5.7: THE FREQUENCIES AND PERCENTAGES OF MANGAUNG (RSA) AND USA PRE-SCHOOL CHILDREN, SUCCESSFUL/UNSUCCESSFUL ON SUBTEST 6 (GESELL PICTURE VOCABULARY)

GROUP	SUCCESSFUL	UNSUCCESSFUL	TOTAL
USA	18 (100%)	0 (0%)	18
RSA	32 (72,7%)	12 (27,3%)	44
Total	50	12	62

Table 5.7 indicates that a greater proportion of RSA (Mangaung) preschool children fell in the category of those who were unsuccessful in the performance of the subtest than was the case with the USA children.

The items which posed a problem to the Mangaung preschoolers are as listed and discussed in the five year old group (subtest 6), though there appeared to be improvement amongst the six year olds in comparison with the five year olds.

- (1) The item "Pitcher", which the children identified as a "jug", has no linguistic equivalence in Sotho. Due to children's exposure to such objects in Western culture, 3% of both the boys and the girls were successful.

- (2) "Leaf" is translated as "lehlaku" and the preschoolers of Mangaung called it a "tree", which is more associative than its real name; 15,9% boys and 19,5% girls were successful.
- (3) "Arm" was identified as "hand", which is in Sotho "sephaka" not "hand letshoho". The boys' scores had a success rate of 12,9% and girls had a success rate of 9,6%.
- (4) "Cane", which is translated as a stick ("Molamu") in South Sotho is understood to be a stick which is used for fighting, hence the response of "knobkierie" was prevalent whilst a certain percentage said it was an "umbrella stick". The performance on this item in this subtest range was 40,6% for boys to 54,9% for girls.
- (5) "Baseball" is the item which can be translated as "ball for baseball game". This type of sport is very rare in Mangaung. It is not popular, hence the children saw it as "football", which is wrong, or "tennisball" which is right on the basis of linguistic equivalency. The performance of children on this item was 27,7% for boys and 44% for girls.

These five items could be the cause of the general poor performance as they elicited the highest proportion of wrong responses, as compared to the USA preschool children's norms in the picture vocabulary.

(b) Sub-Test 8: Action Agent

The observed frequencies, as well as percentages, are given in Table 5.8.

TABLE 5.8: THE NUMBERS OF MANGAUNG AND USA PRESCHOOL CHILDREN AGED 6 WHO WERE SUCCESSFUL/UNSUCCESSFUL ON SUBTEST 8 (GESELL ACTION AGENT)

GROUP	SUCCESSFUL	UNSUCCESSFUL	TOTAL
USA	18 (100%)	0 (0%)	18
RSA	33 (75%)	11 (25%)	44
Total	51	11	62

Linguistic equivalency and homonyms in the Sotho language contributed to the poor performance in the subtest. This is indicated by Table 5.8, from which it is clear that a greater proportion of RSA (Mangaung) children fell in the category of those who were unsuccessful in the achievement of this subtest, in comparison to the USA preschool children.

Items which caused problems to the Mangaung preschoolers were, amongst others, words like "melts", which is translated as "qhibidiha" in South Sotho and "gakologa" in Western Sotho (Tswana). Because of Westernization purity of language becomes a problem in that the translation using the correct term becomes difficult. The dialect of "melt", however, which is as English word coined to Sotho, was more meaningful to children.

"Sails", which has the same translatory meaning as "swim", thus synonymous in meaning with the Sotho "sesa", causes problems in that the popular responses are

"fish" or "man". An attempt to give guidance may provide the answer in a subtle way, which may defeat the aims of testing. "Sails" carries meaning to those who have seen a ship, which is not the case with Mangaung children, who have not been to the sea as they are inlanders geographically. "Floats" is translated in Sotho with "Ishaphalla". This word is rarely used and is a difficult concept for the child who is still on a concrete level. "Growls" and "roars" have a similar translation equivalent, which is "rora". The Sotho children's responses of "a dog roars" and a "dog growls" can thus be understood.

"Stings" has no translatory equivalent, except in an explanatory context, which may give meaning in a subtle way. It is translated with the close equivalent in Sotho, namely "hlaba ka motsu", meaning "stick with sharp end". The popular response was a "bushman", meaning the bushman stabbing with an arrow (from African context). The other responses were "man stabbed with a knife". "Aches" is translated in Sotho with "opa", which is a synonym for "opa" meaning to "hit" with a stick. The linguistic equivalent and similarity of sound caused profound confusion and contributed to the poor performance amongst the children.

DISCUSSION OF RESULTS AND RECOMMENDATIONS

Norms play a vital role in the identification of the developmental stages of children. By making use of reliable norms, a child's developmental age level can be established, in this way revealing developmental lagging, and indicating whether children are under- or over-achievers. Should it be established that the Gesell Preschool Test results of the Mangaung sample of children correspond with the USA norms, this test could provide a useful tool for the assessment of children before attending formal education - thus preventing that children who are not school-ready experience frustration and failure.

The findings of this study and the implications thereof, which will be discussed in the subsequent sections, can open the channels towards the standardization and implementation of tests in South Africa in the black education preschools and primary schools. Although information concerning the psychometric properties of the Gesell School Readiness Tests is limited, Ilg, Ames, Haines and Gillespie (1979) reported a correlation of 0,74 between GSRT prediction of readiness and grade placement six years later. Kaufman *et al.*, (1972) found the correlation between GSRT and the Stanford Achievement Test to be 0,64 when administered to first graders (Graue, 1989) whilst Roe *et al.*, (1983) established that performance in the Gesell was found to relate significantly to WISC-R performance IQ, and to a lesser extent to PPVTIQ, but did not relate to WISC-

R Verbal IQ nor to performance on the WRAT (Roe *et al.*, 1983). It was found that there was a significant positive correlation (0,59) between Bracken Basic Concept Scale and the Gesell Developmental Examination, indicating a moderately strong relationship between developmental age and basic concept knowledge (Steiner, 1988).

South African black children were compared with an American normative sample in terms of their performance on the Gesell Test. Attention will be paid to the results pertaining to the influence of certain subject variables on test performance. The limitations of the study, as well as suggestions for future research, will be indicated.

First, the comparison of the results of boys and girls from the Mangaung norm group and, second, the comparison of the results of the Mangaung norm group with that of the New Haven, USA norm group on the Gesell Preschool Test, will be discussed. As no differences were indicated between the performances of the girls and boys on the 5% level of significance (Table 5.1), only the comparison of the RSA and USA groups will be dealt with in this chapter.

6.1 FINDINGS AND IMPLICATIONS OF THE STUDY

6.1.1 Comparison of Mangaung, RSA data of five year old preschool children with that of the American normative group

To illustrate the differences between the two norm groups, the discussion will first focus on the five year old preschool group from Mangaung. The results of the comparison of the performance of the Mangaung preschoolers and the

American normative group, as was presented in Chapter 5, indicate that there were differences in only three out of the 13 subsections in the case of five year old preschoolers (Table 5.2).

These differences in performance can be ascribed to the considerable differences on two of the three behaviour tests and in terms of the general behaviour test. A closer look at the results reveals that the performance of the Mangaung preschoolers, except for gross- and fine motor behaviour tasks, tended to be lower than that of their American counterparts. A fact that must be taken into consideration, is that the American normative group was tested before 1972, while the Mangaung data were collected 20 years later. The preschool phenomenon started in America in the 1920s, whilst the preschool movement in South Africa has only gained momentum since the 1960s. The following data is presented according to Gesell's areas of development, namely adoption, language and motor. They are thus not necessarily in the sequence found in the Tables on pp 112 and 118.

6.1.1.1 Adaptive behaviour

(i) Block Building

Forty nine percent of the five year old American normative sample were successful on spontaneous block design. In the case of the Mangaung preschoolers, it was 52%. On naming the construct of 82%, the USA norm group was successful as compared to the 75% of the Mangaung norm group. The application of the chi-squared-test to compare the two groups, however, indicated no significant differences on these aspects.

(ii) *Incomplete Man*

The five year old American normative sample's success-rate averaged 68,2% on the nine subdivisions as compared to the 67,15% of the Manguang preschoolers. This may imply that the Incomplete Man subtest (which can also be found in other intelligence tests) may be a useful aid in assessing children cross-culturally.

(iii) *Copy Form*

The five year old Manguang preschool group obtained an average success-rate of 51,5% which is better than that of the American normative sample, namely 32,1%. With the Copy Form subtest, a greater number of significant relationships were indicated. This led to the conclusion that the validity of the copy form as a predictor of intelligence over the long-term - as was indicated by Popovic (1982) - is valid. Furthermore, a high correlation between the Copy Form (0,47) and Incomplete Man (0,53) was indicated in the Meeting Street School Screening Test (Dukes, 1982). The Draw-a-child and Draw-a-design tests have been shown to be significantly related to school readiness and academic achievement (Kaufman *et al.*, 1977; Richter *et al.*, 1989). It also became evident that the Draw-A-Man test appears to have some validity as a general cognitive measure amongst local black children between the ages of five and eight years (Richter *et al.*, 1989). The Draw-A-Design and Draw-A-Child combination parallels Gesell's copy forms and incomplete man tasks, which play a feature role in the studies of Ilg and Ames (1972). The Gesell School Readiness Test and the Incomplete Man feature well in the Stanford-Binet Test of Picture Completion. These two nonverbal subtests assess concept formation, visual-

motor coordination and body images in the case of the Draw-A-Child, whilst the Draw-A-Design test assesses visual perception, visual-motor coordination and spatial relationships. Both assess the child's fine motor coordination, which is exemplified in their hypothesized construct of behavioural maturity (Kaufman *et al.*, 1977).

(iv) *Calculation*

The percentage of the American normative group who were successful on the calculation subtest, was 10,5% as compared to their Mangaung preschool counterparts, who fared better with a 28,6% success-rate. This quantitative scale assesses the child's ability to deal with numbers and his/her understanding of quantitative concepts, underlying arithmetic.

(v) *Digit Repetition*

On the repetition of three digits the American normative sample (98%) performed better than the Mangaung preschoolers (92,4%), but on the four digits aspect, Mangaung preschoolers (68,4%) performed better than their American counterpart (58%). With the five digits aspect, the South African Mangaung preschoolers obtained an average success performance of 20,2% against the 17% of the American normative sample. The average on digit repetition was 60% for Mangaung preschoolers, as compared to the (58%) achievement by the USA norm group in this respect. No significant differences are thus indicated.

Below the age of five, the numerical tasks tend to have their highest loadings on the General Cognitive and Verbal Factors (Kaufman *et al.*, 1977). Just like in Guilford, the quantitative scale emerges as a measure of symbolic memory. Immediate recall of numerals and long-term memory of number operations are the skills essential for future success in school-related tasks. This may lead to the conclusion that preschool children who are exposed to numbers tend to do better in this subtest. In the Gesell study, however, no clear cut indication was given that all the subjects were attending preschool.

The children's scores on auditory and visual sequential memory test provided additional information about their short-term memory and may be compared to the memory index, but there are young children who have difficulty in repeating numbers, words or musical tones at the rate of one per second. Individuality may, however, feature in the discrepancy in terms of memory aspects such as visual, auditory, words and numbers (Kaufman, 1977). For both the overall Gesell Developmental Quotient and the Gesell Adaptive Scale Developmental Quotient there is a suggestion that the items of adaptive scale reflects "intelligence", according to Roe (1977).

6.1.1.2 Language behaviour of the five year olds

(i) Picture Vocabulary

The Americans were far ahead of the Margaung preschoolers in this regard. Of the American normative sample, 82,5% were successful against the 58,9% of the Margaung preschoolers. This subtest entails some problems - as the pictures presented are of artifacts which are prevalent in America, but are not nationally

prevalent in South Africa and even less so among the blacks. Concepts like "boat", which the Mangaung preschoolers predominantly saw as a ship, "cane" as umbrella stick, "pitcher" as a "jug" or "cup" and "baseball" as "tennis ball", could be responsible for the disparity in the score average, as the black children have not been exposed to those concepts. The language subtest has posed a problem as to culture-fairness and this is reflected in that concepts familiar in one culture may be foreign in others. The contextual meaning and functional labelling may differ from culture to culture. If a label is to play a role in successful communication, it must be informative enough to select an intended object from a set of alternative objects (Miller, 1976). It cannot be conclusive that, because of the low score, the Mangaung preschoolers are maturationally lagging, but rather that their performance was affected by the concepts which were foreign to them.

(ii) *Action Agent*

Of the American Normative sample 73,6% of the children were successful on the Action Agent test, in comparison with 53,6% of the Mangaung five year olds. This discrepancy particularly emanated from the translational equivalents which are words/concepts far above the child's vocabulary repertoire. Words that posed significant problems, were "melts", which in Sotho, the local language, stands for "Qhibidiha"; and "sail" meaning "Sesa" was correctly mistaken for swimming which is also "sesa". The concept "floats" has its translatory equivalence "phaphalla", which is difficult for ordinary language learners; "Growls" and "Roars" have the same equivalent translation, namely "rora" or "puruma" which can only be separately understood in context; "stings" is translated as "hlaba ka motsu", "loma" which also means "bite", whilst the former

can be associated with a nurse, whilst the latter with a dog, cat or anything. "Explodes" is translated as "qhoma" which is a synonym for "jump", hence the confusion. This can account for the disparity in the scoring performance, rather than poverty of language knowledge of the preschoolers. Some of the concepts are still undergoing the process of cultural evolution and language development since this is an ongoing process which still has to accommodate new concepts into the cultural background.

In acculturation and Westernization verbs of motion describe how an object changes from a certain place at one time to another place at a later time (Miller *et al.*, 1976). Since verbs of motion have a special meaning in the child's life, according to his/her age, verbs may denote contact or change of location, but the real test is whether the meaning pattern of motion verbs can be analysed in an intuitively satisfying manner during this intuitive and egocentric stage (Miller *et al.*, 1976).

(iii) Interview

In the interview subtest, 61,8% of the American normative sample were successful, as compared to 73,3% of the Mangaung preschoolers. The main cause of the discrepancy in this subtest, originates from the question of "When is your birthday?". A large number of children did not know their birthdates and others did not even attempt to answer it. The second weakness among the Mangaung preschoolers was related to the knowledge of the age of their brothers and/or sisters. Months, days and years are still not well-known concepts in preschool children. Birthdays and parties are recent phenomena with the middle class educated elite blacks, who have adopted the Western style

of living. The inclusion of questions dealing with issues familiar to the children in one cultural group and not in another, would probably lower the validity of the test for most criteria (Anastasi, 1982).

(iv) Comprehension

In these subtests the success-rate for both the American and Manganung samples were a 100%. This may imply that the subtest is valid and reliable in testing that aspect, although the high scores might also indicate that the test is too easy.

The Verbal Scale assesses the child's ability to understand and process verbal stimuli and to express his/her thoughts vocally (Kaufman, 1977). At the age of five, the developmental accomplishment is the increased ability to get a broader view of a situation.

As the test on Discriminate Prepositions is only relevant to the three year olds, it has no significance to this study.

6.1.1.3 Motor behaviour

On the gross motor behaviour test the American normative sample scored an average of 100%, as compared to the 97% of the five year old Manganung preschoolers.

In the fine motor behaviour test of the five year old American normative group were successful, as compared to the 81,8% of their Manganung counterparts.

No significant difference could be found between the overall motor performance of the American (88,7%) and the Mangaung normative groups (89,4%) at the age of five.

6.1.2 Comparison of Mangaung, RSA data of six year old preschool children with that of the American normative group

6.1.2.1 Adaptive behaviour

(i) Block building

A 100% of the Mangaung preschoolers' succeeded in the appropriate block designs, as compared to 94% of the American normative group. This may be ascribed to practice and training with blocks, which forms part of the daily activities of the children in Mangaung preschools.

The success-rate of the six-year olds is in contrast to that of the five year old group, where the American norm group fared better in the naming of block designs than the Mangaung preschoolers.

(ii) Incomplete Man

Whereas 85,5% of the American normative group succeeded in this subtest, 80,3% of the Mangaung group were successful. The difference in proportion is not significant.

(iii) Copy forms

Whereas 71,2% of the American normative group succeeded in this subtest, 64,3% of the Mangaung preschoolers were successful. The difference in proportion is not significant.

(iv) Digit Repetition

When it comes to digit repetition, 68,4% of the Mangaung preschoolers succeeded in this subtest, whilst 77% of the American normative group were successful. This is in accordance with the findings reported by Kaufman (1977), in which there were no significant differences between the short-term memory of whites and blacks in their samples. The overall proportion of the Mangaung preschoolers who succeeded in the short-term memory sections, was 74,2%, whilst 76,4% of the American normative sample succeeded.

Kaufman *et al.* (1977) established that white children scored significantly higher than black children on all cognitive scales - although they did not differ significantly in their mean score. This may be ascribed to anxiety and fear of the testing situation, due to the unfamiliarity thereof, in the case of the black children. In the case of this study, no significant differences were indicated.

6.1.2.2 Language behaviour*(i) Picture Vocabulary*

Of the American normative sample 100% succeeded in this subtest, whilst 72,7% of the Mangaung preschoolers were successful. This difference in proportion is

significant at the 5% level. The problem of language behaviour, especially with regard to picture vocabulary, has been discussed under 6.1.1.2.

(ii) *Action-Agent*

In this subtest, American normative sample of New Haven were successful, whilst 100% of the Mangaung preschoolers were successful. This represents a significant difference, which might be ascribed to the same problems experienced by the five year old pupils.

(iii) *Interview*

Whereas 71,08% of the children from the American normative group succeeded in this subtest, to the Mangaung preschoolers' success rate was 53,6%. The difference in proportion is not significant. The higher achievement of the American norm group in this subtest, emanates from questions regarding birthdays, months, days and years.

As explained earlier on in this chapter, the cultural situation of the blacks brings about language poverty, birthday disregard, cultural artifact differences and restrictions in the understanding of foreign concepts. The commemoration of birthdays, for instance, is copied from whites and the practice of its celebration is done by the few who can afford it.

(iv) *Comprehension*

One hundred percent of both the American normative sample and of the Mangaung group succeeded in the comprehension subtests.

Hundred percent of both the American normative sample and the Mangaung group succeeded in the comprehension subtest. This test assesses the child's ability to understand and process verbal stimuli and to express his/her thoughts vocally. Such a process is based on culture-oriented concepts which may be culture-loaded (Kaufman & Kaufman, 1977). A few studies involving non-standardized measures have shown that the exercising of a black dialect significantly affects a child's performance (Kaufman, 1979).

6.1.2.3 Motor behaviour

The testing of gross motor behaviour produced similar results in the Mangaung preschoolers and American normative sample, in that both groups were 100% successful in all the tests. This could imply that these tests are too easy.

6.3 COMMENTS ON THE OVERALL RESULTS

The objective of this study was to apply the Gesell Developmental Test (preschool tests) to the Sotho children of Mangaung. The results of this study were encouraging. In the six year old level, for instance, 90,2% of the American (New Haven) normative sample were successful, as compared to the 84,8% of the Mangaung preschoolers' sample. This difference cannot be issued as significant when variables, such as the educational level and socio-economic status of parents, variations in intellectual abilities and uncontrolled cultural

artifacts in the tests have not been eliminated completely, or have not been taken into consideration. "Chronometric paradigms do not depend on crude indices of item performance, as *can* versus *can't*, or *right* versus *wrong*, but depends only on the time regiment to produce the correct response" (Irvine & Berry, 1988, p 112).

The socio-economic status of the parents was not built into the USA norm of the Gesell Preschool and School Readiness Tests. It was thought advisable to treat the Mangaung sample in the same way, without taking socio-economic status into consideration, moreover because the socio-economic status as found in America differs from (and is higher than) that of the middle and lower socio-economic group of South African blacks, whose children participated in the study. The educational level of the local parent group, for instance, ranges from Std. 2 to Std, 10 whilst a few possess further qualifications.

The major assumptions shared by most cross-cultural psychologists conducting research, is that there are overt manifestations of learning, thought, and personality which do not necessarily reflect a true biological potential, because that potential is always modified, enhanced, altered or curbed by elements within any culture (Segall *et al.*, 1991). Hence, psychologists should search for the historical roots of their own concepts, in an attempt to discover previous insights about the justification of the notion of qualitative differences in intelligence (Irvine & Berry, 1988). Because differences in test performance represent qualitatively different levels on a universal dimension of intelligence, different patterns of cognitive abilities develop as a function of qualitatively different cultural demands (Irvine & Berry, 1988).

In view of the restricted geographical operation, a highly comparable group of subjects participated and this places limits on the scope of generalizability of the results, and thus on its external validity. Generalization of the results of this study to all Sotho-speaking children, must thus be performed with caution, furthermore in view of the fact that only 100 children were tested, whilst there were more than 10 000 preschoolers in South Africa during the 1991 academic year.

6.4 RECOMMENDATIONS

Although it has not been confirmed that school readiness tests are reliable predictors of success for children in the primary school, Gesell's assessment of developmental areas, appears to be very useful. Information derived regarding specific developmental areas can even be used to devise a programme to prepare preschool children for formal education in the primary school. Unlike other screening techniques and developmental tests, the Gesell School Readiness Test covers the totality of the child's development, by viewing its personal-social, adaptive, motor and language behaviour. As such, it could be most useful in assessing the developmental status of preschoolers.

In the Gesell Test, subtests such as picture vocabulary, action agent, interview and comprehension questions are based upon the child's language fluency. In this study, the developmental subtests that include language has posed problems regarding culture-fairness - especially in the case of items which are national in some cultures whilst in others they are foreign. The diagnostic importance of these subtests can, however, not be disregarded.

The study indicated that Gesell's Developmental Test for School-readiness can be applied to the Mangaung black preschoolers with very few adaptations. Suggestions in this regard include incorporating the use of cents instead of pennies, and the changing of culture loaded language versions such as *baseball* to *soccer ball*, *leaf* to *flower* and *cane* to *stick* in the vocabulary subtests. In the Action Agents section, concepts like *melts* could be changed into other more linguistically accessible terms, whilst *float* could perhaps be replaced by *fly* to avoid geographical problems. Furthermore, words like *growls* and *roars* have the same linguistic equivalent and, instead of *growls*, other concepts can be used. *Aches* can be retained, but with certain indications of the translatory implications thereof.

Regarding the calculations, it must be kept in mind that the preschool children are only expected to count up to ten, so that one does not expect them to do more than this in the preschool. Further calculations could, however, be included for intellectually gifted children.

Block building, which requires fine motor skills and eye-hand coordination, is also used in the Griffith's tests and was recently incorporated in the culture-fair Herbst test battery. The gross motor development test is non-verbal and entails mostly bodily performance, which can be gauged as culturally fair. This view is substantiated by the fact that tasks in the particular subsection were successfully performed by the black Mangaung preschoolers.

The human being, as a social being, belongs to an embracing system with interdependence and an exchange of energy in dynamic interrelatedness. Like other systems which are interrelated, Gesell's four behavioural fields are

interrelated in the development of the human being, or child, who likewise represents a complete system. The holistic approach does not accommodate the fragmentation of the various faculties, but takes cognizance of all those aspects in assessing the development of the child. The Gesell developmental tests considers the totality of human development in its identification of four developmental fields, instead of stressing only the cognitive which is emphasized, to the exclusion of others, by most other developmental theories.

The use of appropriate developmental tests, their being diagnostic and prognostic in nature, can be of benefit in assessing abnormalities at an early stage. The extensive use of such tests to identify developmental lags and guide the implementation of remedial programmes and timely therapy, where necessary, is stressed. The findings of this study suggests that, with minimal adaptations, the Gesell School Readiness Test could be a useful tool to use with Sotho children in this regard. One would however, need follow-up data to confirm this.

SUMMARY

The high failure rate in the first school years, created a need for early intervention and led to a search for school-readiness tests that will detect school problems. No tests have been designed to evaluate school-readiness among black preschoolers, who grew up in cultural settings that differ from that within which the group of children for whom existing tests have been standardized, reside. Although various tests from overseas are locally implemented, most of them are not suitable for the blacks whilst others are still being standardized for such use. Gesell's Developmental Test for School-readiness seems suitable for use with the Sotho and Tswana culture groups in that it focuses on the totality of human development and maturation and is based on four developmental components, namely motor, adaptive, language and personal-social behaviour. Gesell's test has been used in America at the beginning of the century and the norms have been established in America. In order to establish the suitability of this test for South African conditions, the theoretical background of various developmental theories was looked into, Gesell's developmental perspective was more extensively explained, and general school-readiness criteria were identified. The effect of differences between cultures and the implications this holds for cross-cultural research, were taken into consideration, with the aim of furthering culture fairness in the testing of children. Following this, a study was conducted with the aim of assessing the developmental milestones of Mangaung

preschoolers by means of the Gesell Preschool Test, and comparing the data of boys and girls, as well as of the five and six year age groups, with that of the USA normative group.

The subject sample of 48 boys and 52 girls (N = 100) was drawn randomly from three preschools in Mangaung. Children were tested, by means of the Gesell Test, at their respective preschools and the test languages were South Sotho and Tswana.

An *ex post facto* design was used to compare the data of boys and girls, and of the Mangaung, versus the New Haven, USA norm groups. The X²-test, for establishing the homogeneity of two independent samples, was used. The discrete categories were used to determine the significance of differences between the two independent groups. The comparison of Mangaung boys and girls yielded no significant differences. The data of the Mangaung preschoolers was subsequently compared with that of the USA normative group. In this case, significant differences arose mainly from subtests incorporating language, such as Picture Vocabulary and Action Agent where cultural variance for both the five and six year old groups were indicated. Apart from the problems mentioned, the study has confirmed that the Gesell test with its 13 subtests can be considered to be culture-fair in the local situation.

These results indicate that the Gesell Developmental Test, with follow-up studies and more data, can be considered for application among members of the black population group as a measure of school-readiness in preschool children.

MF 153.932 MeH

(6)

MOHLATHE

REFERENCES

- Abel, M.T., Metraux, R.W. & Roll, S. (1991). Transcultural psychiatry in South Africa. Transcultural Psychiatry Research Review 23: 273-303.
- Aiken, L.R. (1976). Psychological Testing and Assessment. Boston: Allyn and Bacon Inc.
- Allan, M.M. (1988). Comparison of the performance of normal preschool South African and British children on the Griffiths Scale of Mental Development. Unpublished Magister Artium thesis. Port Elizabeth: University of Port Elizabeth.
- Ames, L.B. (1967). Is your child in the wrong grade? New York: Harper & Row Publishers.
- Ames, L.B., Metraux, R.W., Rondell, J.L. & Walker, R.N. (1974). Child Rorschach Response: Developmental trends from 2 years to 10 years. New York: Brunner Mazel Publishers.
- Anastasi, A. (1982). Contributions to Differential Psychology. Selected Papers. New York: Praeger Publishers.

Ary, D., Jacobs L.G. & Razavien, A. (1972). Introduction to Research in Education. New York: Holt Rinehart.

Bayley, N. (1969). Scales of Infant Development. New York: The Psychological Corporation.

Bears, G.G. & Modlin, P.D. (1987). Gesell's Developmental Testing: What purpose does it serve? Psychology in the Schools. Vol. 24: 40 - 44.

Belsley, J., Steinberg, L. & Draper, P. (1991). Child experience, interpersonal development and reproductive strategy: An evolutionary theory of socialization. Child Development Vol. 62 (4) 647 - 670.

Biehler, R.F. (1976). Child Development: An introduction. New Jersey: Houghton Mifflin Company.

Biesheuvel, S. (1991). Neutrality, relevance and accountability in psychological research and practice in South Africa. South African Journal of Psychology 21 (3): 131-147.

Borg, R.W. & Gall, M.D., (1989). Educational Research: An Introduction. New York: Longman.

Botha, L. (1983). Human Sciences Research Council Institute for Psychological and Edumetric Research. Test Catalogue. Pretoria: HSRC.

- Bogdan, R.C. & Baklen, S.K. (1992). Qualitative Research for Education: An Introduction to Theory and Method. Boston: Allyn & Bacon.
- Boykin, A.W., Franklin, A.J. & Yates, J.F. (1979). Research Directions of Black Psychologists. New York: Russel Sage Foundation.
- Bukatko, D. & Daehler, M.W. (1992). Child Development: A Topical Approach. Boston: Houghton Mifflin Company.
- Campbell, D.T., Herskovits M.J., & Segall, M.H. (1966). The Influence of Culture on Visual Perception. New York: The Bobbs-Merrill Company Inc.
- Craig, G. (1980). Human Development. New Jersey: Prentice Hall Inc.
- Crain, C.W. (1980). Theories of Development: - Concepts and Applications. Englewood Cliffs: Prentice Hall Inc.
- Crocker, L. & Algina, J. (1986). Introduction to Classical and Modern Test Theory. New York: Holt, Rinehart and Winston.
- Cronbach, L.J. & Drenth, P.J.D. (1972). Mental Tests and Cultural Adaptation. The Hague: Mouton Publishers.
- De Jongh, I. (1985). Riglyne vir die ontwerp van 'n skoolgereedmakingsprogram vir swart skoolbeginners. M.Ed.-verhandeling. Pretoria: Universiteit van Suid-Afrika.

- Denham, S.A., Renwick, S.M. & Hort, R.W. (1991). Working and playing together: Prediction of preschool social-emotional competence on mother-child interaction. Child Development 62 (2): 242-249.
- Di Leo, T.H. (1977). Child Development: Analysis and Synthesis. New York: Brunner/Mazel Publishers.
- Dragow, F. (1987). Study of the measurement bias of two standardized psychological tests. Applied Psychology, 72 (1): 19 - 29.
- Duke, L. & Buttery, J.J. (1982). Comparison of two screening tests: Gesell Development Test and Meeting Street School Screening Test. Perceptual and Motor Skills. 54: 1177 - 1178.
- Epstein, B.I. (1985). Factors Related to Mechanical Aptitude in Blacks. Literary Survey. Pretoria: Human Sciences Research Council.
- Eysenck, H.J. & Arnold, W. & Meili, R. (Eds.) (1972). Encyclopedia of Psychology Vol. 1. London: Search Press.
- Foxcroft, C. (1991). School Readiness Assessment in a Multicultural Context. Paper delivered at Human Sciences Research Council Symposium, Durban, 15 June 1991.
- Frances, L., Bates Ames, L. (1972). *School Readiness Behaviour Test used at the Gesell Institute*. New York: Harper & Row Publishers.

- Frye, D., Brainsby, N., Lowe, J., Nicolls, J. & Maroudas, C. (1989). Young children's understanding of counting and cardinality. Child Development 60 (5) 1158 - 1171.
- Garner, D.B. (1969). Development in Early Childhood: The preschool years. New York: Harper & Row Publishers.
- Gesell, A. (1965). Infant and Child in the Culture of Today: The Guidance of Development in Home and Nursery School. London: Hamish Hamilton.
- Gesell, A. (1971). The First Five Years of Life. A Guide to the Study of the Preschool Child. London: Methuen & Co. Ltd.
- Gesell, A. & Amatruda, C.S. (1941). Developmental Diagnosis: Normal and Abnormal Child Development. New York: Hoeber Publishers.
- Gesell, A. & Amatruda, C.S. (1945). The Embryology of Behaviour: The Beginnings of the Human Mind. New York: Hoeber Publishers.
- Gesell, A., Halverson, H.M., Thompson, H., Ilg, F.L., Castner, B.M. & Amatruda, C.S. (1940). The First Five Years of Life: A Guide to the Study of the Preschool Child. New York: Harper & Brothers.
- Gesell, A. & Ilg, F.C. (1925). The Mental Growth of the Preschool Child. New York: McMillan Company.

Gesell, A., Ilg, F.C. & Ames, L.B. (1973). The Child from Five to Ten. London: Hanus Hamilton.

Gesell, A., Thompson, H. & Amatruda, C.S. (1984). Infant Behaviour: Its Genesis and Growth. New York: McGraw Hill.

Ghiselli, E.E., Campbell J.P. & Zedeck S. (1981). Measurement Theory for Behavior Sciences. San Francisco: W.H. Freeman & Company.

Gilfoyle, E., Grady, A.P. & Moore, J.C. (1981). Children Adapt. New Jersey: Charles B. Slack Inc.

Goldenson, R.M. (1984). Longman Dictionary of Psychology and Psychiatry. New York: Longman.

Goldman J., Engel, S.C. & Guerry, S.G. (1983). Psychological Methods of Child Assessment. New York: Brunner/Mazel Publishers.

Goodenough, R. (1950). Mental Testing: Its History, Principles and Applications. New York: Staples Press.

Graue, M.E. & Shepard, L.A., (1989). Predictive Validity of the Gesell School Readiness Tests. Early Childhood Research Quarterly 4 303 - 315.

- Haines, J., Ames, L.B. & Gillespie, C. (1980). The Gesell Preschool Test Manual. Pennsylvania: Modern Learning Press.
- Hale, S. (1990). Global Developmental Trends in Cognitive Processing Speed. Child Development 61 (3): 653 - 663.
- Harrison, A.O., Wilson, M.N., Pine, C.J., Chan, P.Q. & Buriel, R. (1991). Family ecologies of ethnic minority children. Child Development, 62 (4): 347 - 362.
- Hauserman, E. (1958). Developmental Potential of Preschool Children and Evaluation of Intellectual Sensory and Emotional Functioning. New York: Grune & Stratton.
- Herbst, I. (1985). Die invloed van geselekteerde spele en spelervaring op die visueel-perseptuele vermoë van Sotho skoolbeginners. Bloemfontein: UOVS.
- Herbst, I. (1989). Die ontwikkeling en evaluering van 'n ontwikkelingstimulasieprogram vir die skolastiese voorbereiding van swart skoolbeginners. Unpublished doctoral dissertation. Bloemfontein: UOFS.
- Herbst, I., Schoeman, W.J. & Huysamen, G.K. (1993). Die ontwikkeling en evaluering van 'n ontwikkelingstimulasieprogram vir swart kleuters. South African Journal of Psychology 23 (22), 87-95.

Hopkins, K.D. & Stanley, J.C. (1981). Educational and Psychological Measurement and Evaluation (6th Edition) New Jersey: Prentice Hall Inc.

Hurlock, E.B. (1978). Child Development. New York: McGraw-Hill.

Huysamen, G.K. (1976). Introductory Statistics and Research Design for Behavioural Sciences. Cape Town: Academica.

Ilg, F.L. & Ames, L.B. (1972). School Readiness Behaviour Test used at the Gesell Institute. London: Harper & Row.

Ilg, F.L. (1985a). Infant and Child in the Culture of Today: The Guidance of Development in Home and Nursery School. London: Hamish Hamilton.

Ilg, F.L. (1985b). Scoring Notes: The Developmental Examination. Connecticut: Gesell Institute of Human Development.

Illingworth, S.R. (1968). The Normal Child. London: J & A Churchill.

Irvine, S.H. & Berry, W. (1988). Human Abilities in Cultural Context. Cambridge: University Press.

Jensen, A.C. (1981). Straight Talk about Mental Tests. London: Methuen & Company, Ltd.

- Jensen, A.C. (1980). Bias in Mental Testing. London: Methuen & Company, Ltd.
- Jordan, E.T. (1980). Development in the Preschool Years: Birth to Age Five. London: Academic Press Inc.
- Kagan, J., Kearsley, R.B. & Zelazo, P.R. (1980). Infancy: Its Place in Human Development. London: Harvard University Press.
- Kaufman, A.S. (1971). Piaget and Gesell: A psychometric analysis of tests. Child Development 42: 1341 - 1360.
- Kaufman, A.S. (1979). Intelligence Testing with WISC-R. London: John Wiley & Son.
- Kaufman, A.S. & Kaufman, N.L. (1972). Tests built from Piagets' and Gesell's tasks as predictors of first grade achievement. Child Development 43: 521 - 535.
- Kaufman, A.S. & Kaufman, N.L. (1977). Clinical Evaluation of Young Children with the McCarthy Scales. London: Grune & Stratton.
- Kendall, I.M., Verster, M. & Von Mollendorf, J.W. (1988). Test Performance of Blacks in Southern Africa: Human Abilities in Cultural Context. London: Cambridge University Press.

- Kirkpatrick, J.J., Ewen R.B., Barrett, R.S. & Katzell, R.A. (1968). Testing and fair employment: Fairness and validity of personnel tests for different ethnic groups. New York: University Press.
- Knoblock, H. & Pasamanick, B. (1974). Gesell and Amatruda's Developmental Diagnosis: The Evaluation and Management of Normal and Abnormal Neuro Psychologic Development in Infancy and Early Childhood. New York: Harper & Row.
- Koen, K.M. (1978). Infants and Children: Their Development and Learning. New York: McGraw Hill Inc.
- Le Vine, R.A. (1991). Culture, behavior and personality: An introduction of the comparative study of psychosocial adaptation. New York: Aldine Publishing Company.
- Lichtenstein, R. (1990). Psychometric characteristics and appropriate use of the Gesell School Readiness Screening Test. Early childhood: Research Quarterly 5 (3): 359 - 378.
- Liddell, C. & Kvalsvig, J. (1990). Science and Social Accountability: Issues related to South African Developmental Psychology. South African Journal of Psychology 20 (1) 1-9.
- Martuza, V.R. (1977). Applying Norm-referenced and Criterion-referenced Measurement in Education. Massachusetts: Allyn & Bacon Inc.

- May, D. (1986). Relationships between the Gesell School Readiness Test and standardized achievement and intelligence measures. Educational and Psychological Measurement 46: 1051 - 1058.
- May, D.C. & Welch, E. (1986). Screening for school readiness: The influence of birthdate and sex. Psychology in the Schools 23: 100 - 105.
- Medinnus, G.R. (1976). Child Study and Observation: A Guide. New York: John Wiley & Sons Inc.
- McClinton, B.S. & Meier, B.G. (1978). Beginnings Psychology of Early Childhood. Missouri: The C.V. Mosby Company.
- Miller, G.M. & Johnson-Laird P.N. (1976). Language and Perception. Cambridge: Itavard University Press.
- Murie, A. (1983). Housing Inequality and Deprivation. London: Heinemann Educational Books.
- Oates, J. (1979). Early Cognitive Development. London: Croom Helm.
- Offer, D. & Sabstrin, M. (1974). Normality: Theoretical and Clinical Concepts of Mental Health. New York: Basic Books Inc.
- Ohuche, R.O. & Otaala, B. (1981). The African child and his environment: Programme for Africa. London: Pergamon Press.

- Owen, K. (1991). Test Bias: The validity of the Junior Aptitude Test for various population groups in South Africa regarding constructs measured. South African Journal of Psychology, 21 (2).
- Papalia, E.O., Olds, S.W. & Feldman, R.D. (1991). Human Development. New York: McGraw-Hill.
- Pena, C.I., Teberg, A.J. & Hoppenbrouwers, T. (1987). The Gesell Developmental Schedule in Hispanic low birth weight infants during the first years of life. Infant Behaviour and Development 10: 199 - 216.
- Pitcher, G.E. & Ames, L.B. (1964). The Guidance Nursery School. New York: Harper & Row.
- Popovics, A.J. (1982). Total and Component Actuarial Scores of the Gesell Copy form tests as predictors of achievement, intelligence and creativity measures. Journal of Psychology 110: 293 - 295.
- Popovics, A.J. (1988). Predictive validities of clinical and actual scores of the Gesell incomplete man test. Perceptual and Motor Skills 56: 864 - 866.
- Potgieter, R.C. (1991). Die rol van die ouer in die opvoeding van die begaafde kleuter: 'n Psigopedagogiese begronding. Ongepubliseerde Magister-verhandeling. Bloemfontein: Universiteit van die Oranje-Vrystaat.

- Prewitt, J.O., Diaz, J.O., Rodriques M.D. & Ruiz, D.R. (1986). The predictive validity of the Spanish translation of the WISC-R with Peurto-Rican students in Puerto Rico and the United States. Educational and Psychological Measurement 46: 401 - 407.
- Ras, B. & Sonnekus, M.C.H. (1982). Manual for the observation scale for evaluation of school readiness of senior black preschoolers (5½-6½) OSR. Pretoria: Child Guidance Institute.
- Reber, S.A. (1985). The Penguin Dictionary of Psychiatry. U.K: Penguin.
- Richter, L.M. & Griesel, R. (1988). Bayley scales of infant development: Norms for interpreting the performance of black South African infants. Pretoria: Institute for Behavioural Sciences.
- Richter, L.M., Griesel, R. & Wortley, M.E. (1989). The Draw-a-man: A 50 year perspective on drawings done by black South African children. South African Journal of Psychology 19 (1): 1-5.
- Richter, L.M., & Griesel, R. (1991). The McCarthy scales of children's abilities - Adaptations and norms for use amongst black South African children. Pretoria: Institute for Behavioural Sciences.
- Roe, K.V. (1977). Correlations between Gesell in infancy and performance on verbal and non-verbal tests in early childhood. Perceptual and Motor Skills, 42 (45): 1131 - 1134.

- Roe, K.V., McChuse, A. & Roe, A. (1983). Infant Gesell scores vs cognitive skills at age 12 years. Journal of Genetic Psychology 143: 143 - 147.
- Roxnowski, M. (1987). Use of tests manifesting sex differences as a measure of intelligence: Implication on measurement bias. Applied Psychology 72 (3): 480 - 485.
- Salkind, N.J. (1985). Theories of Human Development. New York: Van Nostrand.
- Sattler, M.J. (1982). Assessment of Children's Intelligence and Special Abilities. Boston: Allyn & Bacon Inc.
- Schiamberg, L.B. & Smith, K.U. (1982). Human Development. New York: McMillan Co. Inc.
- Segall, M.H., Dasen, P.R., Berry, J.W. & Poortinga, Y.J. (1991). Culture permeates all. Contemporary Psychology 36 (12): 1041 - 1070.
- Sekese, A. (1978). Mekhoa le Maele A Basotho. Lesotho: Morija Sesuto Book Depot.
- Segoete, E. (1979). Raphepheng. Lesotho: Morija Sesuto Book Depot.
- Sicgu, S. (1956). Non-parametric statistics for the behavioural sciences. Johannesburg: McGraw-Hill.

- Smith, P.K. & Lowie, H. (1988). Understanding Children's Development. New York: Basil Blackwell Inc.
- Stander, A. (1988). 'n Onderzoek na die invloed van die gesinsontwikkelingsvlak op ouers se hantering van vyf en sesjarige. Ongepubliseerde Magister-verhandeling. Bloemfontein: Universiteit van die Oranje-Vrystaat.
- Sterner, A.G. & McCallum, R.S. (1988). Relationship of the Gesell Developmental Exam and the Bracken Basic Concepts Scale to Academic Achievement. Journal of School Psychology 26: 297 - 300.
- Swartz, L. (1986). Overview: Transcultural psychology in South Africa. Transcultural Psychiatry Research Review 23: 273-303.
- Swartz, L. & Miller, T. (1991). Psychology and epidemiology: an uncomfortable alliance? South African Journal of Psychology 22 (2): 52-58.
- Taylor, T.R. (1987). Test Bias: The roles and responsibilities of test users and test publishers. Pretoria: NIPR.
- Thomas, R.M. (1985). Comparing Theories of Child Development. Belmont: Wadsworth Publishing Company.
- Turnbull, O.H. & Bagus, R. (1991). The translation of the Luria Neuropsychological Investigation into Zulu. Its relationships to the work of A.R. Luria and Vygotsky. Journal of South African Psychology 21 (1): 61-66.

Universiteit van Suid-Afrika. (1988). Van klein kind tot skoolkind. Transvaalse Afrikaanse Ouervereniging Simposium. Departement Empiriese Opvoedkunde.

Van Geert, L. (1986). Theory Building in Developmental Psychology. New York: Elsevier Science Publisher.

Vassaf, J.C. (1985). Psychological Tests and the Third World from a Test Moratorium to New World Culture. Cross-cultural and National Studies in Social Psychology, 369-378.

Walker, L.J. & Taylor, J.H. (1991). Family interaction and the development of moral reasoning. Development 62 (2): 264 - 283.

Wessels, S.J. (1991). Die toekoms behoort aan ons kinders. Die waarde van psigo-opleiding binne die kindersielkunde. Intreerede. Bloemfontein: Universiteit van die Oranje-Vrystaat.

Whitworth, R.H. & Gibbon, R.T. (1986). Cross-racial comparison on the WISC and WISC-R. Educational and Psychological Measurement 46: 1041 - 1049.

Wynn, L.S. & Bernstein, T.N. (1981). Guiding Young Children's Learning: A Comprehensive Approach to Early Childhood Education. New York: McGraw Hill.

Zaichkowsky, L.D., Zaichkowsky, L.B. & Martinek, T.J. (1980). Growth and Development: The child and Physical Activity. Toronto: The C.V. Mosby Company.

Zeidner, M. (1987). Test of the cultural bias hypothesis: Some Israeli findings. Applied Psychology. 72 (1): 38 - 48.

Zigler, E.F. & Stevenson, M.F. (1993). Children in a Changing World. Development and Social Issues (2nd edition). California: Brooks/Cole.

APPENDIX A

SUBTEST NORMS

Cubes

Cubes - spontaneous

5 years old children often build three-dimensional structures which are usually called houses. A variety of items are built and named after animals or letters. At this age, children build promptly and are then ready for the next task.

6 year olds: Build in two dimensions again, usually in the lateral and vertical planes.

Steps (6 cubes): 5 year olds build with or without demonstration.

Steps (10 cubes): 5 year olds cannot build, but 5½ years can build with demonstration whereas 6 years old build without demonstration.

INTERVIEW

"How old are you?"

5 year olds know age and say it and use fingers as they say age.

5½ - 6 year olds give age with ease.

"When is your birthday?"

5 - 5½: Do not know unless they have been coached by the mothers.

6: They know month, but may not know the date.

"How many brothers and sisters do you have?" and "What are their names and how old are they?"

5 year olds give names and ages correctly, though they include themselves.

5½ year olds give more accurate, spontaneous information and they even know ages.

6 year olds may still report that they don't know though they know the ages.

PENCIL AND PAPER

COPY FORMS

Circle

5 - girls top down, counterclockwise

- boys still bottom up, clockwise
- rounder, more like a circle
- poor closure, may add extra stroke to close

5½: - both boys and girls top down, counterclockwise

- still lopsided or becoming well-proportional

6 - circles are rounder

- slap-dash method, tend to overshoot to get apple formation

CROSS

5 - 5½ - Vertical stroke first, top to bottom, then horizontal
left to right (except lefties)

- Misjudge size of horizontal, too long or too short
- May add extra horizontal stroke to restabilize lopsided cross (5) or to balance (5½)

SQUARE

5 - 5½ year - Square is more square

- Continuous stroke, counterclockwise for right-handers
- One side may be curved, one corner off
- Still overshoot or undershoot

6 - square shape, but poor closure

TRIANGLE

5 - Copy triangle

- execute one oblique stroke
- baseline angled
- one side rounded
- may add line to readjust
- may be right angle
- 3 lines about equal in length

5½ - 6 - Copy triangle with two obliques

- baseline still off at an angle
- first stroke left side down

DIVIDED RECTANGLE

5 - Vertical central stroke with 3 lines on each side

- Make strokes out from centre

5½ - Copy divided rectangle, may still be a square

- focus on central point, may make a dot
- lines become oblique
- radiate out from the centre or gang up on focal point

- may cross over with vertical and horizontal strokes, but segment the obliques

6 - square

- cross-over pattern, but miss hitting centre
- overshoot

DIAMONDS

5 - may start out well

- can't shift directions, make "ears"
- angles often exaggerated, too many points
- get stuck, leaves gaping holes

5½ - one good side, one rounded side

- 2 or 3 obliques, with 1 or 2 curved lines

6 - diamonds are squares

- miss differentiation of position
- overshoot

INCOMPLETE MAN

General

5 year olds have controlled stroke and pencil grasp, good contact points, literal, focal, limiting, may add if clued, start on upper portion, less wild appearance, little overflow, tongue barely protrudes.

6 year olds - produce a speedy, heavy stroke

EYES

5 - large open circle, matched and even vertical placement, too high or too low, "literal" eye, make vertical stroke matching nose.

5½ - Open or small circles, reasonably well-matched and placed, may reflect counterbalance.

6 - Small open circle or filled-in dot, usually too high, occasionally correctly placed.

HAIR

5 - Too few, may still be placed too far down, but inhibit tendency to go all the way around, better length, but still too long, contact point with head line better controlled, may omit if they make the ear, will erase hair to make space for ear.

5½: - More correct length, but often still too long; still too far around; may draw ear then add more hair, may counterbalance with more hair on opposite side of face; may go back to add more hair between the hair already made.

6 - For few, good length, placement improving.

EAR

5 - May omit, tend to concentrate on one thing - if they do the hair, often forget the ear or vice versa.

5½ - too high or too low; too big or too small, may show awareness of shape, but can't handle.

6. Beginning good placement.

NECK AREA

5 Add 1 stroke, curved body/neckline slanting up to chin, or body line or neckline only meeting knot.

5½ - two-part neck treatment, body line close to knot with perpendicular neck line; may add additional knot on the opposite side of the bow for balance or make another knot and bow in reversed position.

6 - Addition of body lines; neck line and he are all normative, though not all three in any one child; three part neck treatment earning in strong, not yet normative, struggle with tie, "X-ray" neck (can see line through bow); tend to work inside neck line (6½); L-shaped neck.

ARM

5 - Straight out; middle of trunk; often too long; fingers highly variable, but are angled; literal, may make 5 fingers, good contact point.

5½ - Upward oblique arm is now normative for boys and girls; placement in upper third of trunk is normative; too long or too short; add 3 long fingers; may reverse curve and angle of fingers.

6 - Increasingly correct, length variable, but mostly too long; fingers correct or too long.

LEG

5 - Variable length, but shorter now; contact points quite secure; too straight; leg and foot in single stroke; foot too long; may still see "in action" leg that points left.

5½ - Usually of good length; wide spread, angled out (exaggerated angle); foot of reasonably good length, generally pointing right.

6 - Leg is highly variable, but closer in appearance to given leg; see angle in leg and foot.

INQUIRY QUESTIONS

"What does it look like to you?"

5 and older "man" is normative; "boy" next most common response; "person" comes in again at 7 and older; at 5½ some qualify with "part of a man" or "half a man", at 6 "man with or without."

"How does he look?"

5 - very positive - say "good"

6 - 7 may express some negative emotion "sad, unhappy"

"How does he feel inside?"

5 - may persist in his "good" but often projects into "happy" or "sad".

"Happy or sad?"

5 - good- fine.

5½ - may change "to sad" - may mention both kinds of emotions. "He is happy and he is sad" or "he looks good, but feels sad."

"How can you tell?"

5 - Happy predominates and 5 makes a global reference to a happy face - others refer to the mouth.

5½ - "He is happy, cause he's got a smile."

6 may refer to the man's frown.

"How can you tell?" is not normative for 5 - 6 years old.

DISCRIMINATING PREPOSITIONS

The 4½ to 6 year olds can also follow through with all 5 commands.

DIGIT REPETITION

5½ year olds repeat 4 (3 of 3 trials)

6 year olds repeat 5 (1 of 3 trials)

PICTURE VOCABULARY

Number of responses correct

5 years - 15

6 years - 16 out of 18

COMPREHENSION QUESTIONS

Norms for Comprehension Questions

Group A 4½ year olds answer 3 correctly.

GROUP B - 5 year olds answer 2 correctly out of 2.

COLOUR FORMS

Normative for 3 years only.

ACTION AGENT

Norms for action Agent Questions.

5 year olds respond correctly to 17 questions out of 20

5½ year olds respond correctly to 18 - 19 questions

6 year olds respond correctly to 19 questions

THREE-HOLE FORM BOARD

Normative responses for three-hole formboard is normative for 3 years olds.

IDENTIFYING LETTERS AND NUMBERS

Norms for letters

5 years 82% Girls, 85% Boys

5½ year 90% Girls, 96% Boys

6 years 100% Girls, 90% Boys

Identifying numbers

5 years 94% Girls, 95% Boys

5½ years 100% Girls, 93% Boys

6 years 100% Girls, 100% Boys

COMPUTATION

Norms for counting

5 years will say 5 to 20

5½ years will say 20 to 29

6 years will say up to 99

CALCULATION

At 5 years - can calculate with 5

at 6 years - can calculate within 10, know combination and/or use symmetry (3 + 3 are 6) of superior. Use fingers, count forward.

MOTOR

5 years

Pellets - 10 into bottle in 18 seconds

Walk on tiptoe - 5 or more steps

Stands on one foot, 9 or more

Skips: using feet alternatively

Broad jump: 27 distance

5½ years

Stands on one foot 12

Bean bag overhand: succeeded Boys

Bean bag catch: hands accross chest or better girls

6 years: stands on each foot alternatively:

Broad jump: distance 32

Beanbag catch: hands only

Pellets: 10 into bottle in 16

Jumps from height 12 hands on toes

APPENDIX B

CORRESPONDENCE

Telephone 401-2340

16 September 1991

The Management Committee
Thari Ya Tsepe Creche
17843 Sefatsa Street
Rocklands
P O Kagisanong
9315

Dear sir/madam

Two students in Psychology Department are to conduct a research project on developmental aspects of 5 and 6 years old pre-school children. The tests will be used to assess aspects of your child's developmental level. We aim to contact as many children as possible who fall within the abovementioned age category and would thus appreciate it if you could grant us permission to conduct the test with your children in your pre-school.

Although the results will be utilized for research purposes, all test information will be viewed as strictly confidential. Furthermore teachers will be advised on the children's developmental strength and weakness, to help them in their work of preparing children for school.

In the event of a child participating in such a research project, no fee will be charged for testing and advice on the children developmental level will be free.

Your co-operation in this matter will be greatly appreciated.

Yours sincerely

Mr S J Mohlahle
Student

Prof S J Wessels
Head of Departement

Telephone 401-2340

16 September 1991

The Management Committee
Susan Ollemans Creche
1 Dispensary Street
Batho Location
P O Batho
9307

Dear sir/madam

Two students in Psychology Department are to conduct a research project on developmental aspects of 5 and 6 years old pre-school children. The tests will be used to assess aspects of your child's developmental level. We aim to contact as many children as possible who fall within the abovementioned age category and would thus appreciate it if you could grant us permission to conduct the test with your children in your pre-school.

Although the results will be utilized for research purposes, all test information will be viewed as strictly confidential. Furthermore teachers will be advised on the children's developmental strength and weakness, to help them in their work of preparing children for school.

In the event of a child participating in such a research project, no fee will be charged for testing and advice on the children developmental level will be free.

Your co-operation in this matter will be greatly appreciated.

Yours sincerely

Mr S J Mohlahle
Student

Prof S J Wessels
Head of Departement

Telephone 401-2340

16 September 1991

The Management Committee
James Mokoka Pre-school
11926 Ditira Street
Blomanda
P O Kagisanong
9315

Dear sir/madam

Two students in Psychology Department are to conduct a research project on developmental aspects of 5 and 6 years old pre-school children. The tests will be used to assess aspects of your child's developmental level. We aim to contact as many children as possible who fall within the abovementioned age category and would thus appreciate it if you could grant us permission to conduct the test with your children in your pre-school.

Although the results will be utilized for research purposes, all test information will be viewed as strictly confidential. Furthermore teachers will be advised on the children's developmental strength and weakness, to help them in their work of preparing children for school.

In the event of a child participating in such a research project, no fee will be charged for testing and advice on the children developmental level will be free.

Your co-operation in this matter will be greatly appreciated.

Yours sincerely

Mr S J Mohlahle
Student

Prof S J Wessels
Head of Departement

J.S. MOKOKA PRE-SCHOOL EDUCARE CENTRE

EST. 1989

Reg. No. 50/N7/21/4/8 — Fund Raising No. 07 700212 000 7

11926 Ditira Street
Kagisanong Phase 1
Mangaung
9309

P.O. Box 23419
Kagisanong
9309
Tel. (051) 356100

23/9/1991

Tel. (051) 356100

Dear Mr Mokhele and colleague

We acknowledge the receipt of your letter dated 16/9/1991. We have noted the contents thereof.

We have no objection to you conducting the said research project on the developmental aspects of our 5 and 6 year old pre-schoolers. We would like you to ensure that your research does not interfere with the normal school programme as far as possible.

In the light of the above, we are glad to grant you permission to conduct your research in our pre-school, from the 1st October 1991 up to 31 March 1992.

We hope that you shall advise the teachers on the children's developmental strengths and weaknesses, to help them in their work of preparing children for school.

Thank you for having interest in the educational welfare of our children.

Yours faithfully
M.T.P. Nyamane (Mr.)
(Chairman: Management Committee.)

J S MOKOKA PRE-SCHOOL
11926 DITIRA ST
KAGISAHONG EXT 1
9323 BLOEMFONTEIN

DEAR SIR / MADAM

Two Students in Psychology Department are to conduct a research project on developmental aspects of 5 and 6 years old pre-school children. The tests will be used to assess aspects of your child's developmental level. We aim to contact as many children as possible who fall within the above-mentioned age category and would thus appreciate it if you could grant us permission to conduct the test with your children in your pre-school.

Although the results will be utilized for research purposes, all test information will be viewed as strictly confidential. Furthermore teachers will be advised on the children's developmental strength and weakness, to help them in their work of preparing children for school.

In the event of a child participating in such a research project, no fee will be charged for testing and advice on the children developmental level will be free.

Your cooperation in this matter will be greatly appreciated.

Yours Sincerely

.....
.....

MOTSWADI

Pre-school eongoana wa hao a kenang ho yona e re file tumello ya ho etsa diphuputso tlasa University of Oranje Freestate. Diphuputso tsena di mabapi le ho hola ha ngoana ya pakeng tsa lemo tse hlaho le tse tshheletseng ya so kang a kena sekolo ya buwang Sesotho kapa Setswana. Diteko tsa Psychology tse tla sebediswa ke tse hlahlobang ho butswa ha ngwana kelellong, mmeleng le kutlong (perception).

Ha o dumela, ke lakatsa ho etsa diteko tse ka hodimo Diteko tsena di tla etswa sekolong ka nako e tlwaele hileng ya sekolo. Ha ho teko ya letho e etswang empo ho tla hlahlojwa moo ngwana a leng matla teng le moo a fokolong teng. Kaha sephetho se tla se sebedisetswa diphuputso (research) dintla tsohle di nkuwa e le koma (confidential). Re tla thabela ha eba o dumela o tlatsa ka tlaase ha o dumella ngoana wa hao diteko tsena tse sa lefshweng. Ha o dumela re tla thabela ha o ka tlatsa dipotso tse ka tlaase ho re fa bo tebo ka ntlha tse ding mme o romelle ntha tsena ho Mosuwe-hlooho ka potlako.

Ha o batla tiisetso le bopaki ka ntlha e na letsetsa 351679 Mr. Juluis s. Mohlahle. Re hla thabela tshehetso ya hao e tshebedisan mmoho

Wa hao ka boikokopetso



AGREEMENT TO PARTICIPATE

I

in my capacity as

of (child's name).....

herby gives Seiso Julius Mohlahle and Corrie Buys of the UOVS. permission to test my child's developmental levels between 23 Sept. 1991 and 3 March 1992. I understand that this is part of a research project to standardize the Developmental Tests on Mangaung prechool children.

Signed at.....on this, the.....day of.....1991

